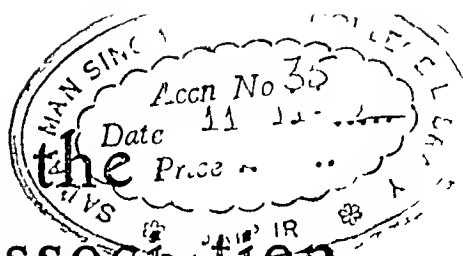


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GENERAL EDI MA OF INDI TERMI NATE ITIOLOGY

REPORT ON THREE CASES

MELVIN W. BINGER, MD

AND

NORMAN M. KEITH, MD

ROCHESTER, MINN.

Occasionally we observe patients with edema who do not present clinical evidence of the pathologic conditions that usually produce edema. They do not have nephritis, for the conditions ordinarily observed in nephritis are not present. Nor do they have hypertension, myocardial degeneration with congestive failure, cirrhosis, polyserositis, myxedema or a malignant growth. The patients are usually well nourished and have been accustomed to a well balanced diet. No evidence of infection or toxemia is found, but there is a history of gradual progressive edema over a period of months that does not respond to the usual therapeutic measures. Except for the edema the patient feels quite well and on first impression one would make a diagnosis of lipid nephrosis.

On study, however, we find that there is no albumin in the urine, yet the value for serum protein is low, less than 5 Gm per hundred cubic centimeters, and the albumin-globulin ratio is altered in some cases. The plasma cholesterol is normal or low. The basal metabolic rate may be normal or slightly reduced. There is no clinical evidence of hepatic insufficiency and, usually, little or no digestive disturbance. Occasionally diarrhea of moderate degree is present. The blood count and value for hemoglobin may be slightly below normal, yet gross anemia is not present and there is no tendency to acidosis or alkalosis.

It is of interest to note that on analysis the edema fluid is similar to a transudate of the serum and very little protein is present. This is quite like the edema fluid obtained in cases of lipid nephrosis. In the last twelve years we have observed several cases of indeterminate edema and a brief clinical report of our earlier experience was made in 1932.¹

In the present paper we are reporting three cases. Thompson, Ziegler and McQuarrie in 1932 presented

a similar case that of a child and Myers and Taylor in 1933 reported the case of an adult in which there were similar manifestations.

REPORT OF CASES

CASE 1.—A man aged 62 gave a history of progressive weakness for five months. He had had a mild recurring diarrhea for five years. This diarrhea was without blood or mucus and was frothy in character. It was not severe enough to be disabling.

On examination he was found to have edema grade 3, with ascites and left hydrothorax. He was pale and emaciated. At the time of admission he weighed 136½ pounds (62 Kg) and at dismissal 99½ pounds (45.2 Kg) representing a loss of 37 pounds (16.9 Kg) of edema fluid in twenty-two days. He was somewhat anemic, the erythrocytes ranging from 3,200,000 to 3,750,000 per cubic millimeter, and the value for hemoglobin from 11.4 to 12.9 Gm per hundred cubic centimeters of blood. Studies of blood smears were negative.

As shown in table 1 the urea and sulfate clearances were below normal, denoting some degree of impaired renal function. Repeated tests of the urine showed little or no albumin and no sugar present. The serologic test for syphilis was negative.

A surprising observation in the absence of proteinuria was the low value for serum protein which ranged from 3.6 to 4.0 Gm per hundred cubic centimeters and the albumin-globulin ratio of 1:16. Although there was no clinical evidence of jaundice and the concentration of bilirubin in the serum was normal, the test of hepatic function showed dye retention of grade 2 to 3. It will be noted in table 2 that the value for cholesterol was unusually low, ranging from 75 to 83 mg per hundred cubic centimeters, and that the value for serum calcium was also reduced to 7.7. Basal metabolic rates ranged from -14 to -19 per cent, but in the presence of so much edema these were probably not true values. Certain other laboratory tests as shown in tables 1 and 2 were quite normal.

Examination of the stools which numbered from two to five daily while the patient was in the hospital, except for excess fat, were negative. Proctoscopic examination and roentgenologic studies of the colon were negative. Routine gastric analysis showed absence of free hydrochloric acid and a total acidity of 6 units, but fluoroscopic examination of the stomach and duodenum was negative. A roentgenogram of the thorax revealed left pleural effusion.

A diagnosis was made of an indeterminate type of edema, but because of hepatic insufficiency as indicated by the dye test and steatorrhea disease involving the liver and pancreas was suspected. The patient was given a salt-free diet with 2,000 calories, 800 cc of extra fluid and 60 Gm (later 100 Gm) of protein a day. He was given potassium nitrate 8 Gm a day, and during his stay of twenty-two days received three intravenous injections of mersalyl (0.5, 2 and 2 cc). Thyroid extract a total of 81 grains (5.3 Gm) was given him while in the hospital but without apparent effect. A total of 27 cc of liver extract was given intramuscularly with the idea of improving the condition of the blood although pernicious anemia did not exist. On the fourth day after admission edema fluid was obtained by needles from the legs. On the fifth day left pleural paracentesis was

From the Division of Medicine, the Mayo Clinic.
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References concerning methods of analysis have been omitted from THE JOURNAL but will appear in the reprints.
1. Keith, N. M. General Edema of Indeterminate Origin. J. Clin. Investigation 11: 832 (July) 1932.
2. Thompson, W. H., Ziegler, Mildred and McQuarrie, Irvine. A Comparative Study of the Inorganic Metabolism in Nephrosis and in Edema of Undetermined Origin. Am. J. Dis. Child 44: 650 (Sept.) 1932.

3. Myers, W. K. and Taylor, F. H. L. Hypoproteinemia Probably Due to Deficient Formation of Plasma Proteins. A Study of One Case. J. A. M. A. 101: 198-200 (July 15) 1933.

performed and 250 cc of thin, clear, canary-yellow fluid was removed. This was negative on smear for bacilli of tuberculosis. Routine cultures were negative, and no malignant cells were found on smear of fluid from the thorax. The concentration of certain constituents of both edema and pleural fluids is given in table 3. The patient gradually improved and was dismissed three weeks after admission free from edema and with no demonstrable ascites or pleural effusion (fig 1). On

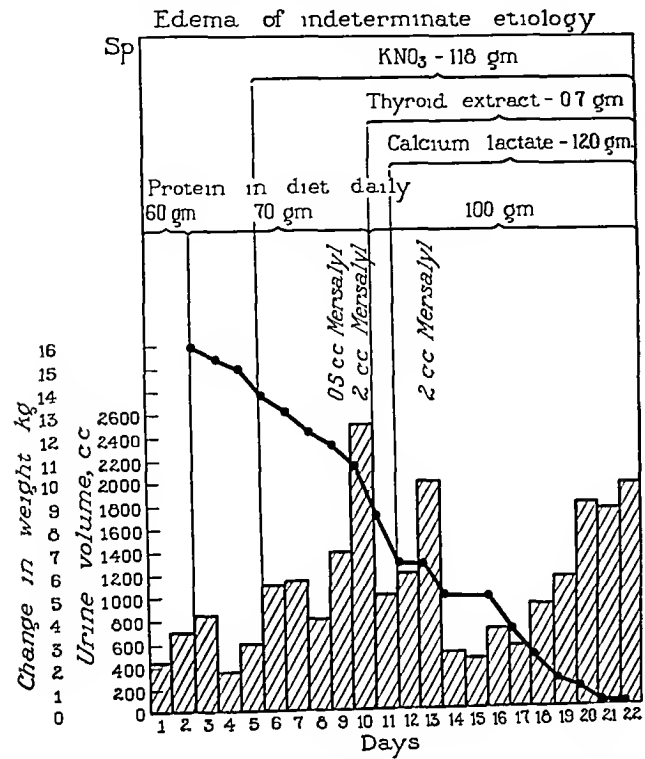


Fig 1 (case 1).—Increased excretion of urine and decrease in body weight during treatment

his return home however he gradually failed the edema and ascites returned, and he died a month later.

At necropsy⁴ the liver was found to be very slightly diseased, with some interstitial hepatitis (fig 2). There was little or no change in the kidneys (fig 3). The heart was normal in size and there was no gross evidence of disease. The spleen was normal. There was no demonstrable disease of the stomach or bowel. The pancreas (fig 4) however was practically destroyed. All sections revealed only a few ducts, moderately dilated and practically no acinous tissue was present, no islands of Langerhans were demonstrable. Between the ducts was dense connective tissue. There was no evidence of fat necrosis and no signs of any specific inflammatory process. The picture in the pancreas suggested very slight but continuous atrophy of the acinous tissue, such as might have been produced by complete and rather sudden obliteration of the main pancreatic ducts. Syphilis, tuberculosis, stone, suppurative pancreatitis and any sort of tumor or specific granulomatous process were apparently well excluded. There was sufficient anatomic basis to conclude that there was practically total pancreatic insufficiency, certainly of the acinous tissue and probably also of the islands, yet the patient evidently had not had diabetes.

CASE 2.—A married woman aged 35 first registered at the clinic Jan 3 1934. Her chief complaint was swelling of the face and lower part of the body and legs which had been present for approximately six months. Her family history was negative. She had had measles, diphtheria, scarlet fever and typhoid as a child. Menstruation had been normal. She had been married ten years and had two children both living and well. She had never had a miscarriage. She had always considered herself healthy. She had always had a good appetite and had always eaten a well balanced diet except that she did not like milk and never drank it.

Eight years previously following her first pregnancy which was normal, some pitting edema developed which persisted for three or four months. Her second pregnancy three years later was apparently normal and following this there was no edema.

With the onset of the edema in June 1933 there was no history of a cold, infection or other known cause for it. The patient's local physician found her hemoglobin to be slightly below normal, but other tests including those for nonprotein nitrogen and urea nitrogen in the blood, routine urinalysis and a determination of the basal metabolic rate, were normal.

The patient was given iron by mouth, and later the concentration of hemoglobin was 85 per cent. She was given a diet which contained a relatively small amount of salt and protein and extra fluid was restricted to 1000 cc a day. Numerous therapeutic agents were tried, including theocalcin "nephretin" ammonium citrate, mersalyl, theelin, "antutrin S," magnesium sulfate elaterin, thyroid, "pituitary extract" and a commercial adrenal extract. In spite of all treatment the edema persisted.

Physical examination at the clinic was negative except for the edema. The patient weighed 165 pounds (74 Kg). She did not appear anemic. Certain tests were carried out as noted in tables 1 and 2. A serologic test for syphilis was negative. The stools contained no parasites or ova. The fasting value for blood sugar was normal. The only outstanding abnormalities found were (1) a very low value for serum protein, with out inversion of the albumin-globulin ratio, this finding was especially significant when it was noted that the urine contained no albumin or other abnormal constituents, that studies of renal function gave normal results, and that the value for blood cholesterol was also normal and no lipid bodies were found in the urine, (2) a low value for serum calcium, which was

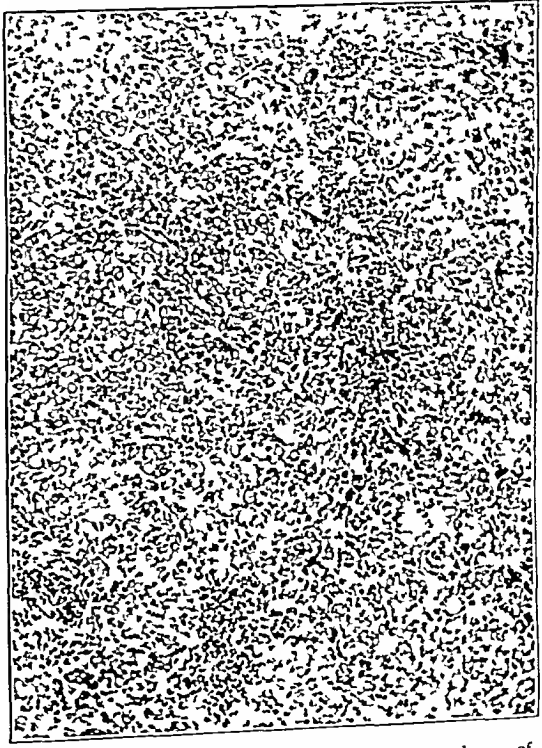


Fig 2 (case 1).—Section of liver showing moderate degree of fatty degeneration and some interstitial hepatitis (hematoxylin and eosin $\times 100$)

65 mg per hundred cubic centimeters and (3) no free hydrochloric acid on routine gastric analysis or with histamine, fluoroscopic examination of the stomach was negative.

Two small samples of edema fluid were obtained through a needle inserted in the lower portion of the leg. The fluid was clear as water as in the previous case and contained 0.1 per cent of protein (table 3). It resembled edema fluid of chronic lipid nephrosis, the blood simulated this condition in the low value for serum protein. As has been noted the urine contained no albumin or other abnormal constituents.

⁴ Drs. F. J. Hirschboeck, G. L. Berdez and F. W. Spicer of Duluth, Minn., sent the pathologic specimens and Dr. H. E. Robertson gave his opinion regarding these specimens.

The McClure Aldrich skin test resulted in a very rapid absorption of the injected salt solution. Roentgenograms of the hand and long bones of the arms and legs did not reveal osteoporosis. The value for plasma fibrinogen was increased to 680 mg per hundred cubic centimeters. A provisional diagnosis of an indeterminate type of edema was made, with low values for serum proteins as a result of some obscure metabolic disturbance.

A trial of certain therapeutic measures was indicated. The patient was given a carefully weighed diet, which was relatively

suggested a possible retention of protein nitrogen, although a concentration of blood due to loss of fluid might have produced these effects. There was also a loss of chloride and sodium but a retention of potassium and nitrate. With such distinct evidences of improvement the patient was dismissed from the hospital January 27 with the understanding that she was to continue the therapeutic measures as an outpatient and take her meals at the diet kitchen.

January 31 the serum protein and albumin had risen further to 4.4 and 3.3 Gm per hundred cubic centimeters respectively.

TABLE 1—Diagnostic Observations

Patient	Age	Years and Sex	Dependent Edema Grade	Blood Pressure Min of Mercury	Retinal Changes	Urine					Renal Function				Liver Function Grade of Dye Retention	Congo Red Test for Amyloid	Gastric Acidity Free HCl %/100 Cc
						Minimum Volume	Maximum Volume	Specific Gravity	Protein Grade	Cu to	Erythrocytes	Phenolsulphthalalein per Cent Excretion	Urea Clearance Cc *	Sulfate Clearance Cc			
1	7	3	170/50	0	400	2440	1010 to 1022	01 to 1	0	0	60	11 to 2	7 to 10	-14 to -14	2 to 3	0	0
2	2	2	100/60	0	200	2000	1001 to 1011	01	0	0	80	04	1	+2	0	0	01
3	41	2	140/90	—	200	1500	1014 to 1020	0	0	0				+9	0	—	—

* Standard clearance of Van Slyke

† Many twenty four hour specimens of urine analyzed quantitatively for protein amount present negligible after injection of histamine

TABLE 2—Chemical Examination of Blood

Patient	Date	Whole Blood			Plasma			Serum										
		Hemoglobin Gm per 100 Cc	Erythrocytes Millions per Cu Mm	Water Gm per 100 Cc	Urea Mg per 100 Cc	CO ₂ Combining Power Volumes per Cent	Chloride (as NaCl) Mg per 100 Cc	Chole total Mg per 100 Cc	Nitrate Nitrogen M% per 100 Cc	Protein Gm per 100 Cc	Albumin Cm per 100 Cc	Albumin Globulin Ratio	Sulfate M% per 100 Cc	Sodium Mg per 100 Cc	Potassium Mm Mg per 100 Cc	Calcium, Mg per 100 Cc	Total base %/100 Cc per 100 Cc	Serum Bilirubin Mg per 100 Cc
1	2/12/34	12.0	3.90		24		61	71		16	14	1.10	3.9	29	19	7.7		
	3/3/34	11.7	3.61		42		59	83		17	14	1.10	3.8	29	21	7.6	148	1.0
2	1/7/34	12.6	4.03		22	47	67	12		27	14	1.010	3.9	27	18	6.5		
	1/11/34				21	48	67		0.7	21	19	1.1	4	27	24	6.5		
	2/12/34	14.4	4.71				67	12		44	17	2.01	4.4	28	22	6.8		1.0
	3/1/34	13.6		82			61	16		41	10	2.71	4.4	29	18	10.0		
	4/1/34	12.3	4.03	82	32		60	21		35	21	2.1	4.4	29	18	7.2		
	4/24/34*			82			63			1	21	2.01				7.2		
	5/26/34†						59			41	29	2.41				8.3		
	8/13/34	1.1			24		8	2.1	1.0	35	26	2.11		306	10	6.6		
	4/22/35	1.4	2.24		20		67	10	2.5	47	28	1.11				8.5		
	6/2/36	14.1	4.83		40		602	2.1	1.8	38	40	2.21	4.2	34	19	9.3		
3	5/14/36	14.9	4.84		18			172		43	26	1.11				8.3		1.0
	5/15/36									35								
	5/18/36									36								
	5/21/36					58	669			40	24	1.11						

* Plasma volume 2842 cc (41 cc per kg)

† Plasma volume 2782 cc (42 cc per kg)

Blood volume 4736 cc (71 cc per kg)

Blood volume 4880 cc (74 cc per kg)

high in protein (from 80 to 100 Gm) and low in salt and water. Potassium nitrate was given because of its diuretic property, cod liver oil concentrate for its vitamin content, and calcium lactate in order to increase the calcium content of the blood and tissues. (For details see tables 1, 2, 3 and 4 and figure 5). On such a regimen, between January 8 and 24 (seventeen days) diuresis developed, the patient's weight decreased from 73.9 to 66.9 Kg (7 kg) and the edema practically disappeared. Examination of the blood revealed an increase in the number of erythrocytes and in the values for serum protein, albumin, calcium, potassium and nitrate, but a slight fall in plasma chloride. The value for serum sodium remained unchanged. The output of nitrogen in the urine compared to its intake in food together with a rise in serum protein

From then until February 27 there was no further increase but in fact a slight decrease. Because of failure of the serum protein to increase steadily, therefore, on February 20 the daily protein in the diet was increased from 100 to 125 Gm and a considerable amount of raw and cooked liver was also added. After a week on this diet, however, there was no appreciable rise in the value for serum protein. The patient had now been on a carefully controlled regimen for two months without, during the second month when up and about, having increased in weight or suffered from any distinct recurrence of the edema. Since February 5 the blood count and value for hemoglobin as calculated from the iron content and oxygen capacity had been at the lower limits of normal and in spite of the patient's apparent clinical improvement the value

for serum protein was still abnormally low. March 3, therefore, when she returned home, she was advised to continue the relatively high protein diet to take halibut liver oil concentrate in maximal doses, and calcium lactate 16 Gm daily. She expected to return for subsequent study in from four to six weeks.

At the time of the patient's second admission, April 6, 1934 her condition was practically the same as on the first admission except that she had less edema and weighed about 10 pounds less 155 pounds (70.3 Kg.) (table 2).

She was again given a carefully weighed, salt-free diet as before with from 100 to 125 Gm of protein a day, including

TABLE 3—Analysis of Edema and Pleural Fluids

Patient	Date	Specific Gravity	Nonprotein Nitrogen Mg per 100 Cc	Total Nitrogen Mg per 100 Cc	Protein Mg per 100 Cc	Cholesterol Mg per 100 Cc	Chlorides (as NaCl) Mg per 100 Cc	Sulfate Mg per 100 Cc	Sodium Mg per 100 Cc	Potassium Mg per 100 Cc	Calcium Mg per 100 Cc	Total Base N/10 per 100 Cc
1	2/10/34* 2/16/34*	1.012	24	84	Trace†	Trace	737	5.5‡	280	10	5.5	143
2	1/4/34* 1/8/34*	1.010	28	80	140		714		343	21	4.6	

* Edema fluid

† Qualitative test only

‡ Pleural fluid clear yellow routine smear contained no organisms routine cultures negative

§ Serum sulfate 2/14 0.9 mg 2/17 6.2 mg in 100 cc

120 Gm of cooked liver and 600 cc of skimmed milk (purified casein was tried but found to be unpalatable). April 20, 1934, 500 cc of a 6 per cent solution of acacia (30 Gm) was injected intravenously. This evidently was an insufficient dose, but on account of the patient's small veins further injections were not attempted. On this regimen for eighteen days her weight increased 5½ pounds (2.4 Kg.), which was undoubtedly due to an increase in edema fluid. The serum protein also decreased slightly to 3.1 Gm per hundred cubic centimeters. Because of this failure of the patient to improve the following measures were instituted and continued for a month. Potassium nitrate was again given in daily doses of from 9 to 12 Gm (six to eight enteric-coated pills, containing 0.5 Gm of potassium nitrate each, were given three times a day after meals), 12 Gm of calcium lactate and 12 cc of diluted hydrochloric acid were also given daily for a period of twenty-seven days. Six injections of mersalyl (112 cc) were also given during this period. Fresh beef pancreas (120 Gm daily) was substituted for the cooked liver. The patient lost 12¾ pounds (5.8 Kg.) and became edema free. The concentration of serum protein rose to 4.1 Gm. The concentration of fibrinogen in the plasma had decreased to 430 mg per hundred cubic centimeters but there was no change in the volume of plasma or blood. This improvement we felt was due to the use of diuretics. The patient was dismissed May 26 and told to continue on the same diet, intake of fluid and medication, she was to discontinue, however, taking beef pancreas and was to take liver and other proteins instead.

On the patient's third admission there was no appreciable change, but on the fourth and fifth admissions gradual improvement was noted in her condition. She remained practically edema free and as noted in table 2 there was a gradual increase in the value for serum protein. She had taken from 8 to 12 Gm of potassium nitrate daily for the previous two years without any demonstrable toxic effects. She felt that her digestion was better when taking diluted hydrochloric acid and so was advised to continue its use. She was also to continue with 6 Gm of potassium nitrate daily for four days each week but gradually to discontinue its use entirely if the edema did not recur. In addition she was to continue with a diet low in salt but one containing 100 Gm of protein and an intake of fluid of 1000 cc daily. She has recently reported that she is doing well.

CASE 3—An unmarried woman aged 49 on admission complained chiefly of edema of her legs of three months duration.

As far as she knew she had been perfectly well until then except for the removal of a uterine fibroid in 1918. Edema first appeared in her ankles but then gradually increased and involved both legs, the lower part of her back and her abdomen. Except for occasional vague gastro intestinal upsets she had no uncomfortable symptoms.

On examination at the clinic she weighed 110 pounds (50 Kg.). The blood pressure in millimeters of mercury was 140 systolic and 90 diastolic. There was soft pitting edema of the legs and lower portion of the back and some edema of the eyelids. A small fibroid was present in the uterus but it was not thought to have any relation to the edema. There was no evidence of heart disease the lungs were clear, and the edge of the liver was not palpable.

As indicated in tables 1 and 2, the only abnormal laboratory finding was the low value for serum protein. As in the previous two cases, the urine was free of albumin, renal function was good and blood cholesterol was normal. The serum gave a negative flocculation test for syphilis.

Treatment consisted of a diet with 125 Gm of protein, and one high in vitamins, with moderate restriction of salt and an intake of fluid to 1500 cc daily. Because of the question of hepatic insufficiency as a cause of the hypoproteinemia, 1 cc of liver extract was given intramuscularly daily for six days. Whether or not this had any therapeutic effect is not known. Eighty-four grams of calcium lactate was given during the eight days in the hospital and 5 minims (0.3 cc) of viosterol was given twice a day. Ammonium chloride, 6 Gm, was given daily until the fifth day in the hospital, but because of a developing acidosis with a carbon dioxide combining power of the plasma of 38 this was changed to the same amount of potassium nitrate. The patient responded well and was free from edema at the time of dismissal.

TABLE 4—Observations in Case 2

First Admission Metabolism Study—Seventeen Day Period*		
Daily Mean Intake and Output in Urine		
	Intake	Output in Urine
Water	1,965 cc	1,963 cc
Nitrogen	10.90 Gm	10.95 Gm †
Chloride	1.47 Gm	2.32 Gm ‡
Sodium	1.23 Gm	1.46 Gm
Potassium	6.61 Gm	3.91 Gm

Weight and Certain Blood Data (Seventeen Day Period)		
	First Day	Seventeenth Day
Weight Kg	73.9	66.9
Erythrocytes per cu mm	4,030,000	4,640,000
Serum protein Gm per 100 cc	2.7	3.4
Serum nonprotein nitrogen mg per 100 cc	29	29
Chloride (as NaCl) mg per 100 cc	643	618
Serum sodium mg per 100 cc	257	296
Serum potassium mg per 100 cc	18	18§

* Diet calculated from Whelan's analysis and Sherman's tables. Daily mean content: Calories 2,125; protein 65 Gm; carbohydrate 205 Gm; fat 101 Gm; water 1,165 cc; nitrogen 10.2 Gm; chloride 1.47 Gm; sodium 1.23 Gm; potassium 3.22 Gm. Extra water 800 cc; nitrate nitrogen 1.0 Gm; potassium 3.29 Gm (the latter given as potassium nitrate). For thirteen days given calcium lactate 12 Gm. No diarrhea. The stools were formed and of normal color throughout.

† Total nitrogen eliminated after adding Folin and Wu tungstic acid solution for precipitating protein 10.9 Gm (mean of seventeen daily estimations). This indicates that the protein in the urine was scarcely measurable.

‡ Chloride calculated as chlorine

§ On eighth day 24 mg

COMMENT

In 1917 Epstein* first pointed out the fact that the extensive edema of chronic parenchymatous nephritis and chronic lipid nephrosis was related to the low concentration of protein in the circulating blood serum. The decrease in serum protein led to a fall in osmotic pressure so the fluid passed out of the blood into the tissues more readily. Epstein reasoned and we think logically that this loss of protein from the blood stream

5 Epstein A. A. Concerning the Cause of Edema in Chronic Parenchymatous Nephritis. *Medical Record* (Am J M S) 15: 638-647 (Nov) 1917.

was due to the marked albuminuria. Others⁶ have since thought that insufficient protein in the diet might be an added causative factor, because hypoproteinemia occurs in nutritional edema a condition seen in children, adults and experimental animals living on a sub-standard diet. Subsequent studies led us and others⁷ to believe that there were still other causes for the low



Fig. 3 (case 1)—Section of kidney showing normal appearing renal tissue (hematoxylin and eosin $\times 100$)

values for serum protein. Possibilities were (1) lack of digestion of protein in the small bowel and (2) loss of the organism's ability to manufacture serum proteins from the absorbed amino acids.

In the three cases reported herein the hypoproteinemia did not appear to be the result of loss of protein by way of the kidney, nor in the second case could it be attributed to an inadequate intake of protein. We were led, therefore, to consider the possibility of faulty protein metabolism. Several investigators⁸ have shown that experimentally produced hypoproteinemia leads to edema. Holman, Mahoney and Whipple⁹ have shown also that the recovery of concentration of serum proteins in the dog occurs at different rates after the ingestion of different types of protein. Myers and Taylor³ noted in their case that a high intake of protein

180 Gm daily for eight weeks, failed to cause a rise in plasma proteins. Even the introduction of blood serum into dogs¹⁰ and human beings¹¹ with hypoproteinemia by means of transfusion has not always resulted in a permanent increase in the concentration of serum protein. Study of our first patient, who had a destructive lesion of the pancreas, suggested the possibility that lack of pancreatic secretion, and hence insufficient digestion of protein might be the cause of the edema. The feeding of fresh beef pancreas to the second patient had no demonstrable effect.

There is much in favor of the assumption that the liver is the site of formation of serum proteins. In the case of Thompson, McQuarrie and Bell¹² the liver at necropsy showed widespread atrophy of the hepatic cells. On the other hand the minimal pathologic changes found in our case 1 did not seem significant, but of course the absence of distinctive and definite histologic alterations does not rule out the possibility of some abnormal hepatic function. Nor does the lack of response to liver therapy as carried out in our cases permit us to conclude that some function of the liver is not disturbed. At present there does not seem to be enough direct evidence to prove that the liver is the sole site of formation of serum proteins. The signifi-



Fig. 4 (case 1)—Section of pancreas showing pancreatic tissue practically destroyed, few dilated ducts remaining and practically no acinous tissue. No islands of Langerhans are demonstrable. There is dense connective tissue between the ducts (hematoxylin and eosin $\times 100$)

cance of the absence of free hydrochloric acid in the gastric juice in two of our cases is not clear. It seems impossible to be dogmatic as to whether the hypopro-

6 Frisch R. A., Mendel L. B., and Peters J. P. The Production of Edema and Serum Protein Deficiency in White Rats by Low Protein Diets. *J. Biol. Chem.* 84: 167-177 (Oct.) 1929. Jansen W. H. Die Oedemkrankheit. Studien über die Physiologie der Unterernährung und über die Oedempathogenese. *Deutsches Arch. f. klin. Med.* 131: 330-370 (March) 1920. Kohman Emma A. The Experimental Production of Edema as Related to Protein Deficiency. *Am. J. Physiol.* 51: 185-187 (Feb.) 1920.

7 Bloomfield A. R. The Effect of Carrot Feeding on the Serum Protein Concentration of the Rat. *J. Exper. Med.* 59: 687-698 (June 1) 1934.

8 Barker M. H. and Kirk E. J. Experimental Edema (Nephrosis) in Dogs in Relation to Edema of Renal Origin in Patients. *Arch. Int. Med.* 45: 319-346 (March) 1930. Fahr George, Berkhof Arthur and Gierke Ellis. Salt as a Factor in Edema Formation Following Plasma pheresis. *Proc. Soc. Exper. Biol. & Med.* 29: 335-336 (Dec.) 1931. Leiter Louis. Experimental Edema. *ibid.* 26: 173-175 (Nov.) 1928. Leiter Louis. Experimental Nephrotic Edema. *Arch. Int. Med.* 48: 132 (July) 1931. Shelburne S. A. and Egloff W. C. Experimental Edema. *ibid.* 48: 51-69 (July) 1931.

9 Holman R. L., Mahoney E. B. and Whipple G. H. Blood Plasma Protein Regeneration Controlled by Diet. I. Liver and Casein as Potent Diet Factors. *J. Exper. Med.* 59: 251-267 (March) 1934.

10 Weech A. A., Goettsch E. and Reeves E. B. The Effect of Serum Transfusion on the Plasma Protein Depletion Associated with Nutritional Edema in Dogs. *J. Clin. Investigation* 12: 217-227 (Jan.) 1933.

11 (a) Hartmann A. T. and Senn M. J. E. Studies in Edema with Particular Reference to the Therapeutic Value of Acacia. *Am. J. Dis. Child.* 44: 673-674 (Sept.) 1932. (b) Hartmann A. T., Senn M. J. E., Nelson Martha V. and Perley Anne M. The Use of Acacia in the Treatment of Edema. *J. A. M. A.* 100: 251-254 (Jan. 28) 1933.

12 Thompson W. H., McQuarrie Irvine and Bell E. T. Edema Associated with Hypogenesis of Serum Proteins and Atrophic Changes in the Liver with Studies of the Water and Mineral Exchanges. *J. Pediat.* 9: 604-619 (Nov.) 1936.

temia in case 2, for example, was due to failure of digestion of protein within the intestine or to an inability of the organism to synthesize protein from the amino acids in the blood stream. It is possible, but does not seem likely, that vitamin deficiency played a causative role in these cases for patient 2 received a diet rich in vitamins for two months without a distinct rise in serum protein.

It is important to point out that Amberson and his colleagues¹³ have demonstrated that in the dog and

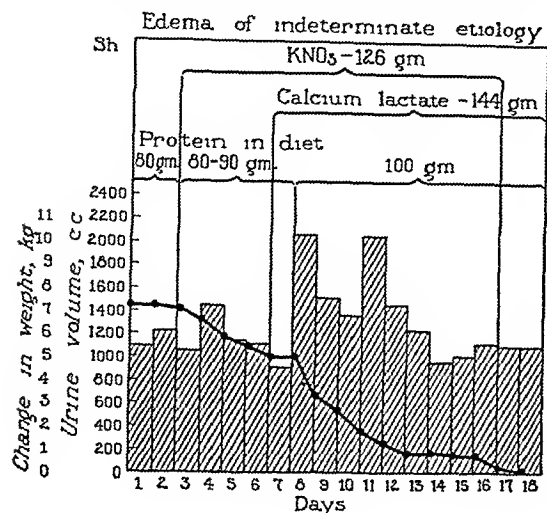


Fig 3 (case 2)—Diuresis and decrease in weight during treatment

cat the blood serum can be removed and almost entirely replaced by acacia in Ringer's solution without a resulting serious physiologic disturbance. In their experiments serum protein was manufactured at a rapid rate and a normal concentration was reached in from four to eight days. Such facts indicate that the most obvious function of the serum proteins is their physical action of maintaining an adequate osmotic pressure and viscosity. Hartmann and his associates^{11b} have shown that restoration of serum osmotic pressure can be accomplished clinically with acacia if it is given intravenously in sufficient concentration. Our immediate results with augmentation of protein and limitation of sodium chloride and fluid in the diet and the use of diuretics have been favorable and we have not felt it necessary to give acacia in large amounts or blood transfusions as therapeutic aids.

We realize that these cases are rare. The results indicate that hypoproteinemias can be an extrarenal disturbance and a difficult therapeutic problem. Further studies in similar cases should offer an excellent opportunity to advance our knowledge of the complicated equilibria present in nephritic and nephrotic edema.

After this article had been written we were informed of two previous reports of cases similar to those with which this paper is concerned.¹⁴

13 Stanbury J B, Warweg Edna and Amberson W R. Total Plasmapheresis. *Am J Physiol* 117: 230-236 (Oct) 1936.
14 Nonnenbruch W and Kudlich H. Chronischer Odemzustand von nephrotischen Typus mit Akroasie bei chronischer Gastroenteritis. *Med. Klin.* 27: 541-543 (April 10) 1931. Cope C L and Goadl H K. Study of a Case of an Idiopathic Hypoproteinaemia. *Lancet* 1: 1035-1040 (May 4) 1931.

Sickness Removes the Mask—Sickness as Lucretius says of impending death shows us things as they are; the mask is torn off; the facts remain. That is the spiritual method of the hospital: it makes use of sickness to show us things as they are.—Paget Stephen. *Contemporary Medicine*. New York: Macmillan Company, 1931.

FRACTURES AND DISLOCATIONS OF THE CERVICAL SPINE

FIRST AID AND TRANSPORTATION

THEODORE PREWITT BROOKES, M.D.

ST. LOUIS

In previous publications I have discussed some predisposing causes of dislocations of the neck¹ and the complications encountered in their treatment.² The title of this paper was suggested by an experience related by an officer of the army while he was a surgeon of the Otacuta District of the Civilian Conservation Corps. From his office window he saw an injured man alighting from a truck. The man hobbled on a stick dragging one foot. He held his head tilted toward one shoulder with his chin rotated to the opposite side. The procession was halted and it was learned that the man had fallen from a tree and had been transported over the rough trails and roads of the district for a number of miles. The history and gross appearance of the man were typical of injury to the cervical spine. The officer ordered him on a stretcher and to the hospital at once. Further examination revealed compression of one of the lower cervical vertebrae and rotary dislocation of the vertebrae above this level.

Reviewing my own series of ninety patients with dislocation of the neck seen during the last seven years, I find that twenty-one were transported distances varying from 5 to 300 miles. In ten of the twenty-one cases the condition was acute and serious with involve-

Results in Series of Ninety Cases

Attempted reduction	85
Complete reduction	68
Partial reduction	16
Failure of reduction	1
Deaths from reduction	0
Deaths from original injury	10
Redisllocations requiring repetition of reduction	6
Location of Dislocations	
First cervical vertebra	31
Second cervical vertebra	21
Third cervical vertebra	6
Fourth cervical vertebra	12
Fifth cervical vertebra	16
Sixth cervical vertebra	4
Seventh with fifth cervical vertebra	(1)
	90
Nature of Dislocation	
Unilateral	61
Bilateral	29
	90
Type of Trauma	
Falls	32
Automobile accidents	21
Diving accidents	3
Violent rotation of head	12
Miscellaneous	20
	90

ment of the spinal cord or spinal nerve trunks. It was an exception to see a case in which my attempt had been made at adequate immobilization. I have seen an army officer with a known fracture and dislocation of the cervical spine walk through the midway of a railroad station. His head was rotated and laterally flexed.

From the Department of Surgery, Washington University School of Medicine.

Owing to lack of space this article is abbreviated in *THE JOURNAL* by the omission of several illustrations. The complete article appears in the author's reprint.

1. Brookes T P. Dislocations of the Cervical Spine. Some Predisposing Causes. *J. A. M. A.* 104: 902 (March 16) 1935.
2. Brookes T P. Dislocation of the Cervical Spine. Their Complications and Treatment. *Surg. Gynec. & Obst.* 57: 772 (Dec) 1933.

His right forearm was supported by his left because of weakness due to pressure on cervical nerve trunks (figs 4-7). Such incidents should not occur. Modern treatment of fractures has emphasis on early mobilization and resumption of function, but the cardinal principle of early care is accurate and absolute immobilization.³ This is particularly important in injuries of the spine because of the imminent menace to major nerve structures.



Fig 1 (case 84)—Incomplete lateral dislocation. A boy aged 13 years was struck by an automobile eleven days prior to my seeing him with Dr. Roland S. Kieffer. No demonstrable nerve injury was found. Anteroposterior and lateral x-ray films by Dr. Joseph Peilen showed elevation of the right lateral mass of the sixth cervical vertebra with a left lateral slip. No anterior displacement was visualized.

Principles of first aid preparatory to transportation are threefold. First, movement must be reduced to a minimum. "Splint them where they lie" is the army's dictum for all fractures.⁴ Facilities for immobilization must be brought to the patient and not the patient to the splint. Nowhere is this more important than in spinal injuries. Second, the patient should be put in a proper position for moving. Injuries to the thoracic and lumbar spine require that the patient be placed on the abdomen, but in injuries to the cervical spine he must be laid on his back with his head and neck fully extended. When a patient is placed on the litter, one person's entire attention must be given to supporting and keeping in alignment the head and neck. Third, immobilization must be such as to preclude flexion, lateral bending and rotation of the head. An ingenious home-made adjustable collar has been designed by Chamberlin.⁵ A simpler and more accurate mechanism is described by Wright.⁶ It is not probable that such appliances nor yet materials with which to make them will be available when needed. Simpler devices must be employed. Dr. Phil Hoffman cuts an emergency Thomas collar from two or more thicknesses of felt and fastens them snugly about the neck. To this may be added a stockinet slipover for skin comfort. Tapes for ties are fastened on the felt with adhesive plaster. But saddle felt is a rarity these days, particularly in the military services.

Sandbags, three-fourths full and placed on both sides of the head and along the shoulders, give good temporary splinting. The old pillow splint has long been

a standby for early immobilization of fractures. It can be employed in injuries of the neck, pillows being packed alongside the head to fill in tightly the angle between the head and the shoulders. Whether one uses sandbags or pillows, a small firm pad must be placed under the midcervical region to sustain the natural cervical curve. In the presence of severe tearing of soft tissues about the spine, a drooping cervical curve will cause grave distress and may actually pinch the cord by pressure of the sagging odontoid process. I doubt that adequate traction apparatus can be applied for transportation.

In addition to damage to the bones in fracture or dislocation of the neck, there is always involvement of soft tissues. Intervertebral disks are contused or compressed. Capsules or ligaments are stretched and torn. Damage to the nerve tissues is variable. The spinal cord has ample space in the cervical canal to permit a remarkable range of movement. Spinal nerves are marvelously shielded by bony arches as they emerge from the spinal canal. The maximum damage is done at the moment of impact. With the release of the causative force, fractures and dislocations tend to accomplish a certain amount of spontaneous replacement. Accordingly the degree of dislocation or amount of fracture found at the time of examination does not indicate the amount of damage to the cord or nerve trunks. Despite freedom of movement and bony protection, the cord may be irreparably damaged at the moment of injury, yet the dislocation may so completely reduce itself that no evidence is found on the x-ray film. Serious damage to an intervertebral disk does



Fig 2 (case 84)—Oblique views bring out clearly the mechanism of the displacement. The right inferior articular process of the sixth cervical vertebra is elevated and caught on the tip of the superior articular process of the seventh. There is a definite lateral slip of the left articular process of the sixth. Reduction was carried out under a methylcyclohexen methyl barbiturate acid anesthesia. Taylor traction and manipulation being used. The part was immobilized in a plaster of paris cast. Complete recovery resulted. The patient left the hospital wearing a celluloid doll collar seven weeks after reduction.

not always show on early examinations. It may require weeks or months before such an injury is demonstrable in roentgenologic study.⁸

Some incomplete subluxations of cervical vertebrae are better diagnosed by clinical examination than by

³ Bancroft, F. W. Application of Fixed Traction for Transportation of Patients with Fractures. *Surg. Gynec. & Obst.* 62: 643 (March) 1936.

⁴ Kirk, N. T. The Care and Evacuation of Fracture Cases. *Mil. Surgeon* 70: 462 (May) 1932.

⁵ Chamberlin, F. T. A Home-Made Adjustable Collar for Fractures of the Cervical Vertebrae. *Mil. Surgeon* 75: 92 (Feb.) 1936.

⁶ Wright, L. T. A Brace for the Transportation and Handling of Patients with Injuries of the Cervical Vertebrae. *J. A. M. A.* 106: 1467 (April 25) 1936.

⁷ Davis, G. G. and Voss, H. C. Spinal Cord Injury. *Arch. Surg.* 20: 145 (Jan.) 1930.

⁸ Joplin, R. J. The Intervertebral Disk. *Surg. Gynec. & Obst.* 61: 591 (Nov.) 1935.

roentgenologic films. However, no intelligent surgeon will care to attempt treatment of such injuries without adequate x-ray study. Ample films and close study by roentgenologist and surgeon give an increasing percentage of accurate diagnoses.⁹ Routine x-ray examinations call for three exposures, a lateral view of the cervical spine and two anteroposterior views, of which one is taken through the open mouth to show atlanto-axial relationships. In doubtful cases stereoscopic



Fig 3 (case 77)—Severe unilateral rotary dislocation. A woman aged 49 was in an automobile that turned over thirty-six hours before Dr Kieffer and I saw her. She was completely paralyzed below the shoulders. X-ray films by Dr Arthur E. Echternacht show rotary dislocation of the sixth cervical vertebra, the right side being displaced until the body lies sharply angled in front and to the right of the seventh. The right inferior process of the sixth has jumped over the superior process of the seventh and lies locked in the intervertebral notch. Under n-methyl cyclohexen-methyl barbituric acid anesthesia the dislocation was completely reduced and immobilized in a cuirass. During the third week she regained motion in the legs and thighs. Early in the fourth week she suddenly showed evidences of pulmonary embolism and died. Figures 3, 4, 5, 6 and 8 are from x-ray prints accurately retouched by Mr P. A. Conrath.

views are taken both laterally and anteroposteriorly. Oblique views bring out the relationship of articular processes in startling fashion and are of great assistance in difficult cases.

Fractures complicating dislocations may be actually life saving in effect, as in case 85 (figs 8-10) in which the pedicles of the bony ring gave way, allowing the body of the vertebra to displace completely while the posterior arch held to the intervertebral ligaments and shielded the cord from severance or crushing. If the ring had followed the vertebral body it would have guillotined the cord.

Dislocations, with or without demonstrable fracture, constitute a major emergency demanding immediate and positive treatment. The first step is closed reduction. It is agreed by surgeons seeing more than an occasional case of this sort that open operation has no place in the treatment of acute injuries to the cervical spine.¹⁰ Laminectomy removes the posterior pressure but leaves the cord angled over the displaced vertebra. It precludes later reduction for callus formation will not permit successful replacement at a later date. I doubt whether the Queckenstedt test is of decisive

value in first treatment. The patient should not be rolled sufficiently to make a satisfactory test in the first place. In the second place the dislocation should be reduced at once whether or not spinal block is present. After reduction and immobilization it is safe and helpful to have such evidence of the state of the cord.

A few lesser dislocations, or subluxations, can be replaced without anesthesia, but the vast majority require full general anesthesia. Any of the inhalation anesthetics answer well. I have used n-methyl-cyclohexen-methyl barbituric acid intravenously on occasion when inhalation narcosis was contraindicated. I have found the Taylor technic¹¹ of immediate traction and manipulation to be the safest and surest in handling recent fractures and dislocations. The Walton maneuver¹² of retrolateral flexion and extension has been of great aid in unilateral or rotary dislocations, particularly the old, neglected cases. It is too severe for fresh cases in which fracture is known or suspected to exist. An additional advantage of the Taylor method is that the head halter and traction belt enable the operator to maintain full extension during the application of a plaster-of-paris cast.¹ A carefully applied plaster



Fig 8 (case 85)—Extreme fracture dislocation. A man aged 65, a carpenter, fell from a roof to the ground, a distance of 10 feet. He picked himself up and walked into the office of his family physician, Dr A. W. Westrup, who sent him in an ambulance to the hospital. X-ray films by Dr Joseph Peden show: 1. Complete anterior dislocation of the upper five cervical vertebrae. The body of the fifth cervical vertebra is tilted through an arc of 90 degrees until its horizontal surface lies vertically against the perpendicular face of the sixth. 2. Fractures through pedicles of the fourth and fifth. 3. Locking of lower articular processes of the fourth in front of superior articular processes of the fifth.

cuirass gives the safest and surest immobilization. Even in cases in which there are extensive paralyses a cuirass insures the maximum chance of recovery and

⁹ Simpson, I. B., and Swenson, P. C. Unilateral Dislocations of Cervical Vertebrae Without Associated Fracture. *Surg. Gynec. & Obst.* 58: 103 (June) 1934.

¹⁰ Towne, E. P. Injuries of the Spinal Cord and Its Pools Following Dislocation of the Cervical Spine. *Surg. Gynec. & Obst.* 57: 783 (Dec) 1933.

¹¹ Taylor, A. S. Fracture Dislocation of the Neck. A Method of Treatment. *Arch. Neurol. & Psychiat.* 12: 625 (Dec) 1924. *Fract. & Dislocation of the Cervical Spine*. *Ann. Surg.* 90: 321 (Sept) 1929.

¹² Walton, G. L. A New Method of Reducing Dislocations of Cervical Vertebrae. *J. Nerv. & Ment. Dis.* 20: 109 (1893). Further Observations on Cervical Dislocation and Its Reduction. *Los Angeles J.* 119: 773 (1905).

greatly simplifies the nursing care. The patient can be moved about in bed or transferred to another bed without undue risk.

Other forms of splinting offer many disadvantages though they may be necessary under exceptional circumstances. Sandbags about the head and neck will be constantly moved by the patient or the attendants.



Fig 9 (case 85)—Oblique view again shows that the inferior articular processes of the fourth cervical vertebra have jumped over the superior articular processes of the fifth and lie in the intervertebral notch wedging the fractured posterior arc of the vertebral ring away from the body of the vertebra. It was impossible on the first attempt to secure more than partial replacement. The patient's condition became worse and the part was immobilized in a plaster corset for forty eight hours.

The jury-mast apparatus or the suspension of the head and traction over the end of the bed by means of chin strap¹³ or ice tongs in the outer table of the skull¹⁴ or fishhooks under the zygomatic arches¹⁵ will not immobilize. Limited flexion and large rotation are possible in all these appliances. The head must be kept quiet. Motion may further damage nerve tissues. Motion interferes with accurate union and furthermore motion stimulates excessive callus formation, which will encroach on the exits of the spinal nerves, producing permanent pain and disability.

In his delightful monograph "On Rest and Pain," Hilton¹⁶ devotes a chapter to spinal injuries treated by rest. Without the aid of x-ray examination or other modern diagnostic means his description and analysis of cases remains a classic. He cites relief of symptoms and cure of paralysis after traumatic spondylitis by absolute immobilization. His facilities for immobiliza-

tion were limited. Today, with modern equipment and simple plaster-of-paris bandages, there is no excuse for not making use of this best form of splinting following reduction. Redislocation¹⁷ the result of inadequate immobilization occurs less frequently, I believe, when a proper plaster-of-paris cast is applied.

The plaster corset must be applied accurately. The operator will require trained assistants for after reduction he will be occupied with maintaining the head in position of full extension with the articular processes thoroughly seated home on underlying facets. If the patient's injury and condition permit, stockinet or jersey tubing is applied in two sections. One is a shirt from the neck to the waist and one is a hood over the head with anterior and posterior skirts to be fastened to the shirt with adhesive plaster. Pressure points such as the shoulders, the thyroid area, the chin and the back of the occiput are padded with pieces of felt. Sheet cotton is applied over all smoothly, without wrinkles and only in sufficient thickness to line the cast. The felt takes care of pressure points. Cotton of too great thickness allows the patient to move about within the cast and defeats its purpose. Careful reinforcement by plaster splints or slabs over points of stress will permit the total weight of the cast to be kept at a minimum.



Fig 10 (case 85)—Result of first attempt at replacement. Body of the fifth cervical vertebra has been lifted up onto the sixth but cannot be brought back by reason of the block produced by articular processes of the fourth lying in front of the articular processes of the fifth rather than in their normal position.

Incorporating tapes in the plaster for constant traction at the same time that rigid immobilization is maintained has been suggested¹⁸. This may be useful when separation of the injured vertebrae is necessary. It should be remembered however, that immediate and

¹³ Spiers H. W. Fracture Dislocations of the Lower Cervical Spine. California & West Med. 34: 348 (May) 1931.

¹⁴ Crutchfield W. G. Further Observations on the Treatment of Fracture Dislocations of the Cervical Spine with Skeletal Traction Surg. Gynec. & Obst. 63: 513 (Oct.) 1936.

¹⁵ Neubeiser B. L. A Method of Skeletal Traction for Neck Extension J. Missouri M. A. 30: 495 (Dec.) 1933.

¹⁶ Hilton John. On Rest and Pain ed. 2 New York: William Wood & Company, 1879. Lecture 5.

¹⁷ Soto-Hall Ralph. Recurrence in Dislocation of the Cervical Spine J. Bone & Joint Surg. 17: 902 (Oct.) 1935.

¹⁸ Bisgard J. D. A Device for the Simultaneous Traction and Complete Immobilization of the Cervical Spine J. Bone & Joint Surg. 14: 190 (Jan.) 1932.

complete reduction is the proper procedure. Once reduction has been secured, the head is kept in full extension and the vertebrae are allowed to rest in normal relationship to one another. It is important that vertebral bodies have only a normal amount of separation as afforded by intervertebral disks, also that articular processes are not separated but are completely seated home on the underlying facets. Excessive callus formation is minimized by close approximation of injured surfaces.

After-care demands all the watchful detail of other severe bone or nerve injuries. Development of pressure sores and trophic skin disturbances must be watched for and avoided. The patient's morale calls for stimulating psychotherapy. Patient 85 (fig 11) was unable to swallow for weeks and had to be fed by means of the nasal tube. Patient 77 (fig 3) with



Fig. 11 (case 85)—Final complete reduction of bodies and processes of cervical vertebrae accomplished forty-eight hours after the first attempt. Taylor traction and manipulation was used. A plaster of Paris collar was applied. It was necessary to feed the patient by way of the nasal tube. He was unable to swallow at all. The voice was husky. After six weeks he began to swallow semisolids such as cereals and custards but still struggled on liquids. Apparently the recurrent laryngeal nerve was damaged and probably the muscles of deglutition were torn. Drs. C. A. Stone, A. W. Westrup and K. V. McKimsey collaborated and assisted in this case.

complete paralysis below the shoulders, regained motion in the legs during the third week but suffered pulmonary embolism in the fourth week and died. Patients with cord injury will have either incontinence or the opposite condition of retention of urine and feces. A particular menace in high cord paralyses is inability to cough or clear the throat. The patient may strangle in his own secretions. An aspirator of some sort must be kept ready for immediate use if mucus collects in the throat. Despite the utmost care there will be disappointments, but the percentage of gratifying results remains in proportion to the accuracy of early reduction and the details of post-reduction attention.

1650 South Grand Boulevard

ROENTGENOGRAPHIC DIAGNOSIS AND ANATOMIC STUDIES OF A QUINTUPLE PREGNANCY

E. C. HAMBLÉN, M.D.

R. D. BAKER, M.D.

AND

G. D. DERIEUX, M.D.

DURHAM, N. C.

Quintuple pregnancy is expected about once in forty million births according to calculation by the Hellin ratio.¹ Foster and Carson² collected thirty-two authentic reports of quintuplets from the literature up to 1923. Since that time we have found reports of two more,³ including the Dionne quintuplets. Ours makes the total of reported cases thirty-five.

Aside from the fact that such multiple pregnancies are interesting because of their infrequency, a report of our case seems justified since it is apparently the first instance of a diagnosis being made prior to delivery. Further interest lies in a complete anatomic study of the fetuses, placenta and membranes.

REPORT OF CASE

Clinical Record.—A white woman, aged 20, was admitted to Duke Hospital, Nov. 2, 1936, because of hydramnios and irregular vaginal bleeding complicating a pregnancy of approximately five months' duration.

The past history of the patient was essentially unimportant except for the fact that her first pregnancy had ended in a spontaneous abortion at three months, the recovery from which was complicated by a mild infection. No positive history was obtainable in reference to the occurrence of multiple pregnancies on either the maternal or the paternal side of the family.

The pregnancy had progressed normally until two weeks prior to the time of admission when the patient first observed mild uterine contractions accompanied by slight vaginal bleeding insufficient to saturate a pad. During the two weeks prior to admission she had noted a rapid increase in the size of the abdomen which had resulted in marked dyspnea on exertion. One week before admission she had experienced another slight episode of vaginal bleeding.

On examination in the hospital the abdomen appeared abnormally large, the fundus uteri extending 33 cm. above the symphysis. The circumference of the abdomen was 50 cm. The fetal outlines could not be identified and the fetal heart sounds were not heard.

The blood pressure was 124 systolic, 86 diastolic. There was moderate secondary anemia; hemoglobin was 65 per cent by the Sahli method and the red blood cells were 2,950,000. The Wassermann and Kahn reactions were negative.

A roentgenogram of the abdomen in the lateral position showed the presence of four fetal heads and five bodies (fig. 1).

On the second day after admission the patient began to have irregular uterine contractions, which resulted shortly in a profuse vaginal hemorrhage. About 300 cc. of blood was lost in an hour's time. Examination of the abdomen at this stage showed no boardlike rigidity and the patient did not complain of severe pain. Sterile vaginal examination revealed the cervix slightly dilated with a fetal head overlying the internal os. The placenta was not felt. There was about 100 cc. of clotted blood in the vagina. Since the uterine bleeding continued and the pulse rate rose to 120 per minute induction of labor was elected. The presenting membranes were ruptured and about 200 cc. of amniotic fluid was evacuated. A Voorhees bag was inserted.

From the Department of Obstetrics and Gynecology and from the Department of Pathology, Duke University School of Medicine and Duke University Hospital.

1. Williams, J. W. *Obstetrics*, ed. 6. New York: D. Appleton & Co., 1930, p. 433.

2. Foster, S. R., and Carson, W. A. Case of Quintuple Pregnancy. *Lancet* 2: 120 (July 21), 1923.

3. Fraenkel, L. Eine Fünftlingsmutter. *Klin. Wchnschr.* 3: 1820 (Sept. 30), 1924. Dafoe, A. R. The Dionne Quintuplets. *J. A. M. A.* 103: 673-677 (Sept. 1), 1934.

After twelve hours of uneventful labor, four of the premature fetuses were born in rapid succession by cephalic presentation. The fifth, an anencephalic monster was delivered without difficulty. Heart action in two fetuses continued for thirty minutes after birth. The placenta was expelled normally. There was no postpartum hemorrhage. The puerperium was uncomplicated. The patient was discharged from the hospital on the twelfth postpartum day.

Anatomic Studies—Placenta The placenta measured 22 cm long 17 cm wide and 2 cm thick. It was oval. There was a hematoma 6 cm in diameter at one end. Inspection of the maternal and fetal surfaces showed no evidences of subdivision.

Membranes (fig 2) The chorion extended irregularly from the edge of the placenta. In some areas it could be traced for as much as 6 cm from the placental border. There was apparently a separate amnion for each fetus. No extension of the chorion was identified along the amnions. Three of the umbilical cords were traced readily to the placenta; a fourth one had been detached but its attachment at a confluence of vessels was located. The monster, which was provided with an imperfect amniotic sac, could not be related exactly to the placenta. A piece of chorion, however, at the end of its atrophic cord seemed to correspond to an area on the nonplacental portion of the chorion situated not far from the position of fetus 1 (the system of numbering of the fetuses is described later). Four of the cords were attached toward the periphery of the placenta.

A peculiar yellow flat body about 0.5 cm in length was encountered on the chorion in the more central part of the placenta at the end remote from the hematoma. This was thought to be a yolk sac. Similar smaller bodies were observed in the amnions of fetuses 3 and 4.

Anastomosis of Vessels The fetal aspect of the placenta contained anastomotic vessels often quite small and running between all the identified points of attachment of the umbilical cords.

Fetuses Numbering clockwise from the monster (fig 3) the crown-rump lengths and the weights after fixation were as

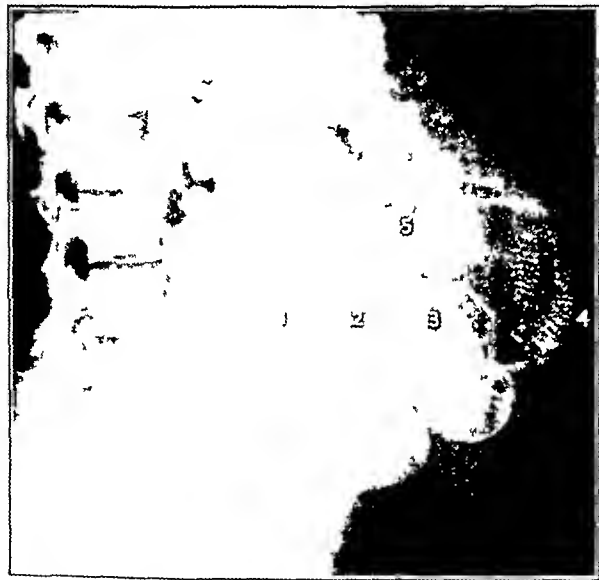


Fig. 1—Antepartum appearance of the quintuple pregnancy. Four fetal heads and five bodies are shown.

follows: fetus 1, 15 cm, 199 Gm; fetus 2, 14.5 cm, 198 Gm; fetus 3, 15 cm, 192 Gm; fetus 4, 16 cm, 254 Gm; fetus 5 (monster), 5 cm, 120 Gm.

The umbilical cords of the four well formed fetuses varied in length from 26 to 31 cm. That of the monster was only 2.5 cm in length and its diameter was less than that of the others.

The four well formed fetuses had the same number of digits and showed no peculiarities which distinguished them aside from the fact that one was larger than the others. Comparison between the monster and the four well formed fetuses showed in addition to the more obvious points of dissimilarity, only four digits in the left lower extremity of the monster. No

upper extremities or facial features were identified in the monster. The skull was completely missing. The right lower extremity was an abortive structure resembling a malformed foot. The monster represented apparently only one individual.

Sex of Fetuses The four well formed fetuses had similar genitalia. Comparison of these genitalia with the observations of Spaulding⁴ showed these to be of female type. The



Fig. 2—Single placenta and separate amnions of the fetuses (before fixation). The amnion of the monster had been removed for the most part. Note the hematoma adjacent to the monster and the yolk sac at the opposite end of the placenta.

abdominal cavity of one of these fetuses was opened. Uterus, tubes and ovaries were present. An ovary and tube were taken for microscopic study.

The external genitalia of the monster were like those of the other fetuses but were more rudimentary. Section of the abdomen failed to reveal definite pelvic organs; however, a structure thought to be an ovary but smaller than the one that was obtained from the well formed fetus was located. This was removed for microscopic study.

Microscopic Study The ovaries from the well formed fetus and monster showed ova and a few small follicles. The body thought to be a yolk sac showed amorphous granular material which stained with hematoxylin and was probably calcium.

COMMENT

Aside from the infrequent occurrence of quintuple pregnancy, the chief interest in the reported case lies in the fact that the diagnosis was made from the roentgenogram and that the circumstances allowed a complete anatomic study of the fetuses, placenta and membranes.

In our review of the literature, no instance of the diagnosis of quintuple pregnancy prior to delivery was encountered. As Greenhill⁵ has observed, there are four authentic reports of such diagnosis in quadruple pregnancy.

It seems reasonable to assume that the hydramnios and the premature partial separation of the placenta

⁴ Spaulding, M. H. The Development of the External Genitalia in the Human Embryo. Publication 61. Contributions to Embryology. Carnegie Institution of Washington 13: 67, 1921.

⁵ Greenhill, J. P. Correspondence. Am. J. Obst. & Gynec. 22: 903 (Nov.) 1936.

both of which conditions necessitated interruption of the pregnancy, were associated with the presence of the anencephalic monster. The hematoma described in the anatomic studies was related to the attachment of the monster. The short cord of this monster was no doubt a factor in this hemorrhage, the mechanism of this being, perhaps, rupture or detachment.

The chief discussion provoked by the anatomic studies is in regard to whether this pregnancy was uniovular or multiovular.

When a single placenta occurs in a multiple pregnancy, several criteria have been laid down to determine whether the pregnancy is derived from a single ovum

be accepted as unequivocal evidence. The number of corpora lutea is a valuable clue in the case of species which ordinarily discharge a single ovum but in other forms is usually without diagnostic value, because of the variable and unknown factor of egg mortality.

These remarks regarding twinning should apply also to other instances of polyembryony. Our quintuplets were in a comparatively late stage of development and hence the single chorion cannot be thought to be proof of identity of the fetuses. One yolk sac was apparently found and possibly three, but none seemed to be common to two or more fetuses. Since no examination of the ovaries of the patient was possible, evidence derived from the number of corpora lutea was not available.

We feel inclined to conclude from this consideration that the pregnancy may have well been derived from a single ovum, but a definite statement cannot be made on this point.

THE DEVELOPMENT OF ACUTE HEMOLYTIC ANEMIA

DURING THE ADMINISTRATION OF SULFANILAMIDE
(PARA-AMINO BENZENESULFONAMIDE)

A. M. HARVEY, MD

AND

C. A. JANEWAY, MD

BALTIMORE



Fig. 3—Cord attachments (after fixation)

or not. Among the more important of these are the presence of a single chorion, the anastomosis of blood vessels among the various cord attachments and the similarity of fetuses with regard to sex and peculiarities of structure.

Our case apparently exhibited a single placenta, a single chorion and anastomoses between the various cord attachments. All the fetuses were of the same sex.

Hamlett and Wislocki⁶ have called attention to the inadvisability of designating twins as being identical in nature simply because of the presence of a single chorion. They say:

We wish to discard the term 'monochoorial twins' since such individuals may often be the result of fusion of separate ova. A common yolk sac would appear to be absolute proof of the identity of twins but a common chorion in late stages cannot

The use of sulfanilamide (para-aminobenzenesulfonamide) in the treatment of various bacterial infections, notably those caused by the hemolytic streptococcus, is rapidly becoming widespread owing to the favorable reports published first by Domagk in Germany,¹ then by Colebrook in England,² and recently by Long and Bliss³ in the United States. Certain minor toxic effects of the drug have been noted, namely, a depression of liver function as determined by the bromsulfalein excretion test, fever, cyanosis and mild acidosis,⁴ but thus far no toxic effects of alarming proportions have been described in the literature. That a drug with such close chemical relationship to aniline might have a very serious effect on the blood and bone marrow has undoubtedly been in the minds of many, and in this clinic patients have been rather carefully watched for the appearance of such phenomena. During five months of intensive use of sulfanilamide in the treatment of streptococcal infections nothing untoward occurred and, until the cases of hemolytic anemia to be reported here were observed, this new drug, potentially so toxic, seemed to be a relatively innocuous therapeutic agent as far as the patient was concerned.

However, within a few weeks three cases of severe hemolytic anemia were observed in the wards of this hospital, two occurring during the treatment of streptococcal sore throat and one during the treatment of meningococcal meningitis with sulfanilamide. So far we have not been able to prove conclusively that the drug was responsible for the rapid hemolysis, but since no previous cases have been noted in this hospital with

From the Medical Clinic of the Johns Hopkins Hospital and University. Dr. E. K. Marshall Jr. helped in the study of these cases and Dr. Hugh Josephs gave advice and assistance in the study of urobilin excretion.

¹ Domagk, Gerhard. *Angew. Chemie* 48: 657, 1935. *Deutsche med. Wchnschr.* 61: 250 (Feb. 15) 1936.

² Colebrook, Leonard and Kenny. *Meave. Lancet* 1: 1297 (June 6) 1936.

³ Long, P. H. and Bliss, Eleanor A. *Para-Aminobenzenesulfonamide and Its Derivatives*. *J. A. M. A.* 108: 32 (Jan. 2) 1937.

⁴ Southworth, Hamilton. *Proc. Soc. Exper. Biol. & Med.* 36: 58 (Feb.) 1937.

⁶ Hamlett, G. W. D. and Wislocki, G. B. A Proposed Classification for Types of Twins in Mammals. *Anat. Rec.* 61: 81 (Dec. 23) 1934.

similar infections and a fourth case of hemolytic anemia has occurred in this city during the administration of sulfanilamide it seems fairly certain that the drug in some manner was responsible for the hemolytic crises. We feel that it is most important that these cases be reported so that physicians using sulfanilamide in the treatment of seriously ill patients may be on the lookout for such a dangerous complication.

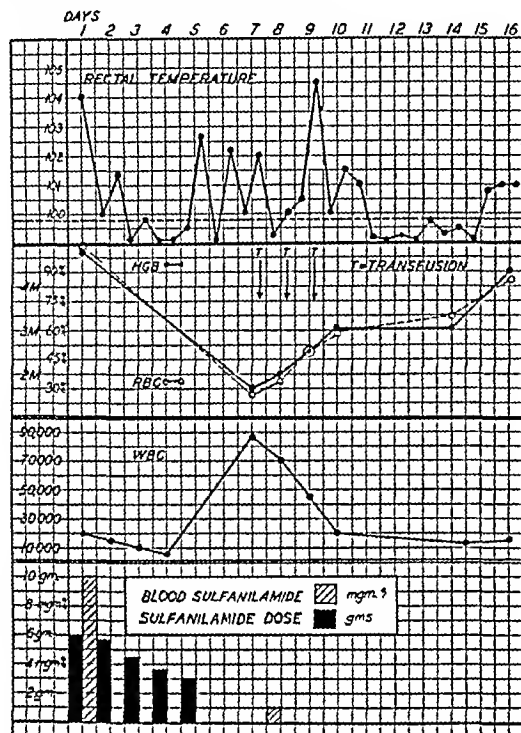


Fig 1 (case 1)—Results of blood studies in case of streptococcal sore throat.

REPORT OF CASES

CASE 1—A Negro chauffeur, aged 36, admitted to the Johns Hopkins Hospital, March 15, 1937, complained of an acute follicular tonsillitis. In general his health had been good in the past. He had typhoid at the age of 6 years and in 1922 a peritonsillar abscess, which was incised. Since childhood he had had frequent mild sore throats of from two to three days' duration, the last of which was one year before his present illness. Two days before entry he caught a head cold. The following day he noted a scratchy sensation in the throat and he had a slight chill. The sore throat grew worse and he came to the hospital for treatment.

The temperature was 104 F, pulse 110, and respiratory rate 40 per minute. The patient did not look severely ill. The general physical examination revealed very few abnormalities. The mucous membranes were of good color, and cyanosis or jaundice was not noted. The tonsils were enlarged and red and were covered with flecks of yellowish exudate. A few tender glands were palpable at the angles of the mandible. The heart was not enlarged. A soft systolic murmur was audible over the whole precordium. The lungs were clear to percussion and auscultation. The liver and spleen were not palpable. The patient weighed 68 Kg (150 pounds).

The laboratory examinations revealed the following: Urine specific gravity, 1.003, albumin, sugar, diacetic acetone and bile negative; urobilin 3 plus; sediment normal. Blood: red blood cells 4,900,000, hemoglobin 101 per cent, white blood cells 19,000, of which 82 per cent were adult polymorphonuclears, 3 per cent juvenile neutrophils, 10 per cent lymphocytes and 5 per cent monocytes.

In the smear the red blood cells were normal in size, shape and hemoglobin content. The platelets were numerous. There was no sickling of the red cells immediately or after twenty-four hours.

The Wassermann reaction was negative.

The throat culture showed 95 per cent beta hemolytic streptococci.

The patient was given 4.8 Gm of sulfanilamide by mouth and at the end of four hours the concentration of the drug in the blood was 10 mg per hundred cubic centimeters. For the next two days the dose of sulfanilamide was 0.9 Gm every four hours, and after this the amount was lowered to 0.6 Gm every four hours.

The throat infection cleared up rapidly, and the temperature and white blood cell count dropped to normal on the third day of his hospital stay. During this period he complained of dizziness and nausea, and it was noted that his lips were slightly blue. On the fifth day of sulfanilamide medication, after two days without fever, a temperature of 102.6 F developed. It was thought that this was due to the drug which was promptly discontinued. The following day he complained of severe headache and was quite drowsy and weak. He perspired continually, and the mucous membranes were discovered to be very pale and definitely icteric. An examination of the blood revealed at this time a red blood cell count of 1,570,000 with only 30 per cent hemoglobin. There was a marked leukocytosis with 87,000 white blood cells, of which 1 per cent was myeloblasts, 20 per cent juvenile neutrophils, 53 per cent polymorphonuclear neutrophils, 2 per cent eosinophils, 14 per cent lymphocytes and 7 per cent monocytes. The smear showed numerous nucleated red blood cells, much polychromatophilia, and reticulocytes of 20 per cent. Platelets were very numerous. The urine contained large amounts of urobilin but no bile or hemoglobin. The fragility of the red blood cells was normal. In spite of the jaundiced appearance of the patient the van den Bergh reaction of the blood showed only a slight trace of bilirubin. The non-protein nitrogen was 32. A bromsulphalein test of liver function resulted in 30 per cent retention of the dye thirty minutes after injection. A phenolsulfonphthalein test of kidney function showed 50 per cent excretion in fifteen minutes and 77 per cent at the end of two hours.

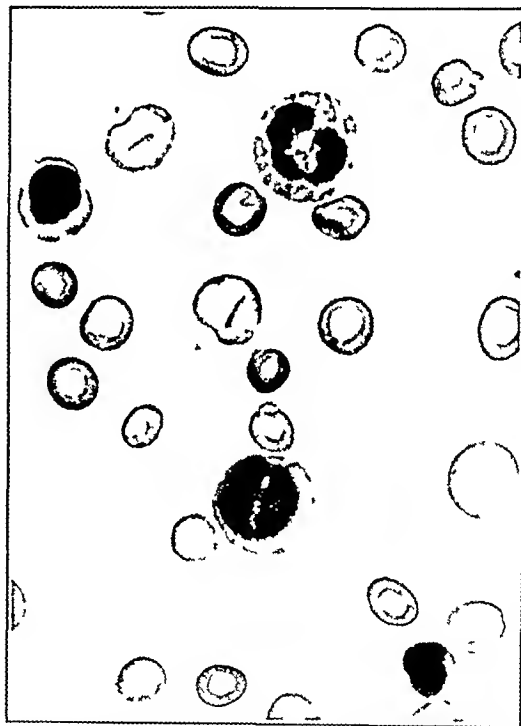


Fig 2 (case 1)—Blood smear showing anisocytosis and central achromia of the red blood cells. Two nucleated red cells and a myelocyte are present in the field.

The patient was given three transfusions of citrated blood of 500 cc each during the next forty-eight hours, and his condition improved rapidly. The results of the repeated blood studies during his convalescence are shown in figure 1. The hemoglobin and red blood cell count increased rapidly, and the marked evidences of regeneration of the erythrocytes as revealed by the many reticulocytes and nucleated red cells.

gradually subsided. The striking leukocytosis fell slowly to a normal count, and mature cells soon replaced the young forms.

During the recovery period he had an exacerbation of the streptococcal sore throat which caused no apparent delay in the return of the blood picture to normal.

CASE 2—A Negress, aged 26, a housewife, entered the Johns Hopkins Hospital, March 24, 1937 for treatment of a peritonsillar abscess. Her past health had always been good. In 1933 she had a severe sore throat with marked swelling of the tonsillar lymph nodes. She had recovered within a few days and remained in good health until December 1936, when a similar difficulty developed, which was less severe in nature.

Four days before her admission the throat became sore and she was unable to swallow solid food. Two days later the pain was so great that liquids could not be taken and she finally came to the hospital for treatment.

The temperature was 104 F, the pulse rate 120 and the respiratory rate 28 per minute. The patient was acutely ill. She could only partially open her mouth and talking was

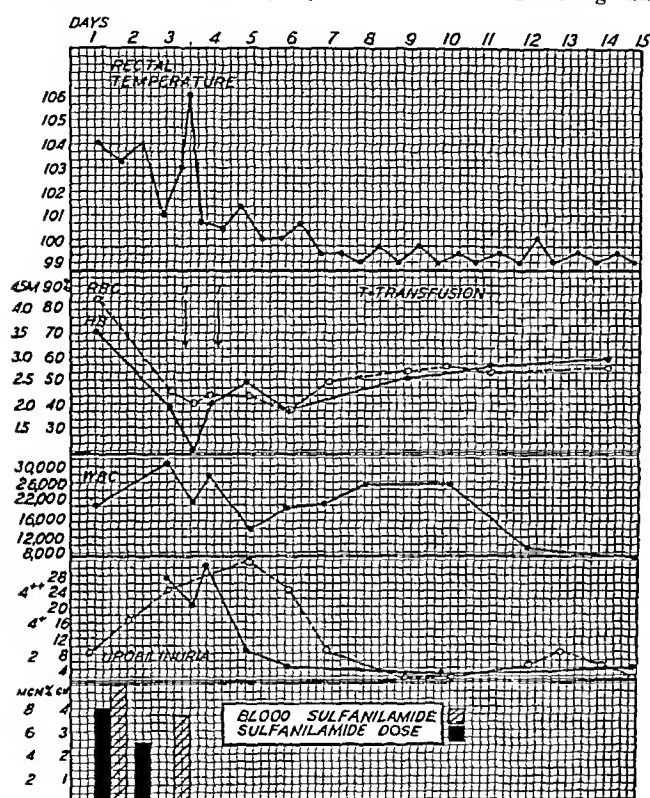


Fig 3 (case 2) —Results of blood studies in case of peritonsillar abscess

extremely painful. The skin was warm and moist. The mucous membranes were of good color and no cyanosis or jaundice was noticed. The right side of the face over the region of the mandible was swollen, rather indurated and quite tender. The right tonsillar gland was quite large, firm and tender. Above the tonsil on the right was a large, fluctuant tender swelling which displaced the uvula to the opposite side of the throat. The heart was normal and the lungs were clear to percussion and auscultation. The liver and spleen were not palpable. The remainder of the physical examination showed no abnormalities. The patient weighed 51 Kg (122 pounds).

Laboratory examinations revealed the following: Urine specific gravity 1.030, sugar negative, albumin 2 plus acetone and urobilin positive, sediment normal. Blood: Red blood cells 4,250,000, hemoglobin 70 per cent, white blood cells 20,400. Differential count: juvenile neutrophils 15 per cent, adult polymorphonuclear leukocytes 70 per cent, lymphocytes 13 per cent, monocytes 2 per cent. There was no sickling of the red blood cells immediately or at the end of twenty-four hours. The platelets were normal and no parasites were seen. Slight anisocytosis was present. The Wassermann reaction was negative. A throat culture showed 50 per cent beta hemolytic streptococci. The blood culture was sterile.

The diagnosis was peritonsillar abscess and it was decided to try the effect of sulfanilamide medication before incising the area. Because of the patient's inability to swallow she was given 41 Gm of sulfanilamide subcutaneously in 450 cc of physiologic solution of sodium chloride. The following morning the blood concentration of the drug was found to be 98 mg per hundred cubic centimeters. The patient's condition was not improved, so that the abscess was opened and a large quantity of pus was removed. After this she received 0.6 Gm of sulfanilamide every four hours by mouth for four doses.

Thirty-six hours after the sulfanilamide had been administered subcutaneously the patient was found to be irrational and very drowsy. The mucous membranes were pale and definitely icteric. Examination of the blood confirmed the opinion that the patient had a severe hemolytic anemia. The hemoglobin had dropped to 39 per cent with an erythrocyte count of 2,250,000. The white cells now numbered 30,000, of which 9 per cent were myelocytes, 18 per cent juvenile neutrophils, 65 per cent adult polymorphonuclears, 5 per cent lymphocytes and 3 per cent monocytes. In the blood smear an occasional myeloblast was found and numerous nucleated red blood cells were present. The platelets were abundant. The reticulocyte count was 2 per cent. The clotting time and fragility of the red blood cells were normal and the Donath Landsteiner test was negative. Within the next twelve hours, before a transfusion was given, the hemoglobin dropped to 18 per cent and the red blood cells to 2,000,000. The icterus index of the blood was 20 and the blood bilirubin was 2.0 mg per hundred cubic centimeters. Large amounts of bile and urobilin were present in the urine but no hemoglobin was detected. The blood para-aminobenzenesulfonamide concentration was now 66 mg per hundred cubic centimeters. A bromsulfalein test of liver function showed 28 per cent retention of the dye thirty minutes after the injection of 5 mg per kilogram of body weight.

During the next twenty-four hours the patient was given two transfusions of citrated blood of 500 cc each. The following day she was still listless and weak but was quite oriented. The liver was felt just below the costal margin but the spleen was not palpable. The hemoglobin had risen to 48 per cent. The white cell count was 14,200 and large numbers of immature cells were still present in the smear. Numerous nucleated red blood cells were seen and the reticulocyte count was 3.6 per cent.

The patient continued to improve. The weakness and jaundice disappeared and the throat healed rapidly. Nine days after the development of the hemolytic crisis the hemoglobin had risen to 55 per cent with a red blood cell count of 2,580,000. The white cell count was 8,900, the smear showed many immature white cells and there was marked evidence of red blood cell regeneration as evidenced by a reticulocyte count of 12.5 per cent. All the bromsulfalein was excreted within thirty minutes after injection. The results of the frequent blood examinations made during the recovery period are shown in figure 3.

The sulfanilamide determinations of the blood were made by the method of Marshall, Emerson and Cutting through the courtesy of Dr. Marshall and Miss Margaret Strauss.

CASE 3—A white baby girl aged 10 months, was admitted to the Harriet Lane Home of the Johns Hopkins Hospital April 6, 1937 because of fever, irritability and stiff neck for three days. The family history and the past history were non-contributory. The baby had always been healthy, she had a normal birth at full term and had developed normally.

Four days before admission the mother noticed that the child was less lively than usual. Three days before she had become restless and feverish and had vomited all her feedings. Two days previously a stiff neck developed, she refused nourishment and cried out whenever she was touched or moved. On the day before admission she seemed better but kept her head drawn back. Finally her temperature rose again, her right eye became crossed and she was brought to the hospital.

The baby was acutely ill on examination. She was rather fat and flabby with well marked opisthotonos. The child lay quiet but cried out whenever she was disturbed. The temperature was 40.2 C (104.4 F), the pulse rate 170 and respirations were rapid and shallow. No skin eruption or jaundice was

5 Marshall E. K. Jr., Emerson Kendall Jr. and Cutting W. C. Para-Aminobenzenesulfonamide. J. A. M. A. 108: 953 (March 20) 1937.
6 This case is reported through the courtesy of Dr. Edward A. Park.

noted. The skin was warm and a little pale. The mucous membranes were of fair color. The anterior fontanel was bulging and tense, the neck was rigid and the reflexes were jerky. Brink's, Kernig's and Brudzinski's signs were not present. The eyes showed convergent internal strabismus, more marked on the right. The fundi were normal. There was congestion of the ear drums but no bulging and the throat was normal in appearance. The heart, lungs and abdomen were normal. The baby weighed 9.5 Kg.

Laboratory examinations revealed the following: Urine orange, acid, no albumin or sugar; sediment negative, urobilin not present in abnormal amounts. Blood: On admission hemoglobin 65 per cent, red blood cells 4,120,000, white blood cells 14,300 with 42 per cent adult and 18 per cent immature polymorphonuclears, 32 per cent lymphocytes and 8 per cent monocytes. The smear showed slight anisocytosis and polychromatophilia. The platelets appeared normal.

Lumbar puncture was done on admission, 20 cc of cloudy fluid was removed under rather low pressure. The Pandy test was strongly positive, sugar was negative. The cells numbered 11,400, almost all of which were polymorphonuclear cells. The smear was loaded with gram-negative diplococci which were mainly extracellular. Culture of both the blood and the spinal fluid showed meningococci.

On the basis of the clinical picture and laboratory examinations a diagnosis of meningococcal meningitis was made and the child was started on treatment with sulfanilamide. On the first day she was given a subcutaneous infusion containing 1.42 Gm, followed later by another 1.5 Gm by the same route. For the next three days she was given a daily dose of 1.6 Gm subcutaneously and from 0.2 to 0.3 Gm intraspinally making a total of approximately 2 Gm daily, or 0.2 Gm per kilogram of body weight. Lumbar or cisternal punctures were done twice every twenty-four hours and as much fluid as possible was drained off before sulfanilamide was administered.

The child remained critically ill for forty-eight hours with marked cyanosis, rapid pulse and shallow respiration but during the third day her condition began to improve and by the fifth day she was well enough to take almost all her food and fluid by mouth and with it a daily dose of 2.4 Gm of powdered sulfanilamide. Her neck was no longer stiff at that time. Coincident with the clinical improvement, the spinal fluid began to clear with a steady decrease in the number of cells to only 350 on the fifth day. It was noted that in the smear most of the organisms were extracellular on admission but eight hours after treatment was started most of them were intracellular. Cultures, positive for meningococci at the first two punctures, became sterile after the first day.

On the seventh day her temperature which had fallen to 38.2 C (100.8 F), rose again to 40 (104 F) and the house officer, Dr. E. DeSoto, was impressed by the marked discrepancy between the temperature chart and the patient's satisfactory condition, negative physical examination and normal spinal fluid. He noted an extreme pallor of the skin and mucous membranes and promptly made a complete blood examination, which showed a fall in hemoglobin from 65 per cent to 40 per cent and a drop in the number of erythrocytes from 4,120,000 to 2,020,000 and a rise in white blood cells to 32,400. In the smear an abundance of immature polymorphonuclear leukocytes, nucleated red blood cells and reticulocytes was noted. The platelets appeared normal. The differential count revealed adult polymorphonuclears 35 per cent, immature polymorphonuclears 36 per cent (including 5 per cent juvenile cells and 4 per cent myelocytes), 25 per cent lymphocytes, 1 per cent monocytes, 10 per cent nucleated red blood cells and 12 per cent reticulocytes.

A diagnosis of acute hemolytic anemia was made despite the absence of icterus or increased urobilinuria, and an increased urobilin excretion in the stools was found by Dr. Hugh Josephs to confirm this. The administration of sulfanilamide was stopped and the child was given transfusions of 90 cc and 50 cc of citrated blood on the seventh and eighth days, and on the ninth day of her illness the temperature came down to normal. At this point the child was eating well but seemed pale and weak. Blood counts on the tenth day showed hemoglobin 70 per cent, red blood cells 3,690,000, white blood cells 11,200 with adult polymorphonuclears 36 per cent, stab forms 46 per cent (including 2 per cent juvenile cells), 12 per cent

lymphocytes, 6 per cent monocytes, 0.5 per cent nucleated red blood cells and 6 per cent reticulocytes. Since then the child has continued to improve steadily.

COMMENT

Three instances of severe hemolytic anemia appeared during the course of infections which were treated with large doses of sulfanilamide (para-aminobenzenesulfonamide). That the drug was directly responsible for the development of these anemias cannot be proved conclusively, but in view of the facts it is certainly a reasonable assumption.

Other conditions that produce an acute anemia of this type have been fairly well ruled out. These patients were not suffering from hemolytic jaundice, sickle cell anemia or paroxysmal hemoglobinuria. The clinical picture shows a striking resemblance to the cases of Lederer's anemia that were reviewed by O'Donoghue



Fig. 4 (case 2)—Blood smear showing several immature myeloid cells, large platelets and one nucleated red cell.

and Witts.⁷ Only one instance of this type of acute hemolytic crisis could be found in a search of the records of this hospital during recent years, and none have been observed during the course of a streptococcal sore throat.

When the patients were well enough for discharge, an attempt was made to reproduce the clinical picture in mild degree by the administration of a small dose of the drug. Patient 1 was given 0.9 Gm of sulfanilamide orally, and the blood concentration of sulfanilamide rose to 10 mg per hundred cubic centimeters after five hours, while patient 2 received 0.5 Gm orally with a blood level of 0.8 mg per hundred cubic centimeters after four hours. Careful blood studies were made just before the dose and four, fifteen, thirty, fifty and 120 hours afterward while the excretion of urobilin was carefully followed in the urine and stool. At each examination of the blood the hematocrit and icterus index were determined, the reticulocytes and

⁷ O'Donoghue, R. J. I., and Witts, I. J. *Glasg. Hosp. Rep.* 82: 440 (Oct.) 1932.

total leukocytes were counted and stained smears were examined for changes in the red blood cells and platelets. No significant changes were noted in the blood, and the patients themselves had no symptoms, with the exception of slight nausea in one who knew what was being done. Quantitative determinations of urobilin excretion in the stool showed a definite rise from a daily average figure of from 50 mg to 400 mg in case 2. This is rather difficult to evaluate, as there was considerable variation during the control period, and there was no evidence of increased hemolysis in the blood examinations. It was not possible to keep these patients in the hospital for further study, nor was it felt justifiable to administer a much larger test dose.

With the assistance of Dr. Edmund L. Keeney, skin tests were performed on each of these patients, a mixture of sulfanilamide and normal human serum made up twenty-four hours before being used as the testing substance and equivalent mixtures of sulfanilamide with saline solution and serum with saline solution as controls. Each skin test dose of 0.2 cc given intradermally contained 0.05 cc of serum mixed with 0.15 cc of a 1 per cent solution and was therefore equivalent to 3 mg of the drug. The patients were observed carefully for an hour and were examined again at twelve and twenty-four hours but no positive reactions were obtained.

Sulfanilamide has been given to patients in similar amounts many times without any effect on the blood picture. Two of our patients were given an additional small dose of sulfanilamide without any reappearance of the peculiar blood picture. These facts lead one to believe that this is not a question of toxicity from overdosage or the type of drug idiosyncrasy that occurs in some cases after aminopyrine. The resemblance of these hemolytic anemias to the hemolytic crises produced by the use of phenylhydrazine is quite striking. It is possible that these individuals produce from the sulfanilamide a small amount of a toxic product having an action like phenylhydrazine or produce such a substance much more rapidly than the average patient.

It is essential to emphasize two important points in connection with these cases. First, whenever patients are being given large doses of the drug the blood picture must be carefully followed, especial attention being paid to the evidences of red blood cell destruction and regeneration such as reticulocytosis, the appearance of nucleated red blood cells and the presence of bile and urobilin in the urine, feces or blood. Secondly, the anemia was promptly improved and the symptoms disappeared after transfusions of citrated blood in these cases. Thus the treatment of this type of anemia is much more satisfactory than that of the aplastic type, which sometimes develops after the use of arsenical drugs.⁸

SUMMARY

Three cases of acute hemolytic anemia developed during the course of infections being treated with large doses of sulfanilamide.

⁸ Since this report was submitted two additional cases of hemolytic anemia occurring during the treatment of infections with sulfanilamide have been observed.

The blood of patients receiving large doses of the drug should be followed carefully for evidences of red blood cell destruction and regeneration.

In the three instances the patient recovered after the medication was stopped and transfusions of citrated blood were given.

Two of the patients were given a small dose of the drug after recovery with no change in the blood picture.

710 North Washington Street

TRAUMATIC CHYLOTHORAX FROM RUPTURED THORACIC DUCT

TREATED BY INTRAVENOUS INJECTION OF THE ASPIRATED CHYLE

E. HERBERT BAUERSFELD, M.D.
WASHINGTON, D. C.

Chylous effusion in the chest from traumatic injury to the thoracic duct is a rare condition. Although Zesas¹ in 1912 stated that the first case was reported by Bartolet in 1633, the first authentic case was reported

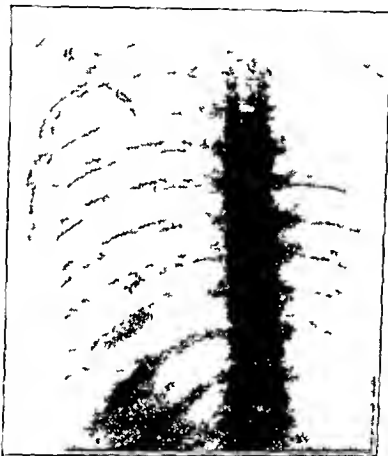


Fig. 1—Massive right pleural effusion Sept. 17, 1936, the day preceding the first thoracentesis.



Fig. 2—Complete right artificial pneumothorax, October 1.

by Quincke² in 1875. In his article Zesas also reviewed eighteen reported cases of traumatic chylothorax, dating from Quincke's case. MacNab and Scarlett³ in 1932, adding their own case, found fifteen cases reported since the collection of Zesas. This made a total of thirty-four published reports of authentic cases. In 1933 Mouchet⁴ found forty-three reported cases, but this included some cases which Zesas had discarded because of insufficient data. Since Mouchet's article there have been five cases reported.⁵ The majority have been published in the French and German literature. In this country only six cases

¹ Zesas, D. G. Die nicht operative entstandenen Verletzungen des Ductus thoracicus. *Deutsche Ztschr. f. Chir.* 115: 49-62 (April) 1912.

² Quincke, H. Ueber feithaltige Transsudate. *Hydrops chylosus und Hydrops adiposus.* *Deutsches Arch. f. klin. Med.* 16: 121-139 (Sept.) 1875.

³ MacNab, D. S. and Scarlett, E. P. Traumatic Chylothorax Due to Intrathoracic Rupture of the Thoracic Duct. *Canad. M. A. J.* 27: 29-36 (July) 1932.

⁴ Mouchet, Alain. Le chylothorax traumatique. *J. de chir.* 42: 386-399 (Sept.) 1933.

⁵ Heppner, G. J. Bilateral Chylothorax and Chyloperitoneum. *J. A. M. A.* 102: 1294 (April 21) 1934. Scott, J. F. Rupture of Thoracic Duct. *Northwest M. J.* 32: 50-51 (Feb.) 1934. Lillie, O. R. and Fox, G. W. Traumatic Intrathoracic Rupture of the Thoracic Duct with Chylothorax. *Ann. Surg.* 101: 1367 (June) 1935. Huertas, J. O. Chylothorax. *Traumatico Med. Abstr.* 1: 379-382 (March) 1935. Gronlund, Lars. Ett fall av chylothorax. *Finska läk. sällsk. handl.* 76: 439-442 1934.

have been reported by Watts⁶ in 1921, Andrews⁷ in 1929, MacNab and Scarlett in 1932, Heppner⁸ in 1934, Scott⁹ in 1934 and Lillie and Fox¹⁰ in 1935

GENERAL DISCUSSION OF THE CONDITION

Anatomy and Physiology—The duct starts as a dilated portion, the cisterna chyli over the body of the second lumbar vertebra, and there receives all the lymphatic drainage and most of the fat that is absorbed from the intestine. It is to the right of and behind the aorta, it then passes through the diaphragm at the aortic hiatus into the posterior mediastinum between the aorta and the azygos vein just over the vertebral column. Opposite the fifth thoracic vertebra it inclines toward the left, enters the superior mediastinal cavity and ascends behind the aortic arch into the neck, emptying into the angle of the junction of the left subclavian vein with the left internal jugular vein. The chyle passes through the duct at the rate of from 130 to 195 cc an hour.

Etiology—As suggested by MacNab and Scarlett, the traumatic etiologic factors may be classified in this manner:

A External violence

- 1 Closed trauma—no external wounds or fractures
- 2 Trauma with fractured ribs, clavicles or vertebrae
- 3 Gunshot wounds
- 4 Stab wounds

B Operative wounds

- 1 Complete severance of the duct
- 2 Section of one or more terminals

Symptoms—There is characteristically a lapse of from four to six days between injury of the duct and onset of the symptoms, although in the case reported by Heppner there was an interval of nine weeks. The symptoms are progressive dyspnea, cyanosis, shock and signs of pleural effusion. On aspiration a noncoagulable, milky fluid is obtained which contains fat globules, has a specific gravity greater than 1.012 and is alkaline in reaction. Since normally from 130 to 195 cc of chyle passes through the duct hourly, the effusion rapidly reaccumulates and requires repeated aspiration. Along with this is a progressive and rapid emaciation and exhaustion of the patient as the result of loss of chyle. In the majority of cases the effusion is located in the right pleural cavity. This is explained by the fact that the duct is most frequently injured in its lower two thirds, between the tenth and the fifth thoracic vertebra and in this location it lies to the right of the midline. Of the twenty-eight cases reviewed by MacNab and Scarlett, the effusion occurred in fifteen on the right side and in eight on the left side, in five it was bilateral.

Prognosis—The prognosis is grave, the mortality averaging about 50 per cent in the reported cases. In Mouchet's series of forty-three cases it was 41 per cent, while in that of MacNab and Scarlett there were sixteen fatalities in thirty cases. Of the six cases heretofore reported in this country, recovery has occurred in two.

Treatment—The treatment has been a most difficult problem, as the chyle is essential for life, if the degree of leakage from the duct is too great, death from depletion ensues in about three weeks. Numerous surgical procedures have been tried, but at this time the

consensus is against surgical intervention. In an endeavor to aid healing of the duct and to prevent the loss of chyle, two procedures have been tried without conspicuous success: first, an attempt to decrease the formation of chyle by a fat-free diet, or rectal feedings with nothing by mouth, second, to perform a thoracotomy to eliminate the negative pressure, which may act as a suction. Heppner treated his patient by feeding him the aspirated chyle, but this gave only temporary results and the patient succumbed. Intravenous administration of the aspirated chyle has been resorted to but once in the reported cases. Oeken⁸ in 1908 attempted this procedure, but the patient did not recover.

REPORT OF CASE

R. L., a white man, aged 22, was brought to the Central Dispensary and Emergency Hospital about 4 a. m. Sept. 11, 1936, following an automobile accident.⁶ He had been unconscious for a short period after the accident but was conscious on reaching the hospital. He had a laceration of the scalp and complained of pain in the lower part of the abdomen and lumbar region. He was admitted to the hospital with the tentative diagnosis of a fractured skull and internal injuries.

The past history revealed a minor football injury of the shoulder in 1935 with a residual neuritis. There was no history of previous chest injuries or diseases of the lungs and no illnesses other than the usual childhood diseases.

For the first twenty-four hours after admission there was projectile vomiting. This subsided, and the possibility of a fractured skull was eliminated by x-ray and clinical examinations. On the 13th, two days after admission, there was a slight cough, which was treated symptomatically. On the 15th, four days after admission, the patient complained of a sharp pain in the chest just to the right of the sternum. This increased in severity and the cough became worse. On the 16th he was about the same with no relief from the lumbar pain, which now was located at about the midline just below the twelfth rib. On the 17th, breathing was labored, there was some cyanosis and coldness of the extremities, although the patient stated that he felt hot. The pulse was of fair quality. On the 18th, eight days after admission, the symptoms were still more pronounced with respirations more labored, skin cold and clammy, and a moderate degree of cyanosis. The pulse was weak and thready. The blood pressure was 110 systolic, 90 diastolic, and the patient was expectorating a small amount of frothy sputum. Examination of the chest revealed a massive right pleural effusion with a marked mediastinal shift to the left.

Immediate aspiration was done and 2,400 cc of a rose colored fluid of the consistency of milk was withdrawn. This did not empty the pleural cavity, but the procedure was stopped on account of the onset of a cough. Following this thoracentesis the patient immediately improved. The next day aspiration was repeated as the mediastinum had again shifted, and 3,100 cc of fluid was withdrawn. No aspiration was done on the 20th, but thereafter it was necessary to aspirate from 1,500 to 3,200 cc daily to keep the patient free from respiratory embarrassment. After the first aspiration the fluid gradually became a creamy color, and at no time did it coagulate.

On this regimen the patient progressively lost weight and strength. The pulse was weak, thready and sometimes not obtainable. The blood pressure rather constantly remained 90/80. There was no decrease in the rate of accumulation of the fluid.

It was thought possible that the daily aspirations by increasing the degree of negativity in the intrapleural pressure might be favoring the reaccumulation. To eliminate this factor it was decided to inject 30 cc of air for each 50 cc of fluid withdrawn. Beginning September 24 this was done at each aspiration for three days without demonstrable effect. The patient continued to lose ground and was securing less and less mechanical relief from the aspirations.

September 27 another procedure was tried, the thought of which had not occurred to us until that date. The chest was

6 Watts S. H. Traumatic Chylotorax. Ann Surg 74: 691-699 (Dec.) 1921.

7 Andrews C. F. Traumatic Intrathoracic Rupture of the Thoracic Duct with Chylotorax. Nebraska M. J. 14: 26-27 (Jan.) 1929.

8 Oeken. Ein Fall von Zerreiung des Ductus thoracicus infolge Brustquetschung. Munchen med. Wchnschr. 55: 1182-1183 (June) 1908.

9 Dr. John Lyons gave me the privilege of reporting this case.

again tapped, but the tubing was hooked up with a direct transfusion set, a 20 cc syringe being used and the fluid was reinjected into the right median basilic vein until 1,000 cc was administered. After this 2,200 cc was withdrawn and discarded. No reaction followed and in an hour or two there was marked clinical improvement. The pulse was full and regular, the blood pressure was 114/60, the color was improved and the patient stated that he was feeling fine. That night he slept well and the next day he was much improved. There did not seem to be much fluid in the chest, but it was again tapped, and the direct transfusion set was again used, however only a little over 200 cc could be obtained from the chest. This was injected into the vein. From this point on the patient improved steadily and rapidly. The circulation returned to normal, the blood pressure rose to 125/70 and there was a striking gain in weight. October 23 he was discharged from the hospital. Although he had been using blow bottles for ten days prior to discharge, he still had at that time a moderate degree of pneumothorax.

During the course of his illness, 22,275 cc of chyle had been removed from the chest, 1,200 cc of which was injected into the vein. In addition to the treatment previously mentioned he received such supportive measures as intravenous dextrose and a high caloric diet. At one time a fat free diet was attempted, but this the patient refused to eat.

It should be mentioned that the fever was at no time remarkable, its maximum being 101 F. Also the x-ray examination of the chest revealed no fractures. Laboratory examination of the aspirated fluid showed (1) no growth on repeated cultures, (2) specific gravity 1.012, (3) alkaline reaction, (4) numerous fat globules after extraction with ether, (5) numerous cells—lymphocytes and occasional red blood cells, and (6) no coagulation.

This case is interesting in that it fits so well into the picture of traumatic rupture of the thoracic duct with resultant right chylothorax. It is the second recorded case in which the aspirated chyle was injected intravenously and the first case so treated in which recovery occurred. It is by all odds most probable that the sealing of the tear in the duct and the intravenous injections were coincidental and unrelated. However, it has been quite definitely shown that the intravenous injection of sterile chyle has no harmful effect, and there is reason to believe that resorted to early it would serve a most helpful purpose in overcoming the very serious loss of ingested fats. It was only after the patient had been under treatment sixteen days that this procedure occurred to us, and not until after the patient had been discharged from the hospital that on searching the literature we learned that it had been used before. In view of these facts it is perhaps not untimely that this method of supportive treatment in traumatic rupture of the thoracic duct should be emphasized.

New York Avenue between Seventeenth and Eighteenth Streets

He Also Serves Who Waits—In these days when science is clearly in the saddle and when our knowledge of disease is consequently advancing at a breathless pace, we are apt to forget that not all can ride and that he also serves who waits and who applies what the horseman discovers. In some of our schools so great an emphasis has come to be laid on the science courses with the patient long hidden from sight, that the better students, under the influence of teachers who have never had clinical experience naturally come to feel that somehow the practice of medicine among the people is an inferior calling compared to the secluded life of an investigator, and that to justify themselves in the eyes of the faculty they must manage to 'do a piece of research'—Cushing Harvey. *Consecratio Medici and Other Papers* Boston, Little Brown & Co., 1928

ARTIFICIAL FEVER THERAPY OF GONORRHEA IN THE MALE

A COMPARATIVE STUDY

E. H. PARSONS, M.D.

Captain Medical Corps U. S. Army

P. N. BOWMAN, M.D.

Major Medical Corps U. S. Army

AND

D. E. PLUMMER, M.D.

First Lieutenant Medical Reserve Corps U. S. Army

DENVER

Our purpose in this report is to present a series of clinical studies of gonorrhea in the male treated with artificial fever therapy compared with a similar series of cases treated by more time-honored methods. If a therapeutic measure is to be properly evaluated, the terms of clinical experimentation should approximate the more exact methods of the laboratory. Fever therapy should be no exception to this generalization. Because of the fundamental work of Warren, Carpenter, Boak and their associates¹ together with numerous more purely clinical studies,² we felt justified in setting up a clinical experiment of this type. Our object was to study one group of young men whom we treated with artificial fever, at the same time and under as nearly identical conditions as possible we studied a second group of young men whom we treated with irrigations, injections and massages.

We determined that, from our point of view, there were two questions of significance in this study: (1) Would fever therapy accomplish more cured cases than any other type of therapeutic measure so far available and (2) would fever therapy reduce the duration of the infection?

MATERIAL

The clinical material available for this study consisted of eighty-seven young men, all except one of whom were white. All were between the ages of 18 and 49. All of these men were placed in isolation, under constant observation during the period of study. They were kept at rest during the period of treatment without reference to the type of therapy used. All patients were volunteers for the study and cooperated well throughout the period of observation and follow up. Each patient fully understood in which group he was placed and the reasons for his classification. Only one patient objected to continuing fever therapy and

Dr. Bowman died April 18, 1937.

From the departments of Fever Therapy and Urology, Fitzsimons General Hospital.

¹ Carpenter C. M., Boak Ruth A., Mucci L. A. and Warren S. L. Studies on the Physiologic Effects of Fever Temperatures. *J. Lab. & Clin. Med.* 18: 981 (July) 1933. Warren S. L. and Wilson K. M. The Treatment of Gonococcal Infections by Artificial (General) Hyperthermia. *Am. J. Obst. & Gynec.* 24: 592 (Oct.) 1932. Bishop F. W., Horton C. B. and Warren S. L. A Clinical Study of Artificial Hyperthermia Induced by High Frequency Currents. *Am. J. M. Sc.* 184: 515 (Oct.) 1932. Carpenter C. M. and Warren S. L. Artificially Induced Fever in the Treatment of Disease. *New York State J. Med.* 23: 997 (Sept. 1) 1932.

² Kendall H. W., Welch W. W. and Simpson W. M. Artificial Fever Therapy of Gonorrheal Arthritis. *Am. J. Surg.* 24: 428 (Sept.) 1935. Atsatt R. F. and Patterson L. E. The Use of Electropyrrexia in Gonorrheal Arthritis. *Physiotherapy Rev.* 13: 144 (July-Aug.) 1933. Simpson W. M. Artificial Fever Therapy. *Proc. Staff Meet. Mayo Clin.* 9: 567 (Sept. 19) 1934. Hensch P. S., Slocumb C. H. and Popp W. C. Fever Therapy. Results for Gonorrheal Arthritis. *Chronic Infectious (Atrophic) Arthritis and Other Forms of Rheumatism*. *J. A. M. A.* 104: 1779 (May 18) 1935. Desjardins A. U., Stuhler L. G. and Popp W. C. Fever Therapy for Gonococcal Infections. *ibid.* 104: 873 (March 16) 1935. Stuhler L. G. Fever Therapy of Gonococcal Infections. *Proc. Staff Meet. Mayo Clin.* 10: 207 (March 27) 1935. Desjardins A. U. Fever Therapy. *Texas State J. Med.* 31: 194 (July) 1935. Owens C. A. The Value of Fever Therapy for Gonorrhea. *J. A. M. A.* 107: 1942 (Dec. 12) 1936.

elected to rely on the more standard measures. This young man developed a most severe arthritis and is still in a wheel chair after six months. Doubtless he has served as an example to other possible timid souls in the group who might have otherwise objected to the discomfort of fever therapy. Of the group of eighty-seven patients, forty-three were treated with fever therapy, forty-four were treated by the usual means

EQUIPMENT

Through the courtesy of Dr. Walter M. Simpson and Mr. C. F. Kettering, two Kettering hypertherms were provided for this and certain other studies. This apparatus has been described elsewhere³ and therefore needs no further description at this time. This equipment has in our hands proved to be a thoroughly satisfactory modality for the induction, maintenance and control of fever.

METHOD

Patients assisting in this study were, after examination, classified into the following series:

1. Acute gonorrhea, urethritis of less than ninety days' duration, without demonstrable complication such as prostatitis or the like. No effort was made to differentiate further between anterior and posterior urethritis.

TABLE 1—Acute Gonorrhea

	Fever Treated Group	Control Group
Number of patient	11	11
Time treated (days)	24	81
Percentage cured	72.7	72.7
Residuals (prostatitis and other complications)	0	3
Average amount of effective fever required (hours)	21 plus	

2. Acute prostatitis and complications, urethritis plus prostatitis, seminal vesiculitis and often epididymitis, all of less than ninety days' duration.

3. Chronic prostatitis and complications, morning urethral discharge or more, with clinical prostatitis and often seminal vesiculitis, epididymitis or the like of more than ninety days' duration.

All cases showed typical micro-organisms in Gram-stained smears. In actual practice we selected the cases for fever therapy and then selected control cases to parallel the fever-treated group.

Persons given fever therapy were treated for five hour periods at temperatures of 106.6-107 F every third day. Treatment was continued in each case until at least one treatment was given after the patient was clinically and bacteriologically well.

Proof of "cure" in gonorrhea has long been a bone of professional and lay contention. During this study we found that we could be reasonably sure of our results if the patient responded clinically after two or three treatments and then was given from one to two additional "safety first" treatments. Following clinical "cure" these patients were then placed on labor details and worked at hard manual labor under supervision. They continued to live in an isolated, protected environment for a period of thirty days. Each patient was examined at least once daily, and at least three prostatic smears were studied microscopically each week during the probationary period. If the patient remained clinically well and bacteriologically negative in the sense of

presenting normal prostatic smears for this time, he was then returned to a normal work status, reporting to a physician for examination every week. This last has proved effective in only about one third of the cases, since we were necessarily forced to relinquish our previous complete control of the patient when he returned to his work. The patients and their physicians have cooperated well, however, so that all the "cures" reported here are clinically and bacteriologically nega-

TABLE 2—Acute Prostatitis and Complications

	Fever Treated Group	Control Group
Number of patients	14	14
Time treated (days)	22	84
Percentage cured	85.8	71.4
Average amount of effective fever required (hours)	18 plus	

tive entities of at least five months' duration. When it is realized that the group under consideration is a laboring group almost exclusively, the term "cure" as used here would appear to be, for all practical purposes, satisfactory. Many of these men have reported alcoholic excesses without evidence of recurrence.

RESULTS

SERIES 1—Acute Gonorrhea—The data from this series are presented in table 1. In this series it will be noted that the number of cures in each group was the same, 72.7 per cent, but the fever-treated cases showed no residuals (such as chronic prostatitis) and accomplished the result in approximately one-third the time required in the control group. The control group were under treatment a total of 594 days longer than were the fever-treated group.

SERIES 2—Acute Prostatitis and Complications—The data from this series are presented in table 2. In this table it will be noted that the number of cures in the fever-treated group is significantly greater than is the case of the control group. The time required for the treatment of the fever-treated group was approximately one-fourth that necessary in the control group. It is of interest to note that, in the fever-treated group, cases of acute prostatitis with urinary retention and severe pain were uniformly rendered asymptomatic in one treatment.

SERIES 3—Chronic Prostatitis and Complications—The data from this series are presented in table 3.

TABLE 3—Chronic Prostatitis and Complications

	Fever Treated Group	Control Group
Number of patients	18	19
Time treated (days)	28	105
Percentage cured	88.8	31.5
Average amount of effective fever required (hours)	22 plus	

This series represents the most resistant type of case encountered. In the control group it will be noted that we felt justified in classing less than one third of our cases as cured, whereas the fever-treated group showed definite cures in all but two cases. These last two cases were twelve and fifteen years, respectively, in duration. The time required for treatment was approximately four times as long in the control group as in the fever-treated group.

³ Simpson, W. M. Artificial Fever Therapy of Syphilis. J. A. M. A. 105: 2132 (Dec. 28) 1935.

COMMENT

This study has been carried on over a period of one year, during which time complete control has been maintained over all patients, both fever-treated and control groups. The average age of the patients in the entire study was 27 years, although several were above the age of 40. We have observed increased technical difficulties in treating with fever patients older than 40 years. Although no statistical study was made on the point in this small series, we have gained the impression that relatively few patients above the age of 40 tolerate fever therapy for gonorrhea safely. No untoward effect was noted from fever therapy in this entire study.

Study of the cases in which failure to accomplish a "cure" was noted indicates that, in each case in which fever therapy was used, inadequate treatment was given. This was, with one exception, due to poor judgment on our part. The one exception noted was a white man of 49 who had an active duodenal ulcer as a complicating factor. Because he tolerated fever poorly he was given only seven hours of effective fever, after which all urethral discharge ceased and he became asymptomatic. Oddly enough, his ulcer symptoms became less and he gained 28 pounds (13 Kg.) during a forty day probationary period. This case is classified as "improved."

Two fever-treated patients developed gonorrheal ophthalmia after the first treatment, apparently because of carelessness on the part of each patient. In each case this complication cleared entirely when the second treatment was given.

In no case treated with fever therapy was the final bacteriologic examination positive, in seven cases in the control group the prostatic smears occasionally showed typical micro-organisms even after the symptomatology was negative. All such cases are classified as improved rather than cured.

This study was undertaken not with the idea of criticizing any form of therapy but in order that we might evaluate fever therapy and chemotherapy in our own hands. Other clinics have reported quicker results with potassium permanganate irrigations and silver salt instillations than we have obtained, still others have reported greater periods of time as a necessary requirement. We know of no work, however, in which the investigators have been so fortunate as have we in having complete control of all our patients throughout the entire series. The United States Army⁴ reports a loss of approximately fifty days' time from duty in the average case of gonorrhea. This is approximately twice that which we have observed in the fever-treated cases but less than we found in our control cases. The army figures, however, do not show recurrences with rehospitalizations, so that the total loss of time in the average individual case of gonorrhea is higher than the reported figure of fifty days. Brunet and Seltzer⁵ found that the average duration of treatment for the complicated cases was 148 days and for the uncomplicated cases eighty-nine days. The last-mentioned figures are not remarkably different from the figures in our control group. The chemotherapy utilized by these workers was essentially that which we applied in our control group. It is also of interest that these workers report the discharge of only 32.5 per cent of all their

cases as cured, which is less than the percentage of cures which we obtained in our control group. Although our series of cases is not large it would appear to be representative and the data valid.

CONCLUSIONS

- 1 Fever therapy accomplishes more cures in gonorrhea in the male than does chemotherapy.
- 2 Fever therapy greatly reduces the duration of gonorrheal infection in the male.

PHENOBARBITAL CONTRAINDICATED
IN PARKINSONISM

EUGENE ZISKIND, M.D.

AND

ESTHER SOMERFELD ZISKIND, M.D.

LOS ANGELES

By error in December 1935 a patient suffering with chronic encephalitic parkinsonism was given phenobarbital 1½ grains (0.1 Gm.) three times a day instead of his usual scopolamine hydrobromide therapy. Within four days he became bedridden with rigidity so marked that the body could be moved as if made of one block. This extreme rigidity disappeared very rapidly when the phenobarbital was discontinued, the condition returning to its previous state. Recently we saw another patient with the same illness who, as a result of phenobarbital therapy, had a marked aggravation of her rigidity, which receded on removal of the drug. In addition, we have administered this drug in three other cases of parkinsonism for the purpose of observing the effect on rigidity. The following reports demonstrate the inadvisability of using phenobarbital in patients with Parkinson's disease.

REPORT OF CASES

CASE 1—*Ambulatory patient with parkinsonian rigidity of seven years' duration due to lethargic encephalitis. Profound increase of rigidity resulted in confinement to bed after administration of phenobarbital. Return to previous state after this therapy stopped.*

G. Y., a man, aged 49, presented himself at the Good Hope Clinic in 1932 with a tremor of the right hand, dragging of the right foot and pain in the right shoulder and right upper quadrant of the abdomen, all of four years' duration. The tremor and dragging of the leg were progressive, as was the abdominal pain, which was not related to the intake of food and was described as feeling as if a brick were there. The remainder of the systemic history was essentially negative. There was a history of influenza in 1918, when the patient was confined to bed for six weeks and was lethargic most of the time. He did not recover strength for the ensuing three or four months and after that suffered with insomnia and impaired vision for six months.

The past history included also pertussis and measles in childhood, an infection of the right index finger in 1911 and tonsillectomy in 1920.

The general physical examination revealed no pertinent abnormalities. The neurologic examination showed masked facies, flexion posture with plastic rigidity of the right arm, dragging of the right foot, loss of associated automatic movements in the right arm in walking, coarse tremor of the right hand and arm particularly marked when at rest, slight right facial weakness of the central type, more marked on emotional expression, paralysis of ocular convergence, and hyperactive deep reflexes. The plantar reflexes and the remainder of the neurologic manifestations were within normal limits.

The blood count was normal and the blood Wassermann reaction was negative. On one occasion 1 per cent sugar was

⁴ Annual Report of the Surgeon General U. S. Army 1935 Washington: D. C. United States Government Printing Office 1935.

⁵ Brunet, W. M. and Seltzer, Sam. *The Treatment of Gonorrhea in the Male. A Study of 600 Cases of Gonorrhea Treated with Irrigations of Potassium Permanganate and Injections of Silver Proteinate.* Am. J. Syph. Gonorr. & Ven. Dis. 20: 492 (Sept.) 1936.

discovered in the urine, but later urine tests were all negative and the blood sugar was 122 mg per hundred cubic centimeters. Roentgenograms of the chest, gallbladder, gastro-intestinal tract and genito-urinary tract were negative.

The diagnosis was parkinsonism due to chronic encephalitis. The patient was placed on scopolamine hydrobromide therapy. During the course of the next three years considerable rigidity in all extremities and bilateral tremor developed. Dec 4, 1935, he was given phenobarbital $1\frac{1}{2}$ grains three times a day by mistake in place of scopolamine hydrobromide. Five days later this previously ambulatory patient became bedridden and when seen December 12 presented an extreme degree of rigidity, so that the entire body could be moved as if in one piece. After phenobarbital was discontinued, the extreme rigidity disappeared and the condition returned to the previous state within a few days. At the present time he seems to be none the worse for the experience.

CASE 2—Woman, aged 58 with parkinsonism of four years duration plus hypertension and a mild degree of arteriosclerosis. Parathyroidectomy one and one-half years before with aggravation of parkinsonian symptoms. Phenobarbital therapy produced a bedridden condition because rigidity increased. Disappearance of aggravated symptoms when phenobarbital was discontinued. Reproduction and disappearance of same symptoms when phenobarbital was again consecutively administered and discontinued.

We first saw the patient at the Cedars of Lebanon Hospital, Nov. 21, 1936, and were informed that when she had presented herself at the outpatient department nine days previously the diagnosis of Parkinson's syndrome was made and she was given prescriptions containing potassium iodide, tincture of stramonium and phenobarbital, respectively. The phenobarbital was administered in doses of $1\frac{1}{2}$ grains three times a day. The patient's symptoms had become acutely aggravated so that she could not leave her bed, and she was therefore admitted to the hospital November 16. Here she received tincture of stramonium plus phenobarbital 1 gram (0.065 Gm.) at night until seen by us.

At our examination the presenting complaints included tremor of the lips, hands, arms and legs and weakness of four years' duration. The onset was insidious after the death of a son four years before. At first the tremor appeared in the feet, later it involved the hands, the right side being more affected than the left. The tremor increased on emotional tension and disappeared during sleep and also with motion. The symptoms were progressive, becoming definitely increased at the time the husband died one year after the onset. Eighteen months before admission the patient had one or two parathyroid glands removed in an attempt to cure the symptoms. The parkinsonism, however, became more marked. At that time the blood pressure was known to be 180 systolic, 100 diastolic. However the patient was able to work, and nine months before admission she took a bus ride from Chicago to Los Angeles. She presented herself at the clinic because of progressive disability but was apparently able to get around and care for her wants. She had lost 45 pounds (20 Kg.) in the last eighteen months. Otherwise no pertinent symptoms other than constipation and free perspiration were noted on systemic inquiry. Both the patient's mother and son had died of carcinoma. Appendectomy and hernioplasty had been performed fifteen years previously. There was no history of influenza or encephalitis. The patient had passed the menopause.

On physical examination the temperature was 96 F, pulse 60, respiration rate 20, blood pressure 190 systolic, 124 diastolic and weight 123 pounds (56 Kg.). The teeth were absent, the heart was enlarged to the left beyond the nipple line in the fourth intercostal space, and there was sclerosis of the peripheral vessels. There was an operative scar over the thyroid and also on the abdomen. The temperature had been 98.2 F on admission five days earlier, but had gradually fallen each day until it was 96 F at this examination.

Neurologically the patient presented the familiar picture of parkinsonism with an extreme degree of rigidity. She was confined to bed, with inability to turn herself from side to side or to sit up unaided. The spine was flexed anteriorly, the neck and head were held rigid, and the four extremities were sharply flexed. The pin rolling posture of the hands was classic. There were characteristic masking of the face, tremor of the tongue and jaws, and definite dysarthria. The patient showed some degree of emotional instability in that she laughed and

cried spasmodically. Nystagmus was recorded in an earlier examination but was not present at this time. Weakness was particularly marked, the dynamometer registering 25 for the right handgrip and 50 for the left. There was a coarse tremor of both hands and legs, being more marked at rest and tending to disappear in motion. Cogwheel rigidity of the extremities was demonstrated both on extension and on flexion. Although able to walk previous to coming to the hospital, the patient at this time could not stand unassisted. The remainder of the neurologic examination was negative. A diagnosis was made of Parkinson's syndrome, probably on an arteriosclerotic basis. The acute exacerbation of parkinsonian rigidity was attributed to phenobarbital in view of our past experience with this drug.

The phenobarbital was discontinued and the patient became progressively better, so that she was able to walk and help herself in and out of bed, as she had done previous to coming to the outpatient department. The temperature returned to normal. November 29, the patient was walking unaided. On that day scopolamine hydrobromide $\frac{1}{100}$ grain twice a day was prescribed and the tremor was controlled. December 1 scopolamine hydrobromide was discontinued and the patient was still ambulatory, though the tremor returned. December 4, phenobarbital was again prescribed, the patient receiving 1 grain daily. The first dose was given at night. The next day the patient complained of difficulty in feeding herself and also of inability to move freely in bed. These symptoms became more marked December 6, and December 7 the dose of phenobarbital was increased to $1\frac{1}{2}$ grains twice a day. At 8 p.m., after the patient had had two tablets, she was unable to get out of bed unaided or even turn on her side and had to be helped with her feeding. When placed on her feet she showed marked festination in walking and would have fallen several times had she not been supported. At this time her condition was similar to what it had been when we first saw her on November 21. She could not stand unassisted and was confined to bed in one constant position because of rigidity. December 9, phenobarbital was discontinued. Four days later the patient was again ambulatory and was discharged from the hospital. She has since been seen in the outpatient department and appears to be no worse for her experience with the phenobarbital.

CASE 3—Man with Parkinson's syndrome of the degenerative type. Rigidity increased with administration of phenobarbital. Return to previous state on discontinuance of medication.

A man, aged 49, a miner, presenting himself at the Los Angeles County General Hospital Nov. 11, 1936, complained of dizziness of one year's duration. This dizziness was relieved by lying down, though it was constantly present in the erect posture. Slowness of movement had been noted for one year and stiffness of the neck for four weeks. The patient during the past year had received antisyphilitic treatment with a bis muth compound, although the Wassermann reaction of the blood had never been positive. There was a history of a penile sore from six to eight years before, which healed in a few weeks and was not followed by secondary lesions. The patient's wife had never been pregnant.

Systemic inquiry further revealed blurring of vision from presbyopia, occasional tinnitus, an intermittent mild cough attributed to cigarettes, dyspnea on exertion in the last year or two, and loss of 15 pounds (7 Kg.) in the last six or eight months. Past illnesses included scarlet fever and typhoid in 1905, bronchitis in 1911, frequent colds, cholecystectomy in 1925, ventral herniorrhaphy, and tonsillectomy in 1926. He was in an automobile accident one year before in which he lost consciousness for one hour, though he suffered no subsequent disability.

On physical examination the temperature was 98 F, pulse 76 and respiration rate 20. The blood pressure was 125 systolic, 95 diastolic, the height 5 feet $6\frac{1}{2}$ inches (169 cm.) and the weight 145½ pounds (66 Kg.). The skin was dry, with seborrheic dermatitis of the chest. There was moderate dental caries. Examination of the neck, lungs, heart and abdomen was negative. The patient showed stooped posture with head and neck held rigid, the arms slightly flexed at the elbows and the fingers flexed toward the palms, he manifested very little change of position over relatively long periods. The facial expression did not vary (typical masked facies). Winking of the eyes occurred infrequently. In walking there was a loss of associated automatic movements in the arms and a tendency toward festination. Both hands exhibited coarse tremor. The

pupils were slightly irregular and reacted sluggishly to light. The deep reflexes were hyperactive. The remainder of the neurologic examination was negative. Laboratory tests, including urinalysis, blood count and Wassermann reaction of the blood and spinal fluid, were normal.

The diagnosis was parkinsonism of the degenerative type. The reference to syphilis and trauma in the history is difficult to evaluate and is not pertinent to the present discussion.

December 2, the patient was given phenobarbital $1\frac{1}{2}$ grains twice a day and seven days later the dose was changed to $1\frac{1}{2}$ grains three times a day. Within a few days the patient began to complain of increasing stiffness. Whereas originally he was able to extend his arms over his head freely, it became increasingly difficult for him to do so. Phenobarbital was maintained until the patient was barely able to raise his arms from the natural position at his sides. Then the phenobarbital was discontinued and two days later the patient was able again to elevate his arms over his head.

CASE 4—*A man with degenerative parkinsonism, who became acutely worse when placed on phenobarbital therapy, $1\frac{1}{2}$ grains twice a day for three days. This was especially noted in his walking.*

This case is not reported in detail because the patient failed to return for complete observation.

CASE 5—*Man presenting Parkinson's syndrome probably due to chronic encephalitis. Increased rigidity manifested after $7\frac{1}{2}$ grains of phenobarbital administered over forty-eight hours.*

I. P., a man, aged 45, Caucasian, a painter and designer, was admitted to the outpatient department at the Los Angeles County General Hospital Jan. 4, 1937, with symptoms of tremor of the right hand and generalized weakness for one and one-half years and tremor of the right lower extremity for one year. These symptoms were slowly progressive, but there was no involvement of the left side. The gait had become slowed and in the last three months there was a tendency to fall forward in taking quick steps. Right parietal headache related to constipation had been present for a year and a half, impaired hearing on the right for six months, and slowing of speech for one month. There were no mental symptoms. Nocturia, from three to four times a night, was noted on systemic inquiry.

In 1917 the patient had influenza in Rumania and was confined to bed for only three or four days but did not regain his previous state of health for two months. There was no diplopia, headache or disturbance of the sleep rhythm. Past and family histories were otherwise irrelevant.

On physical examination the temperature was 97.8 F., pulse 52, respiration rate 18, weight 158 pounds (72 Kg.), height 5 feet 6 inches (168 cm.) and blood pressure 105 systolic, 70 diastolic. There were no signs of arteriosclerosis. The general examination was not noteworthy. There was a flat facies with slowness of both movement and speech. Winking was infrequent. In walking there was no swing in the right arm, which was flexed at the elbow and showed a coarse pin rolling tremor in the fingers, the left arm did swing through a diminished excursion but was not flexed. Rigidity in the right arm and leg was of the plastic type and contrasted definitely with the normal tonicity on the left. In walking there was an intermittent scraping of the right foot. The patient could extend the two hands overhead almost equally, and when lying on his back he could flex the right thigh to an angle of 60 degrees and the left thigh to 90 degrees. In sitting down he assisted himself with both hands. The deep reflexes were active and equal, as were the superficial reflexes. There were no sensory abnormalities and the temperature of the affected extremities was normal. The cranial nerves were also normal except for pupillary inequality (the right being greater), paralysis of ocular convergence and slowness of speech. Urinalysis, and the Wassermann reaction of the blood were negative and the blood count was normal. The diagnosis was encephalitic parkinsonism. No medication was administered. January 11 phenobarbital $1\frac{1}{2}$ grains twice a day was prescribed. January 12 there was no demonstrable change. The phenobarbital was increased to $1\frac{1}{2}$ grains three times a day. January 13 the patient reported more difficulty in walking and numbness of the right lower extremity but slight improvement in the tremor. Objectively, the gait was slower and both feet scraped in walking, there was an increased rigidity in the right arm and leg with an appearance of rigidity in the left leg, an inability to

elevate the right arm as high as the left, a limitation of elevation of the thighs on the right to 45 degrees and on the left to 60 degrees, and a few nystagmoid jerks when he looked to the left. The cogwheel phenomenon was not noted though it had been present previously. January 14 the patient was admitted to the clinic in a wheel chair. The gait had become so bad that he fell for the first time. "My mind and leg don't work together," he complained. He felt that the tremor was improved. Drowsiness and numbness of the right leg were present. He was obviously much slower in all motions. He could elevate the arms and legs about the same as on the previous day, though to a less degree. There was no nystagmus. The phenobarbital was discontinued. January 18 the patient was improved. The rigidity was diminished and he was now able to perform the same degree of movement as previous to the phenobarbital therapy. He was more rapid in his movements and in walking dragged only the right foot. The tremor was slightly increased. There was no rigidity in the left lower extremity.

COMMENT

In view of the foregoing clinical experience, one must conclude that phenobarbital is contraindicated in cases of parkinsonism. The possibility of aggravating the rigidity with moderate therapeutic doses leaves no question as to the undesirable effect of this drug. As yet the minimum adverse dose cannot be stipulated. The effect is presumably the same in all types of the syndrome, although our cases are few, inflammatory, degenerative and arteriosclerotic parkinsonism are included. Since these patients frequently suffer from insomnia, it is not surprising that hypnotics of the barbituric acid group are prescribed. One would surmise that barbiturates have a widespread vogue among these patients. The harmful effect herein recorded definitely indicates the inadvisability of such therapy.

The mechanism of phenobarbital in these cases is of interest. The barbiturates are frequently referred to as brain stem hypnotics. The predilection of these drugs for the basal nuclei of the brain is still a subject of much controversy. Although there are many references in the literature to an affinity of the barbituric derivatives for the central nervous system and even the basal ganglions, only two bits of evidence are pertinent. In the first place, postbarbital parkinsonism has been described as one of the symptoms of overdosage.¹ Secondly, the Keesers² demonstrated experimentally the presence of the chemical salts exclusively in the thalamus and corpus striatum. Koppanyi³ and his associates reported contrary results, for they obtained barbiturates from all parts of the nervous system and also from other organs. The Keesers,⁴ however, in a later communication insisted that small doses were essential to demonstrate a selective affinity as shown in their studies, whereas Koppanyi and his associates used large quantities of the drugs. Whatever one may conclude from a review of the literature treating with selective versus generalized activity of the barbiturates, the fact that in barbital poisoning parkinsonian symptoms do occur throws much light on our problem. With the basal ganglions already diseased in parkinsonism it is easy to visualize the increased disability resulting from drugs acting on the same nuclei, whether or not the drugs have action elsewhere.

¹ Meerlo, A. M. On the Action of Barbituric Acid Compounds. A Contribution to the Prolonged Narcosis Treatment of Mental Symptoms. *J. Ment. Sc.* 79: 336 (April) 1933. Stone, C. W. Some Undesirable Effects from the Prolonged Use of Various Barbiturates. *Ohio State M. J.* 32: 209 (March) 1936.

² Keeser, E. and Keeser, J. Localization of Veronal Phenylethyl and Diallyl Barbituric Acid in the Brain. Problem of Sedatives. *Arch. f. Exper. Path.* 125: 251. 1927. *Chem. Abstr.* 22: 639. 1928.

³ Koppanyi, T., Dille, J. M. and Krop, S. Studies on Barbiturates. VIII. Distribution of Barbiturates in the Brain. *J. Pharmacol. & Exper. Therap.* 52: 121 (Oct.) 1934.

⁴ Keeser, E. and Keeser, J. Studies on Barbiturates. Distribution of Barbiturates in the Brain (remarks on Koppanyi, Dille and Krop). *J. Pharmacol. & Exper. Therap.* 53: 137 (Jan.) 1935.

Hodskins and Yakovlev⁵ refer to an end stage of physical deterioration in epileptic patients which they characterize as neurosomatic deterioration, the parkinsonian syndrome being the chief feature. One wonders to what extent this late picture may be due to the prolonged use of phenobarbital in epilepsy.

From the diagnostic standpoint one frequently sees patients in the early stages of parkinsonism with the process mild and limited to one extremity, when the diagnosis cannot be made with absolute certainty. At this stage it may be difficult to make a differential diagnosis from multiple sclerosis, prehemiplegic tremor due to neoplasms or other low grade chronic or subacute cerebral processes, and other less common clinical conditions. If phenobarbital has a specific effect on the mechanism of plastic rigidity and not on the other types of rigidity, there may be a diagnostic aid for isolating the early Parkinson cases.

Likewise, from a therapeutic standpoint the question arises as to whether or not physiologic antidotes for the barbiturates may not have a salutary influence in the treatment of this type of rigidity. Studies with regard to these factors are now in progress.

CONCLUSION

Phenobarbital therapy in five cases of parkinsonism has resulted in an aggravation of the rigidity already present. The five cases include the three chief etiologic types of the syndrome. Phenobarbital and probably the other barbiturates as well, are contraindicated in parkinsonism.

2007 Wilshire Boulevard

LEUKOCYTE BEHAVIOR DURING GASTRIC ANALYSIS

A CRITICAL STUDY OF THE "LEUKO- PENIC INDEX"

CHARLES-FRANCIS LONG, M.D.

PHILADELPHIA

In 1931 Kern¹ suggested that there might be some relation between peptic ulcer and allergy, in 1934 Vaughan² seemed to prove a definite relationship between leukopenia and food allergy, still later Rinkel³ and Zeller⁴ added their similar work, and only last year Gay⁵ stated that peptic ulcer may in some instances be associated with a definite food sensitivity.

It would therefore seem logical to suppose that, if such cases were to be found, they would be open to discovery in a gastro-intestinal clinic, especially such a clinic as ours, which uses the Ewald test meal of bread and water, the bread containing those most usual and powerful allergens milk and wheat.

The problem that presents itself was consequently twofold: to study, first of all, leukocyte behavior during 100 consecutive gastric analyses, with no preconceived bias, with no limitation as to type of case considered or its pathologic classification, but simply with a view to the occurrence of leukopenia and its possible relation-

ship to various acid values. By observing this relationship we would bring ourselves to the second consideration: Shall we abandon the Ewald test meal because its factor of error due to its allergic contents would prove too great a risk to tolerate in modern medicine?

On June 1, 1936, we began our experiments. On June 6, 1936, THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION appeared with an editorial⁶ casting grave doubt on the value of the work of Gay, and by corollary on that also of Rinkel and Vaughan. Now with our series complete, we feel that the results which lie before us conclusively uphold the theoretical prognostications of that editorial.

Turning first to our precursors, the text of Vaughan's research gives as the basis of recognition of an allergen the behavior of the leukocytes during the use of the suspected food as a test meal. In patients who show

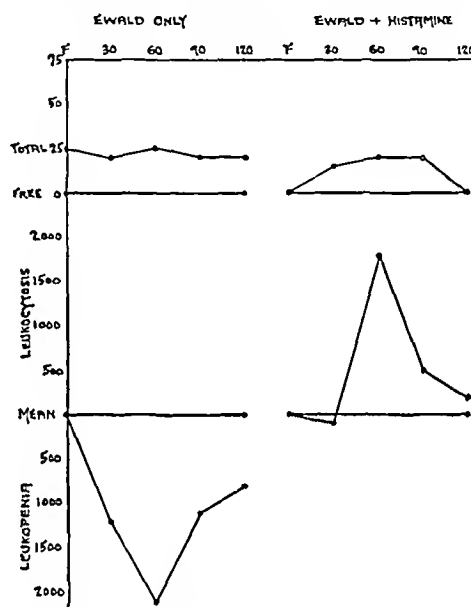


Chart 1—Leukopenia with Ewald test alone, leukocytosis with Ewald test plus histamine.

such allergy, a leukopenia of more than 1,000 cells is said to occur within an hour after the ingestion of the offending allergen. Gay further states that in ulcer cases this leukopenic manifestation is also associated with a hypochlorhydria or an achlorhydria.

In order to evaluate the curves formed by these blood counts we turned to the work of Rinkel, whose definitions we were glad to accept for the purposes of this experiment. Based on a series of 5,000 counts, Rinkel has divided the leukocyte responses into three types of curves:

- 1 The compatible curve, which is a leukocytosis of more than 1,000 cells above the mean base line.
- 2 The indeterminate curve, which may swing above or below the base line or show a sort of pendulum effect but does not vary 1,000 cells up or down.
- 3 The incompatible curve which is a leukopenia of more than 1,000 cells below the mean base line.

In composing our experiment, we resolved to control it as closely as possible. A technician whose accuracy in leukocyte counts has been checked and proved in many instances was asked to do all the counts. The technic of Vaughan was carefully carried out. The same pipet was used for each patient. The counts were

⁵ Hodskins M. B. and Yakovlev P. I. Neurosomatic Deterioration in Epilepsy Arch Neurol & Psychiat 23: 986 (May) 1930.
From the Gastro-Intestinal Clinic of Temple University Medical School.

The funds for this research were furnished by a donor who prefers to remain anonymous.

¹ Kern R. A. and Stewart S. G. J. Allergy 3: 51 (Nov.) 1931.
² Vaughan W. T. J. Allergy 5: 601 (Sept.) 6: 78 (Nov.) 1934.
³ Rinkel H. J. J. Lab. & Clin. Med. 21: 814 (May) 1936. J. Allergy 7: 356 (May) 1936.
⁴ Zeller M. Illinois M. J. 69: 54 (Jan.) 1936.
⁵ Gay L. P. Gastro-Intestinal Allergy J. A. M. A. 106: 969 (March 21) 1936.

⁶ The Leukopenic Index and Food Allergy editorial J. A. M. A. 106: 1933 (June 6) 1936.

done in the same room at the same time on each clinic day, so that as far as possible the psychogenic factor was controlled. The same test meal, the Ewald, was used throughout and the patients consumed it within relatively the same space of time. Those patients who showed an achlorhydria were requested to return for

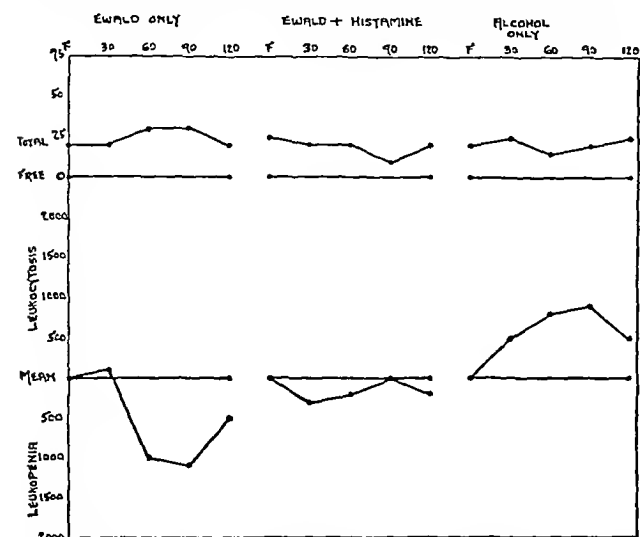


Chart 2—Leukopenia with Ewald test alone. Slight leukopenia with Ewald test plus histamine. Leukocytosis with alcohol meal.

a recheck with not only the same test meal but also a hypodermic injection of histamine. When possible, we attempted a further check using alcohol as the test meal.

RESULTS

In this series of 100 patients we performed 113 fractional gastric analyses with 678 simultaneous complete leukocyte and differential counts, one at each fractional withdrawal. Of our 100 patients, thirteen showed achlorhydria, twelve showed hypochlorhydria, thirty-five showed euclorhydria and forty showed hyperchlorhydria.

Since the differential counts did not vary significantly from one period to another, thereby giving no diagnostic information, we agreed to discard them.

TABLE 1—Total Leukocyte Behavior

	Totals	Achlor hydria	Hypo chlor hydria	Euclor hydria	Hyper chlor hydria
Number of cases	13	12	30	40	
Indeterminate curves	21	15	7	14	15
Compatible curves	27	3	2	10	12
Incompatible curves	35	4	3	15	13
	113	22	12	39	40

Turning first then to the total leukocyte behavior, one finds that seventy-eight of the curves, or 69 per cent, fell into the indeterminate (fifty-one) and compatible (twenty-seven) groups which percentage held true as a general rule in all four groups of acid curves (table 1). This, by the criteria of Rinkel, leads to the inference that seven out of ten patients complaining of gastro-intestinal symptoms do not have evidence of allergy to the Ewald test food. But when one looks to the three out of ten who showed incompatible curves in this study, one fact becomes promptly apparent. As, in table 1, one proceeds from the achlorhydric through the hypochlorhydric and euclorhydric groups on up to the hyperchlorhydric, one finds an ascending percentage of incompatible curves: achlorhydria 18 per

cent, hypochlorhydria 25 per cent, euclorhydria 33 per cent, hyperchlorhydria 38 per cent. This, then, is the only relationship we could discover between leukopenia and the acid value and it seems to be the exact opposite of that promulgated by Gay.

This, however, is only an apparent relationship, for in the individuals studied the leukocytes behaved in an absolutely unpredictable manner. Of several achlorhydric patients

1. A patient with the Ewald test alone showed a leukopenia 2,100 cells below the mean. Then with Ewald plus histamine a leukocytosis 1,800 above the mean (chart 1).

TABLE 2—Acid and Leukocyte Relationships in Proved Peptic Ulcer

	Totals	Achlor hydria	Hypo chlor hydria	Euclor hydria	Hyper chlor hydria
Number of cases	14	0	1	5	8
Incompatible curves	7	0	0	2	5
Indeterminate curves	2	0	1	1	0
Compatible curves	5	0	0	2	3

2. Another patient with the Ewald test alone showed a leukopenia of 1,100 cells below the mean. With the Ewald test plus histamine the leukopenia was only 300 cells. With the alcohol meal there was a leukocytosis of 900 cells (chart 2).

3. A third patient had a leukopenia of 2,100 cells below the mean the first hour and a leukocytosis of 900 cells the second hour with the Ewald meal. With the Ewald plus histamine the leukopenia was 1,900 cells. When alcohol was used there was a leukocytosis of 2,100 cells (chart 3).

4. Finally, a patient with the Ewald meal showed a leukocytosis of 700 cells, but when the Ewald plus

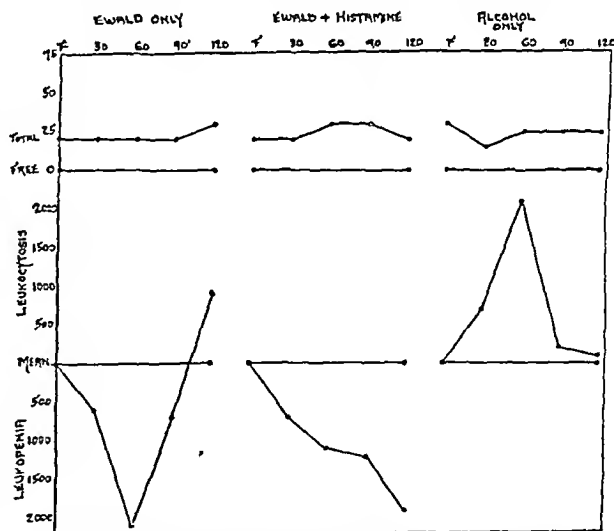


Chart 3 Leukopenia the first hour and leukocytosis the second hour with Ewald meal. Leukopenia with Ewald test plus histamine. Leukocytosis with alcohol.

histamine was used a leukopenia of 700 cells developed (chart 4).

Then, if one follows the criteria of Rinkel, one must believe from the figures here compiled that one out of four hypochlorhydric patients, one out of three of those with normal acid values and two out of five hyperchlorhydric patients are allergic to the bread in the Ewald test meal. In view of the individual variations

that have been detailed, this cannot be accepted as true or constant but merely a variation in the blood of that patient at the particular time the test was carried out. So believing, one can continue to use the Ewald test meal as a routine in gastric study.

To the further credit of this meal may be cited the fact that 13 per cent of the patients had a constant unvarying and complete achlorhydria in spite of histamine, and in those few who submitted to recheck with the alcohol meal regardless of that too.

PEPTIC ULCER AND LEUKOCYTE BEHAVIOR

In this series of 100 patients, fourteen had proved peptic ulcer. Of these, none had achlorhydria, one had hypochlorhydria, five had euechlorhydria and eight had hyperchlorhydria.

The incompatible leukocyte curves numbered seven, five of them associated with hyperchlorhydria and two with euechlorhydria. In no instance did we find an incompatible curve associated with hypochlorhydria or achlorhydria.

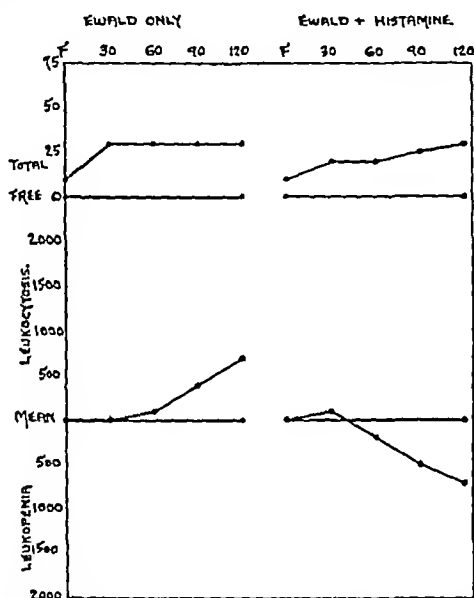


Chart 4—Leukocytosis with Ewald meal. Leukopenia with Ewald meal plus histamine.

There were five compatible curves, three with hyperchlorhydria, two with euechlorhydria. Indeterminate curves were obtained in one euechlorhydria and one hypochlorhydria.

In Gay's six ulcer cases, incompatible curves were obtained in every instance with milk and wheat. Here are incompatible curves with the same allergens in exactly 50 per cent of the cases.

CONCLUSIONS

1 With the technic of Vaughan and the criteria of Rinkel, a study was made of 100 unselected patients from a gastro-intestinal clinic. By means of leukocyte counts during gastric analysis we attempted to survey any possible constant relationship existing between the acid values and leukocyte behavior. We could find none.

2 In this series were found fourteen patients with proved peptic ulcer. In these, too, we could find no constant relationship between acid values and the leukocyte counts.

256 South Twenty-First Street

Clinical Notes, Suggestions and New Instruments

A PATIENT WITH PICK'S DISEASE BENEFITED BY TWO CARDIOLYSIS OPERATIONS TWENTY-ONE YEARS APART

KENNETH B. TURNER, M.D., AND RICHMOND L. MOORE, M.D.
NEW YORK

The patient, who is an Italian-born housewife, was first admitted to the Presbyterian Hospital in April 1914, at the age of 25. Her previous health had been good except for a week in 1906 when she had been kept in bed because of severe pain in the region of the heart and in the left lower chest posteriorly. Further details of this illness are lacking. She had married in 1908 and had had three pregnancies. The first two infants had died shortly after birth. The third was well and vigorous at the age of 2 months.

Six months before admission and while pregnant for the third time, she had caught a severe cold with a troublesome cough. Following this she developed swelling of the feet and legs, which did not grow worse until after delivery, then when she got up and walked about the swelling increased greatly. She became nervous and complained of palpitation and various vague pains.

On admission it was noted that she was pale. There were rales at both lung bases. The heart was enlarged and there was a diffuse apical systolic retraction. Broadbent's sign was present. There were no murmurs, but the second sound at the apex was reduplicated, producing a gallop rhythm. The blood pressure was 114 systolic, 60 diastolic. There was marked ascites. The liver and spleen were enlarged. The legs and thighs showed massive edema. She had a mild hypochromic anemia with leukopenia and there was a faint trace of albumin in the urine. The blood Wassermann reaction was negative.

A diagnosis of adherent pericardium was made and it was thought that she might be benefited by a cardiomyolysis. Accordingly, a month after admission, a chondrectomy with removal of the third to sixth costal cartilages was performed by Dr. Ellsworth Eliot. At operation the pericardium was found to be thickened and adherent to the anterior chest wall. She stood the operation well, the postoperative course was uneventful and she was discharged six weeks later. At discharge she was in excellent condition. No edema or ascites was present. The liver and spleen remained enlarged.

Five months after her discharge from this hospital she had a ventral fixation of the uterus at another institution. For the next ten years she remained symptom free. During this period she was twice pregnant. The first time she had a normal child, the second pregnancy ended in a miscarriage. She became pregnant again and this time she had a difficult labor with an instrumental delivery resulting in the death of the child. She remained in bed for ten days following this and then began to get up about the house. Thereupon her abdomen began to swell and she felt weak. These symptoms progressed during the next month and she again sought admission to the hospital. This was in April 1925.

On examination there was rather marked pallor. The chest showed the old operative scar. There were a few rales at the left lung base. The heart was enlarged to the left by percussion. It was slow and regular. The sounds were of good quality except that the second sound at the apex was strongly reduplicated, producing a gallop rhythm. There was an apical systolic retraction and a positive Broadbent sign. No cardiac murmurs were heard. The blood pressure was 104/60. The abdomen was distended. A fluid wave was easily obtained and there was shifting dullness in the flanks. The liver was 9 cm. below the costal margin, firm, smooth and not tender. The tip of the spleen was just palpable. There was no edema of the ankles or over the sacrum.

A blood count showed 38 million red blood cells with a hemoglobin of 50 per cent. The leukocytes numbered 4,000 with a normal differential count. In the blood smear the red cells varied slightly in size and shape, were rather achromic, and rare nucleated forms were seen. A slight albuminuria was

present consistently, but the urine was otherwise normal. The blood urea was 32 mg per hundred cubic centimeters. The blood Wassermann reaction was again negative and the serum was negative for bile. An intracutaneous tuberculin test was negative. A stereoscopic roentgenogram of the chest showed shadows obliterating both costophrenic angles suggesting a small amount of fluid. There also seemed to be some thickening of the pleura at the right base. Electrocardiographic study showed a few ventricular premature beats on one occasion, a right axis deviation, and only slight change in the electrical axis of the heart when tracings were taken with the patient on her back and on her right and left sides.

The day after admission, 4,500 cc of cloudy greenish yellow fluid, which had a specific gravity of 1.017, was removed from the peritoneal cavity. There were 90 cells per cubic millimeter, of which 75 per cent were lymphocytes and the remainder polymorphonuclear leukocytes. The fluid was sterile on culture but was not injected into a guinea-pig. Following the paracentesis she improved rapidly with bed rest alone. Her course was afebrile. She was discharged after six weeks in the hospital, having been ambulatory for some time without reaccumulation of fluid.

She visited the follow-up clinic at intervals for about a year. Physically she was well during this time, but she developed a mental depression that required the supervision of a psychiatrist. She then failed to visit the hospital for seven years. She reappeared in June 1933 stating that she had been well until a month before, when she had slipped and fallen down a flight of stairs. Following this her legs began to swell. The swelling had progressively become worse, the abdomen had swollen and she had become weak, somewhat dyspneic and slightly nauseated after eating even small amounts of food. She was found to have marked ascites and some edema over the sacrum but not of the legs. The neck veins were somewhat distended. Her heart was as before, the usual rales were heard at the left lung base, the liver and spleen were again readily palpable.

She was readmitted to the hospital but remained only two weeks. On this occasion she was not anemic. The leukopenia persisted. Slight albuminuria was again present. Galactose tolerance and bromsulfalein tests of liver function showed it unimpaired. The serum protein was 4.1 per cent. The sedimentation rate of the red blood cells was 8 mm in one hour. Electrocardiograms showed that right axis deviation was still present and that there was a considerable shift in the electrical axis when films were taken in three positions. A roentgenogram gave evidence of calcification in the pericardium. The venous pressure was 117 mm of water on admission, dropping to 65 mm with improvement.

With bed rest the edema and ascites disappeared rapidly. She lost 9 pounds (4 Kg) in a week, and after another week she was discharged in good condition. For the next fifteen months she remained well. She then began to have vague abdominal pain and developed edema and ascites which increased steadily in amount in spite of bed rest. Left pleural pain with a loud pleural friction rub appeared. Finally, in February 1935, she was again admitted.

On this occasion her physical examination was much as it had been on previous admissions. The neck veins were not prominent. Again dulness and rales were found at the left base. The heart had the same reduplicated second sound causing a gallop rhythm and there was a marked systolic retraction at the apex. The abdomen was protuberant as the result of ascites. The liver and spleen were enlarged as before. There was edema of the legs and over the sacrum. The blood pressure was 100/70.

The hemoglobin was 75 per cent with 5 million red blood cells. The leukocytes numbered only 3,200 with a normal differential count. The sedimentation rate was 9 mm. Albuminuria was no longer present. The serum nonprotein nitrogen was 24 mg per hundred cubic centimeters. A hypoproteinemia was again present with a serum protein of only 3.8 per cent. A protein partition was not done. The intracutaneous tuberculin test again was negative. The venous pressure was not elevated, measuring 90 mm of water. The electrical axis of the heart as determined by electrocardiography shifted with change in the position of the patient. Calcification was again noted in the pericardium by x-ray examination and in the lungs there was calcification at both hili, more on the left with thickening of the pleura at the left base. The parenchyma of the lungs was clear. The heart seemed definitely enlarged.

The right border was a maximum of 62 cm from the mid sternal line, the left border was 98 cm. The total transverse diameter of the heart was thus 16 cm, while the internal diameter of the chest measured 26 cm. There had been no increase in the heart size, however, since 1933.

With bed rest, restriction of fluids and a high protein low salt diet she had a prompt diuresis. Edema and ascites decreased markedly, her weight fell from 104 pounds (47 Kg) to 87½ pounds (40 Kg), the serum protein rose rapidly to 7.3 per cent. However, because of her increasing tendency to develop ascites even when resting at home, because of her favorable response to her previous operation twenty-one years before, and because of the obvious systolic retraction at the apex with evidence of regeneration of the ribs previously removed it was decided that another cardiomyolysis should be attempted. This accordingly was performed in March 1935, six weeks after admission by one of us (R. L. M.) whose note follows.

This case was considered a suitable one for the Brauer type of operation because there was a systolic retraction of the left anterior chest wall with each heart beat. This was especially pronounced just lateral to the previous scar. The costal cartilages which had been resected by Dr. Eliot had regenerated almost entirely as bone. However, there was some cartilage connecting the fifth rib with the sternum, which had probably been left behind at the previous operation. The heart appeared to be enlarged and there was a dense scar in the anterior mediastinum binding the heart and pericardium to the sternum just lateral to the midline opposite the fifth intercostal space. The pericardium adjacent to the scar did not appear abnormal and the motion of the heart underneath appeared to be free. At the site of the scar there was an irregular, firm mass which was thought to be the area of calcification that had been seen in the x-ray films. There did not appear to be any pericardial effusion. The anterior sulcus of the left pleura appeared to be free because the lung could be seen to glide back and forth underneath.

The patient was given tribrom-ethanol by rectum (90 mg per kilogram of body weight) as a basal anesthetic. This was supplemented by the local infiltration of procaine. The incision began at the level of the second intercostal space just off the midline of the sternum, extended downward along the line of the previous scar to the fifth space and was then carried laterally along the fifth space to about the nipple line. A skin and muscle flap thus outlined was reflected upward and laterally and sections of the fifth, fourth and third ribs, each approximately 1 inch in length, were resected from the underlying pleura and pericardium. The dissection was carried medially to the sternum, and a small portion of the lateral border of the sternum was also removed. As a result of this the rigidity of the thoracic wall over the area of the adherent pericardium was removed. Then the internal mammary vessels were ligated and the periosteum was excised from the several rib beds. After the flap had been replaced the wound was closed without drainage. The patient stood the procedure well and was in good condition at the end.

The postoperative course was uneventful. The patient was discharged a month after the operation.

During the twenty-two months that have elapsed since the second cardiomyolysis her physical condition has remained extremely satisfactory. There has been no recurrence of ascites or edema. Blood counts have been normal except for a persistent leukopenia. The sedimentation rate has been normal. The urine is normal. Determinations of the nonprotein nitrogen, bilirubin, protein, calcium and phosphorus in the serum have all yielded normal results.

Despite her excellent physical condition she had a recurrence of profound melancholia about a year ago that led to an attempt at suicide following which she was admitted to a hospital for mental disease, where she remained for about three months. She has been more cheerful recently and well able to perform the daily tasks about her home.

She was last seen here Jan. 6, 1937, at which time she looked and felt pretty well. She was doing her housework and did not have undue fatigue. Her only complaint was constipation. There was no dyspnea, orthopnea, cyanosis, venous distention or edema. The heart was slow and regular. There was a gallop rhythm due to a reduplicated second sound. No murmurs were present. There was marked systolic retraction in the

operative area. The blood pressure was 120/80. The right lung was clear. There were many coarse rales at the left base. There was no ascites. The liver was down the breadth of one finger in the midclavicular line and of three fingers in the midline. It was smooth and not tender. The spleen tip was just felt. A blood count was made and showed hemoglobin 81 per cent, red cells 5.2 million, white cells 5,400 and a normal differential.

COMMENT

For want of a better term this case has been classified as an example of Pick's disease with mediastinopericarditis, some basal pleurisy on the left side, enlargement of the liver and to a lesser extent of the spleen, and recurrent ascites. It seems likely that there is not complete obliteration of the pericardial sac because of the observations at the time of the last operation. Absence of obstruction to the return of blood by the superior vena cava is shown by the lack of permanent elevation of the venous pressure in the arms. Unfortunately, no determinations of the venous pressure in the legs were made. As is usual in these cases, the inferior vena cava has been chiefly affected resulting in marked hepatic enlargement and ascites out of all proportion to the rest of the picture. The prompt improvement twice manifest after cardiolysis suggests that the obstruction of the inferior vena cava may have been due to some torsion effect or kinking as the result of dense adhesions between the pericardium and the anterior chest wall.

The etiology of the pericardial lesion in this case is unknown. There is no evidence of tuberculosis. The intracutaneous tuberculin test has been negative twice. There is no rheumatic history, no valvular involvement, and no electrocardiographic evidence of myocardial damage.

Perhaps the long survival of the patient has been due to the fact that she was peculiarly amenable to surgical relief by the Brauer operation because the mediastinopericardial adhesions, while extremely dense and partially calcified, were limited in extent and maximal in the region of the cardiac apex beneath the ribs that were resected.

SUMMARY

A woman, aged 48, with Pick's disease, had two cardiolysis operations twenty-one years apart and is alive and well twenty-three years after the first and nearly two years after the second operation.

620 West One Hundred and Sixty-Eighth Street

IMPENDING GANGRENE OF THE FEET DUE TO
ERGOTAMINE TARTRATE

REPORT OF A CASE TREATED SUCCESSFULLY

SAMUEL PERLOW M.D. AND LEON BLOCH M.D. CHICAGO

There are two forms of ergotism, the gangrenous and the convulsive types. The former occurs usually in the extremities and may result in the loss of fingers and toes and sometimes of an entire extremity. Gangrene of the internal organs also may occur. The convulsive type of ergotism is believed to be due to some action on the central nervous system and is manifested by depression, weakness, headaches, and finally tonic and clonic convulsions. Chronic ergotism has occurred in epidemic form in eastern Europe for centuries following the ingestion of bread made of ergot-infested rye. The last epidemic of chronic ergot poisoning from this cause in the United States occurred in New York in 1825. Acute ergotism is similar to the chronic form but of a more rapid onset and development. It occasionally follows the therapeutic use of ergot and its derivatives especially ergotamine tartrate. The smallest amount of ergotamine tartrate that has sufficed to produce gangrene was 1 mg given subcutaneously¹ over a period of four days and 26 mg given orally² in one week.

The treatment of the gangrenous form of ergotism has been unsatisfactory and no instance of complete cure has been reported following any treatment. Speck³ reports a case which

he believes was definitely helped by the use of theophylline but in his case there was residual gangrene of a toe and part of the foot. Platt⁴ also reports a case of gangrene of the toes with a slow recovery which he believes was helped by the use of scopalamine. Epinephrine has been used in several cases with poor results. In a large series of cases recently reported by O'Sullivan⁵ in which ergotamine was used for migraine, the deleterious effects were believed to have been prevented by the use of atropine and calcium.

TABLE 1—Condition of Patient September 2

General appearance		
Skin slightly icteric, numerous scratch marks on both feet and legs. No trophic changes in skin and nails. Hair present on all toes. All toes blanched in spots and cyanotic to their bases. This was most marked in the big toes. All discolored areas cold and numb.		
Arterial pulsations		
Femoral	++++	++++
Popliteal	+	+++
Dorsalis pedis	0	0
Posterior tibial	0	0
Radial	+++	+++
Oscillometric index		
Above knee	1/120	3 1/4/120
Above ankle	1/2/120	1/120
Skin temperature C		
Above knee	31.8	32.3
Below knee	30.3	32.8
Ankle	29.8	30.8
Dorsum of foot	28.4	29.3
Plantar surface	27.3	28.3
End of first toe	25.4	27.2
Room temperature C	20.5	

We are reporting this case of ergotamine tartrate poisoning with impending gangrene of both feet because of the rapid and complete cure without any gangrene which was obtained by the use of papaverine hydrochloride.

REPORT OF CASE

History.—J. S., a white man, aged 36, was admitted to the Michael Reese Hospital Aug 12, 1936. His main complaints were jaundice of one month's duration and generalized pruritus for two years. In March 1935 after he had had pruritus for six months he consulted one of us (L. B.), who made a diagnosis of Hodgkin's disease, which was subsequently verified by a biopsy examination of a cervical lymph gland. In the next one and one-half years he was given several courses of x-ray therapy over the cervical lymph glands and spleen, which caused an improvement in his general condition and disappearance of the glandular enlargement. The pruritus however, persisted although in a much milder form. About one month before admission, pain developed in the epigastrium, which was soon followed by a progressively increasing jaundice and the pruritus became very much worse. The remainder of the history was essentially negative.

Examination.—On admission, the patient appeared fairly well nourished and was moderately jaundiced. The temperature was 98.8 F., pulse 82, respiration 18, blood pressure 150 systolic, 76 diastolic. Physical examination was essentially negative except for a chain of enlarged, firm lymph nodes behind the right ear and under the mandible and several in the left posterior cervical chain. There was moderate enlargement of both the liver and spleen and slight tenderness on deep palpation over the epigastrium. There were a few small firm inguinal lymph glands. The blood Kahn reaction was negative. Hemoglobin was 80 per cent, the erythrocyte count 3,640,000 and the leukocyte count 10,600. Differential white blood count showed 86 per cent polymorphonuclear cells, 4 per cent lymphocytes and 10 per cent monocytes. The urine was acid, the specific gravity was 1.006, it was negative for sugar and acetone, positive for urobilinogen, and there was a trace of albumin. The stool was formed and tan colored, the reaction for bile was positive and for blood and parasites negative. The blood icterus index was 39, blood sugar 71 mg per hundred cubic centimeters of blood and nonprotein nitrogen 50.

4. Platt R. Ueber die Behandlung des Morbus Basedow mit Ergotamin. Klin. Wchnschr. 9: 258 (Feb. 8) 1930.
5. O'Sullivan M. E. Termination of One Thousand Attacks of Migraine with Ergotamine Tartrate. J. A. M. A. 107: 1208 (Oct. 10) 1936.

From the Michael Reese Hospital.
1. Gould S. E., Price A. E. and Ginsberg H. I. Gangrene and Death Following Ergotamine Tartrate (Gynergen) Therapy. J. A. M. A. 106: 1631 (May 9) 1936.
2. Carreras F. Un caso de ergotismo en el puerperio (Intoxicacion por la ergotamina). Rev. med. de Barcelona 1: 205 1924.
3. Speck W. Gefahr des Mutterkornbrandes bei Anwendung von Gynergen (Sandoz) in der Basedow Chirurgie. Med. Klin. 26: 1521 (Oct. 10) 1930.

Course—The condition of the patient became progressively worse. To relieve the intolerable pruritus, ergotamine tartrate therapy was started August 21, when the patient was given 1 mg of ergotamine tartrate (one tablet) by mouth. He refused all further medication until August 26 when ergotamine tartrate was administered subcutaneously. He was given 0.5 mg (two ampules of 0.25 mg each) subcutaneously August 26, 27 and 28, 0.25 mg (one ampule) August 29, 0.5 mg August 30 and 0.25 mg August 31. The pruritus disappeared.

TABLE 2—Condition of Patient September 3

General appearance		
The patient had no pain in the feet and the sensations of coldness and numbness had disappeared. The toes were pink. There was no cyanosis or blanching.		
Arterial pulsations		
Femoral	Right	Left
Popliteal	++++	++++
Dorsalis pedis	++++	++++
Posterior tibial	++	++
Oscillometric index		
Above knee	4/150	3½/150
Above ankle	3½/150	4/120
Skin temperatures C		
Above knee	31.1	31.6
Below knee	31.6	31.6
Ankle	32.6	32.1
Dorsum of foot	32.4	32.6
Plantar surface	32.2	32.8
End of first toe	33.0	33.1
Room temperature C		
	20.0	

on the latter date and the ergotamine therapy was discontinued. The patient received altogether 1 mg of ergotamine tartrate (one tablet) by mouth and 2.5 mg (ten ampules of 0.25 mg each) subcutaneously. On the evening of August 31 the patient began to experience pain in the toes, which became worse very rapidly. It became so intense that on September 1 he required seven 0.01 Gm doses of morphine sulfate hypodermically for relief. At the onset of his pain the toes were cold and slightly edematous. September 1 the skin of the toes became cyanotic. The condition on examination of the extremities at 9 p m September 2 was as outlined in table 1.

A diagnosis was made of spasm and possibly beginning organic occlusion of the arteries of both feet with impending gangrene due to ergotamine tartrate.

The patient was given one-half grain (0.03 Gm) of papaverine hydrochloride, dissolved in 1 cc of physiologic solution of sodium chloride intravenously at 10:30 p m September 2, one-half grain was given by mouth at 4 a m September 3 and one-half grain intravenously at 8 a m. A hypodermic injection of morphine sulfate 0.015 Gm was given at 2 a m because of restlessness and very slight pain in the right foot. Examination of the patient at 10 a m September 3, about twelve hours after treatment was begun, revealed a marked improvement in the condition of his feet. The condition was as given in table 2.

Papaverine hydrochloride one-half grain (0.03 Gm) was administered intravenously again at 2 p m and 8 p m September 3 and by mouth twice September 4 and once September 5. In addition to the papaverine hydrochloride therapy the lower extremities were treated with the suction and pressure boot for five hours September 3, four hours September 4 and two hours September 5. This therapy was started and given as good measure after the improvement had taken place following the administration of the papaverine hydrochloride and after the examination had been made. The extremities remained normal after all treatment was stopped. There was no loss of tissue, no discoloration and no impairment of sensation.

For the general condition which was believed to be due to lymph glandular enlargement at the liver hilus the patient was given x-ray therapy over the liver region. The jaundice disappeared almost completely and the patient was discharged September 19.

COMMENT

The pathogenesis of gangrene in ergot intoxication has been demonstrated⁶ to be a primary vascular spasm followed by

thrombosis due to stasis and injury of the intima. Because of some good results that we had obtained by the use of papaverine hydrochloride as an antispasmodic in other types of peripheral circulatory disturbances, we decided to use it in the treatment of this patient. Later we discovered that Yater⁷ mentioned this drug among others that should be used in the treatment of ergotism. A complete review of the literature, however, reveals no instance of its actual use in a case of ergotism prior to our report.

The results obtained in this case of marked arterial spasm with impending gangrene within twelve hours after starting the use of papaverine hydrochloride were so dramatic as to leave no doubt in our minds of the efficacy of this drug as a vascular antispasmodic. For forty-eight hours after ergotamine tartrate was discontinued the patient's condition became worse steadily, the toes became blue, cold and lifeless, and arterial pulsations were absent in the feet. The pain in the feet due to ischemia was so intense that the patient required as much as seven hypodermic injections of morphine sulfate of one-fourth grain (0.015 Gm) each within twenty-four hours for relief. Following the intravenous administration of one-half grain of papaverine (0.03 Gm) the condition quickly improved and, although the patient received morphine for restlessness and slight pain in the right foot three hours later, in twelve hours the pain was gone entirely, the arterial pulsations returned and the toes appeared normal. The results were so complete at that time that we believe that the suction and pressure treatment which was given subsequently was of negligible value in this case.

The value of papaverine hydrochloride as an antispasmodic in other types of peripheral arterial disease has been described previously.⁸ The result obtained in our case is additional evidence of the ability of this drug to relax arteries in a state of spasm.

SUMMARY

In a case of ergotamine tartrate poisoning with impending gangrene of the feet, a complete cure was brought about by the use of papaverine hydrochloride.

185 North Wabash Avenue—310 South Michigan Avenue

FASCIAL HERNIA OF BOTH LOWER EXTREMITIES
INJECTION WITH SODIUM MORRHUATE

ADOLPH A. SCHMIER, M.D., NEW YORK

This is a case of fascial defect on the anterolateral aspect of the lower third of both legs. Because of this fascial defect a herniation of the underlying muscle resulted. Since the pain and disability were effectively relieved by injections of sodium morrhuate, I feel that this case is of interest to report.

I K., a youth, aged 21, first seen in the varicose vein clinic of Dr. I. S. Tunick at the Hospital for Joint Diseases, complained of pain in both legs and feet especially when engaged in sports or fast walking. The pain had first come on about four years before while the patient was playing basketball. At that time he noticed a lump on the outer lower aspect of each leg. A throbbing pressure pain would begin at these sites and radiate down to the feet. Gradually the pain became so severe that he had to discontinue sports of all kinds.

Examination revealed a localized bulging on the anterolateral aspect of the lower third of each leg about 5 inches (13 cm) above the level of the ankle joint. The overlying skin was not discolored. The masses had a soft doughy consistency and could be invaginated with the palpating finger. No tenderness was present. When full weight was borne on the legs, the bulging became more prominent. As weight was removed from either leg, the bulging disappeared and a dimpling occurred. Active use of the extensor digitorum longus muscle also caused the mass to disappear, replaced by dimpling. The fascial defect was present over the extensor digitorum longus muscle.

A needle was inserted into both areas, but nothing could be aspirated. The feel was not that of a lipoma but rather the

6 Lewis, Thomas. The Manner in Which Necrosis Arises in the Fowl's Comb Under Ergot Poisoning. *Clin. Sc.* 2: 43 (Sept.) 1935.
Kaunitz, Julius. The Pathologic Similarity of Thrombo-Angitis Obliterans and Endemic Ergotism. *Am. J. Path.* 6: 299 (May) 1930.
McGrath, E. J. G. Experimental Peripheral Gangrene. Effect of Estrogenic Substance and Its Relation to Thrombo-Angitis Obliterans. *Arch. Int. Med.* 55: 942 (June) 1935.

7 Yater, W. M. and Cahill, J. A. Bilateral Gangrene of Feet Due to Ergotamine Tartrate Used for Pruritus of Jaundice. *J. A. M. A.* 106: 1625 (May 9) 1936.

8 Denk, W. Zur Behandlung der arteriellen Embolie. *München. med. Wchnschr.* 81: 437 (March) 1934.
Allen, E. V. and MacLean, A. R. Treatment of Sudden Arterial Occlusion with Papaverine Hydrochloride. Report of Case. *Proc. Staff Meet., Mayo Clin.* 10: 216 (April 3) 1936.
de Takats, Geza. The Use of Papaverine in Acute Arterial Occlusions. *J. A. M. A.* 106: 1003 (March) 1936.

sensation of a needle in empty space. Oct 10, 1935, he received 2 cc of sodium morrhuate into the left hernial space. Only slight pain was experienced. October 17 the left herniation had practically disappeared. The area was quite firm and only slight dimpling could be obtained. Two cubic centimeters of sodium morrhuate was now injected into the right hernia and 1 cc into the left. A total of four injections amounting to 6 cc of morrhuate was given into the left leg and two injections totaling 4 cc of morrhuate into the right leg. Jan 13, 1936, both sites were firm. The patient had no pain and was able to play professional basketball again.

October 1, he returned complaining of slight swelling and mild pain in both legs. For almost one year he had been playing basketball without any discomfort. He is still playing basketball but returns for further injections in order to avoid more severe disturbance. Examination now revealed only slight prominence on each leg. Five injections totaling 9 cc of sodium morrhuate were required to obliterate the hernial defect on the left leg and two injections totaling 3 cc on the right leg. The mild pain disappeared.

Whether the hernial defects will remain obliterated by the injection method is conjectural. It did give this patient complete relief for almost a year, allowing him to return to competitive sports. Even at the end of this period he was still more comfortable than when first seen. He was still able to compete in sports and returned for further treatment only to avoid his original disability. Possibly an open fascial plastic operation¹ would give a more permanent result, but in cases in which open operation is refused the injection method will be of aid. Apparently the morrhuate sets up a local irritation, producing a fibrosis, which closes over the defect.

57 West Fifty-Seventh Street

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEECH, Secretary

DIGITALIS (See New and Nonofficial Remedies, 1937, p 180)

The following dosage forms have been accepted

- Tincture Digitalis Upsher Smith* Each cubic centimeter represents 1 U S P unit
Tablets Digitalis Upsher Smith $\frac{1}{2}$ grain Each tablet represents one third U S P unit
Tablets Digitalis Upsher Smith 1 grain Each tablet represents two thirds U S P unit
Tablets Digitalis Upsher Smith $1\frac{1}{2}$ grains Each tablet represents 1 U S P unit
Capsules Digitalis Upsher Smith $\frac{1}{2}$ grain Each capsule represents one third U S P unit
Capsules Digitalis Upsher Smith 1 grain Each capsule represents two-thirds U S P unit
Capsules Digitalis Upsher Smith $1\frac{1}{2}$ grains Each capsule represents 1 U S P unit

Prepared by Upsher Smith Co. Minneapolis Minn

BURBOT LIVER OIL—The oil extracted from the livers of the Burbot (*Lota maculosa*), family Gadidae. It is biologically assayed to have a potency of not less than 4,480 units of vitamin A (U S P) per gram and of not less than 640 units of vitamin D (U S P) per gram.

Actions and Uses—Same as those of cod liver oil. See general article Fish Liver Oils, Preparations and Concentrates, N N R 1937, p 457.

Dosage—Prophylactic, 16 minims (40 drops) daily, or as prescribed by the physician. The product is marketed with a dropper designed to deliver 25 drops to the minim.

Burbot liver oil is a pale yellow oily liquid. It has a slightly fishy but not rancid odor and a fishy taste. It is slightly soluble in alcohol but is soluble in ether, chloroform, benzene, carbon disulfide and ethyl acetate. The specific gravity is from 0.921 to 0.927 at 25 C. The refractive index is from 1.479 to 1.482 at 20 C.

A solution of one drop of the oil in 1 cc of chloroform when shaken with one drop of sulfuric acid acquires a light violet color changing to violet dark green and finally brown. Treat 5 cc of oil with 5 cc

of benzene and centrifugate for twenty five minutes at 25 C. no precipitate forms and a clear solution remains.

Fill a tall cylindric standard oil sample bottle of about 120 cc capacity with burbot liver oil at a temperature between 23 and 28 C. stopper and immerse the bottle in a mixture of ice and distilled water for five hours. The oil remains fluid and forms no deposit.

Dissolve 2 Gm of burbot liver oil accurately weighed in 20 cc of a mixture of equal volumes of alcohol and ether which previously has been neutralized with tenth normal sodium hydroxide using five drops of phenolphthalein T S as indicator and titrate with tenth normal sodium hydroxide to the production of a pink color which persists for fifteen seconds. Not more than 1 cc of tenth normal sodium hydroxide is required (free acid). The amount of unsaponifiable matter is determined by the method of U S P XI, page 446 is not less than 0.9 per cent nor more than 3.0 per cent. The saponification value as determined by the method of U S P XI, page 445 is not less than 184 nor more than 196. The iodine value as determined by the method of U S P XI, page 445 on 0.18 to 0.20 Gm of sample accurately weighed is not less than 155 nor more than 180.

Burbot Liver Oil (Rowell)—A brand of burbot liver oil. N N R

Manufactured by Burbot Liver Products Co. Baudette Minn. No U S patent or trademark.

Capsules Burbot Liver Oil (Rowell) 8 minims. Each capsule contains burbot liver oil (Rowell) 8 minims adjusted to have a potency of not less than 2,215 units of vitamin A (U S P) and 315 units of vitamin D (U S P).

SILVER PICRATE—Silver trimetaphenolate— $C_6H_4(OAg)(NO)_2 + H_2O$

Actions and Uses—Silver picrate has actions and uses similar to those of the other simple silver salts. Its crystals are available for making solutions of appropriate strength. It is also used in the form of a compound powder for the treatment of *Trichomonas vaginalis vaginitis*. This compound powder contains 1 per cent silver picrate in purified kaolin. It is administered by means of an insufflator or other surgical "powder blower". Another dosage form is intended primarily to be used as an adjunct in the treatment of this condition—vaginal suppositories containing 2 grains (0.13 Gm) in a boroglyceride gelatin base. Protracted use of this compound over a long period may possibly give rise to argyria because of its silver content and nephritis because of its picric acid content. It is therefore necessary to watch the skin for signs of argyria, and the urine for albumin and casts.

Dosage—Dilutions of from 1 to 2 per cent are used in the form of solution, compound powder and vaginal suppositories.

Silver picrate occurs as yellow crystals, slowly discoloring in sunlight. It is sparingly soluble in water and alcohol, slightly soluble in acetone and glycerin, very slightly soluble in chloroform and ether.

Dissolve about 0.1 Gm of silver picrate in 10 cc of water, add 1 cc nitric acid followed by the addition of 5 cc of dilute hydrochloric acid, shake thoroughly, filter through paper. The precipitate is soluble in an excess of ammonia water while the filtrate turns red on the addition of ammonia water and ammonium sulfide.

Dissolve an accurately weighed quantity of the material in water about 150 parts, collect the insoluble residue on an ashless filter paper, wash with water using about 300 cc and ignite. The weight of ash on ignition does not exceed 0.5 per cent. To the foregoing filtrate add 2 cc of nitric acid followed by the addition of 5 cc of dilute hydrochloric acid in small quantities with constant stirring. Boil allow to cool, collecting the precipitate of silver chloride on a Gooch crucible, wash with a diluted nitric acid and water followed by the addition of a small quantity of alcohol and ether, finally dry to constant weight at 120 C. the amount of silver calculated from the silver chloride found corresponds to not less than 30 per cent nor more than 32 per cent.

Silver Picrate-Wyeth's—A brand of Silver Picrate. N N R

Manufactured by John Wyeth & Brothers Inc. Philadelphia

Silver Picrate Crystals

Silver Picrate Vaginal Suppositories 2 grains of silver picrate N N R in a boroglyceride gelatin base.

Compound Silver Picrate Powder 1 per cent of silver picrate N N R in purified kaolin.

DIPHTHERIA TOXOID, ALUM PRECIPITATED (REFINED) (See New and Nonofficial Remedies 1937, p 401)

Eli Lilly & Co., Indianapolis

Combined Diphtheria Toxoid Tetanus Toxoid Alum Precipitated Lilly

—A combination of diphtheria toxoid and tetanus toxoid which has been precipitated with alum. The amount of each ingredient in a single dose is the same as that present in a single dose of the individual marketed products. It is prepared by mixing suitable amounts of diphtheria toxin and tetanus toxin which have been detoxified by the use of formaldehyde and precipitating from this combination with alum the diphtheria toxoid and tetanus toxoid. The individual toxoids are tested for toxicity prior to mixing and the combined alum precipitated toxoid is tested for toxicity after precipitation. Potency of the preparation is tested by injecting guinea pigs weighing approximately 500 Gm with one human dose. At the end of four weeks blood serum of guinea pigs so injected must show at least 2 units of diphtheria antitoxin and 1 unit of tetanus antitoxin per cubic centimeter. Combined diphtheria toxoid tetanus toxoid alum precipitated is recommended for the production of active immunity of diphtheria and tetanus. The first dose (0.5 cc) is injected subcutaneously preferably in the region of the deltoid followed in approximately two to three months with a second and final injection of 0.5 cc.

Marketed in packages of one immunization treatment containing two 0.5 cc vials.

¹ Hartzell J B. Use of Living Fascia Transplant to Repair Hernia of Tibialis Anticus Muscle. J A M A 107:492-493 (Aug 15) 1936.

Council on Foods

THE COUNCIL ON FOODS HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT
FRANKLIN C. BING, Secretary

THE ALLEGED DECALCIFYING EFFECT OF CEREALS

In 1921 Mellanby¹ produced rickets in puppies by restricting them to a diet of milk and oatmeal. He found that increasing the amount of oatmeal and decreasing the amount of milk in the diet produced a more severe degree of rickets. Other cereal products had a similar effect. He concluded that cereals contained some anticalcifying substance the toxic effect of which could be overcome by the addition of certain foods that contained a calcifying substance. Later it was shown by McCollum and his collaborators that the so-called calcifying substance could be classified with the vitamins and it was given the name of vitamin D. Because of Mellanby's work the idea persisted particularly in England that cereal products contained a substance which had an inhibiting effect on the calcification of bone, a hypothesis that has gained credence perhaps by reference to the alleged substance as a "toxamin". In all cases, however, investigators have agreed that the "baneful effect" attributed to the toxamin could be counteracted with vitamin D.

Because cereals make up so large a part of the diet of the adult, it is important to inquire into the experimental evidence in support of the contention advanced by some persons that cereal products should be treated to overcome any decalcifying effect they may have. Any effects that might be attributed to a toxamin can be overcome by a variety of methods, such as the addition of substances producing a vitamin D effect or by the direct irradiation of the cereal products. On the assumption that it might be well for the general improvement of the nutrition of the people of the United States to have available cereal products which have been treated so as to have a "slightly positive effect" on calcification, instead of what might be termed a negative effect, certain vitamin D fortified cereals have appeared on the market. The present report aims to consider the evidence regarding the rationality of adding vitamin D in some form to cereals in order to overcome an anticalcifying effect supposed by some investigators to be a property of cereals.

EVIDENCE OF THE EXISTENCE OF A TOXAMIN

In 1926 Mellanby² definitely postulated the existence of a toxamin, the effects of which could be overcome by vitamin D or the toxic factor itself could be destroyed by treatment with diluted hydrochloric acid. If oatmeal was boiled with 1 per cent hydrochloric acid until the starch was hydrolyzed and the resulting mixture was then neutralized with soda the substance interfering with calcification was apparently destroyed. Several other investigators including Holst,³ Mirvish⁴ and Christiansen⁵ studied hydrochloric acid extracts of oats. Injected into rabbits a neutralized extract resulted in a fall of blood calcium, which was interpreted as evidence that the hydrochloric acid had removed a substance which might interfere with calcification. Christiansen, however, believed that the effect on blood calcium need not be attributed to any specific substance in the oat extract because dextrose and other substances had a similar effect. May Mellanby⁶ in 1929 reported that it had not been possible up to that time to show that the anticalcifying action of cereals is due to any known constituent of the diet. In 1930 Edward Mellanby⁷ reported that he had succeeded in separat-

ing the anticalcifying and the calcifying (vitamin D) factors from cereals by taking advantage of the solubility of vitamin D in petroleum ether.

None of the experiments on the concentration of the supposed decalcifying factor of cereals presents what might be considered conclusive evidence. The American workers, in contrast with some of the British workers, have generally believed that experimental rickets was produced by a disproportion of calcium and phosphorus in the diet, together with a deficiency of vitamin D, and that there was no need to suggest the existence of a hypothetical decalcifying factor to explain experimental observations. Fine⁸ in 1930 noted differences in the degree of rickets produced in rats when different cereals were used in the experimental ration, but he ascribed these differences in effect to the slight differences in vitamin D content of the various grains that he used. Careful experiments have indeed shown that there are apparently slight differences in the degree of rickets produced in experimental rats when different cereals are used in the basal diet. Green and Mellanby⁹ reported that oats produced a more severe degree of rickets than other cereals, but their diets were not strictly comparable. Steenbock, Black and Thomas,¹⁰ on the other hand, reported that the degree of rickets was greater when corn was used in the basal diet than when oats or wheat was used. These cereals differ in their content of phosphorus. By adjusting the calcium and phosphorus contents of the different diets so that the ratio of the two elements was constant, Thomas and Steenbock¹¹ in 1936 were able to observe but little difference in the degree of rickets produced in experimental animals. None of these investigations has definitely established the existence of a toxic substance in cereals or shown conclusively that this substance is present in different concentrations in different cereals.

NEWER STUDIES

More recent investigations have clarified our conception of the processes that take place in the production of experimental rickets. These investigations have also clarified our notions of the effect of the cereal component of the rickets-producing diet.

Calcium and Phosphorus Ratio.—The importance of the calcium and phosphorus ratio of the experimental diet has been recognized from the time of the pioneer investigations of McCollum and of Sherman and their collaborators. It was known for example, that the diet must contain more than two parts of calcium (Ca) to one part of phosphorus (P) in order to produce high calcium rickets in rats. The experimental rations most frequently used such as those of Steenbock and Black, McCollum, and Sherman and Pappenheimer contain about 4 parts of calcium or more to one part of phosphorus. Low-calcium or as it has sometimes been called, high-phosphorus rickets, can be produced when the amount of phosphorus in the diet is several times that of the calcium. Such diets are not used extensively in the study of rickets in rats but are customarily used in the production of rickets in puppies.

The work of Bethke¹² and of Shohl and his collaborators has led to a more precise knowledge of the significance of the calcium and phosphorus content of the diet on the degree of rickets produced in experimental animals. Shohl¹³ observed that not only is the ratio of calcium and phosphorus important but also the concentration of the two elements in the diet. In the absence of vitamin D a ratio of four parts of calcium to one part of phosphorus would produce rickets only if the concentration of the phosphorus was 0.5 per cent or more, with lower amounts of phosphorus but with the same ratio of

1 Mellanby, Edward. Experimental Rickets. Medical Research Council Special Report Series No. 61. London 1921.

2 Mellanby, Edward. The Presence in Foodstuffs of Substances Having Specific Harmful Effects under Certain Conditions. J. Physiol. 61: Proc. xxiv 1926.

3 Holst, P. M. Experimental Rickets. J. Hyg. 26: 437 (Oct.) 1927.

4 Mirvish, Louis. The Effect of Cerebral Extracts on Blood Calcium. Biochem. J. 24: 235 (No. 2) 1930.

5 Christiansen, H. Om Cerealernes anticalciferende Virkning. Nord. med. Tidsskr. S. 1062 1934 through Nutrit. Abstr. & Rev. 4: 492 (Jan.) 1935.

6 Mellanby, May. Diet and the Teeth. An Experimental Study. Part I. Dental Structure in Dogs. Medical Research Council Special Report Series No. 140. London 1929.

7 Mellanby, Edward. A Lecture on the Relation of Diet to Health and Disease. Brit. M. J. 1: 677 (April 12) 1930. Diseases Produced and Prevented by Certain Food Constituents. Tr. Sect. Dis. Child. A. M. A. 1930. p. 193.

8 Fine, Morris. cited by Lowe, J. T. and Steenbock, Harry. Biochem. J. 30: 1126 (July) 1936.

9 Green, H. N. and Mellanby, Edward. A Rat Technique for Demonstrating the Interfering Effect of Cereals on Bone Calcification. Biochem. J. 22: 102 (No. 1) 1928.

10 Steenbock, Harry, Black, Archie and Thomas, B. H. Cereals and Rickets. III. The Comparative Rickets Producing Properties of Corn, Wheat and Oats and the Effect of Irradiation and Mineral Supplements. J. Biol. Chem. 85: 585 (Jan.) 1930.

11 Thomas, B. H. and Steenbock, Harry. Cereals and Rickets. VI. The Comparative Rickets Producing Properties of Different Cereals. Biochem. J. 30: 177 (Feb.) 1936.

12 Bethke, R. M., Kick, C. H. and Wilder, Willard. The Effect of the Calcium-Phosphorus Relationship on Growth, Calcification and Blood Composition of the Rat. J. Biol. Chem. 98: 339 (Nov.) 1932.

13 Shohl, A. T. Rickets in Rats. XV. The Effect of Low Calcium High Phosphorus Diets at Various Levels upon the Production of Rickets and Tetany. J. Nutrition 11: 275 (March) 1936.

calcium to phosphorus, the rickets was either less severe or an essentially normal bone was produced. A striking demonstration of the importance of the concentration of phosphorus in the diet was afforded by the results obtained with Ca:P ratios of 1:1 or 2:1. These ratios have long been thought to be "optimum" for production of normal bone. But Shohl has shown that, by decreasing the amount of phosphorus, one can obtain rickets even with these "normal" ratios. The diets which Shohl used were patterned after the rickets-producing diet of Steenbock and Black, which is made up principally of yellow corn, wheat gluten, salt and calcium carbonate.

These experiments help to explain some of the observations regarding the effect of different cereals on the degree of rickets produced. Corn, wheat and oats vary greatly in their total content of phosphorus. If one varies the cereal component of the diet, the ratio of calcium and phosphorus also is altered. Recalculation of some of the experimental data in the literature shows that the substitution of one cereal for another has shifted the calcium and phosphorus ratio level sufficiently in some instances to change the diet from the normal zone to the rickets-producing zone according to Shohl's chart.

The Availability of the Phosphorus—Recent work has shown that consideration must be given also to the availability of the phosphorus of the cereal component of the rickets-producing diet. Some of the phosphorus of grains is in the form of phytin. Harris and Bunker¹⁴ found that the proportion of the total phosphorus in the form of phytin is variable and may be from 30 to 70 per cent in different samples of a single grain such as corn. Phytin appears to be poorly utilized by the human being or the rat. McCance and Widdowson¹⁵ showed in 1935 that phytin was poorly utilized by man and that such utilization as did occur was probably the result of the action of intestinal bacteria which hydrolyzes the phytin. Bruce and Callow¹⁶ in 1934 developed a method for the determination of phytin. Their experiments led them to conclude that the differences in the degree of rickets produced with different cereal mixtures could be accounted for on the basis of the amount of available phosphorus in the diet. The most recent experiments have been reported by Lowe and Steenbock.¹⁷ They emphasized that phytin could be hydrolyzed by treatment with diluted hydrochloric acid to give inorganic phosphates, an observation that may explain why some of the earlier workers obtained better bones in their experimental animals when they treated the cereals with dilute acid. Instead of destroying a hypothetical toxic factor, it is more likely that the acid treatment hydrolyzed the phytin, thus altering the ratio of calcium to available phosphorus in the diet. Lowe and Steenbock also showed that phytin was hydrolyzed to a large extent by the bacteria in the intestine of rats. However, if calcium carbonate or other calcium salts were added to the ration—and this is the usual procedure in constructing a rickets-producing diet—the phytin was not as completely hydrolyzed as it was when the calcium salts were omitted from the diet. They believed that the presence of the calcium carbonate changed the bacterial flora of the intestinal tract.

CONCLUSIONS

It may be concluded that there is no good evidence for the existence of a decalcifying factor in cereals, and that the hypothesis of the existence of such a factor is not needed to explain experimental results. Production of rickets in rats is effected by a diet which is low in vitamin D and which also has a disproportion of calcium and phosphorus. The concentration of the calcium and phosphorus in the diet is just as important as the ratio of the two in determining the degree of rickets produced. The concentration of phosphorus is determined partly by the amount of available phosphorus in the diet. Phytin phosphorus may or may not be completely available to the organism, depending on the extent to which it is hydrolyzed by intestinal bacteria. The experimental results observed and

reported in the literature may be explained on the basis of the calcium and phosphorus ratio in the diet together with a knowledge of the availability of the phosphorus. Grain products not treated with vitamin D are wholesome foods. There appears to be no necessity at the present time to irradiate cereals or to add vitamin D substances to cereal products intended for general human consumption, in order to overcome the harmful effects of a hypothetical toxin.

ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COUNCIL ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION AND WILL BE LISTED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED

FRANKLIN C. BING, Secretary

- (1) SEXTON BRAND ROYAL ANNE CHERRIES, JUICE PACKED
- (2) SEXTON BRAND BLACK CHERRIES, JUICE PACKED
- (3) SEXTON BRAND PRUNE PLUMS, JUICE PACKED

Manufacturer—John Sexton & Company, Chicago

Description—(1) Canned cherries packed in juice, (2) canned black cherries, packed in juice, (3) canned prune plums, packed in juice.

Manufacture—Cherries and plums are stemmed, pressure spray washed, sorted, graded, again washed, inspected and placed in cans. The cans are automatically filled with fruit juice, exhausted, sealed and processed.

Analyses (submitted by manufacturer)—(Analyses of entire contents including liquid)

	(1)	(2)	(3)
Moisture	82.6%	81.1%	79.9%
Total solids	17.4	18.9	20.1
Ash	0.6	0.5	0.6
Fat (ether extract)	0.1	0.1	0.1
Protein (N × 6.25)	1.0	0.5	0.5
Crude fiber	0.2	0.1	0.2
Carbohydrates other than crude fiber (by difference)	15.5	17.7	18.7

Calories—(1) 0.66 per gram, 19 per ounce; (2) 0.73 per gram, 21 per ounce; (3) 0.77 per gram, 22 per ounce.

Claims of Manufacturer—For diets in which sweetened fruit is proscribed.

CEREVIM

Manufacturer—Hugh Tebault and Company, New York City

Description—A flaky mixture of cooked wheat, oats, powdered skim milk, wheat germ, yellow cornmeal, dried brewers' yeast, sodium chloride, barley and malt.

Manufacture—Formula proportions of the dry ingredients are mixed with water, cooked, dried, flaked and packed into cartons.

Analysis (submitted by manufacturer)—Moisture 37%, total solids 96.3%, ash 3.8%, fat (ether extract) 3.4%, protein (N × 6.25) 18.5%, crude fiber 1.5%, carbohydrates other than crude fiber (by difference) 69.1%, phosphorus (P) 0.510%, potassium (K) 0.486%, sulfur (S) 0.211%, calcium (Ca) 0.170%, chloride 0.164%, sodium (Na) 0.160%, magnesium (Mg) 0.141%, silicon (Si) 0.019%, iron (Fe) 0.006%, copper (Cu) 0.003%.

Calories—107 per ounce.

Vitamins—Enriched in vitamins B₁ and G, furnished by skim milk, wheat germ and dried yeast.

Claims of Manufacturer—Cerevim is a palatable, precooked cereal food, richer in protein and in calcium and phosphorus because of its skim milk content. It is also enriched in vitamins B₁ and G, furnished by skim milk, wheat germ and dried yeast.

ADVERTISING LEAFLET "WHOLE MILK FOR THE WHOLE FAMILY"

Sponsor—Irradiated Evaporated Milk Institute, Chicago

A revised leaflet which describes the nutritional properties of whole milk. Recipes, which recommend irradiated evaporated milk in cooking, are included.

¹⁴ Harris, R. S. and Bunker, J. W. M. The Phytin of the Corn Component of a Rachitogenic Diet, *J. Nutrition* 9: 301 (March) 1935.

¹⁵ McCance, R. A. and Widdowson, E. M. Phytin in Human Nutrition, *Biochem. J.* 29: 2694 (Dec.) 1935.

¹⁶ Bruce, Hilda M. and Callow, R. K. Cereals and Rickets. The Role of Inositolhexaphosphoric Acid, *Biochem. J.* 28: 517 (No. 2) 1934.

¹⁷ Lowe, J. T. and Steenbock, Harry. Cereals and Rickets. VIII. The Hydrolysis of Phytin in the Intestine, *Biochem. J.* 30: 1991 (Nov.) 1936.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, JULY 3, 1937

THE AMERICAN MEDICAL ASSOCIATION AND THE CARE OF THE INDI- GENT SICK

In the welter of words that poured from Atlantic City, reporting the actions of the House of Delegates to the American people, some may find difficulty in ascertaining exactly what was decided with regard to the policies of the Association on the provision of medical care. The medical profession has never failed in its ideal of medical care for all—rich and poor alike—regardless of their ability to pay. At the Cleveland session the House of Delegates adopted ten principles that should prevail in medical practice. Those principles have not been changed. The ideals of mutual responsibility between doctor and patient, unalterable opposition to commercialized, bureaucratic or state practice, and willingness to do our utmost in providing all that can be provided to the sick still remain among the accepted principles of American medicine.

Some significant incidents in the period between the annual session of 1936 and the one this year were concerned definitely with the actions taken in the House of Delegates. The American Foundation Studies in Government published its report. Attempts were made by various groups to set up cooperative medical practice in various portions of the country. In some state legislatures bills were introduced to make legal compulsory sickness insurance and cooperative practice within those states. A committee was assembled to translate the findings of the American Foundation Studies in Government into action by the American Medical Association. A group of specially selected physicians who had extended themselves in their communications to the foundation, who coincided in their views largely with the director of the foundation, who were willing to approve certain policies that seemed to grow out of the reports of the foundation, were invited, according to published reports, to attend a luncheon in the White House. Out of that luncheon, according to the same reports, came recommendations for the development of a national health policy, expansion in

preventive medicine, federal subsidies to medical schools and to voluntary hospitals, and the establishment of a federal department of health with a physician in the cabinet. In the closing session of the House of Delegates of the New York State Medical Society these propositions were put forward and adopted with modifications, most important of which were the repeated suggestions that all plans developed in various communities must be approved by the local medical society before they could be put into effect in such communities. These resolutions, adopted by the New York State Medical Society, were brought to the House of Delegates of the American Medical Association. In the hearings before the Reference Committee in the House of Delegates it became apparent that there was no warrant that the federal government could undertake to subsidize any form of medical care in any local community subject to approval of the plan by any single, self-constituted group within that community. After long hearings, the House of Delegates adopted the report of its Reference Committee to the effect that the Association had already taken action approving a federal department of health with a physician in the cabinet, that the Board of Trustees had already indicated to the federal government its desire to be of the utmost service in the development of suitable plans for the care of the indigent sick, and that the Association and the officers thereof stood ready now as in the past, on direct request, to do their utmost to aid the administration in working out such plans.

The visit of Senator James Hamilton Lewis of Illinois was a newsworthy event. He came in response to an invitation given by the House of Delegates on his own request. His message, published in full in THE JOURNAL last week, seems to indicate that the administration, or possibly legislators in Washington, propose an attempt to federalize medical practice by demanding federal licensure for physicians who care for the indigent sick, since these might be construed as wards of the federal government. The Senator stated his personal opposition to such a procedure and urged the Association to develop some means in connection with forthcoming legislation whereby the ideals of medical practice might be maintained. He brought to the Association a message which he declared had been given to him over the telephone by the President just previous to his departure from Washington, a message in which the President said, according to Senator Lewis, who claimed to quote the exact words of the President:

He hoped that you would find a way to cooperate with him in such method as you would jointly find would be to the service of the helpless and the afflicted within such province as you felt government should undertake.

The House of Delegates authorized the Board of Trustees to send to the President a suitable reply.

The problems of medical care have been during the past ten years like a seething volcano, constantly erupting great masses of fire in the form of hastily con-

cocted, dangerous schemes and plans which the medical community and the public alike had to avoid or perish. The eruptions associated with the last annual session vary, however, from those which occurred in the past. They seemed to come, although somewhat indirectly, from Washington. The reports, according to the Associated Press, evoked from the President a statement to the effect that he "did not have in mind any recommendations for setting up a system of federalized medicine." Furthermore, the end result was a direct proffer, by the House of Delegates of the American Medical Association to the United States government, of the services of the Association in working out suitable plans for the care of the indigent sick.

The action of the House of Delegates places on the Board of Trustees a tremendous responsibility, no greater, however, than that which it has conscientiously carried during the trials of the last ten years. The legislative powers of the Association, according to the Constitution, reside in the House of Delegates. The House has not indicated its acceptance of any new form of medical practice. It has, however, authorized the Board of Trustees, as its representatives, to cooperate with the government in developing the best possible care of the indigent sick, within the principles fundamental to good medical service previously established.

UTILIZATION AND RETENTION OF VITAMIN B₁ IN CHILDREN

Knowledge of the physiologic role of the vitamins has been developed largely from studies of the pathologic changes resulting in experimental animals deprived of these dietary essentials. Investigations of this type have in most instances clearly defined the minimal amount of a particular vitamin compatible with normal health and well being. Although the range of vitamin requirement has been carefully delimited in laboratory animals, relatively little accurate information is available for the human requirement. This can be partially attributed to the inadequacy of data regarding the proportion of ingested vitamin that is actually utilized by the body. The efficiency of this process may vary widely among the different vitamins, and only extended investigations will make possible an accurate evaluation of the factor of utilization. Careful balance studies are needed. The chief difficulty of the latter type of investigation is the lack of a convenient method of determining the small quantities of vitamin in the limited amount of material usually available for the assay. However, with the development of refinements in bioassay an approach is being made to the question of the actual human requirement for the vitamins.

The requirement of man for vitamin B (B₁) has been discussed in a recent monograph by Cowgill.¹ The

importance of this vitamin for normal nutrition and growth and its relation to anorexia is especially significant in early childhood. Although it is recognized that in children anorexia is most frequently the result of either a behavior characteristic or a physical defect, there is evidence that an increase above the customary vitamin B₁ intake may result in marked improvement in both appetite and weight in some infants and young children. In one large series of cases of chronic anorexia (indicated by subnormal weights and other objective signs of malnutrition) it was found that about one third of the children had no organic lesion to account for their condition.² This group responded well to a variety of dietary additions but improved so markedly when liver, beefsteak or kidney was fed that the investigator was led to conclude that the feeding of liver may be a specific stimulant to appetite. Although he did not attempt to determine just what factor was responsible for these results, it is well known that among the important dietary constituents of liver is vitamin B₁, which might account at least in part for the results obtained. This suggestion lends particular significance to attempts to determine quantitatively the utilization and retention of vitamin B₁ in children, as influenced by different levels of the vitamin intake. Results of this type of study have been recently reported³ from the Iowa Child Welfare Research Station of the University of Iowa.

Twenty-three balance studies were conducted with eight children from 4 to 7 years of age. The utilization of vitamin B₁ was determined by biologic assay of the amount of the vitamin in the food and excreta of the children receiving weighed diets. Experimental periods of three weeks' duration were employed, during which time the same foods were served each day, the amount for each child being in proportion to his height and theoretical weight. Ingestion of vitamin B₁ at three different levels was studied. The most striking result of the investigation was the definite trend toward higher retentions of vitamin B₁ accompanying higher levels of intake in the children. The data also suggest that the body is not capable of building up a significant reserve of vitamin B₁, in view of the fact that depletion rapidly occurs on low ingestion levels. This observation serves to emphasize the need for a continued, adequate supply of the vitamin. The levels of daily vitamin intake which resulted in the highest retention were found to be about 27 international units per kilogram of body weight, from six to seven times greater than the minimal requirement for preventing beriberi as determined by means of the formula suggested by Cowgill.¹

If the level of vitamin intake producing the highest retention may be considered optimal, the wide range observed between minimal and optimal requirement

1 Cowgill, G. R. The Vitamin B Requirement of Man. Yale University Press, 1934.

2 Bartlett, W. M. An Analysis of Anorexia. *Am J Dis Child* 25: 26 (Jan.) 1928.

3 Knott, E. M. *J Nutrition* 12: 597 (Dec.) 1936.

would aid in explaining both the existence of vitamin B₁ deficiency among children and the beneficial results obtained by additions of vitamin B₁ to the diet. This careful quantitative balance study is timely in view of the reported manifestations of vitamin B₁ deficiencies in children.

CLIMATE

Various aspects of climate and weather in relation to general health and specific diseases have been frequently referred to in these columns.¹ The scientific interest in these matters is second only to that expressed in general conversation. A Californian, according to Chun,² is credited with the statement that, if one were to eliminate health and weather from conversation, two thirds of the nation would be tongue tied. In any case the interest aroused by this subject in scientific circles reflects the frequency with which professional advice is sought.

A recent issue of the *Journal of State Medicine*³ contains a series of three articles on the curative action of sea climate and two on wintering in England. According to Professor Kestner, people gain in health and vigor after living for some weeks at a health resort on the seashore. The principal explanation for this phenomenon, he believes, is the stimulating effect of the climate on the skin. Furthermore, the oxygen consumption is increased on the sea and in the Alps and is related in both climates to the retention of nitrogen. The stimulus of the sea also promotes secretion of the gastric juices, which in itself, he claims, is a factor tending toward increased health. Langdon-Brown feels that among other favorable factors the conditions provided on the south coast of England by the equable temperature, humidity and pine-laden breezes are admirable for chronic bronchitis and emphysema. Watson Smith states that the bracing east coast resort is more satisfactory for the hardy young or middle-aged adult. The more moist and less sunny climate of the west coast is better suited to less rugged constitutions. The sedative winter and summer climates of the south coast are more favorable for the less vigorous, catarrhal or febrile patient, especially if elderly. Similar discussions of various areas of England are included in the two papers on wintering in England. Moreover, the specific qualities of each area are described in more detail in the Official Handbook of the British Health Resorts Association for 1937.⁴ Bonacina states in the introduction to this book that a much discussed but persistently obscure subject in medical climatology is

the effect of bracing and relaxing qualities. It appears to be true, he states, even if somewhat exaggerated, that the east coast of Great Britain is more bracing than the west coast, and that fact receives appropriate emphasis.

Chun is convinced that the relation between temperature and humidity is of great practical importance. In general it may be said that moist air is depressing and enervating, while dry air is stimulating, also that cold air is tonic, while warm air is relaxing. Certain combinations of these conditions must therefore be considered in choosing satisfactory environments for different states of health.

Without actually moving to a place where particularly desirable climatic conditions exist, it is possible now to modify to some extent the external environment by so-called air conditioning. Such measures, in fact, have become so important that a special article on the subject has appeared in a recent issue of *THE JOURNAL*.⁵ Modifications in humidity and temperature to conform with optimal conditions now frequently can be made. There is naturally a great difference in the scientific basis of the studies of weather and its relation to health and disease. Certainly the interest now displayed in the subject leads to the hope that more exact knowledge is fomenting.

Current Comment

HEART DISEASE RACKET

In the Organization Section in this issue of *THE JOURNAL* appears a preliminary report of an extensive insurance fraud investigated by the United States Public Health Service. The author of the article obtained the material while serving in the capacity of medical adviser to the office of the United States attorney. In all the annals of criminal ingenuity with a medical tinge there has seldom been a more cold blooded, heartless or vicious scheme than the one now described. The manner in which patients who permitted themselves to be inveigled into the racket were first physically exhausted and then perhaps permanently damaged by the use of drugs, the manner in which competent, ethical physicians, without even a hint of suspicion, were drawn into the scheme so that their prestige and their names might be abused for the benefit of the swindlers, and the manner in which the most modern scientific methods of diagnosis were employed in order to give the appearance of scientific authenticity to the reports—all these are unique in criminal annals. The investigation represents a fine cooperative effort between the medical and legal authorities involved. As the fight against crime becomes more complex and intricate, the need for further cooperation becomes more manifest. As crime becomes more and more scientific, physicians will have to be more and more on their guard against those who would abuse their confidence for personal financial gain.

¹ Common Colds and the Weather editorial J. A. M. A. 103 414 (Aug. 11) 1934. Climate and Health ibid. 103 683 (Sept. 1) 1934. Climate in Relation to Pulmonary Tuberculosis ibid. 105 1918 (Dec. 7) 1935. Sunlight and Health ibid. 106 2071 (June 13) 1936. Climate and Rheumatic Fever ibid. 108 210 (Jan. 16) 1937.

² Chun J. W. H. Temperature, Humidity and Health. Rep. National Quarantine Service 7 96 1937.

³ J. State Med. 45 187 227 (April) 1937.

⁴ British Health Resorts. Official Handbook of British Health Resorts Association 1937.

⁵ Yaglou C. P. The Physical and Physiologic Principles of Air Conditioning J. A. M. A. 108 1708 (May 15) 1937.

PROCEEDINGS OF THE ATLANTIC CITY SESSION

MINUTES OF THE EIGHTY EIGHTH ANNUAL SESSION OF THE AMERICAN MEDICAL ASSOCIATION, HELD AT ATLANTIC CITY, JUNE 7-11, 1937

(Concluded from page 2228, volume 108)

MINUTES OF THE SECTIONS

SECTION ON PRACTICE OF MEDICINE

WEDNESDAY, JUNE 9—MORNING

The meeting was called to order at 9 o'clock by the chairman, Dr John H Musser, New Orleans

Drs R Earle Glendy and Paul D White, Boston, presented a paper on "Coronary Disease in Youth" Discussed by Drs H M Marvin, New Haven, Conn, W D Stroud, Philadelphia, and Paul D White, Boston

Dr Fred M Smith, Iowa City, read a paper on "Treatment of Acute Left Ventricular Failure" Discussed by Drs N C Gilbert, Chicago, R D Book, Corning, Ohio, and Fred M Smith, Iowa City

Dr Walter L Bierring, Past President of the American Medical Association, introduced Dr Joseph A Capps, Chicago, who read the Frank Billings lecture, entitled "The Cause of Pleural Shock Air Embolism or Pleural Reflex"

Dr John P Peters, New Haven, Conn, read a paper on "The Nature of Pregnane Toxemia"

Drs J Edwin Wood Jr and Harold G Nix, University, Va, presented a paper on "Pregnancy and Hypertension"

These two papers were discussed by Drs Joseph M Hayman Jr, Cleveland, Soma Weiss, Boston, John P Peters, New Haven, Conn, and J Edwin Wood Jr, University, Va

Drs Perrin H Long and Eleanor A Bliss, Baltimore, presented a paper on "The Use of Sulfanilamide in the Treatment of Beta-Hemolytic Streptococcus Infections" Discussed by Drs Chester S Keefer, Boston, Francis F Schwentker, Baltimore, John H Musser, New Orleans, and Perrin H Long, Baltimore

THURSDAY, JUNE 10—MORNING

It was moved by Dr Charles H Cocke, Asheville, N C, and seconded by Dr Walter E Vest, Huntington, W Va, that consent be given by the section for the reading of the following papers, the understanding being that they were unofficial and did not create a precedent "Bronchial Spirometry," by Dr H C Jacobus, professor of medicine, Karolinska Institute, Stockholm, Sweden, and "The Comparative Value of Purine Derivatives in the Treatment of Angina Pectoris," by Drs Norton G Brown and J C F Riseman, Boston These papers were added because of the fact that Dr Gustav Nylin was unable to be present to read his paper and Dr William Charles White was unable to attend the meeting because of illness The motion was put to a vote and carried

Dr Thomas Francis Jr, New York, read a paper on "Studies with Human Influenza Virus During the Influenza Epidemic of 1936-1937" Discussed by Drs Francis G Blake, New Haven, Conn, and Thomas Francis Jr, New York

Drs Morton G Brown and J E F Riseman, Boston, presented a paper on "The Comparative Value of Purine Derivatives in the Treatment of Angina Pectoris"

Dr John H Musser, New Orleans, read the chairman's address, entitled "The Future of Internal Medicine"

Dr H C Jacobus, Stockholm, Sweden, read a paper on "Bronchial Spirometry"

Dr Esmond R Long, Philadelphia, read the paper of Dr William Charles White, Washington, D C, on "Parasitism of the Tubercle Bacillus"

Dr J Burns Amberson, New York, read a paper on "The Lasting Cure of Early Pulmonary Tuberculosis"

Dr H W Hetherington, Philadelphia, read a paper on "Problems in the Diagnosis and Management of Latent, Suspected and Early Clinical Tuberculosis"

The papers of Drs White Amberson and Hetherington were discussed by Drs Bruce H Douglas, Detroit Charles H Cocke Asheville, N C Francis M Pottenger Jr, Monrovia, Calif, S A Savitz Philadelphia, Emil Bogen, Olive View Calif, Samuel Friedman, New York, and Esmond R Long, Philadelphia

FRIDAY, JUNE 11—MORNING

The following officers were elected chairman, Francis G Blake, New Haven, Conn, vice chairman, Dr T H Coffen, Portland, Ore, secretary Dr Fred M Smith Iowa City (three years), executive committee Dr John H Musser, New Orleans, Dr William J Kerr, San Francisco, Dr Francis G Blake, New Haven, Conn, delegate, J E Paullin, Atlanta, Ga (two years), alternate, Dr Ernest E Irons, Chicago, representative on Board of Internal Medicine, Dr Reginald Fitz Boston (three years)

Drs L B Laplace and J T Nicholson, Philadelphia, presented a paper on "Prolonged Recumbency as a Contributory Cause of Death in Elderly Persons" Discussed by Drs Robert Wilson, Charleston S C, Clarence L Andrews, Atlantic City, N J, De Forest P Willard, Philadelphia, Norman E Freeman, Philadelphia, J E Hirsh, Birmingham Ala, and L B Laplace, Philadelphia

Dr C P Rhoads, New York, read a paper on "Refractory Anemia Its Diagnosis and Treatment" Discussed by Drs George R Minot, Boston, Randolph West New York, Hyman I Goldstein, Camden, N J, and C P Rhoads, New York

Dr John H Talbott, Boston, read a paper on "Gout" Discussed by Drs William S Ladd, New York, and John H Talbott, Boston

Drs Alexander B Gutman and W Barclay Parsons, New York, presented a paper on "Hyperparathyroidism Simulating Paget's Disease" Discussed by Drs Walter Bauer, Boston, and Alexander B Gutman, New York

Dr A R Barnes, Rochester, Minn, read a paper on "Pulmonary Embolism" Discussed by Drs William J Kerr, San Francisco, O H Perry Pepper, Philadelphia, David Ward Scanlan Atlantic City, N J and A R Barnes, Rochester, Minn

Dr Harold J Jeghers, Boston, read a paper on "The Degree and Prevalence of Vitamin A Deficiency in Adults, with a Note on Its Experimental Productions in Human Beings" Discussed by Drs M A Blankenhorn, Cincinnati, John B Youmans, Nashville, Tenn, M G Wohl, Philadelphia and Harold J Jeghers Boston

SECTION ON SURGERY, GENERAL AND ABDOMINAL

WEDNESDAY, JUNE 9—AFTERNOON

The meeting was called to order at 2 05 by the vice chairman, Dr Alton Ochsner, New Orleans

Dr Chalmers H Moore, Birmingham Ala, read a paper on "The Treatment of Cramocerebral Trauma" Discussed by Drs Walter E Dandy, Baltimore, and R Glen Spurling Louisville, Ky

Drs Walter G Maddock Frederick A Collier and Syvend Petersen, Ann Arbor, Mich, presented a paper on "Blood

Chemistry Studies in Thyroid Crisis" Discussed by Drs George Crile Jr, New York, John Paul North, Philadelphia, and Willard Bartlett Jr, St Louis

Dr Robert S Dinsmore, Cleveland, read the chairman's address, entitled "Prevention of Morbidity in Thyroid Surgery"

Dr Arthur M Shipley, Baltimore, read a paper on "Present Day Status of Surgery of the Heart and Pericardium" Discussed by Drs Claude S Beck, Cleveland, and Isaac Alexander Bigger, Richmond, Va

Dr Edward J Donovan, New York, read a paper on "Congenital Hypertrophic Pyloric Stenosis in Infancy" Discussed by Drs William E Ladd, Boston Alfred Jerome Brown, Omaha, John J Gilbride, Philadelphia, Aldred A Strauss, Chicago, and Misch Casper, Louisville, Ky

Drs Samuel F Marshall and Everett D Kiefer, Boston, presented a paper on "Partial Gastrectomy for Gastric and Duodenal Ulcer" Discussed by Drs Everett D Kiefer, Boston, and Richard Lewisohn, New York

THURSDAY, JUNE 10—AFTERNOON

Dr John S Lundv, Rochester, Minn, read a paper on "Recent Advances in Anesthesia" Discussed by Drs Henry S Ruth, Philadelphia, and Ralph M Tovell, Hartford, Conn

Dr William L Estes Jr, Bethlehem, Pa, read a paper on "Partial Cholecystectomy in Acute Suppurative Cholecystitis" Discussed by Drs William D Haggard, Nashville, Tenn, Donald Guthrie, Savre, Pa and Moses Behrend, Philadelphia

Drs Robert Zollinger, Charles D Branch and Orville T Bailey, Boston, presented a paper on "Instrumental Dilatation of the Ampulla of Vater Experimental and Clinical Observations" Discussed by Drs Waltman Walters, Rochester, Minn, and Arthur W Allen, Boston

Dr Robert Lee Payne, Norfolk, Va, read a paper on "Post-operative Care of Bile Tract Surgery" Discussed by Drs Edwin P Lehman, University, Va Harold L Foss, Danville, Pa Frank K Boland, Atlanta, Ga, Willard Bartlett Jr, St Louis and Peter B Salatch, New Orleans

Drs Otto Carl Pickhardt and Henry Aaron Rafsky, New York, presented a paper on "Diagnostic and Therapeutic Problems Presented by Lesions of Right Lower Quadrant" Discussed by Drs Ernest H Gaither, Baltimore, and Frank H Lahav, Boston

FRIDAY, JUNE 11—AFTERNOON

The following officers were elected chairman, Dr Hugh H Trout, Roanoke, Va, vice chairman, Dr Frederick L Reichert, San Francisco secretary, Dr Henry W Cave, New York, delegate to House of Delegates, Dr Fred W Rankin, Lexington, Ky, alternate, Dr Thomas M Joyce, Portland, Ore nominee to Board of Governors of American College of Surgeons Dr Grover C Penberthy, Detroit members elected to Board of Anesthesiology, Drs Henry S Ruth, Philadelphia, six years H Boyd Stewart, Tulsa, Okla, four years, Ralph M Tovell, Hartford Conn, two years

Drs Edward M Hanrahan Jr, Maxwell M Wintrobe and Caroline B Thomas, Baltimore, presented a paper on "Purpura Haemorrhagica with Special Reference to Its Course and Treatment" Discussed by Drs Allen O Whipple, New York and George R Minot, Boston

Dr Arthur W Allen, Boston, read a paper on "Right Colectomy for Malignant Disease A Discussion of the Mortality Associated with Various Operative Procedures" Discussed by Drs Fred W Rankin, Lexington Ky, and Harvey B Stone, Baltimore

Dr William Crawford White, New York, read a paper on "Present Views Regarding Irradiation as an Aid to Surgery in Cancer of the Breast" Discussed by Drs Frank E Adair, New York, Ernest Daland, Boston, and George M Dorrance, Philadelphia

Drs Loyal Davis and Leon I Aries, Chicago, presented a paper on "The Prevention of Postoperative Adhesions About Nerve and Tendon Sutures" Discussed by Dr Herbert L Johnson, Boston

Dr Harvey B Stone, Baltimore, read a paper on "Rectal Symptoms from the General Surgeon's Point of View" Discussed by Drs Curtice Rosser, Dallas, Texas and Frank C Coleman, New York

Dr C Latimer Callander, San Francisco, read a paper on "Further Experience with a New Tendoplastic Amputation Through the Femur at the Knee" Discussed by Dr Joseph S McGinness, San Francisco

SECTION ON OBSTETRICS, GYNECOLOGY AND ABDOMINAL SURGERY

WEDNESDAY, JUNE 9—MORNING

The meeting was called to order at 9 o'clock by the chairman, Dr M Pierce Rucker, Richmond, Va

Dr Virgil S Counseller, Rochester, Minn, read a paper on "The Surgical Treatment of Uterine Myomas" Discussed by Drs Thomas S Cullen, Baltimore, Louis E Phaneuf, Boston, and Henry Schmitz, Chicago

Dr A Louis Dippel, Baltimore, read a paper on "The Diagonal Conjugate versus X-Ray Pelvimetry" Discussed by Drs J Bay Jacobs, Washington, D C, Edward L Cornell, Chicago, and W T McConnell, Louisville, Ky

Drs Norman F Miller and Russell L Malcolm, Ann Arbor, Mich, presented a paper on "An Evaluation of Common Lesions of the Cervix" Discussed by Drs Floyd E Keene, Philadelphia, Lawrence R Wharton, Baltimore, Jean Paul Pratt, Detroit, C F Fluhmann, San Francisco, and Karl H Martzloff, Portland, Ore

Drs Harvey B Matthews and Maurice G Der Brucke, Brooklyn, presented a paper on "Normal Expectancy in the Extremely Obese Pregnant Woman" Discussed by Drs Nicholson J Eastman, Baltimore, and Jennings C Litzberg, Minneapolis

With the unanimous consent of the section, Dr K de Snoo, Utrecht, Holland, presented a paper by title on "The Treatment of Repeated Abortion on Repeated Antenatal and Postnatal Deaths" At the request of the section officers, Dr K de Snoo then presented a 16 mm motion picture film on "Comparative Physiology of Labor"

THURSDAY, JUNE 10—MORNING

The following papers were read as a symposium on "The Clinical Use of Endocrine Products"

Drs Robert T Frank, Morris A Goldberger and U J Salmon, New York "Oligomenorrhea and Amenorrhea Causation and Treatment"

Drs John C Burch, G S McClellan, John W Simpson, Claud Johnson and E T Ellison, Nashville, Tenn "The Treatment of Glandular Cystic Hyperplasia of the Endometrium by Endocrine Products"

Dr Jennings C Litzberg, Minneapolis "The Endocrines in Relation to Sterility and Abortion"

Dr Jean Paul Pratt, Detroit "The Endocrine Treatment of Menopausal Phenomena"

Dr Robert M Lewis, New Haven, Conn "Endocrine Treatment of Vaginitis of Children and Women After the Menopause"

These five papers were discussed by Drs Emil Novak, Baltimore, Elmer L Sevringhaus, Madison, Wis, E C Hamblen, Durham, N C, Fred H Falls, Chicago, Samuel S Rosenfeld, New York, August A Werner, St Louis, Charles W Dunn, Philadelphia, Jacob Hoffman, Philadelphia Misch Casper, Louisville, Ky, Cecil Striker, Cincinnati, and Peter B Salatch, New Orleans

Dr Arthur H Curtis, Chicago who was named to the Executive Committee in place of Dr Lyle G McNeile, Los Angeles, reported for the Executive Committee relative to the nominations for the election to take place on Friday morning

Dr M Pierce Rucker, Richmond, Va, read the chairman's address, entitled "The Treatment of Eclampsia"

The Talking Motion Picture "The Birth of a Baby" was presented

FRIDAY, JUNE 11—MORNING

The following officers were elected chairman Dr Everett D Plass, Iowa City, vice chairman, Dr Harvey B Matthews, Brooklyn, secretary, Dr Norman F Miller, Ann Arbor, Mich nominee to Board of Governors of the American College of Surgeons Dr Jean Paul Pratt, Detroit Committee on Mater-

nal Welfare, Drs James Raglin Miller, Hartford, Conn, Robert D Mussey, Rochester, Minn, and James R McCord, Atlanta, Ga

Dr H Close Hesseltine Chicago, read a paper on "Evaluation by Controlled Series of Vaginal Trichomoniasis Therapies" Discussed by Dr Abraham C Rakoff, Philadelphia

Dr Abraham I Lash, Chicago, read a paper on "Further Studies of the Clinical Use of the Concentrated (Hemolytic) Streptococcus Antitoxic Serum in Puerperal Fever"

Drs George Gray Ward and Nelson B Sackett, New York, presented a paper on "Results of Radiation Therapy for Carcinoma of the Uterus at the Woman's Hospital, New York City Series 1919-1932" Discussed by Drs Mary Cutler, Chicago, Rieva Rosh, New York, and Nelson B Sackett, New York

Drs Harris J Timmerman and Magnus P Urnes, Chicago, presented a paper on "Breech Delivery A Comparative Study of Local and General Anesthesia" Discussed by Dr Joseph B DeLee, Chicago

Dr Nicholas M Alter, Jersey City, N J, read a paper on "Hydatidiform Mole and Chorionepithelioma Pathologic Studies" Discussed by Dr William R Nicholson, Philadelphia

Drs John Huberman, Newark, N J, H H Israeloff, Irvington, N J, and Ben Hymowitz, Newark, N J, presented a paper on "The Use of the Anterior Pituitary-like Principle as an Intradermal Pregnancy Test Further Observations"

SECTION ON OPHTHALMOLOGY

WEDNESDAY, JUNE 9—AFTERNOON

The meeting was called to order at 2 o'clock by the chairman, Dr William L Benedict, Rochester, Minn

Dr Arthur J Bedell, Albany, N Y, presented to the section a twenty minute, a ten minute and a five minute sand glass from Mr Leslie Paton, London, England

The chairman called for an executive session to consider a resolution

It was moved by Dr Arthur J Bedell, Albany, N Y, duly seconded and carried, that the following resolution be presented to the House of Delegates

WHEREAS The Federal Social Security Act in Title Ten has placed on the Social Security Board the responsibility of entering into cooperative arrangements with the various states for the purpose of aiding those states in granting financial assistance to needy blind individuals and has ruled that individuals in the various states applying for blind assistance must be examined by an ophthalmologist or a doctor of medicine skilled in the diseases of the eye

WHEREAS The Social Security Board has advised the official state agencies that have the responsibility of administering this aid in those states to employ a supervising ophthalmologist who will have general supervision over the medical determination of blindness within the state therefore be it

Resolved That the Section on Ophthalmology of the American Medical Association approves the action of the Social Security Board in requiring that applicants for blind assistance within the various states be examined by a regularly licensed and registered doctor of medicine skilled in diseases of the eye or by an ophthalmologist as such a procedure will serve to secure a fuller knowledge as to the causes of blindness within the United States and be it further

Resolved That the Section on Ophthalmology of the American Medical Association goes on record as approving the suggestion of the Social Security Board that the official agency in the state or territory charged with the responsibility of administering blind assistance employ a supervising ophthalmologist whose duty will be the general supervision of the medical determination of blindness of those needy individuals applying for blind assistance be it further

Resolved That the delegate from the Section on Ophthalmology of the American Medical Association be and is hereby instructed to present these resolutions to the House of Delegates

The executive session was terminated on motion duly seconded and carried

Dr William L Benedict, Rochester, Minn, read the chairman's address, entitled "The Pathology of Angioid Streaks in the Fundus Oculi"

Dr Walter R Parker, Detroit, read a paper on "Ophthalmic Education"

Dr Harry S Gradle, Chicago, and Dr Walter De Francois, Harrisburg, Ill, presented a paper on "The Visual Ravages of Trachoma" Discussed by Dr C E Rice, Washington, D C

Drs Grady E Clay and J M Baird, Atlanta Ga presented a paper on "An Unclassified Type of Optic Neuritis" Discussed by Drs E L Goar, Houston, Texas, Walter I Lillie, Philadelphia, and J M Baird, Atlanta, Ga

Drs Conrad Berens and Jacob A Goldberg New York, presented a paper on "Syphilis in Relation to the Prevention of Blindness" Discussed by Drs E V L Brown, Chicago, John Green, St Louis, Louis Lehrfeld, Philadelphia, Mr Lewis H Carris, New York, National Association for the Prevention of Blindness, and Dr Conrad Berens, New York

Dr Leo L Maver, Chicago, read a paper on "Tryparsamide Therapy of Neurosyphilis and Optic Nerve Atrophy" Discussed by Drs Frederick C Cordes, San Francisco, Walter I Lillie, Philadelphia, and Leo L Mayer, Chicago

Drs Norman P Scala, Washington, D C, and Ernest A Spiegel, Philadelphia presented a paper on "Ocular Disturbances in Lesions of the Mesencephalic Central Gray Matter" Discussed by Drs Clifford B Walker, Los Angeles, Walter B Lancaster, Boston, and Norman P Scala Washington, D C

THURSDAY JUNE 9—AFTERNOON

Dr F Herbert Haessler, Milwaukee, read a paper on 'The Near Reaction of the Pupil in the Dark A Quantitative Study' Discussed by Drs Francis H Adler Philadelphia, Frederick H Verhoeff, Boston, and F Herbert Haessler, Milwaukee

Dr David G Cogan Boston, read a paper on "The Automatic Nervous System and Accommodation" Discussed by Drs William H Luedde, St Louis, Alfred Bielschowsky, Hanover, N H S Judd Beach, Portland Maine, and David G Cogan Boston

Dr Edward Jackson, Denver, read a paper on "Late Results of Cataract Extraction" Discussed by Drs Allen Greenwood, Boston, Edward C Ellett, Memphis, Tenn, and Edward Jackson, Denver

Dr Robert E Moran Washington, D C, read a paper on "An Explanation of Exophthalmos and Enophthalmos with Surgical Correction" Discussed by Drs Albert D Ruedemann, Cleveland Frederick H Verhoeff Boston, Edmund B Spaeth, Philadelphia, Clifford B Walker, Los Angeles and Robert E Moran, Washington, D C

At the Demonstration Session the following were shown

Dr S Judd Beach, Portland Maine, presented a demonstration of statistical analysis of refraction case reports

Dr Conrad Berens, New York, presented 1 A series of stereoscopic cards 2 Visual acuity chart for amblyopic children and adults

Dr Clifford B Walker, Los Angeles, presented some new equipment in treatment of detachment of the retina

Dr George P Gubor, Chicago, presented a classification of concomitant strabismus

Dr Harry S Gradle Chicago, presented a device for adding an extra cell to the battery handle of the Bausch and Lomb ophthalmoscope

Dr John Green, St Louis presented a new caliper

Dr Parker Heath, Detroit, presented an anterior chamber irrigator

FRIDAY, JUNE 11—AFTERNOON

Executive Session

Dr Albert C Snell, Rochester, N Y, presented the report of the Committee on Compensation Tables and moved that the committee be discontinued as the majority of the work had now been accomplished The motion was seconded and carried

Dr Snell also read a preliminary report of the Special Committee on Visual Standards for Licensure to Operate Motor Vehicles, a committee made up of Dr Nelson M Black, Miami Fla, Dr Harry S Gradle, Chicago, and Dr Albert C Snell Rochester, N Y It was moved that the report be placed on file, that a copy be sent to the committee of the American Medical Association on the same subject, that the committee be continued and that it cooperate with the other committee

Dr Charles A Bahn, New Orleans, read the report of the American Committee (Joint) on Optics and Visual Physiology in the absence of the chairman, Dr Edward Jackson The report was accepted and referred to the executive committee

The report of the Committee on the Knapp Testimonial Fund was presented by Dr Parker Heath, Detroit. The report was accepted and placed on file.

For the Committee on Awarding the Knapp Medal, Dr Frederick H Verhoeff, Boston, reported that no award would be made this year.

The report of the Committee on the American Board of Ophthalmology was read by Dr Edward C Ellett, Memphis, Tenn. The report was accepted and placed on file.

Dr Parker Heath, Detroit, read the report of the Committee on Museum of Ophthalmic History, recommending that the committee be discharged and a new committee formed. The report and recommendation were accepted.

Dr John Green, St Louis, read the report of the Committee from the Section to Cooperate with the National Committee for the Prevention of Blindness. It was moved by Dr Harry S Gradle, Chicago, that the committee be instructed to make an analysis of the statistical tables of the cause of blindness as shown here and be prepared to report to this section at the next session. The motion was seconded by Dr Arthur J Bedell, Albany, N Y, and carried.

Dr Georgiana Dvorak Theobald, Oak Park, Ill., read the report of the Committee on Scientific Exhibit from the Section. The report was accepted and a vote of thanks extended the committee.

Dr Arthur J Bedell, Albany, N Y, reported as section delegate to the House of Delegates.

Dr Parker Heath, Detroit, read the report of the Committee on Ophthalmic Standards. The report was accepted and placed on file.

Dr Parker Heath, Detroit, read the report of the Committee on National Museum of Ophthalmic Pathology (Joint). The report was accepted.

The following officers were elected: chairman, Dr Parker Heath, Detroit; vice chairman, Dr A Ray Irvine, Los Angeles; secretary, Dr Derrick T Vail Jr, Cincinnati; delegate, Dr Arthur J Bedell, Albany, N Y; alternate, Dr Lawrence T Post, St Louis.

Dr Daniel B Kirby, New York, was appointed to fill a vacancy on the American Board of Ophthalmology.

Dr Sanford R Gifford, Chicago, was appointed to fill a vacancy on the American Committee (Joint) on Optics and Visual Physiology.

Dr Georgiana Dvorak Theobald, Oak Park, Ill., chairman, Dr Dohrmann K Pischel, San Francisco, and Dr Derrick T Vail Jr, Cincinnati, were appointed to constitute the Committee on Scientific Exhibit from the Section.

Dr William Henry Luedde, St Louis, chairman, Dr Adolph O Pfingst, Louisville, Ky, and Dr John W Burke, Washington, D C, were appointed to constitute the Committee to Cooperate with the National Society for the Prevention of Blindness.

Dr Albert C Snell, Rochester, N Y, chairman, and Dr Harry S Gradle, Chicago, were appointed to constitute the Committee on Compensation and Economics.

Dr Burton Chance, Philadelphia, chairman, Dr Arnold Knapp, New York, Dr Edward Jackson, Denver, Dr J W Jervey, Greenville, S C, and Dr Hans Barkan, San Francisco, were appointed to constitute the Committee on Ophthalmic History.

Dr Arnold Knapp, New York, Dr A N B Lemoine, Kansas City, Mo, and Dr Edwin M Neher, Salt Lake City, were appointed to constitute the Knapp Medal Award Committee.

Scientific Session

Dr Benjamin Rones, Washington, D C, read a paper on "Formation of Drusen of the Lamna Vitrea." Discussed by Drs Frederick H Verhoeff, Boston, Arthur J Bedell, Albany, N Y, and Benjamin Rones, Washington D C.

Dr Edmund B Spaeth, Philadelphia, read a paper on "Blepharoptosis." Discussed by Drs Ferris Smith, Grand Rapids, Mich., Daniel B Kirby, New York, and Edmund B Spaeth, Philadelphia.

Dr Walter F Duggan, New York, read a paper on "Treatment of Tobacco Amblyopia with Vasodilators."

Dr Frank D Carroll, New York, read a paper on "The Importance of Diet in the Etiology and Treatment of Tobacco Alcohol Amblyopia."

These two papers were discussed by Drs Lawrence T Post, St Louis, Arthur M Yudin, New Haven, Conn., Walter F Duggan, New York, and Frank D Carroll, New York.

Dr Walter H Fink, Minneapolis, read a paper on "The Dominant Eye: Its Clinical Significance." Discussed by Drs Derrick T Vail Jr, Cincinnati, and Walter H Fink, Minneapolis.

SECTION ON LARYNGOLOGY, OTOTOLOGY AND RHINOLOGY

WEDNESDAY, JUNE 9—MORNING

The meeting was called to order at 9 o'clock by the chairman, Dr Robert F Ridpath, Philadelphia.

William Gershom Downs, New York, and Walter George Urban, Pittsburgh, were nominated for Associate Fellowship.

Dr Thomas E Carmody, Denver, read a paper on "Osteomyelitis of the Jaws." Discussed by Drs V H Kazanjian, Boston, Robert H Ivy, Philadelphia, and Thomas E Carmody, Denver.

Dr Claude C Coleman, Richmond, Va., read a paper on "Fracture of the Skull Involving the Paranasal Sinuses and Mastoid." Discussed by Drs Francis C Grant, Philadelphia, Wells P Eagleton, Newark, N J, and Claude C Coleman, Richmond, Va.

Dr Frank H Lahey, Boston, read a paper on "The Management of Pulsion Esophageal Diverticulum Based on an Operative Experience with Seventy Cases and a Follow-Up Study of Forty-Five Cases." Discussed by Drs Stuart W Harrington, Rochester, Minn., Thomas A Shallow, Philadelphia, W Wayne Babcock, Philadelphia, and Frank H Lahey, Boston.

Dr Edmund Prince Fowler, New York, read a paper on "Measuring the Sensation of Loudness: A New Approach to the Physiology of Hearing and the Functional and Differential Diagnostic Tests." Discussed by Drs Walter Hughson, Abington, Pa., Douglas Macfarlan, Philadelphia, Horace Newhart, Minneapolis, Frederick T Hill, Waterville, Maine, and Edmund Prince Fowler, New York.

Dr Joseph L Goldman, New York, read a paper on "Prophylactic Vaccination Against Intracranial Complications Following Pneumococcus Type III Mastoiditis." Discussed by Drs Russell L Cecil, New York, W E Grove, Milwaukee, Isidore Friesner, New York, and Joseph L Goldman, New York.

THURSDAY, JUNE 10—MORNING

Dr Robert F Ridpath, Philadelphia, read the chairman's address, entitled "A Plea for a Better Understanding Between the Laryngologist and the Vocal Teacher."

Dr Burt R Shurly, Detroit, read a paper on "Otolaryngology in Relation to General Medicine." Discussed by Drs Frank R Spencer, Boulder, Colo., W P Wherry, Omaha, Claude P Brown, Philadelphia, Charles Brown, Philadelphia, and Burt R Shurly, Detroit.

Drs Isidore Friesner and J G Druss, New York, presented a paper on "Critique of the Present Treatment of Conducting Mechanism Deafness." Discussed by Drs Edward H Campbell, Philadelphia, John Randolph Page, New York, and Isidore Friesner, New York.

Dr Robin Harris, Jackson, Miss., read a paper on "A Comment on the Treatment of Chronic Purulent Otitis Media." Discussed by Drs Samuel J Kopetzky, New York, and Benjamin H Shuster, Philadelphia.

Drs Matthew S Ersner and David Myers, Philadelphia, presented a paper on "Treatment of Lateral Sinus Thrombosis Without Ligation of the Internal Jugular Vein." Discussed by Drs H Marshall Taylor, Jacksonville, Fla., Marvin Fisher Jones, New York, Philip E Meltzer, Boston, Isidore Friesner, New York, J I Kemler, Baltimore, and Matthew S Ersner, Philadelphia.

Dr E G Gill, Roanoke, Va., read a paper on "The Medical Treatment of Blood Stream Infection with Special Reference to Immunized Blood Transfusions." Discussed by Drs John A Kolmer, Philadelphia, James A Babbitt, Philadelphia, Earl Le Roy Wood, Newark, N J, and E G Gill, Roanoke, Va.

FRIDAY, JUNE 11—MORNING

Dr Chevalier Jackson, Philadelphia, presented the report of the Committee on Live Legislation. The report was accepted.

Dr John J Shea, Memphis, Tenn, reported for the American Board on Otolaryngology that it had held thirty-three examinations, in which 2,582 men had been certificated by the board. The last examination was held Monday and Tuesday June 7 and 8, in Philadelphia, at which time ninety-four candidates were examined.

The following officers were elected: chairman, Gordon B New, Rochester, Minn; vice chairman, C Coulter Charlton, Atlantic City, N J; secretary, Leroy A Schall, Boston, delegate, Burt R Shurk, Detroit, alternate, Gordon F Harkness, Davenport, Iowa, executive committee: Ralph A Genton, Portland, Ore, Robert F Ridpath, Philadelphia, Gordon B New, Rochester, Minn, Board of Otolaryngology: Joseph C Beck, Chicago, and John J Shea, Memphis, Tenn.

Dr C M Anderson, Rochester, Minn, read a paper on "Congenital Occlusion of the Posterior Choana." Discussed by Drs J P Schreffer, Philadelphia, Harry P Schenck, Philadelphia, R C Grove, New York, Gordon B New, Rochester, Minn, and C M Anderson, Rochester, Minn.

Dr Royal Reynolds, Washington, D C, read a paper on "Foreign Bodies in the Food and Air Passages: Their Early and Late Effects." Discussed by Drs Chevalier Jackson, Philadelphia, and Herman J Moersch, Rochester, Minn.

Dr Gabriel Tucker, Philadelphia, read a paper on "Tumors of the True Vocal Cords: Malignant and Benign." Discussed by Drs Henry B Orton, Newark, N J, Gordon B New, Rochester, Minn, and Gabriel Tucker, Philadelphia.

Dr Leroy A Schall, Boston, read a paper on "Exophthalmos Complicating Irradiation." Discussed by Drs Algernon B Reese, New York, Joseph C Beck, Chicago, and Leroy A Schall, Boston.

Dr Joshua C Drooker, Boston, read a paper on "Triple Primary Carcinoma in Otolaryngology." Discussed by Drs Frank W Konzelmann, Philadelphia, Louis H Clerf, Philadelphia, Leroy A Schall, Boston, Harris P Moslier, Boston, and Joshua C Drooker, Boston.

SECTION ON PEDIATRICS

WEDNESDAY, JUNE 9—AFTERNOON

The meeting was called to order at 2:05 by the chairman, Dr Ralph M Tyson, Philadelphia.

Dr Ralph M Tyson, Philadelphia, read the chairman's address, entitled "Certain Significant Aspects of Childhood Tuberculosis."

Dr William E Chamberlain, Philadelphia, read a paper on "Clinical Radiology in Pediatrics."

Dr Lewis Webb Hill, Boston, read a paper on "The Dietetic Treatment of Eczema in Early Infancy." Discussed by Drs Ralph Bowen, Oklahoma City, T Wood Clarke, Utica, N Y, Bret Ratner, New York, George Pness, Los Angeles, and Lewis Webb Hill, Boston.

The chairman appointed Drs Edgar P Copeland, Washington, D C, Edward Shaw, San Francisco, and Walter Stewart, Atlantic City, as a resolutions committee.

Dr Horace Newhart, Minneapolis, read a paper on "The Early Detection and Treatment of Hearing Defects in Children." Discussed by Drs Austin A Hayden, Chicago, Leo S Friedman, Cincinnati, and Horace Newhart, Minneapolis.

Drs Frederic W Schlutz and J L Collier, Chicago, presented a paper on "The Treatment of Nephrosis in the Young Child." Discussed by Drs A Graeme Mitchell, Cincinnati, and Frederic W Schlutz, Chicago.

Dr Clifford D Sweet, Oakland, Calif, read a paper on "The Teaching of Body Mechanics in Pediatric Practice." Discussed by Drs Lloyd T Brown, Boston, Brewster C Doust, Syracuse, N Y, Clifford D Sweet, Oakland, Calif, and Winthrop M Phelps, Baltimore.

THURSDAY, JUNE 10—AFTERNOON

Dr Louis W Sauer, Evanston, Ill, read a paper on "Municipal Control of Whooping Cough." Discussed by Drs LeRoy D Fothergill, Boston, and Charles Gilmore Kerley, New York.

Dr William H Park, New York, read a paper on "A Comparison Between the Use of Diphtheria Precipitated Toxoid and the Fluid Toxoid as a Preventive." Discussed by Drs M Bernard Brahdry, Mount Vernon, N Y, Julius Blum, New York, May Schroder, New York, and William H Park, New York.

Drs Joseph Stokes Jr, Aims C McGuinness and Paul H Langner Jr, Philadelphia, presented a paper on "Immunization with the Active Virus of Human Influenza: A Two Year Study." Discussed by Drs Thomas Francis Jr, New York, Joseph Golomb, New York, and Joseph Stoles Jr, Philadelphia.

Dr John A Toomey, Cleveland, read a paper on "Active and Passive Immunity in Poliomyelitis." Discussed by Drs Joseph Yampolsky, Atlanta, John Fitch Landon, New York, Paul H Harmon, Chicago, William H Park, New York, Benjamin Kramer, Brooklyn, and John A Toomey, Cleveland.

Dr Charles F McKhann, Boston, read a paper on "The Prevention and Modification of Measles." Discussed by Drs Samuel Karelitz, New York, Clifford D Sweet, Oakland, Calif, Haven Emerson, New York, Franklin P Gengenbach, Denver, and Charles F McKhann, Boston.

Dr Philip M Stimson, New York, read a paper on "Individual Isolation." Discussed by Drs Haven Emerson, New York, Harry H Donnally, Washington, D C, Charles F McKhann, Boston, and Franklin P Gengenbach, Denver.

FRIDAY, JUNE 11—AFTERNOON

The following officers were elected: chairman, Dr Clifford D Sweet, Oakland, Calif; vice chairman, Dr Edward Shaw, San Francisco; secretary, Dr Albert D Kaiser, Rochester, N Y; executive committee: Dr Horton R Casparis, Nashville, Tenn, Dr Ralph M Tyson, Philadelphia, and Dr Clifford D Sweet, Oakland, Calif; delegate, Dr William Weston Columbia, S C; alternate, Dr John Aikman, Rochester, N Y; representative for Scientific Exhibit, Dr F T Mitchell, Memphis, Tenn.

Dr Albert D Kaiser, Rochester, N Y, presented the report of the executive committee as follows:

The executive committee recommends that the present Abraham Jacobi Memorial Fund Committee be continued; that Dr Ralph M Tyson, Philadelphia, be made a member of this committee to take the place of Dr Frederic W Schlutz, Chicago, whose term of office expires; that Dr Hugh L Dwyer, Kansas City, Mo, be added to the committee and be made secretary-treasurer to replace Dr Frank Neff, Kansas City, Mo, who wishes to retire from this office.

The executive committee recommends to the section that an invitation be extended to the International Pediatric Congress that meets in Rome, Italy, in September to hold its next meeting (1940) in the United States.

The executive committee wishes to call to the attention of the section the excellent and untiring work Dr Frank Neff of Kansas City has contributed in administering the Abraham Jacobi Memorial Fund.

The executive committee recommends that the secretary of the section meet with the committee.

Respectfully submitted

A GRAEME MITCHELL, Chairman
HORTON R CASPARIS
RALPH M TYSON

On motion of Dr Edgar P Copeland, Washington, D C, regularly seconded, it was voted that the report be adopted.

Dr Albert D Kaiser, Rochester, N Y, presented the report of the Abraham Jacobi Memorial Fund Committee as follows:

The activities of the Abraham Jacobi Memorial Fund during the year 1936-1937 include the completion of the Abraham Jacobi-Carl Schurz Memorial Park at Bolton Landing, Lake George, N Y. Reprints of the Memorial Park dedication exercises were mailed to all subscribers of the fund and to all medical libraries here and many of those abroad. The Jacobi Committee will see that the Memorial Park is kept in a nice condition. Another activity was the underwriting of the expense for publishing a supplement to the January (1937) issue of the AMERICAN JOURNAL OF DISEASES OF CHILDREN, which would otherwise not have been published because of the

cost and the lack of space. A small donation was solicited from pediatricians following the Kansas City meeting which helped to defray the above mentioned expenses.

No guest speaker was invited for this year. It is the present intention to limit foreign invitations for this purpose to special occasions and to speakers of exceptional appeal.

It is hoped that our modest fund will be kept intact for many years and be of service to the section through the interest-bearing income derived therefrom and that the friends of the section will continue their generous donations whenever it becomes advisable to ask for them to further the activities advised by the committee.

Respectfully submitted

FREDERIC W SCHULTZ, Chicago, 1937,
Chairman
ALFRED A WALKER, Birmingham, 1938
A GRAEME MITCHELL, Cincinnati, 1939
HORTON R CASPARIS, Nashville, 1940
FRANK C NEFF Kansas City Mo.,
Secretary-Treasurer

On motion of Dr Edgar P Copeland, Washington, D C, regularly seconded, it was voted that the report be adopted. Dr Edgar P Copeland, Washington, D C, presented the report of the resolutions committee as follows:

Your committee on resolutions begs to submit the following for your consideration:

1 The section desires to express its gratitude of the unbounded hospitality extended to the section by the local medical group, and in particular to Dr Crowe, our vice chairman together with Dr Nickman and Dr Stewart for their personal efforts in contributing to our comfort and happiness.

2 And, further, the section desires to express to the chairman, Dr Ralph Tyson, and to the secretary Dr Albert Kaiser, our appreciation for the arrangement of a most interesting and stimulating scientific program.

3 Since our last meeting we have lost through death a number of members and friends of the section. It is proposed that we rise for a moment in silent tribute to their memory.

Respectfully submitted

EDGAR P COPELAND
EDWARD B SHAW
WALTER B STEWART

On motion of Dr John Aikman, Rochester, N Y, regularly seconded, it was voted that the report be adopted.

Dr L Emmett Holt Jr, Baltimore, read a paper on "Abnormalities of Fat Metabolism in Childhood." Discussed by Drs S J Thannhauser, Boston, Harry Lowenburg Sr, Philadelphia and L Emmett Holt Jr, Baltimore.

Drs C A Stewart and E S Platon, Minneapolis, presented a paper on "Communicable Disease Control in Private Practice." Discussed by Drs Lee Forrest Hill, Des Moines, Iowa, Henry T Price Pittsburgh, Herman Schwarz New York, Clifford D Sweet, Oakland, Calif, Percival Nicholson, Ardmore, Pa and C A Stewart, Minneapolis.

Dr Milton B Cohen, Cleveland, read a paper on "The Allergic Crippled Child." Discussed by Drs J Alexander Clarke Jr, Philadelphia, W Ambrose McGee, Richmond Va, and Milton B Cohen, Cleveland.

Drs John L Rice, Samuel Frant and Harold Abramson, New York, presented a paper on "Epidemic Diarrhea of the New-Born. Preliminary Considerations on Outbreaks of Highly Fatal Diarrhea of Undetermined Etiology Among New-Born Babies in Hospital Nurseries." Discussed by Drs Hugh L Dwyer Kansas City, Mo, John Aikman Rochester, N Y, Walter D Ludlum, Brooklyn, Joseph Golomb, New York, and John L Rice, New York.

Dr E J Barnett, Spokane, Wash, read a paper on "Wood Tick Paralysis in Children."

Dr May G Wilson, New York, read a paper on "The Diagnosis of Heart Disease in Children. Consideration of Diagnostic Criteria Based on Analysis of Records of Five Hundred Children Observed in a Cardiac Clinic Over a Period of Three to Twenty Years." Discussed by Drs William D Stroud Philadelphia and Hyman Green, Boston.

SECTION ON PHARMACOLOGY AND THERAPEUTICS

WEDNESDAY, JUNE 9—AFTERNOON

The meeting was called to order at 2:05 by the chairman Dr N C Gilbert, Chicago.

Drs Robert L Levy, Alvan L Barach and Howard G Bruenn, New York, presented a paper on "Effects of Induced Oxygen Want in Patients with Cardiac Pain." Discussed by Drs H J Stewart, New York, T D Cunningham Denver, M Herbert Barker, Chicago, Alvan L Barach, New York, and Robert L Levy, New York.

Drs Harold Feil and Claude S Beck, Cleveland, presented a paper on "Treatment of Coronary Sclerosis and Angina Pectoris by Producing a New Blood Supply to the Heart." Discussed by Drs Wallace M Yater, Washington, D C, Herman Shube, Cleveland, Robert L Levy, New York, Claude S Beck, Cleveland, and Harold Feil, Cleveland.

Drs James A Greene, W D Paul and A E Feller, Iowa City, presented a paper on "The Action of Theophylline with Ethylenediamine on Intrathalacic and Venous Pressures in Cardiac Failure and on Bronchial Obstruction in Cardiac Failure and in Bronchial Asthma." Discussed by Drs G K Fenn, Chicago, T R Harrison, Nashville, Tenn, Alvan L Barach, New York, and James A Greene, Iowa City.

Drs Robert Goodhart and Norman Jolliffe, New York, presented a paper on "Observations on the Effects of Vitamin B (B₁₂) Therapy on the Polyneuritis of Alcohol Addicts." Discussed by Drs George R Cowgill, New Haven, Conn, Martin G Vorhaus, New York, Tom D Spies, Cincinnati, and Robert Goodhart, New York.

Drs Carl E Ervin and Henry F Hunt, Danville, Pa, presented a paper on "The Diagnosis and Treatment of Undulant Fever." Discussed by Drs Walter M Simpson, Dayton, Ohio, and Carl E Ervin, Danville, Pa.

Dr Waltman Walters, Rochester, Minn, presented a paper on "The Pathologic Physiology of the Common Bile Duct and Its Relation to Biliary Colic." Discussed by Drs A C Ivy, Chicago, Robert L Payne Norfolk, Va, R Russell Best, Omaha, and Waltman Walters, Rochester, Minn.

THURSDAY, JUNE 10—AFTERNOON

Dr N C Gilbert, Chicago, read the chairman's address, entitled "The Therapeutics of Coronary Circulation."

Dr Eugene M Landis, Philadelphia, read a paper on "Observations on Acacia Therapy in Nephrosis." Discussed by Dr A R Barnes, Rochester, Minn.

Dr Abraham Myerson, Boston, read a paper on "Human Autonomic Pharmacology." No discussion.

Drs D L Wilbur, A R MacLean and E V Allen, Rochester, Minn, presented a paper on "Clinical Observations on the Effects of Benzedrine Sulfate." No discussion.

Dr Laurence E Hines, Chicago, read a paper on "The Effect of Diuresis by Mercurials on the Clinical Course of Congestive Heart Failure." Discussed by Drs Arthur C DeGraff, New York, James G Carr, Chicago, Chauncey C Maher, Chicago, M Herbert Barker, Chicago, and Laurence E Hines, Chicago.

Drs Frank L Horsfall Jr, Kenneth Goodner, Colin M MacLeod and Albert H Harris 2d, New York, presented a paper on "Antipneumococcus Rabbit Serum as a Therapeutic Agent in Lobar Pneumonia." Discussed by Drs J G M Bullock, New York, Russell L Cecil, New York, Norman H Plummer, New York, and Frank L Horsfall, New York.

FRIDAY, JUNE 11—AFTERNOON

The following officers were elected: chairman, Dr Russell L Haden, Cleveland, vice chairman, Dr Erwin E Nelson, Ann Arbor, Mich, secretary, Dr Irving S Wright, New York, delegate, Dr Cary Eggleston, New York, alternate, Dr Chauncey D Leake, San Francisco, executive committee, Dr Russell L Haden, Cleveland, Dr N C Gilbert, Chicago, and Dr Chauncey D Leake, San Francisco.

The following papers were read as a symposium on "Prothamine Insulin":

Drs D A Scott, A M Fisher and C H Best, Toronto, Ont. "The Prolongation of Insulin Action."

Dr Herman O Mosenthal, New York "Protamine Zinc Insulin Clinical Application"

Dr Edwin J Kepler, Rochester, Minn "Protamine Insulin Clinical Experience"

Dr Elliott P Joslin, Boston "Difficulties in the Use of Protamine Insulin"

These four papers were discussed by Drs Walter R Campbell, Toronto, Ont., Carl H Greene, New York, Abraham Rudy, Boston, Herman O Mosenthal, New York, and Elliott P Joslin, Boston

SECTION ON PATHOLOGY AND PHYSIOLOGY

WEDNESDAY, JUNE 9—MORNING

The meeting was called to order by the chairman, Dr W E Garrey, Nashville, Tenn

Drs L G Rowntree, George M Dorrance and E F Ciccone, Philadelphia, presented a paper on "Sarcoma in Albino Rats Resulting from the Ingestion of a Crude Wheat Germ Oil Made by Ether Extraction" Discussed by Drs Oliver H Emerson, San Francisco, Richard Lewisohn, New York, and George M Dorrance, Philadelphia

Dr Laman A Gray, Baltimore, read a paper on "Krukenberg Tumors of the Ovary" Discussed by Drs Ellis Kellert, Schenectady, N Y, and Laman A Gray, Baltimore

The following applicants for Associate Fellowship were nominated Franklin Church Bing, Ph D, Evanston, Ill., Rev Francis J Dore, S J, M D, Boston, Mass, and Frank B Queen, M D, Denver

Dr Emil Novak, Baltimore, read a paper on "Disgerminoma of the Ovary" Discussed by Drs Karl M Wilson, Rochester, N Y, A S Giordano, South Bend, Ind, Norbert Enzer, Milwaukee, and Emil Novak, Baltimore

Dr Francis Carter Wood, New York, read a paper on "Changing Aspects in Tumor Pathology" No discussion

Dr Edwin E Osgood, Portland, Ore, read a paper on "Culture of Human Marrow The Length of Life of the Neutrophils, Eosinophils and Basophils of Normal Blood as Determined by Comparative Cultures of Blood and Sternal Marrow from Healthy Persons" Discussed by Drs Roy R Kracke, Atlanta, Ga, Max B Lurie, Philadelphia, W E Garrey, Nashville, Tenn, and Edwin E Osgood, Portland, Ore

Dr M C Winternitz, New Haven, Conn, read a paper on "Studies on the Pathology of Vascular Disease" No discussion

Drs William Dameshek and Henry Henstell, Boston, presented a paper on "The Diagnostic Value and the Limitations of the Trephine and Puncture Methods for Biopsy of the Sternal Bone Marrow" Discussed by Drs T S Kimball, Glendale, Calif, Edwin E Osgood, Portland, Ore, A S Giordano, South Bend, Ind, Roy R Kracke, Atlanta, Ga, E B Krumbhaar, Philadelphia, and William Dameshek, Boston

THURSDAY, JUNE 10—MORNING

Dr W E Garrey, Nashville, Tenn, read the chairman's address, entitled "Some Aspects of Cardiac Control"

The following papers were read as a symposium

Dr H C Bazett, Philadelphia "Calculation of Cardiac Output and Analysis of Cardiac Failure from Blood Pressure and Pulse Wave Velocity Measurements"

Dr Maurice B Visscher, Minneapolis "The Energy Metabolism of the Heart in Failure"

Dr C Sidney Burwell, Boston "The Placenta as a Modified Arteriovenous Fistula, Considered in Relation to the Circulatory Adjustments to Pregnancy"

Dr H B Williams, New York "Effect of Electric Shock on the Heart"

Drs J K Lewis and William Dock, San Francisco "The Origin of Heart Sounds and Their Changes in Myocardial Disease"

Drs Alfred Blalock, Nashville, Tenn and C Sidney Burwell, Boston "Constrictive Pericarditis Physiologic and Pathologic Considerations"

These six papers were discussed by Drs Isaac Starr Jr, Philadelphia, Charles C Wolferth, Philadelphia, George E

Fahr, Minneapolis, William Dock, San Francisco, H C Bazett, Philadelphia, Maurice B Visscher, Minneapolis, and C Sidney Burwell, Boston

The chairman appointed Drs Frank Hartman, Kenneth Lynch and Maurice B Visscher to serve as a nominating committee

FRIDAY, JUNE 11—MORNING

The following officers were elected chairman, Dr Roy R Kracke, Atlanta, Ga, vice chairman Dr Maurice B Visscher, Minneapolis, secretary, Dr J J Moore, Chicago, delegate Dr D J Davis, Chicago, alternate Dr J J Moore, Chicago, executive committee Dr Roy R Kracke, Atlanta, Ga, Dr W E Garrey, Nashville, Tenn, and Dr Henry C Sweany, Chicago, member of the American Board of Pathology, for six years, Dr E B Krumbhaar, Philadelphia

Drs Thomas Simpson and M Herbert Barker, Chicago, presented a paper on "A Study in Subcutaneous Oxygen Therapy" Discussed by Drs Henry C Sweany, Chicago, Clyde Brooks, New Orleans, Virgil Moon, Philadelphia, J H Bacon, Peoria, Ill, and M Herbert Barker, Chicago

Dr Frank W Hartman, Detroit, read a paper on "The Etiology and Pathogenesis of Brain Lesions Following Fever Therapy" Discussed by Drs Walter M Simpson, Dayton, Ohio, J M Nielsen, Los Angeles, Virgil Moon, Philadelphia, Clyde Brooks, New Orleans, and Frank W Hartman, Detroit

Dr Kenneth M Lynch, Charleston, S C, read a paper on "Pulmonary Asbestosis IV The Asbestosis Body and Similar Objects in the Lung" Discussed by Drs Henry C Sweany, Chicago and Kenneth M Lynch, Charleston, S C

Drs Paul H Harmon, William M Krigsten and Henry N Harkins, Chicago, presented a paper on "Problems Bearing on the Pathogenesis and Treatment of Acute Poliomyelitis" Discussed by Drs Henry N Harkins, Chicago, C W Jungeblut, New York, E C Rosenow, Rochester, Minn, and Paul H Harmon, Chicago

Drs S E Gould, Eloise, Mich, and I Forest Huddleson, East Lansing, Mich, presented a paper on "Diagnostic Methods in Brucella Infection" Discussed by Dr I Forest Huddleson, East Lansing, Mich

Drs Edward C Rosenow and Fordyce R Heilman, Rochester, Minn, presented a paper on "Streptococcal Infections Newer Methods of Study and Specific Treatment" Discussed by Drs Willard L Wood, Chicago, and Edward C Rosenow, Rochester, Minn

Drs Edwin G Bannick and Chester M Guernsey, Rochester, Minn, presented a paper on "The Erythrocyte Sedimentation Rate The Adequacy of a Simple Test and Its Practical Application in Clinical Medicine" No discussion

SECTION ON NERVOUS AND MENTAL DISEASES

WEDNESDAY, JUNE 9—AFTERNOON

The meeting was called to order at 2 o'clock by the chairman, Dr Henry R Viets, Boston

The following resolution was presented to the section by the secretary as coming from Dr Hans H F Reese, Madison, Wis

WHEREAS Several organizations interested in promoting human welfare have manifested a deep interest in research into the causation, prevention and treatment of mental disease and have furnished substantial financial aid to the prosecution of such research and

WHEREAS The Rockefeller Foundation, the John and Mary R Markle Foundation, the Josiah Macy Jr Foundation and the Supreme Council of the Scottish Rite of Freemasonry of the Northern Masonic Jurisdiction have been outstanding in giving moral and financial support to such research be it

Resolved That the House of Delegates of the American Medical Association on behalf of American psychiatry hereby records its gratitude for the valuable service rendered to the cause of psychiatric research by these organizations and that it heartily endorses the importance of studies looking to a solution of the problems of mental disease

On motion regularly made and seconded, the foregoing resolution was approved, to be transmitted to the House of Delegates

Drs Theodore C Ruch, John F Fulton and William J German, New Haven, Conn, presented a paper on "Sensory Discrimination in Monkey, Chimpanzee and Man After Lesions of the Parietal Lobe"

Dr J M Nielsen, Los Angeles, read a paper on "Gerstmann Syndrome of Finger Agnosia, Agraphia, Confusion of Right and Left, and Acalculia Comparison of This Syndrome with Disturbances of Body Scheme Resulting from Lesions of the Right Side of the Brain"

These two papers were discussed by Drs Joseph P Evans, Montreal, Israel S Wechsler, New York, Richard M Brickner, New York, Theodore C Ruch, New Haven, Conn, and J M Nielsen, Los Angeles

Dr Tracy J Putnam, Boston, read a paper on "Treatment of Athetosis by Section of Extrapyramidal Tracts in the Spinal Cord" Discussed by Drs Eric Oldberg, Chicago, John F Fulton, New Haven, Conn, Winthrop M Phelps, Baltimore, and Tracy J Putnam, Boston

The following papers were read as a symposium on "The Prefrontal Area"

Drs Carlyle F Jacobsen, G Finch and J L Kennedy, New Haven, Conn "Cortical Mechanisms in Emotion"

Dr Ward C Halstead, Chicago "Experimental Analysis of the Effects of Localized Cerebral Injury in Man"

Drs James W Watts and Walter Freeman, Washington, D C "Psychosurgery Effect on Certain Mental Symptoms of Surgical Interruption of Pathways in the Frontal Lobe"

These three papers were discussed by Drs H Douglas Singer, Chicago, Ralph W Barris, Washington, D C, Richard M Brickner, New York, S Spafford Ackerly, Louisville, Ky, Walter J Otis, New Orleans, Harold C Voris, Chicago, Theodore Diller, Pittsburgh, Paul C Bucy, Chicago, Walter Freeman, Washington, D C, Carlyle F Jacobsen, New Haven, Conn, and Ward C Halstead, Chicago

THURSDAY, JUNE 10—AFTERNOON

Vice Chairman Dr B Landis Elliott, Kansas City, Mo, presided

Dr Charles Armstrong, Washington, D C, read a paper on "Benign Lymphocytic Choriomeningitis Laboratory Studies with the Virus of and Their Bearing on the Infection in Man" Discussed by Drs Paul F Dickens, Washington, D C, Josephine B Neal, New York, Henry R Viets, Boston, and Charles Armstrong, Washington, D C

Dr Francis C Grant, Philadelphia, read a paper on "The Operative Treatment of Major Trigeminal Neuralgia" Discussed by Drs Walter E Dandy, Baltimore, M M Peet, Ann Arbor, Mich, Eric Oldberg, Chicago, and Francis C Grant, Philadelphia

Dr Eric Oldberg, Chicago, read a paper on "The Prognosis in Transverse Lesions of the Spinal Cord" Discussed by Drs James L Poppen, Boston, and Eric Oldberg, Chicago

Dr Albert P D'Errico, Dallas, Texas, read a paper on "A Surgical Procedure for Hydrocephalus with Spina Bifida" Discussed by Drs Tracy J Putnam, Boston, R Glen Spurling, Louisville, Ky, and Albert P D'Errico, Dallas, Texas

Dr Daniel V Conwell, Halstead, Kan, read a paper on "Vitamin Therapy of Muscular Dystrophy"

Drs Foster Kennedy and Alexander Wolf, New York, presented a paper on "A Clinical Evaluation of Quinine in Myotonia and of Prostigmin in Myasthenia"

These two papers were discussed by Drs Peter Bassoe, Chicago, B Landis Elliott, Kansas City, Mo, H E Himwich, Albany, N Y, Karl Rothschild, New Brunswick, N J, Daniel V Conwell, Halstead, Kan, and Alexander Wolf, New York

Dr Temple S Fay, Philadelphia, read a paper on "A Test for Diagnosis of Certain Headaches The Cephalalgigram" Discussed by Drs James W Watts, Washington, D C, Wilder Penfield, Montreal, James F McDonald, New York, and Temple S Fay, Philadelphia

FRIDAY, JUNE 11—AFTERNOON

Dr Henry R Viets presided

Dr Hans H F Reese, Madison, Wis, delegate of the section in the House, made a report on the session of the House of Delegates, which was accepted

Dr Walter Freeman, Washington, D C, made the following report as representative of the section on the American Board of Psychiatry and Neurology

The term of Dr Freeman, representing the section on the American Board of Psychiatry and Neurology, has expired and nominations are in order for his successor

At its meeting on June 2, the board unanimously voted to hold the June 1938 meetings and examinations in San Francisco, the date to conform with the meetings of the American Psychiatric Association

The next examinations to be given by the board will be held sometime during Christmas week in New York, tentatively the date now being considered is December 28

The tabulated information regarding certification of candidates during the fiscal year of 1937 may be of interest to the section

On motion, duly made and seconded, the report was accepted

The following officers were elected chairman, Dr Samuel D Ingham, Los Angeles, vice chairman, Groves B Smith, Godfrey, Ill, secretary, Paul C Bucy, Chicago, executive committee, H H F Reese, Madison, Wis, Henry R Viets, Boston, and Samuel D Ingham, Los Angeles, delegate, Tom B Throckmorton, Des Moines, alternate, Edward Delehanty,

TABLE 1—Certification of Candidates, December 1936

	Neurology	Psychiatry	Neurology and Psychiatry	Total
Class I (on record)	3	30	29	62
Class II (examination)	2	19	13	34
				96
Failed on examination		6	1	
Conditioned				
Anatomy and physiology	7			
Pathology and roentgenology	7			
Clinical neurology	1			
Psychobiology	1			
Psychopathology	4			

It must be realized that there is some duplication in figures under 'Conditioned' because many were conditioned in more than one subject. Also two of the conditions were given to candidates applying for both neurology and psychiatry in each case the candidate was passed and certified in psychiatry but conditioned in one subject for the certificate in neurology. Hence they are included under the subject of Class II—Psychiatry

TABLE 2—Certification of Candidates, June 1937

	Neurology	Psychiatry	Neurology and Psychiatry	Total
Class I (on record)	3	17	22	42
Class II (examination)	1	23	17	46
				88
Failed on examination		2	3	
Conditioned				
Anatomy and physiology	3			
Pathology and roentgenology	4			
Clinical neurology	3			
Clinical psychiatry	4			
Psychobiology	2			
Psychopathology	2			

Three of the conditions were given to candidates applying for both neurology and psychiatry in each case the candidate was passed and certified in psychiatry but conditioned in one subject for the certificate in neurology. Hence they also appear under Class II—Psychiatry

Denver, representative on American Board of Psychiatry and Neurology, Walter Freeman, Washington, D C, representative to Scientific Exhibit, Dr Roland P Mackay, Chicago

Dr Henry R Viets, Boston, read the chairman's address, entitled "Neurology, Past and Present"

Drs Frederick P Moersch and James W Kernohan, Rochester, Minn, presented a paper on "Hypoglycemia Neurologic and Neuropathologic Study" Discussed by Dr Frank N Allan, Boston

The following papers were read as a symposium on "Dementia Praecox"

Drs Joseph Wortis and Karl M Bowman, New York
"Hypoglycemia Insulin Treatment A Brief Review"

Drs D Ewen Cameron, Worcester, Mass and R G Hoskins, Boston 'Experiences in the Insulin-Hypoglycemia Treatment of Cases of Schizophrenia'

TABLE 3—Combined Table June and December

	Neurology	Psychiatry	Neurology and Psychiatry	Total
Class I	1	47	51	101
Class II	—	47	70	80
Previously certified	9	91	91	181
Total certified in all subjects to date				372
Divided as follows				
Psychiatry			172	
Neurology			19	
Psychiatry and neurology			181	
			—	372

Drs Charles A Rymer, John D Benjamin and Franklin G Ebaugh, Denver, on 'Hypoglycemia Treatment of Schizophrenia with Particular Reference to the Qualitative Study of Remissions A Preliminary Report'

These three papers were discussed by Drs Richard H Young, Omaha Lloyd H Ziegler, Albany, N Y Frank N Allan, Boston, Theodore R Robie, East Orange, N J Julius Steinfield, Peoria, Ill, Karl Dussik, Vienna, S T Gordy, Philadelphia, H E Himwich, Albany N Y, Walter Freeman, Washington, D C, J M Nielsen Los Angeles, R G Hoskins, Boston, Joseph Wortis, New York, D Ewen Cameron, Worcester, Mass, and Charles Rymer, Denver

Dr Frederick Lemere Medical Lake, Wash, read a paper on "Electro-Encephalography in the Psychoses" Discussed by Drs Hallowell Davis, Boston, Ralph W Gerard, Chicago and Frederick Lemere, Medical Lake, Wash

SECTION ON DERMATOLOGY AND SYPHILOLOGY

WEDNESDAY JUNE 9—AFTERNOON

The meeting was called to order at 2 10 by the chairman, Dr Paul A O'Leary, Rochester Minn

Dr David I Macht Baltimore read a paper on 'The Absorption of Drugs and Poisons Through Skin and Mucous Membranes' Discussed by Drs Isaac R Pels, Baltimore Theodore Cornbleet, Chicago, and David I Macht, Baltimore

Drs Elmore B Tauber and Leon Goldman, Cincinnati, presented a paper on "Hemiatrophia Facialis Progressiva" Discussed by Drs Earl D Osborne, Buffalo, Eugene Bernstein New York, Roy L Kile, St Louis, and Leon Goldman, Cincinnati

Drs John H Stokes and J Lamar Callaway, Philadelphia presented a paper on "Pyogenic Relapse and Light Sensitiveness in Certain Dermatoses Influence of an Intercurrent Infection Factor" Discussed by Drs Marion B Sulzberger, New York Samuel M Peck, New York, and John H Stokes, Philadelphia

Drs Roy L Kile and M F Engman Sr, St Louis, presented a paper on 'Further Investigations of the Relationship of Pityrosporum Ovale to Seborrheic Dermatitis' Discussed by Dr Richard S Weiss, St Louis, Morris Mohr, PhD St Louis, Drs H J Templeton Oakland, Calif Marion B Sulzberger New York, and Roy L Kile, St Louis

Dr Adolph G Kammer, East Chicago Ind, read a paper on "Torch Oil Dermatitis Its Relation to Epidermomycosis" Discussed by Drs Harry R Foerster, Milwaukee, Cleveland J White, Chicago, and Adolph G Kammer East Chicago, Ind

Dr Adolph B Loveman, Louisville, Ky, read a paper on "Stomatitis Venenata Report of an Unusual Case of Mucous

Membrane and Cutaneous Sensitivity to Oil of Anise" Discussed by Drs John Godwin Downing, Boston, David I Macht, Baltimore, Francis P McCarthy, Boston, Herbert Rattner, Chicago, and Adolph B Loveman, Louisville, Ky

Dr Elmer M Rusten, Minneapolis, read a paper on "The Results of Leukopenic Index Tests in Atopic Dermatitis" Discussed by Drs Warren T Vaughan, Richmond, Va, Harry M Robinson, Baltimore, Marion B Sulzberger, New York, and Elmer M Rusten, Minneapolis

THURSDAY, JUNE 10—AFTERNOON

The chairman, Dr Paul A O'Leary, Rochester Minn, announced that Dr Charles C Dennie Kansas City Mo, vice chairman of the section had been appointed to fill the vacancy on the executive committee left by the death of Dr Jeffrey C Michael

Dr Clark W Finnerud, Chicago, chairman of the Committee on Scientific Exhibit, presented the report of the committee as follows

This year we have had many of our usual handicaps We have had many unfortunate things happen We started out to have an exhibit centered around lesions of the mouth The response in general was rather poor, and those who were to be the center attractions of the exhibit were prevented from putting it on by illness, so that really had to be called off Therefore, we had a general exhibit this year

As you know, because of the publicity that has been given to syphilis, we turned over half the space to syphilis and the rest to truly dermatologic conditions And this year, unfortunately again, the papers did not lend themselves for the most part to space in the scientific exhibit We aim primarily, and want those who apply for places on the program next year to bear in mind the importance of working up their subject so that it can be demonstrated in the Scientific Exhibit That means a lot more to the members of the section and also to the general men who read the synopses of these papers

So far as the funds are concerned, as you know the American Medical Association helps us out, and has in recent years to some extent Of the money taken in four or five years ago when we passed the hat, we find that we have only spent about \$30 or \$40 in the past year leaving a healthy balance in the bank of \$117 33

It may be that we shall decide it would be most valuable for us to have an exhibit next year on disease of the mouth, and also we hope especially to illustrate as many of the papers as possible

We have had many favorable comments on this year's exhibit The exhibitors have been tireless in doing their part toward demonstrating their subject They have stayed right by the gun throughout the time, with very few exceptions, and that is important in putting over exhibits of this kind

This year we didn't capture quite as many prizes as usual, although it is rather an interesting exhibit The only prize taken by our section was by Dr Rhoda W Benham and Dr Edward D DeLamater, of New York, on Fungi

The chairman appointed the following members of the auditing committee Dr Fred Wise New York, Dr John Godwin Downing, Boston, and Dr Theodore Cornbleet, Chicago

The financial statement of the Committee on Exhibits was submitted to the auditing committee

Dr C Guy Lane, Boston, read the report of the American Board of Dermatology and Syphilology

Dr Howard Fox, New York, presented the following report with regard to the ARCHIVES OF DERMATOLOGY AND SYPHILOLOGY

Dr Pusey has said that the transactions are the most annoying part of handling the ARCHIVES I have recently sent mimeographed sheets to the various members of the societies which contribute transactions to the ARCHIVES Some of the members have followed those very nicely and I think some of them have thrown them in the wastebasket I would urge those who do send in case reports in their transactions to keep a carbon copy of the notes they send in and then read the ARCHIVES a few months later and compare, just look over changes that have been made Sometimes they will get a

little jolt I have gotten the same But it will help the transactions greatly if you will note the mistakes that were made

Just one other word with regard to the brevity of articles It has been said that our articles appear at a very late date in the ARCHIVES That is true Recently they have given us fifty more pages The last issue was quite a good deal thicker and that will continue until we get caught up

I am going to make it my business to try to induce or put pressure on all writers who send in unnecessarily long papers to try to make them shorter The longer the paper, it is said, the fewer the readers I think everybody would be glad to see articles shortened I am going to do the best I can to get authors to shorten their articles

The chairman called for the report of the Committee on Cosmetics There was no report

The chairman announced that the report of the Committee on Industrial Dermatoses would be given on Friday

Dr Fred Wise, New York, reported the acceptance and approval by the auditing committee of the financial statement submitted by the Committee on Exhibits It was moved, seconded and carried that the report be approved

On motion by Dr Howard Fox, New York, duly seconded, it was voted that the name of Prof Erich Hoffmann of Bonn, Germany, be submitted to the House of Delegates for Honorary Fellowship in the American Medical Association

Dr H N Cole, Cleveland, presented the following report with regard to the International Congress on Dermatology and Syphilology

At the meeting in Budapest two years ago last fall there was an invitation extended by the Spanish delegation that the next meeting be held in Madrid in 1939 or 1940 As time went on, this naturally became rather a conjecture, and there has been quite a little correspondence with the members of the permanent committee as to the status of the next congress Last April I received a cablegram, followed by a letter, from Drs Svend Lomholt, the secretary of the permanent committee, asking that an invitation be extended from the American colleagues At the time of the international congress there was also an invitation extended from the American group that we would be glad to have them come to New York, and when Madrid was selected, somewhat of an option was established that the next congress would come to America Now that the Madrid meeting is out of the question, there is a good possibility that we may have this congress in this country, if we care to extend an invitation There is to be a meeting of the permanent committee in Paris July 4 to discuss the place of the next meeting and the various problems connected with it Hence this report I might say that this year, and also last year, all checks that have been received from the various dermatologic societies in the United States have been turned over to the secretary and treasurer, Dr Svend Lomholt

On motion by Dr Paul Bechet, New York, duly seconded it was voted that the chair appoint a committee to cooperate with the American Dermatological Association to take action with regard to inviting our European confreres to an International Dermatological Congress to be held in New York, probably at a date to be set in the neighborhood of 1939

On motion by Dr Reuben Friedman, Philadelphia, duly seconded, it was voted that the following resolution be adopted

WHEREAS June 20 1937 marks the 250th anniversary of the discovery by Giovan Cosimo Bonomo and Diacinto Cestoni of the pathogenesis of scabies and

WHEREAS This discovery of the true nature of scabies definitely marks the beginning of the end of the doctrine of humoralism which doctrine as a pathologic concept has dominated medicine since the time of Hippocrates and of Galen and

WHEREAS The demonstration of the acarian origin of scabies constituted the first definite example in the history of medicine of the theory of specificity in the etiology of disease and

WHEREAS The modern anatomicopathologic period of dermatology inaugurated by Hebra really had its inception in the belated confirmation (Renucci 1834 Hebra 1844) of the great discovery by Bonomo and Cestoni therefore be it

Resolved That the Section on Dermatology and Syphilology of the American Medical Association authorize its secretary to send a message of greetings and felicitations to the Italian Society of Dermatology and

Syphilology and the Italian Society of the History of Medicine and the Natural Sciences on the occasion of their joint commemoration on June 20 1937—Scabies Day—of the very significant contribution to medicine that was made on June 20 250 years ago by their countrymen Giovan Cosimo Bonomo and Diacinto Cestoni

Dr Paul A O'Leary, Rochester, Minn, read the chairman's address, entitled "Present Day Status of Treatment of Neurosyphilis"

Drs Charles R Rein, Fred Wise and Alfred R Cukerbaum, New York presented a paper on "The Control and Prevention of Transfusion Syphilis Results of a Statistical Survey and Suggestions for a More Adequate Procedure for the Detection of Syphilis in All Donors" Discussed by Drs Harry L Baer, Pittsburgh, I W Kahn, New York George W Raiziss, Philadelphia, Herman Goodman, New York, John H Stokes, Philadelphia, and Charles R Rein, New York

Drs Joseph Earle Moore and Paul Padget, Baltimore, presented a paper on "The Problem of Seroresistant Syphilis (So-Called Wassermann Fastness)" Discussed by Drs J G Hopkins, New York, Paul A O'Leary, Rochester, Minn, and Paul Padget, Baltimore

Drs Charles W Barnett and George V Kulchar, San Francisco, presented a paper on "The Clinical Evaluation of Iodo-bismutol in the Treatment of Syphilis" Discussed by Drs M T Van Studdiford, New Orleans, John H Stokes, Philadelphia, Harold N Cole, Cleveland, Paul Bechet, New York, and George V Kulchar San Francisco

Drs Robert B Greenblatt and Everett S Sanderson, Augusta, Ga, presented a paper on "The Intradermal Chancroid Bacterial Antigen Skin Test as a Further Aid in the Differential Diagnosis of Venereal Diseases" Discussed by Drs Harold N Cole, Cleveland, George W Binkley, Cleveland, Marion B Sulzberger, New York and Robert B Greenblatt, Augusta, Ga

Drs John B Ludv and Edward F Corson, Philadelphia, presented a paper on "Lupus Erythematosus Its Increased Incidence in Philadelphia, with Studies Pertaining to the Disease" Discussed by Drs Maurice Myer Tolman, Boston, S William Becker, Chicago, Theodore Cornbleet Chicago M E Obermayer, Chicago, Paul Bechet, New York Richard S Weiss St Louis John B Ludv, Philadelphia and Edward F Corson, Philadelphia

Drs M E Obermayer and S William Becker Chicago, presented a paper on "Aminonium Succinimido Aurate A Gold Compound of Low Toxicity" Discussed by Drs Carroll S Wright, Philadelphia, and S William Becker, Chicago

FRIDAY, JUNE 11—AFTERNOON

The following officers were elected chairman, Joseph V Klauder, Philadelphia, vice chairman, H J Templeton, Oakland, Calif, secretary, Bedford Shelmire, Dallas, Texas, member of American Board of Dermatology and Syphilology, Howard Morrow, San Francisco, delegate, Clyde Cummer, Cleveland, alternate, Harold N Cole, Cleveland, representative to Scientific Exhibit Committee, Clark W Finerud, Chicago, executive committee, Harry R Foerster, Milwaukee, Paul A O'Leary, Rochester, Minn, and Joseph V Klauder, Philadelphia

Dr C Guy Lane, Boston, read the report of the Committee on Industrial Dermatoses On motion of Dr H J Templeton, Oakland, Calif, duly seconded and carried, the report was accepted and the chairman empowered to appoint the permanent committee designated therein The chairman appointed Drs C Guy Lane, Boston, chairman, Harry R Foerster, Milwaukee, John Godwin Downing, Boston Charles C Dennie, Kansas City, Mo, and Marion B Sulzberger, New York

The chairman reappointed the following Committee on the International Congress Drs Oliver S Ormsby, Chicago Elmore B Tauber, Cincinnati, C Guy Lane, Boston, Harold N Cole, Cleveland, and George M MacKee, New York

Dr Earl D Osborne, Buffalo, moved that the chairman appoint a committee to study the matter of establishing an American Academy of Dermatology, with geographic sections and with provisions for junior or associate memberships The motion was seconded and discussed with approval by Drs John

Godwin Downing, Boston, Elmore B Tauber, Cincinnati, and Everett S Lamm, Oklahoma City, who suggested that in the event of the consummation of these proposals the adoption of the ARCHIVES OF DERMATOLOGY AND SYPHILOLOGY as the journal of the academy be considered. The motion was carried. The chairman appointed the following committee to study the formation of an Academy of Dermatology: Drs Howard Fox, New York, Fred Wise, New York, Oliver S Ormsby, Chicago, Harry R Foerster, Milwaukee, M T Van Studdiford, New Orleans, H J Templeton, Oakland, Calif, and Richard S Weiss, St Louis.

Dr George W Binkley, Cleveland, read a paper on "Naevus Epithelioma Cylindromatosus." Discussed by Drs Fred D Weidman, Philadelphia, Richard L Sutton Jr, Kansas City, Mo, and George W Binkley, Cleveland.

Dr Richard J Bailey, Rochester, Minn, read a paper on "Relapsing Febrile Nodular Nonsuppurative Pemphigus." Discussed by Drs E W Netherton, Cleveland, and Richard J Bailey, Rochester, Minn.

Dr Herman Sharlit, New York, read a paper on "Melanin Production as Induced by an Aniline Derivative Dye (Indelible Pencil)." Discussed by Drs S William Becker, Chicago, Paul A O'Leary, Rochester, Minn, and Herman Sharlit, New York.

Drs Lester Hollander and Joseph M Shelton, Pittsburgh, presented a paper on "The Intra-Oral Use of Superficial X-Rays: A Report of the Use of the Chaoul Tube." Discussed by Drs Frederick M Jacob, Pittsburgh, A C Cipolaro, New York, H J Templeton, Oakland, Calif, S M Kaufman, New York, Harry R Foerster, Milwaukee, and Lester Hollander, Pittsburgh.

Dr Richard L Sutton Jr, Kansas City, Mo, read a paper on "Early Epidermal Neoplasia: Description and Interpretation. The Mutation Theory of the Origin of Cancer from a Dermatologic Standpoint." Discussed by Drs Everett C Fox, Dallas, Texas, Fred D Weidman, Philadelphia, and Richard L Sutton Jr, Kansas City, Mo.

Dr Jack G Hutton, Denver, read a paper on "Description of an Original Treatment for Warts." Discussed by Drs William Howard Hailey, Atlanta, Ga, and Harold N Cole, Cleveland.

The new officers were installed.

SECTION ON PREVENTIVE AND INDUSTRIAL MEDICINE AND PUBLIC HEALTH

WEDNESDAY, JUNE 9—MORNING

The meeting was called to order at 9 20 by the chairman, Dr L D Bristol, New York.

Dr W J McConnell, New York, read a paper on "Volatile Solvents as a Problem in Industrial Medicine." Discussed by Drs Henry Field Smyth, Philadelphia, Leon Lewis, Newark, N J, William Thau, Boston, Harold B Wood, Harrisburg, Pa, Millard Knowlton, Hartford, Conn, Zolton T Wirtschaffer, Cleveland, R R Sayers, Washington, D C, C P McCord, Detroit, and W J McConnell, New York.

Dr Yale Kneeland Jr, New York, read a paper on "Filterable Viruses in Infection of Human Upper Respiratory Tract." Discussed by Drs Russell L Cecil, New York, L D Bristol, New York, Henry F Vaughan, Detroit, M L Blatt, Chicago, and Yale Kneeland Jr, New York.

Dr L D Bristol, New York, read the chairman's address, entitled "Next Steps in the Organization and Administration of Preventive and Industrial Medicine and Public Health." Discussed by Drs Holman Taylor, Fort Worth, Texas, and Stanley Nichols, Asbury Park, N J.

Dr R E Dyer, Washington, D C, read a paper on "Animal Reservoirs and Endemic Typhus." Discussed by Drs John J Phair, Baltimore, J N Baker, Montgomery, Ala, J C Geiger, San Francisco, G H Coombs, Augusta, Maine, James A Hayne, Columbia, S C, John A Ferrell, New York, and R E Dyer, Washington, D C.

THURSDAY, JUNE 10—MORNING

Dr Philip B Matz, Washington, D C, read a paper on "A Study of Silicosis." Discussed by Drs R R Sayers, Washington, D C, M James Fine, Newark, N J, M P Messenger, Oakfield, N Y, and Philip B Matz, Washington, D C.

Dr S A Weisman, Minneapolis, read a paper on "Correlation on the Positive Tuberculosis Reaction and the Shape of the Chest." Discussed by Drs Harry Bakwin, New York, Haven Emerson, New York, L M Rohr, Brooklyn, and S A Weisman, Minneapolis.

Dr W Ambrose McGee, Richmond, Va, read a paper on "The Relative Value of Schilling Differential Counts, the Sedimentation Rates and Lymphocyte-Monocyte Ratios in Tuberculosis of Childhood." Discussed by Drs Frank B Stafford, Charlottesville, Va, J I Linde, New Haven, Conn, and W Ambrose McGee, Richmond, Va.

Dr Henry F Vaughan, Detroit, read a paper on "Intensive Case Finding Work on Tuberculosis." Discussed by Drs Esmond R Long, Philadelphia, Haven Emerson, New York, E R Hayhurst, Columbus, Ohio, J I Linde, New Haven, Conn, A E Jaffin, Jersey City, N J, L M Rohr, Brooklyn, and Henry F Vaughan, Detroit.

Drs Paul A Neal and R R Jones, Washington, D C, presented a paper on "Chronic Mercurialism in the Hatters' Fur-Cutting Industry." Discussed by Drs D Chester Brown, Danbury, Conn, C P McCord, Detroit, Haven Emerson, New York, R R Sayers, Washington, D C, E R Hayhurst, Columbus, Ohio, Millard Knowlton, Hartford, Conn, D Chester Brown, Danbury, Conn, and Paul A Neal, Washington, D C.

FRIDAY, JUNE 11—MORNING

The following officers were elected: chairman, Dr Robert Legge, Berkeley, Calif, vice chairman, Dr Charles Craster, Newark, N J, secretary, Dr Irl C Riggan, Richmond, Va, executive committee: Dr R R Sayers, Washington, D C, Dr L D Bristol, New York, and Dr Robert Legge, Berkeley, Calif, delegate, Dr Stanley H Osborn, Hartford, Conn, alternate, Dr R R Sayers, Washington, D C.

Dr C D Selby, Detroit, in the absence of Dr A L Brooks, Detroit, read the following report of the Committee on Accident Control:

This committee recognizes that accidents, affecting as they do, the health and well being of the public, are a matter of great concern to the medical profession at large, and more particularly to those physicians whose chief interest is preventive and industrial medicine, and public health. The committee has therefore contacted some of the leading industrial physicians and city and state health department officials with the purpose of ascertaining what steps should be taken to best promote safety.

Many valuable suggestions were offered. It is the feeling in general that all activity among physicians should be directed toward cooperation with the existing, well organized bodies whose chief business it is to control accidents, namely, the National Safety Council, the various local safety organizations, the City Traffic Control Bureaus, and so on. This cooperation may consist of physical or mental examination of drivers, or others whose activity might affect safety of others, improvement in technique or equipment, in making these examinations, the keeping of adequate records of injuries to the end that more may be known of the manner in which they were caused, hence the prevention, cooperation with school authorities in teaching the principles of safety to children.

Such questions as the effect of alcohol on drivers, of fatigue, of emotional upsets, of poor vision, can best be studied by physicians. The importance of this work is now generally accepted and herein lies the greatest opportunity for the physician.

A L BROOKS, M D, Detroit

On motion made by Dr C D Selby, Detroit, seconded by Dr Stanley H Osborn, Hartford, Conn, it was voted that the Report of the Committee on Accident Control be accepted and presented to the authorities of the American Medical Association for whatever further disposition may be desirable.

Dr Stanley H Osborn, delegate to the House, gave a report on the action of the House of Delegates at this session

Dr Herman Gold, Chester, Pa, read a paper on "Active Immunization of Human Beings with Tetanus Toxoid, Alum Precipitated, Refined" Discussed by Drs Louis Tuft, Philadelphia, L D Bristol, New York, and Herman Gold, Chester, Pa

Drs Thomas Parran, Washington, D C, H H Hazen, Washington, D C, J F Mahoney, Stapleton, Staten Island, N Y, Arthur H Sanford, Rochester, Minn, F E Senear, Chicago, and Walter M Simpson, Dayton, Ohio, presented a paper on "Serodiagnostic Tests for Syphilis as Performed by Thirty-Nine State Laboratories Comparative Study" Discussed by Drs Frederick H Lamb, Davenport, Iowa, Stanley H Osborn, Hartford, Conn, and Walter M Simpson, Dayton, Ohio

Dr Walter Clarke, New York, read a paper on "The Campaign Against Syphilis in New York City" Discussed by Drs Charles C Dennie, Kansas City, Mo, Carl A Wilzbach, Cincinnati, Howard Morrow, San Francisco, Stanley H Osborn, Hartford, Conn, and Walter Clarke, New York

Dr C D Selby, Detroit, read a paper on "Industrial Preventive Medicine A Plan for Control of Occupational Diseases" Discussed by Drs G H Gehrman, Wilmington, Del, Alvin W Schoenleber, New York, Harold B Wood, Harrisburg, Pa, and C D Selby, Detroit

Drs R B Cram and Morris E Missal, Rochester, N Y, presented a paper on "The Management of the Cardiac Patient in Industry" Discussed by Drs Ernest B Boas, New York, W D Stroud, Philadelphia, and R B Cram, Rochester, N Y

Dr D A Bennett, Canton, Ill, read a paper on "Personal Experiences with Gas Bacillus Infection" Discussed by Drs Kellogg Speed, Chicago, James F Kelly, Omaha, and D A Bennett, Canton, Ill

SECTION ON UROLOGY

WEDNESDAY, JUNE 9—MORNING

The meeting was called to order at 9 10 by the chairman, Dr Henry W E Walther, New Orleans

The following papers were read as a symposium on "Pediatric Urology"

Drs Lawrence R Wharton and Harriet G Guild, Baltimore "The Late Effects of Acute Pyelitis in Female Children"

Dr Meredith F Campbell, New York "Primary Malignant Tumors of the Urogenital Tract in Infants and Children"

Dr Alexander B Hepler, Seattle "Nonobstructive Upper Urinary Tract Dilatations in Children"

These three papers were discussed by Drs Vincent Vermooten, Johannesburg, South Africa, Henry F Helmholz, Rochester, Minn, Albert E Goldstein, Baltimore, William E Stevens, San Francisco, William F Braasch, Rochester, Minn, and Alexander B Hepler, Seattle

Drs O S Lowsley and Cohn Luke Begg, New York, presented a paper on "A Three-Stage Operation for Repair of Hypospadias" Discussed by Dr J Eastman Sheehan, New York

Dr Hugh H Young, Baltimore, introduced Prof Reynaldo Dos Santos, Lisbon, Portugal

Drs Alexander Randall, Philadelphia, read a paper on "Studies on the Pathology of the Renal Papilla and the Relationship to Renal Calculus"

Drs James T Priestley and William F Braasch, Rochester, Minn, presented a paper on "Silent Renal Calculi"

Drs William J Ezickson and Jacob B Feldman, Philadelphia, presented a paper on "Signs of Vitamin A Deficiency in the Eye Correlated with Urinary Lithiasis"

These three papers were discussed by Drs Leon Herman, Philadelphia, Linwood D Keyser, Roanoke, Va, John H Morrissey, New York, Miley B Wesson, San Francisco, Stanley R Woodruff, Jersey City, N J, Henry Sangree, Philadelphia, Alexander Randall, Philadelphia, and William J Ezickson, Philadelphia

Dr Hugh H Young, Baltimore, read a paper entitled "Remarks on Surgery of the Prostate" Discussed by Dr N G Alcock, Iowa City

THURSDAY, JUNE 10—MORNING

Dr Reynaldo Dos Santos, Lisbon, Portugal, a visitor to the section, presented a talk with lantern demonstration on Arterionography in Relation to Renal Diagnosis

Dr John M Pace, Dallas, Texas, read a paper on "The Effect of Neoarsphenamine in Urinary Infections"

Dr Henry W E Walther, New Orleans, read the chairman's address, entitled "Urinary Antisepsis"

These two papers were discussed by Drs Anson L Clark, Oklahoma City, Monroe E Greenberger, New York, and Henry F Helmholz, Rochester, Minn

Drs Herman L Kretschmer and A E Kanter, Chicago, presented a paper on "Effect of Certain Gynecologic Lesions on the Upper Urinary Tract" Discussed by Drs Rosemary Shoemaker, Rochester, Minn, William E Stevens, San Francisco, and Herman L Kretschmer, Chicago

The following papers were read as a symposium on "Genito Urinary Malignancy"

Dr Henry A R Kreutzmann, San Francisco "The Treatment of Primary Carcinoma of the Male Urethra"

Drs Frank Hinman, San Francisco, and T O Powell, Los Angeles, "Recent Advances in the Diagnosis and Treatment of Tumor of the Testis"

Dr O A Nelson, Seattle "Malignant Growths of the Bladder"

Dr Theodore R Fetter, Philadelphia "Renal Neoplasms A Review of Cases and Indications for Treatment"

Dr Arbor D Munger, Lincoln, Neb, "The Treatment of Urinary Tract Malignancy with Supervoltage Roentgen Irradiation"

These five papers were discussed by Drs H C Bumpus Jr, Pasadena, Calif, James L Estes, Tampa, Fla, Russell S Ferguson, New York, Alfred F Hocker, New York, Lloyd G Lewis, Baltimore, Victor D Lespinasse, Chicago, Leon Herman, Philadelphia, and Frank Hinman, San Francisco

FRIDAY, JUNE 11—MORNING

The following officers were elected chairman, Dr Albert J Scholl, Los Angeles, vice chairman, Dr George Reinle, Oakland, Calif, secretary, Dr William P Herbst, Washington, D C, delegate, Dr H C Bumpus Jr, Pasadena, Calif, alternate, Dr George Reinle, Oakland, Calif, executive committee, John H Morrissey, New York, Henry W E Walther, New Orleans, and Albert J Scholl, Los Angeles

Dr George R Livermore, Memphis, Tenn, read a paper on "Decapsulation and Nephrostomy in Anuria" Discussed by Drs Nelse F Ockerblad, Kansas City, Mo, A I Dodson, Richmond, Va, and George R Livermore, Memphis, Tenn

Dr Roger W Barnes, Los Angeles, read a paper on "Teaching Urology to Medical Students" Discussed by Drs George F Cahill, New York, Nelse F Ockerblad, Kansas City, Mo, R M Le Comte, Washington, D C, Dr N G Alcock, Iowa City, and Roger W Barnes, Los Angeles

The following papers were read in a Symposium on "Gonococcal Infections"

Dr R A Vonderlehr, Washington, D C "The Gonorrhea Problem in the United States"

Dr J A C Colston, John E Dees and Henry C Harnill, Baltimore "The Treatment of Gonococcal Infections with Sulfanilamide"

Dr Charles M Carpenter, Rochester, N Y "An Evaluation of Laboratory Methods for the Diagnosis of Gonococcal Infection in the Male"

Drs S L Warren, and W W Scott, Rochester, N Y "Artificially Induced Fever for the Treatment of Gonococcal Infections in the Male"

These four papers were discussed by Drs William Bierman, New York, Henry B Gwynn, Washington, D C, Ralph H Jenkins, New Haven, Conn, Emily Dunning Barringer, New

York, Frederick A Reuter, Washington, D C, Andrew Peterson, New York, Percy Pelouze, Philadelphia, Perrin H Long, Baltimore, Walter G Maddock, Ann Arbor, Mich, William P Herbst, Washington, D C, J A C Colston, Baltimore, Charles M Carpenter, Rochester, N Y, and S L Warren, Rochester, N Y

SECTION ON ORTHOPEDIC SURGERY

WEDNESDAY, JUNE 9—MORNING

The meeting was called to order at 9 05 by the chairman, Dr Fremont A Chandler, Chicago

The following were appointed as the nominating committee of the section Dr William Barnett Owen, Louisville, Ky, chairman, Dr Benjamin P Farrell, New York, and Dr Melvin S Henderson, Rochester, Minn

Drs E L Elason and John Paul North, Philadelphia, presented a paper on "Methods of Treatment and Results in Fractures of the Shaft of the Femur" Discussed by Drs Frederick C Kidner, Detroit, P H Scardino, Houston, Texas, and Willis C Campbell, Memphis, Tenn

Dr W H Von Lackum, New York read a paper on "End Result of Twenty-One Years of Spine Fusion for Tuberculosis" Discussed by Drs Walter Scott, Sioux City, Iowa and Roland Hammond, Providence, R I

Dr J Dewey Bisgard, Omaha, read a paper on "The Etiology of Cartilaginous Exostoses and Giant Cell Tumors of the Bone" Discussed by Drs L D Smith, Milwaukee Marion Beckett Howorth, New York, I William Nachlas, Baltimore, and J Dewey Bisgard, Omaha

Dr Eben J Carey, Milwaukee, read a paper on "Wave Mechanics of Muscular and Nervous Actions, the Dynamic Relativity of the Pressure in Nerve, Muscle and Bone" Discussed by Drs Melvin S Henderson, Rochester, Minn, Arthur Steindler, Iowa City, and Eben J Carey, Milwaukee

Dr W T Hammond, Easton, Md, read a paper on "The Importance of Adequate Fracture Treatment in Rural Hospitals" Discussed by Dr George E Bennett, Baltimore, Voigt Mooney, Pittsburgh, and W T Hammond, Easton Md

Dr Leo Mayer, New York, read a paper on "A Comparative Study of the Surgical and Nonoperative Method of Treating Bone and Joint Tuberculosis" Discussed by Drs Benjamin P Farrell, New York, F C Kidner, Detroit, George E Bennett, Baltimore, Arthur Steindler, Iowa City, A Bruce Gill, Philadelphia, and Leo Mayer, New York

THURSDAY, JUNE 10—MORNING

Drs W J Mixer, J S Barr and A O Hampton, Boston, presented a paper on "Intervertebral Disk Lesions" Discussed by Drs George I Bauman, Cleveland, Samuel J Lang, Evanston, Ill, F L Reichert, San Francisco, Philip Lewin, Chicago, and W J Mixer, Boston

Drs R Glen Spurling and F H Mayfield, Louisville, Ky, presented a paper on "Hypertrophy of the Ligamenta Flava as a Cause of Low Back Pain" Discussed by Drs G E Haggart, Boston, Charles Murray Gratz, New York, Frank R Ober, Boston, and R Glen Spurling, Louisville, Ky

Dr Frank R Ober, Boston, read a paper on "Fasciotomy for the Relief of Sciatica and Some Mechanical Disturbances of the Low Back" Discussed by Drs Alan DeF Smith, New York, Frank D Dickson, Kansas City, Mo, Edwin W Ryerson, Chicago, Marion Beckett Howorth, New York, G E Haggart, Boston, and Frank R Ober, Boston

Drs Arthur Steindler and James Vernon Luck, Iowa City, presented a paper on "Differential Diagnosis in Low Back Pain" Discussed by Drs William Barnett Owen, Louisville, Ky, A R Shands Jr, Durham, N C, and Arthur Steindler, Iowa City

Dr R Watson Jones, Liverpool, England, read a paper on "Arthrodesis in Osteo-Arthritis of the Hip"

Dr John G Kuhns, Boston, read a paper on "Care of the Feet in Chronic Arthritis" Discussed by Drs Louis E Papurt, Cleveland, and John P Stump, New York.

FRIDAY, JUNE 11—MORNING

The following officers were elected chairman, John Dunlop, Pasadena, Calif, vice chairman, Oscar L Miller, Charlotte, N C, secretary, Robert V Funsten, Charlottesville Va, executive committee, Arthur T Legg Boston, Fremont A Chandler, Chicago, John Dunlop, Pasadena, Calif, delegate, Roland Hammond, Providence, R I alternate, Hulett J Wyckoff, Seattle Drs Willis C Campbell, Memphis, Tenn and Frank R Ober, Boston, were nominated, the Board to select one as a member of the American Board of Orthopedic Surgery

The report of the secretary was given by Dr Robert V Funsten and was adopted

Dr Fremont A Chandler, Chicago, made the following report for the examining board "On Monday and Tuesday of this week we held our first examinations of 1937 We originally had 138 candidates for admission and actually examined 129 Another examination will be given by this board in January, just before the meeting of the academy at Los Angeles It is requested that all candidates have their applications before this board three months prior to the examination That is necessary because of the large numbers who have applied We now have over eighty applications awaiting action coming from men who could not be accommodated at this meeting We think the board is on a good, firm foundation now It is functioning and I can assure you that the members of the board are making a very earnest effort to have this board function in behalf of orthopedic surgeons, and they feel that a man whose work is only partially that of an orthopedic surgeon cannot expect to be going under the guise of an orthopedic surgeon This work must consist—a great majority of it—of orthopedic surgery A man who does a lot of obstetrics and some orthopedic surgery and may have several cases during the year can hardly expect to be considered an orthopedic specialist It does not, however, mean that the candidate's work must be exclusively limited to orthopedic surgery In certain communities, especially, it is impossible for him to avoid some other type of work, but if it is a minority of his practice that will be given due consideration A second examination in 1938 will be given in conjunction with the Americal Medical Association That happens to fall in San Francisco Whether or not arrangements can be made to hold an examination on the East Coast or in the Middle West between those times I cannot say at the present time The examinations up to date have consisted of examinations in the Middle West or East The men on the West Coast have had no chance"

Dr Ralph K Ghormley, Rochester, Minn, read a paper on "Pathologic Fractures" Discussed by Drs Joseph A Freiberg, Cincinnati, Philip Lewin, Chicago, and Ralph Ghormley, Rochester, Minn

Drs A C Ivy and Smith Freeman, Chicago, presented a paper on "The Occurrence of an Osseous Dyscrasia in Gastrectomized Puppies" Discussed by Drs Walter G Stuck, San Antonio, Texas, and A C Ivy, Chicago

Dr Willis C Campbell, Memphis, Tenn, read a paper on "Malumted Colles Fractures" Discussed by Drs Frank D Dickson, Kansas City Mo, George E Bennett, Baltimore, Donald C Durman, Saginaw, Mich, and Willis C Campbell, Memphis, Tenn

Dr Fremont A Chandler, Chicago, read the chairman's address, entitled "Localized Overgrowth of the Extremities and Spine"

Dr Roland Hammond, Providence, R I, delegate, gave a report of the session of the House of Delegates

Drs D B Phemister and Henry N Harkins, Chicago, presented a paper on "Simplified Technic of On Lay Grafts for All Ununited Fractures in Acceptable Position" Discussed by Drs Willis C Campbell, Memphis, Tenn, W K West, Oklahoma City, Melvin S Henderson Rochester, Minn, Elven J Berkhiser, Chicago, Edwin W Ryerson, Chicago and D B Phemister, Chicago

Dr H W Spiers, Los Angeles read a paper on 'Comminuted Fractures of the Os Calcis' Discussed by Drs J A Link, Springfield Ohio, and H W Spiers, Los Angeles

SECTION ON GASTRO-ENTEROLOGY
AND PROCTOLOGY

WEDNESDAY, JUNE 9—AFTERNOON

The meeting was called to order at 2 05 by the chairman, Dr Louis A Bue, Rochester, Minn

Drs Sidney A Portis and Richard Hermann Jaffe, Chicago, presented a paper on "A Study of Peptic Ulcer from Necropsy Records" Discussed by Drs Sara M Jordan, Boston, John L Kantor, New York, Clayton W Greene, Buffalo, George B Eusterman, Rochester, Minn, Richard Hermann Jaffe, Chicago, and Sidney A Portis, Chicago

Drs T Grier Miller, Philadelphia, W Osler Abbott, Wynnewood, Pa, and Walter G Karr, Philadelphia, presented a paper on "The Influence of the Duodenum on the Concentration of Dextrose After Its Administration in Hypertonic Solution" Discussed by Drs Eugene P Pendergrass, Philadelphia, Harry Shay, Philadelphia, T L Althausen, San Francisco, and T Grier Miller, Philadelphia

Dr Irvin Abell, Louisville, Ky, read a paper on "Acute Abdominal Catastrophes" Discussed by Drs Frank H Lahey, Boston, Robert Lee Payne, Norfolk, Va, Harvey B Stone, Baltimore, Samuel Moren, Providence, Hyman I Goldstein, Camden, N J, M G Wohl, Philadelphia, John Fallon, Worcester, Mass, and Irvin Abell, Louisville, Ky

Dr George Henry Thiele, Kansas City, Mo, read a paper on "Coccygodynia and Pain in the Superior Gluteal Region and Down the Back of the Leg Observations on the Causation of Such Pain by Tonic Spasm of the Levator Ani, Coccygeus and Piriformis Muscles, and Its Relief by Massage of These Muscles" Discussed by Drs Fernando I Wilson, Kansas City, Mo, Edward G Martin, Detroit, E H Terrell, Richmond, Va, and George Henry Thiele, Kansas City, Mo

Drs Malcolm Robert Hill and Cyril Brian Courville, Los Angeles, presented a paper on "Vesical Dysfunction Following Abdominoperineal Resection of Carcinoma of Rectum" Discussed by Drs Dudley A Smith, San Francisco, Descum C McKenney, Buffalo, Edward G Martin, Detroit, and Malcolm Robert Hill, Los Angeles

Dr Edward Holman Skinner, Kansas City, Mo, read a paper on "Mucosal Pattern Technique and Kymographic Records of the Esophagus and Stomach" Discussed by Drs Lester Levyn, Buffalo, Wendel G Scott, St Louis, and Edward Holman Skinner, Kansas City, Mo

Dr Jesse Louis Bollman, Rochester Minn, read a paper on "The Formation and Treatment of Experimental Peptic Ulcers Produced by Cinchophen" Discussed by Drs George B Eusterman, Rochester, Minn, Lester R Dragstedt, Chicago, A F R Andresen, Brooklyn, and Jesse Louis Bollman, Rochester, Minn

THURSDAY, JUNE 10—AFTERNOON

Dr Louis A Bue, Rochester, Minn, read the chairman's address, entitled "The Value of Specialization in Medicine"

Dr Dudley A Smith, San Francisco, presented a motion picture entitled "Management of Colostomy" Discussed by Drs Thomas E Jones, Cleveland, Rollin R Best, Omaha and Dudley A Smith, San Francisco

Dr Samuel Allen Wilkinson, Boston, read a paper on "Chronic Cholecystitis versus Irritable Colon" Discussed by Drs Carl H Greene, New York, Clarence F G Brown, Chicago, Russell S Boles, Philadelphia, Rudolf Schindler, Chicago, Sidney A Portis, Chicago, B B Vincent Lyon, Philadelphia, Manfred Kraemer, Newark, N J, Anthony Bassler, New York, Samuel Friedman, New York, and Samuel Allen Wilkinson, Boston

Drs Philip Walling Brown and D M Marcle, Rochester, Minn, presented a paper on "What Happens to Patients Who Have Diverticulosis and Diverticulitis of the Colon" Discussed by Drs Henry L Bockus, Philadelphia, Julius Friedenwald, Baltimore, and Philip Walling Brown, Rochester, Minn

Dr Daniel Nathan Silverman, New Orleans, read a paper on "A New Method of Diagnosis in Bacillary Dysentery" Discussed by Drs John H Musser, New Orleans, Joseph Felsen, New York, and Daniel Nathan Silverman, New Orleans

Dr John Milton McCaughan, St Louis, read a paper on "Pancreatic Fistula" Discussed by Drs Howard M Clute,

Boston, William T Coughlin, St Louis, John J Gilbride, Philadelphia, Rolf Lum, Boston, A C Ivy, Chicago, and John Milton McCaughan, St Louis

Drs Louis Edward Barron, New Haven, Conn, and George Morris Curtis, Columbus, Ohio, presented a paper on "Gastric Motor Disturbances Following Laparotomy" Discussed by Drs A F R Andresen, Brooklyn, Stockton Kimball, Buffalo, and Louis Edward Barron, New Haven, Conn

FRIDAY, JUNE 11—AFTERNOON

The following officers were elected chairman, Dr Henry L Bockus, Philadelphia, vice chairman, Dr Descum C McKenney, Buffalo, secretary, Dr A H Aaron, Buffalo, executive committee Dr Ernest H Gaiter, Baltimore, Dr Louis A Bue, Rochester, Minn, and Dr Harry L Bockus, Philadelphia, delegate, Dr Curtice Rosser, Dallas, Texas, alternate, Dr Louis A Bue, Rochester, Minn, chairman Committee on Section Exhibit, Dr J Arnold Bergen, Rochester, Minn

Dr Anthony Bassler, New York, introduced the following resolution

Resolved That the Section on Gastro Enterology and Proctology of the American Medical Association extend an invitation to the International Society of Gastro Enterology to hold their third congress in the United States in 1939 (Dr George BroLee 64 rue de Concord Brussels Belgium)

On motion, seconded by Dr Henry L Bockus, Philadelphia, the resolution was adopted

Dr George Ernest Binkley, New York, read a paper on "Treatment of Operable Rectal and Anal Cancer in Poor Surgical Risks" Discussed by Drs Douglas Quick, New York, Clement Joseph De Bere, Chicago, and George Ernest Binkley, New York

Drs Burrill Bernard Crohn and Albert Ashton Berg, New York, presented a paper on "Right-Sided Colitis Life History and Treatment" Discussed by Drs Richard B Cattell, Boston and Burrill Bernard Crohn, New York

Drs Ernest Howard Gaiter, Baltimore, and James L Borland, Jacksonville, Fla, presented a paper on "Gastritis Gastroscopic Studies" Discussed by Drs Edward Benson Benedict, Newton Center, Mass, Rudolf Schindler, Chicago, William A Swalm, Philadelphia, Burrill Bernard Crohn, New York, James L Borland, Jacksonville, Fla, and Ernest Howard Gaiter, Baltimore

Dr Anthony Bassler, New York, read a paper on "The Importance of Surgery in Hematemesis Accompanied with Pyloric Obstruction" Discussed by Drs Charles Gordon Heyd, New York, Thomas T Mackie, New York, Albert J Sullivan, New Haven, Conn, John M Blackford, Seattle, and Anthony Bassler, New York

Dr Paul Brown Welch, Miami, Fla, read a paper on "The Mechanism of Production of Digestive Symptoms Associated with Urologic Disturbances" Discussed by Drs Charles L Hartsock, Cleveland, Clarence G Bandler, New York, Lester M Morrison, Philadelphia, Anthony Bassler, New York, Samuel Friedman, New York, and Paul Brown Welch, Miami, Fla

Dr Lay Martin, Baltimore, read a paper on "Low Grade Partial Small Intestine Obstruction" Discussed by Drs Julius Friedenwald, Baltimore, and Lay Martin, Baltimore

Dr Moses Paulson, Baltimore, read a paper on "A Diagnostic Intradermal Reaction with Bowel Antigen Indicating Presence of Lymphogranuloma Inguinale Virus in Intestine and Differentiating Colitides Associated with Lymphogranuloma Inguinale Virus" Discussed by Drs Irving Gray, Brooklyn, and Moses Paulson, Baltimore

SECTION ON RADIOLOGY

WEDNESDAY, JUNE 9—AFTERNOON

The meeting was called to order at 2 10 by the chairman, Dr Ross Golden, New York

Drs Wallace M Yater and Eugene R Whitmore, Washington, D C, presented a paper on "Histopathologic Study of Tissues of Patients Injected with Thorium Dioxide Sol for Hepatosplenography" Discussed by Drs William H Stewart, New York, Robert B Taft, Charleston, S C, Clifford R Orr, Buffalo, and Lester Levyn, Buffalo

Dr Sidney E Johnson, Louisville, Ky, read a paper on "Some Clinical Applications of Roentgen Kymography." Discussed by Drs W B Fisor, Baltimore, Marcy L Sussman, New York, and Wendell G Scott, St Louis

Dr Ross Golden, New York, read the chairman's address, entitled "Comments on Prepyloric Gastritis and Spasm"

Dr Joseph Jellin, Los Angeles, read a paper on "Regional Ileitis Its Present Status" Discussed by Drs James T Case, Chicago, Lester LeVyn, Buffalo, and Ross Golden, New York

Drs Max Ritvo and David B Stearns, Boston, presented a paper on "Roentgen Diagnosis of Contusions of the Kidney" Discussed by Drs Edward L Jenkinson, Chicago, David B Stearns, Boston, Ross Golden, New York, and W T Clark, Janesville, Wis

Dr Lee A Hadley, Syracuse, N Y, read a paper on "Pathologic Conditions of the Spine Painful Disturbances of the Intervertebral Foramina" Discussed by Drs William E Chamberlain, Philadelphia, and D Y Keith, Louisville, Ky

THURSDAY, JUNE 10—AFTERNOON

Drs William Snow and Charles S B Cassasa, New York, presented a paper on "Obstructive Emphysema and Atelectasis in Influenza A New Approach" Discussed by Drs E G Galbraith, Toledo, Ohio, Le Roy Santé, St Louis, and Robert G Torrey, Philadelphia

An informal address was made by Dr Colin MacDonald, Melbourne, Australia, official representative of the Victoria Branch of the British Medical Association

Dr Howard P Doub, Detroit, read a paper on "The Roentgen Aspect of Sympathetic Neuroblastoma" Discussed by Drs E L Rypins, Bloomington, Ill, Colin MacDonald Melbourne, Australia, Ralph E Myers, Oklahoma City, and John T Murphy, Toledo, Ohio

The following papers were read as a symposium on "The Teaching of Radiology"

Dr Claude Moore, Washington, D C "A Survey of the Undergraduate Teaching of Radiology in the Medical Schools of the United States"

Dr Eugene P Pendergrass, Philadelphia "Experiences in Teaching Radiology to Undergraduate Students"

Dr B R Kirklin, Rochester, Minn "Graduate Education and Training of Radiologists"

These three papers were discussed by Drs J H J Upham, Columbus, Ohio, Merrill C Sosman, Boston, Fred J Hodges, Ann Arbor, Mich, Thomas Groover Washington, D C, Ross Golden, New York, Charles L Martin, Dallas, Texas, and Edward L Jenkinson, Chicago

Drs Walter L Mattick and Eugene M Burke, Buffalo, presented a paper on "Bronchus Carcinoma A Pathologic and Radiologic Consideration" Discussed by Drs Ralph E Myers, Oklahoma City, and Orville N Meland, Los Angeles

FRIDAY, JUNE 11—AFTERNOON

The following officers were elected chairman, Dr B R Kirklin, Rochester, Minn, vice chairman, Dr R G Taylor, Los Angeles, secretary, Dr John T Murphy, Toledo Ohio, executive committee Dr Edward L Jenkinson, Chicago, Dr Ross Golden, New York, and Dr B R Kirklin, Rochester, Minn, delegate, Dr Edward H Skinner, Kansas City Mo, alternate, Eugene P Pendergrass, Philadelphia

Dr Eugene V Powell, Temple, Texas, read a paper on "Roentgen Therapy of Acute Pneumonias" Discussed by Drs Fred M Hodges, Richmond, Va, and T J Curphey, New York

Drs Hugh F Hare and Nell Swinton, Boston, presented a paper on "Cancer of the Thyroid" Discussed by Drs Harold W Jacob, Pittsburgh, George Pfahler, Philadelphia, and Solomon Ginsburg, New York

Drs E A Merritt and R Rhett Rathbone, Washington, D C, presented a paper on "The Heavily Filtered Roentgen Treatment of Superficial Epitheliomas" Discussed by Drs Richard Dresser, Boston, John T Murphy, Toledo, Ohio, George Pfahler, Philadelphia, and Gisela von Postwik, Scranton, Pa

Dr Traian Leucutia, Detroit, read a paper on "The Value of Supervoltage Roentgen Therapy" Discussed by Drs Orville N Meland, Los Angeles, and D Y Keith, Louisville, Ky

Dr Byron Jackson, Scranton, Pa, presented a tribute to Dr Russell Boggs Radiologist, as follows

"After looking at these photographs and hearing these papers about these wonderful scientific instruments, it gives me some stimulation to tell you something about one of our pioneers. In a very few words, I will try to tell you a simple story about this man of whom you have all heard

"Thirty-seven years ago, after studying in Paris and Vienna and New York, Dr Herbert Russell Boggs began the practice of roentgenology in Pittsburgh. Dr Boggs was Pittsburgh's pioneer roentgenologist

"If you will just go back from these scientific instruments for a minute and visualize an old gas tube (we say old, of course), a static machine and a mechanical interrupter, and all the difficulties that came along with them, you will appreciate this pioneer

"Dr Boggs was born in Evans City, Pa, in 1873. He graduated from the Western University of Pennsylvania in 1897. He practiced medicine for a year or so and then went to Paris, where he studied in the University of St Louis, the Hospital of St Louis, and then to Vienna, at the University of Vienna, where he became interested in the newly discovered roentgen rays. He immediately went back home and began an exclusive practice of roentgenology

"He soon was connected with at least six hospitals in Pittsburgh or its vicinity, and these he gradually relinquished to other men whom he had taught as much as he knew about the work

"In Pennsylvania, we are particularly anxious to have you know about Dr Boggs because of one thing about him. He was very much interested in all the young men who were beginning the practice of roentgenology. He was very anxious to tell them everything that he had learned and to help them in every way he could to carry on. I happen to be one of those young men and, of course, more than anybody else here, probably appreciate what he did for us

Today, we still use positions that he taught us, that have not been improved on in any way. A month before he died—his death occurred the second day of June, 1922—he read a paper before the Academy of Medicine at Pittsburgh entitled "The Use of Radium in the Treatment of Epithelioma." That paper is just as fresh today and just as valuable today as it was the day it was written. There is nothing changed about it except our filtration which we use for radium, which, of course, he knew nothing about. His illustrations are just such illustrations as you saw today, his needles are placed in positions just as you saw them today

"This man was an indefatigable worker and a prolific writer, which he easily could be because he was making new discoveries every day. He was one of the charter members of the American Roentgen Ray Society and he was instrumental in starting with several other men, the Central Pennsylvania Roentgen Ray Society, whose primary object was to bring men in from the outlying districts of Pittsburgh and Philadelphia so that they might get a chance to express themselves—self expression, I suppose we would say

"We feel in Pennsylvania at least that we are greatly indebted to the American Medical Association for giving us the Russell Boggs Memorial Lecture, by which we can honor this pioneer radiologist

The following papers were read as a symposium on "Carcinoma of the Breast"

Drs George E Pfahler and Jacob H Vastine, Philadelphia "The Value of Preoperative and Postoperative Irradiation in Carcinoma of the Breast" (Russell Boggs Memorial Lecture)

Dr U V Portmann, Cleveland "A Classification for Carcinoma of the Breast with Reference to Statistical Studies and Indications for Therapeutic Procedures"

Drs Harriet C McIntosh and Sophie Spitz, New York "Clinical Significance of Lung Changes Following Roentgen Irradiation for Mammary Cancer"

These three papers were discussed by Drs Frank E Adair, New York, and E E Downs Woodbury, N J

THE SCIENTIFIC EXHIBIT

The Scientific Exhibit at the Atlantic City session was characterized by the high caliber of exhibits presented. There were 254 exhibits in all, of which 219 were presented by individual exhibitors, twenty-five by government and national organizations, five by councils and bureaus from the American Medical Association headquarters, and two special exhibits subsidized by the Board of Trustees.

The special exhibit on anesthesia was presented under the auspices of a committee composed of D Chester Brown, chairman, Danbury, Conn., Frank H. Lahey, Boston, and Paul Nicholas Leech, Chicago, assisted by members of the Associated Anesthetists of the United States and Canada, the American Society of Anesthetists, and the American Society of Regional Anesthesia. In addition to continuous demonstrations by a competent corps of demonstrators, there were talks and motion pictures throughout the week in an area adjoining the exhibits. A pamphlet describing the exhibit was distributed.

The special exhibit on fractures was presented under the auspices of a committee composed of Kellogg Speed, chairman, Chicago, Frank D. Dickson, Kansas City, Mo., and Walter Estell Lee, Philadelphia, assisted by an advisory committee composed of Isidore Cohn, New Orleans, H. Earle Conwell, Birmingham, Ala., Frederic J. Cotton, Boston, Richard B. Dillehunt, Portland, Ore., Eldridge L. Eliason, Philadelphia, Leo Eloesser, San Francisco, George W. Hawley, Bridgeport, Conn., Melvin S. Henderson, Rochester, Minn., James M.

Hitzrot, New York, William L. Keller, Washington D. C., Roy D. McClure, Detroit, Frank R. Ober, Boston, Dallas B. Phemister, Chicago, and J. Spencer Speed, Memphis, Tenn. More than fifty physicians from various parts of the country assisted with the demonstrations. Acknowledgment is made to the Surgeon General of the United States Army, Major A. S. Dabney, Major W. W. McCaw, soldiers from the Walter Reed Hospital, Dr. James H. Mason III of Atlantic City, and Mrs. Mildred Jones and Miss Flora Keats, nurses from the Atlantic City Hospital, for the very efficient service which they rendered in connection with the fracture exhibit. Appreciation is also expressed to the management of the Atlantic City Hospital for its cooperation.

Other features of the Atlantic City session included a symposium on pneumonia by the Section on the Practice of Medicine, a symposium on heart disease composed of twenty-five exhibits presented in cooperation with the American Heart Association, and motion picture programs by the Section on Obstetrics, Gynecology and Abdominal Surgery, by the Section on Ophthalmology, and by the Section on Orthopedic Surgery shown in spaces adjoining the exhibits of those sections.

An endeavor was made to correlate the exhibits with papers read before the various sections of the Scientific Assembly, with the result that fifty papers were accompanied by material in the Scientific Exhibit.

REPORT OF THE COMMITTEE ON AWARDS

The Committee on Awards made the following report:

CLASS I

(Awards in Class I are made for exhibits of individual investigation, which are judged on the basis of originality and excellence of presentation.)

The GOLD MEDAL to Leonard G. Rowntree, Arthur Stenberg, N. H. Einhorn, J. H. Clark, George M. Dorrance and E. F. Ciccone, Philadelphia Institute for Medical Research, Laboratory of Philadelphia General Hospital and American Oncologic Hospital, Philadelphia, and A. M. Hanson, Faribault, Minn., for exhibit illustrating original investigation on normal and abnormal growth associated with the development of sarcoma in albino rats from the ingestion of a crude wheat germ oil made by ether extraction.

The SILVER MEDAL to Eben J. Carey, Department of Anatomy, Marquette University School of Medicine, Milwaukee, for exhibit illustrating original investigation on intrinsic wave mechanics of the nervous and muscular systems.

The BRONZE MEDAL to Louis Gross, Mount Sinai Hospital, New York, for an exhibit illustrating experimental studies of the blood supply to the heart in relation to coronary sclerosis.

CERTIFICATES OF MERIT, Class I, are awarded to the following (alphabetically arranged):

Lester R. Dragstedt and John Van Prohaska, Department of Surgery, University of Chicago Clinics, Chicago, for exhibit of original work on lipocaic, a new pancreas hormone.

Harry Goldblatt, Department of Pathology, Western Reserve University School of Medicine, Cleveland, for exhibit illustrating results of work on experimental hypertension.

Nelse F. Ockerblad and Hjalmar E. Carlson, Department of Urology, University of Kansas School of Medicine, Kansas City, Kan., for exhibit illustrating the distribution of urethral pain.

Isaac Schour, University of Illinois, Chicago, for exhibit illustrating tooth-ring analysis.

Charles S. Venable, Walter G. Stuck and Asa Beach, San Antonio, Texas, for exhibit illustrating the effect of electrolysis in osteosynthesis with metals.

In addition, the following exhibits are deemed worthy of honorable mention (alphabetically arranged):

That of Elmer L. De Gown and W. L. Randall, Department of Internal Medicine, State University of Iowa, on renal damage from blood transfusion.

That of Deryl Hart, Duke Hospital, Durham, N. C., on sterilization of the air in the operating room with bactericidal radiant energy.

That of Herbert L. Johnson, Boston, illustrating absorbable sutures and insulating patches made from human and bovine fetal membranes.

That of Virgil H. Moon, David R. Morgan and Marshall M. Lieber, Department of Pathology, Jefferson Medical College, Philadelphia, illustrating shock, its pathology and sequelae.

That of J. W. Schereschewsky, United States Public Health Service and Harvard Medical School, Boston, on carcinogenic compounds and lung tumors in mice.

That of Marvin R. Thompson, University of Maryland, Baltimore, on ergot and its active principles.

That of W. F. Wells and Mildred Weeks Wells, Harvard School of Public Health, Boston, on air-borne infection.

Particular commendation is made of the personal demonstration by Edward C. Rosenow, Mayo Foundation, Rochester, Minn., of his exhibit on the relation of streptococci to the viruses of encephalitis and poliomyelitis.

CLASS II

(Awards in Class II are made for exhibits which do not exemplify purely experimental studies and which are judged on the basis of excellence of presentation.)

The GOLD MEDAL to M. S. Henderson, H. W. Meyerding, R. K. Ghormley and H. B. Macey, Mayo Clinic, Rochester, Minn., for excellence of presentation of exhibit illustrating fractures, a potential source of deformity and disability.

The SILVER MEDAL to Frank W. Hartman, Henry Ford Hospital, Detroit, for exhibit on oxygen therapy with the use of liquid oxygen and air, a new efficient low cost oxygen tent.

The BRONZE MEDAL to Franklin F. Snyder and Morris Rosenfeld, Johns Hopkins Hospital, Baltimore, for exhibit illustrating intra-uterine respiration of the fetus and its relation to respiratory failure at birth.

CERTIFICATES OF MERIT, Class II, are awarded to the following (alphabetically arranged):

Charles A. Doan, Bruce K. Wiseman and Carl G. Moore, Ohio State University, Columbus, for exhibit illustrating the pathologic physiology, differential diagnosis and treatment of hematologic dyscrasias.

N Frederick Hicken and R Russell Best, Omaha, for exhibit on mammography, the roentgenographic diagnosis of breast tumors by contrast visualization

Hugo Roesler, Temple University School of Medicine, Philadelphia, for exhibit illustrating the correlation between anatomy, pathology and roentgenology of the cardiovascular system

M C Wintermütz, Yale University School of Medicine, New Haven, Conn, for exhibit illustrating studies on the pathology of arteriosclerosis

E E Woldman and V C Rowland, Cleveland, for exhibit illustrating the treatment of peptic ulcer by continuous aluminum hydroxide drip

In addition, the following exhibits are deemed worthy of HONORABLE MENTION (alphabetically arranged)

That of Rhoda W Benham and Edward D De Lamater, New York, on the pathogenic fungi

That of A E Briley, P J Leinfelder and C S O'Brien, University Hospitals, Iowa City, on orbital tumors

That of William Dameshek and Henry H Henstell, Boston, on biopsy of sternal marrow

That of Rigney D'Aunoy and Emmerich Von Haam, Department of Pathology, Louisiana State University Medical Center, New Orleans, a clinical and pathologic study

That of Robert Greenblatt and Everett S Sanderson, University of Georgia Medical College, Augusta, on bacillary antigen for intracutaneous test in the diagnosis of chancroid

That of R H Flocks, Department of Urology, State University of Iowa, College of Medicine, Iowa City, on the arterial distribution within the prostate gland—its role in prostatic resection

That of Clayton J Lundy, Rush Medical College, Chicago, on the mechanism and electrocardiographic registration of the heart in health and disease

That of John S Lundy, L H Mousel E B Tuohy and R C Adams, Mayo Clinic, Rochester, Minn, on the technic of regional anesthesia

That of Abraham Myerson, Julius Loman, Max Rinkel, Max Ritvo and J G Schube, Research Laboratory, Boston State Hospital, Boston, on autonomic pharmacology of the human being

That of John T Talbott, Massachusetts General Hospital, Boston, on clinical and laboratory studies on patients with gout

Special commendation is made of the following exhibits

That of Jesse G M Bullock, Clare Wilcox, Benjamin Wolfman, Herman D Ratish and Evelyn Greenbaum, New York, on management of the pneumonias

That of Russell L Cecil Louis I Dublin and Donald B Armstrong, Metropolitan Life Insurance Company, New York, on pneumonia control

That of Elliott C Cutler and Robert Zollinger, Peter Bent Brigham Hospital, Boston, on the technic of common surgical procedures

That of Sigmund Epstein, New York, illustrating the crutch in art through forty centuries

GROUP EXHIBITS

A SPECIAL CERTIFICATE OF MERIT is awarded to the group exhibit of the Lahey Clinic, Boston. The committee suggests that hereafter group exhibits be excluded from the Scientific Exhibit

EDUCATIONAL CLASSIFICATION

A SPECIAL CERTIFICATE OF MERIT is awarded to the United States Navy, Medical Department, Washington, D C, for its exhibit on naval medical activity pertaining to preventive and industrial medicine and public health

The committee commends the educational exhibits on cancer, syphilis and tuberculosis

SPECIAL EXHIBITS (SUBSIDIZED)

The Committee on Awards commends particularly the special exhibits on anesthesia and fractures sponsored by the American Medical Association, and those of the various councils and bureaus of the Association

The committee extends its commendation to the many individual exhibitors who have developed exhibits from their own resources and have spared no effort to explain and demonstrate their exhibits

The committee emphasizes that the members and Fellows of the American Medical Association owe grateful appreciation to the Committee on Scientific Exhibit of the Board of Trustees and to Dr Thomas G Hull, the executive in charge of the arrangements of the Scientific Exhibit

LUDVIG HEKTOEN, Chairman, Chicago
ARTHUR J BEDELL, Albany, N Y
FRANK K BOLAND, Atlanta, Ga
RUSSELL L HADEN, Cleveland
JAMES D TRASK, New Haven, Conn

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES NEW HOSPITALS EDUCATION AND PUBLIC HEALTH)

ARKANSAS

Personal—Dr Edward W Pillstrom has been appointed health officer at Coal Hill—Dr James T Tipton, Mountain Home, has celebrated the completion of fifty years in the practice of medicine—Dr Robert H Johnson, Clarksville has been appointed health officer of Johnson County

CALIFORNIA

Personal—Dr John M Kirby, Bakersfield, has been placed in charge of a newly created health unit in Monterey County—Dr Edwin Vincent Askey has resigned as secretary-treasurer of the Los Angeles County Medical Association, an office he had held since 1934. Dr Askey was recently elected to the board of education. He has been succeeded by Dr George D Maner as secretary of the society

Society News—Dr Arthur Elmer Belt, Los Angeles, addressed the San Diego County Medical Society, May 11, on "Fever Therapy in Gonococcal Infections". Dr Frank Krusen, Rochester, Minn, addressed the society, June 17, on "Present Status of Physical Therapy"—Dr Willard J Stone, Pasadena, discussed "Bright's Disease and Arterial Hypertension" before the Hollywood Academy of Medicine, May 20—The Alameda County Medical Association was addressed, June 21, by Drs Clifford W Mack, Livermore, on "Insulin Shock in Dementia Praecox", John A Dougherty, Oakland, "Urinary Antiseptics", Lester B Lawrence, Oakland "Management of Acute Head Injuries", and Thomas Floyd Bell, Oakland, "Cervicitis and Vaginitis"

COLORADO

Society News—Dr Herman C Graves, Grand Junction, was the principal speaker before the Delta County Medical Society, May 28, on albuminuria—At a meeting of the Fremont County Medical Society in Canon City, June 11, Dr Vera Henly Jones, Denver, showed a motion picture entitled "After-Care of Poliomyelitis"

New Committee on Syphilis—A continuing committee on the control of syphilis has been appointed for the Colorado State Medical Society, consisting of six members to serve overlapping three year terms. They are Drs Edward R Mugrage, chairman, and Robert S Liggett, Denver, three years, Gerald M Frumess, Denver and Charles H Boissevain, Colorado Springs two years, George M Myers and Julius L Rosenbloom, Pueblo, one year

CONNECTICUT

Personal—Dr Edward P Kemp has been appointed health officer of Fairfield for the unexpired term of Dr Laurence E Poole, who recently resigned on account of ill health

Cancer Fund of \$10,000,000 Given to Yale—The Jane Coffin Childs Memorial Fund for Scientific Research, to be devoted to research on cancer, has been established through a gift of \$10,000,000 to Yale University, New Haven, according to the *New York Times*. The donor of the fund was not announced by the university, but the report stated that Starling

W Childs, New York investment banker, had set up the endowment. The deed of gift provides that if, and when, the cancer problem is solved, the foundation is to devote its time to unsolved medical problems in other fields of science. Under the deed the foundation, which is expected to cooperate closely with Yale University School of Medicine, will be administered by a board of managers advised by a board of scientific advisers. The latter board will include Dr Stanhope Bayne-Jones, Rudolph J Anderson, Ph D, Drs Ross G Harrison and Milton C Winternitz, all of Yale, and Dr Francis Peyton Rous of the Rockefeller Institute for Medical Research, New York.

FLORIDA

New Officers of State Board—Dr John M Mann, Lake Butler, formerly state senator, was elected president of the State Board of Medical Examiners of Florida at its annual meeting, June 14, succeeding Dr James E Crump, Winter Haven. Dr Julius C Davis, Quincy, formerly president of the state medical association, was chosen vice president, and Dr Wilham M Rowlett, Tampa, was reelected secretary.

GEORGIA

Hospital News—The state tuberculosis sanatorium at Alto was to be placed under the management of the state board of health, July 1, in accordance with a recent act of the legislature.

Awards Presented During Annual Meeting—The name of Dr James L Campbell, professor of clinical surgery, Emory University School of Medicine, Atlanta, will be inscribed on the L G Hardman Loving Cup, it was announced at the recent annual meeting of the Medical Association of Georgia. This honor is awarded annually to the physician considered to have rendered the most distinguished medical service during the previous year. The cup was given to the state medical association by the late Governor Hardman, who was a member of the association for more than fifty years. Dr Campbell graduated from Emory in 1893. Dr Charles Glenville Giddings Jr, assistant professor of clinical medicine at the university, was presented with the Crawford W Long Award for the best research work in the state during 1935-1936.

IDAHO

The Annual Spring Meeting—The South Side Medical Society held its annual spring meeting in Twin Falls May 15. The scientific program was presented by four San Francisco physicians. Drs Frederic C Bost, on 'Treatment of Fractures of the Femur', Robert G Craig, 'Common Gynecological Problems', Clark M Johnson, 'Urinary Infections and Obstructions,' and Edmund W Butler, 'Injuries of the Chest'.

ILLINOIS

Society News—Dr Richard H Jaffe, Chicago, discussed 'Tumors and Tumor-like Lesions of the Breast' before the Sangamon County Medical Society, Springfield May 6—Dr Julius Steinfield, Peoria, discussed 'The Principles and Medical Value of Psychoanalysis' before the Peoria City Medical Society, May 4.

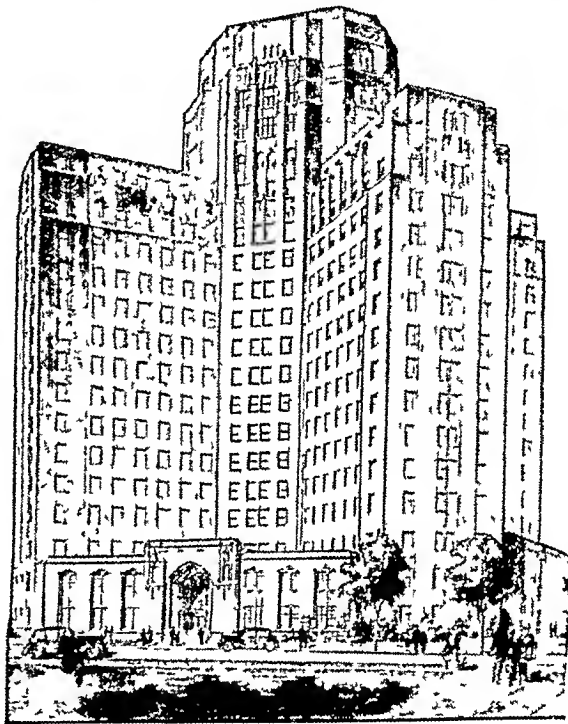
The New Marriage License Law About Venereal Disease—Applicants for licenses to marry must present physicians' certificates and laboratory affidavits attesting freedom from venereal disease, in accordance with a new law which went into effect July 1. The laboratory tests may be taken without cost at city or state health department laboratories. The certificate must be made within fifteen days of the application for a license, which, when issued, shall be good for only thirty days. The law provides a \$100 fine or a six months jail sentence for any county clerk issuing a marriage license without the required medical certificates or for any physician or laboratory technician found guilty of falsifying the affidavits. A similar fine or a three months jail sentence is provided for any marriage applicant violating the new law. Similar laws are in effect in Connecticut, Montana and Oregon while Alabama, Louisiana, North Dakota and Wyoming demand certificates from men alone. Wisconsin has also required certificates from men but now has awaiting the governor's signature a bill which will bring women under the same provisions.

Chicago

Personal—Dr Thomas P Foley has been appointed a member of the medical examining committee of the Illinois State Department of Registration. Dr Foley was secretary of the Chicago Medical Society from 1932 to 1934 and president in 1936. He has been chairman of the department of medicine at Oak Park Hospital since 1929—Maud Sive AB, asso-

ciate professor of pathology, school of medicine at the University of Chicago, received the honorary degree of doctor of science from Brown University, Providence, R I, June 21.

Work Begins on the New Wesley Hospital—Construction of a new building for Wesley Memorial Hospital began June 19 when Mr George H Jones turned the first spadeful of earth on the site at Superior Street and Fairbanks Court. Mr Jones provided the funds for the building, which will cost about \$2,000,000. The main portion of the building will be fifteen stories high, with a tower section extending four stories higher. The first floor will be used for executive offices, staff and lecture rooms, doctors' lounge, the admission department, two emergency operating rooms and a necropsy amphitheater. On the second floor will be the physical therapy and x ray departments, medical library and records, kitchens, dining rooms and cafeteria. The third floor will comprise a diagnostic unit, a general waiting room and a special department for eye, ear, nose and throat. The fourth floor will have fourteen operating rooms air conditioned all the year. The other floors will contain beds arranged in wards and in individual rooms. The entire twelfth floor will be devoted to obstetrics and be completely air conditioned. The seventeenth floor of the tower will



Proposed new Wesley Hospital

be used for a lounge. One floor of the new structure will be given over to adolescents. The building, which has been designed so that sunlight will reach every patient sometime during the day will accommodate 420 beds. There will be 140 free beds available for teaching, while facilities for all classes of patients will be provided. Seventy rooms will be available for persons of moderate means. The present Wesley Memorial Hospital has occupied a site at Twenty-Fifth and Dearborn streets since 1888. In 1914 it was endowed with \$1,000,000 for teaching purposes by the late James Deering in memory of his father and sister, William Deering and Abby Deering Howe. Under the terms of the deed the staff of the hospital must be chosen from Northwestern University Medical School. The new building is expected to be ready for occupancy Dec 25 1938, the fiftieth anniversary of the first admission of a patient to Wesley.

INDIANA

Hospital News—The new \$100,000 Michigan City Sanatorium, Michigan City, has been opened to patients.

New Clinical Building at University—The cornerstone of a new clinical building at the University of Indiana School of Medicine, Indianapolis, was laid, May 12, by William Lowe Bryan, president of the university. The speakers included Dr Frank C Mann, Rochester, Minn. Dr Nicholson J Eastman, Baltimore, and Frederic R Henshaw D D S, of the

university's school of dentistry The new six story building, which will be completed in the fall, will cost about \$750,000 when fully equipped

Personal—A bronze plaque has been placed in the reception hall of St Joseph Hospital, Fort Wayne, in memory of Dr Maurice I Rosenthal, first president of the hospital staff, who died Dec 24, 1935.—Dr Herman G Morgan has been appointed president of the Citizens' Safety Committee, Indianapolis

IOWA

Rocky Mountain Spotted Fever—Three probable cases of Rocky Mountain spotted fever, all in the same rural household, were reported in Clarke County, June 9, according to the state health department One of the children concerned, a girl of 3 years, died June 10, it was stated This disease had not been reported from Clarke County, which is in south central Iowa, since four years ago, when two cases occurred and a third probable case resulted fatally A child from Jackson County in eastern Iowa, who was at the time of this report a patient at the Children's Hospital, Iowa City, is the fourth person known to have had the disease thus far this year

Twin Lakes District Meeting—The dry diagnostic clinic and fifteenth annual assembly of the Twin Lakes District Medical Society was held at Burns' Alhambra Pavilion, Twin Lakes, Rockwell City, June 17 Dr Austin A Hayden, Chicago, addressed the meeting on "The Science and Art of Medicine" Others on the program included Drs Carl H Gellenthien Valmora, N M, John W Duncan, Omaha, Elmer G Wakefield, Rochester, Minn, Garwood C Richardson, Chicago, and Peter T Bohan Kansas City, Mo Clinics in diseases of the chest, surgery, functional disorders of the colon, obstetrics and general medicine were included on the program

KENTUCKY

School for Health Officers—The state department of health conducted its annual school for health officers, May 10-12, in Louisville at the Brown Hotel The program placed special emphasis on tuberculosis, malaria, sanitation and milk control Among the lecturers were Drs James P Leake and Robert Olesen and Mr Leslie Frank, senior sanitary engineer all of the U S Public Health Service, Drs Mark F Boyd of the International Health Board, Rockefeller Foundation, and Horton R Casparis, Nashville, Tenn, and Mr R J Morton, Nashville

LOUISIANA

Civic Cup Awarded to Physician—Dr Lambert O Clark Lafayette, was recently presented with the 1936 civic award for outstanding service to the community The cup is sponsored by the Young Men's Business Club Dr Clark, who is 57 years of age, graduated from Tulane University of Louisiana School of Medicine, New Orleans, in 1905

Society News—The Orleans Parish Medical Society held a clinical meeting at the U S Marine Hospital, New Orleans, June 28, speakers were Drs Richey L Waugh, "Rupture of the Biceps Brachii", Joseph G Pasternack, "Pathologic Physiology and Pathology of Experimental Gas Gangrene," and Mr Howard N Old, sanitary engineer, "Public Health Aspects of the Recent Flood" The society was addressed, June 14, among others, by Drs Reynoldo Dos Santos, professor of surgery, University of Lisbon, Portugal, on arteriography, and Rudolph Matas, New Orleans, vascular surgery

MAINE

Ordinance Requires Physical Examination of Food Handlers—All proprietors of eating and drinking establishments in Bangor will be required to obtain a certificate of good health from applicants for positions before they are accepted, in accordance with an ordinance recently adopted The ordinance further provides that medical inspections will be made twice a year The certificate must be from a reputable physician stating that the applicant is free from any communicable disease The ordinance requires that the examination be complete enough to determine the presence or absence of any exanthematous disease and oral or nasal infections and that it include the collection of material for laboratory examination if infections are suspected On suspicion of tuberculous infection of any applicant, a thorough physical examination of the lungs will be made and laboratory specimens will be collected and forwarded to the state laboratory for examination All persons will be questioned as to a history of typhoid Certificates will be made on forms approved by and filed with the city health officer

MASSACHUSETTS

State Medical Election—Dr Channing Frothingham, Boston, was elected president of the Massachusetts Medical Society at its annual meeting in Boston, June 2 Dr Walter G Phippen, Salem, was chosen vice president and Dr Alexander S Begg, Boston, was reelected secretary

Anatomist Honored on Ninetieth Birthday—Edward Laurens Mark, Ph D, Hersey professor of anatomy, emeritus, Harvard University, Boston, was honored on his ninetieth birthday, May 30, when a bound volume of letters, written by former students and friends, was presented to him Dr Mark graduated at the University of Michigan in 1871 and received his degree of doctor of philosophy from the University of Leipzig in 1876 He served as instructor in mathematics, University of Michigan, and as astronomer of the U S Northwest Boundary Survey In 1877 he joined the faculty at Harvard, serving from 1885 to 1921 as professor of anatomy He was director of the Zoological Laboratory at Harvard from 1900 to 1921 and director of the Bermuda Biological Station for Research from 1903 to 1931 He was delegate from the United States to the fourth International Zoological Congress in 1898 He is a member of many scientific societies and has written numerous articles and textbooks

MICHIGAN

Society News—Dr Francis B Fralick Ann Arbor, discussed eye conditions found in general practice before the Calhoun County Medical Society, June 1, in Battle Creek.—At a recent meeting of the East Side Physicians Association, Detroit the speakers included Dr Ira G Downer on "Diagnosis and Treatment of Subacromial Bursitis with a Report of Seven Cases"—Dr Robert L Schaefer, Detroit addressed the Shiawassee County Medical Society, May 20, on "Clinical Evaluation of the Anterior Pituitary-like Sex Hormone"—Mr Milton Simpson, Kalamazoo, addressed the Kalamazoo Academy of Medicine, June 15, on "Literature's Contribution to the Physician"

MINNESOTA

Grant for Research in Biology—The Rockefeller Foundation has given \$36,000 to the University of Minnesota for research in biology and medicine The project will involve the construction of high voltage equipment in the physics laboratory, consisting principally of a giant Van de Graff generator capable of producing from six to eight million volts of electricity

Chemical Group Offers Medical Program—The fourteenth National Colloid Symposium, sponsored by the American Chemical Society and the National Research Council held a meeting at the Mayo Clinic, Rochester, June 12 The speakers included

Wendell M Stanley Ph D Princeton N J Rockefeller Institute for Medical Research Virus Proteins A New Group of Macromolecules
Dr Maurice B Visserer Minneapolis Influence of Various Ions upon the Movement of Materials Across Living Membranes
Dr Hugh R Bult and Ansel B Keys Ph D Rochester Osmometric Study of Gum Acacia Solutions Used for Intravenous Injection
Drs Arthur H Sanford and Douglas B Roxburgh Rochester Effect of Protein Type and Concentration on the Precipitation of Gold Solutions

Personal—Dr A Dair Haskell has been elected mayor of Alexandria.—Dr David M Parker, who recently opened offices for practice in Mountain Iron, has been appointed village health officer—Villanova College, Villanova, Pa conferred the honorary degree of doctor of laws on Drs Charles H and William J Mayo, Rochester, at its commencement exercises, June 3.—Dr Francis E Harrington, city health commissioner, has been appointed acting superintendent of the Minneapolis General Hospital—Dr Alex G Berger has been appointed chief quarantine officer of Minneapolis, succeeding Dr Ragnar T Westman, resigned.—Dr Henry C Cooney, medical director of Northwestern Hospital, Princeton, was guest of honor at a dinner, April 19 in celebration of his birthday Dr Cooney graduated from the University of Illinois College of Medicine in 1887

MISSOURI

Fifty Years of Practice—Dr Linn J Schofield was the guest of honor at a meeting of the Johnson County Medical Society, June 2 in celebration of his completion of fifty years of practice in Warrensburg Dr Schofield graduated from the University of Louisville Medical Department in 1887 He is secretary of the city board of health and formerly served as county health officer and as president of the county medical society in 1917

MONTANA

State Medical Meeting at Great Falls—The Montana State Medical Association will hold its annual convention at the Heisey Memorial, Great Falls, July 13-14, under the presidency of Dr John A Evert, Glendive. Hon Julius J Wuertner, mayor of Great Falls, will open the scientific session Tuesday afternoon with an address of welcome. Other speakers on the program will include

Dr Henry Schmitz Chicago, Treatment of Uterine Myomas
Dr Roland G Scherer Bozeman Conservative Renal Surgery
Dr Russell B Richardson Great Falls Fractures of Os Calcis
Dr Ferdinand R Schemm, Great Falls Fluid Intake in Edematous Patients
Dr Jack K Colman Butte, Paralysis of the Peripheral Nerves of the Upper Extremity
Dr Fred F Attix Lewiston Massive Purulent Pericarditis
Dr John H J Upham Columbus Ohio President American Medical Association Heart Disease in Middle Life
Dr Herbert H James Butte Cancer and Its Treatment with Radium
Dr Ernest M Hammes St Paul Psychosis Associated with the Involutional Period
Dr Jessie M Bierman Helena, Nephritis in Children

Dr Upham will also address the annual banquet Wednesday evening on "Changing Times in Medicine" and Dr Anton J Carlson, Chicago, will speak on "Black Oxen and Togenburg Goats." The Cascade County Medical Association will be host to the session.

NEW HAMPSHIRE

Trailer Regulations—New Hampshire has adopted sanitary regulations covering trailer coaches and trailer camps. The rules relate to equipment of the coaches, including certain requirements for proper care and disposal of wastes. They require that coaches be screened and kept free from accumulations of refuse and that receptacles be cleaned and disinfected each time they are emptied. All trailer coaches are to be open to inspection by agents of the state board of health at all reasonable hours and it is required that, in the event of any illness suspected of being communicable, a physician be called promptly and the health officer notified if the illness is found to be communicable. Trailer camps and parks are also required to maintain certain standards. Water must be supplied from faucets and provision must be made for proper disposal of wastes. Camp sites must provide space of at least 20 by 35 feet for each trailer, and no greater number of trailer parties are to be allowed than the space can accommodate. Supplementing the regulations, the board of health also issued advice concerning water and milk supplies. Tanks should be filled only from sources of supply under inspection or, if it is necessary to resort to wells or springs, such water should be disinfected with hypochlorite solution.

NEW YORK

Society News—Dr Eldridge H Campbell Jr, Albany, addressed the Medical Society of the County of Albany, June 23, on "Diagnosis and Treatment of Brain Tumors."—At a meeting of the Saratoga County Medical Society at the Saratoga Spa, June 3, the speakers were Drs Leroy W Hubbard, Mount Vernon, on "Polymyelitis—Its Recognition and Treatment", John D Currence, New York, "Hydrotherapeutic Treatment of Arthritis and Related Conditions", Paul Klemperer, New York, "Vascular Diseases of the Kidney," and Herman O Mosenthal, New York, "Prevention and Treatment of Uremia."—Dr George H Ramsey, director of communicable diseases, state department of health, Albany, addressed the quarterly meeting of the Suffolk County Medical Society, Huntington, April 28, on "Syphilis as a Public Health Problem."

New York City

Annual Library Report—The Library of the Medical Society of the County of Kings and the Academy of Medicine of Brooklyn reports that the number of readers using the library decreased 5 per cent in 1936 from the number reported in 1935. The report attributes the difference to improving economic conditions reflected in less leisure for reading. In 1936 the number of readers was 15,134, the number of books consulted in the library 57,623, and the number taken for home use 12,295. The library added 775 volumes of new publications to its shelves during the year, partly by purchase and partly by donations of books received for review by the *New York State Journal of Medicine* and the *Medical Times and Long Island Medical Journal*. A total of 1,590 current periodicals and serial publications are now on file in the library, an increase of sixty-six over the previous year. It is estimated that the library now contains about 140,122 bound and unbound volumes.

The Annual Graduate Fortnight—The tenth annual Graduate Fortnight presented by the New York Academy of Medicine will be held, November 1-12, on "Medical and Surgical Disorders of the Urinary Tract." Twenty-one hospitals will present coordinated clinics and demonstrations during the days, and a group of lectures will be presented at the academy building in the evenings. The speakers at these sessions will be

Dr Alfred N Richards Philadelphia Physiology of the Kidney
Donald D Van Slyke, Sc D New York Tests for Kidney Function.
Dr Dana W Atchley New York Edema and Its Treatment
Dr Arthur M Fishberg New York Uremia and Pathology of Kidney Function
Dr Milton C Winternitz New Haven Conn Pathology of Vascular Disease
Dr George Bachr New York The Pathology of Nephritis
Dr Robert F Loeb New York Clinical Aspects of Nephritis
Dr Irvine H Page New York Nature of Hypertension
Dr Herman O Mosenthal New York Clinical Aspects of Hypertension Including Malignant Hypertension
Dr George J Heuer New York Evaluation of the Surgical Treatment of Hypertension
Dr Albert A Epstein New York The Nephroses
Dr William W Herrick New York Vascular and Renal Complications of Pregnancy
Dr Karl A Menninger Topeka Kan Physiologic Factors in Hypertension
Dr William F Braasch Rochester Minn Pathogenesis and Treatment of Renal Infections
Dr Hugh Cabot Rochester Minn Renal and Perirenal Infections
Dr Linwood D Keyser Roanoke Va Calculus Disease Formation of Stones
Dr Henry G Bugbee, New York Clinical Aspects of Calculus Disease
Dr J Bentley Squier New York Hydronephrosis and Pyonephrosis
Dr John D Lytle New York Bright's Disease in Children
Dr Meredith F Campbell New York, Common Urologic Diseases in Children
Dr Benjamin S Barringer New York Radiotherapy of Tumors of the Urinary Tract
Dr Archie L Dean Jr New York Tumors of the Kidney and Ureter
Dr Edwin Beer New York Tumors of the Urinary Bladder
Dr William E Lower Cleveland Pathologic Physiology of Bladder Neck Obstruction
Dr Joseph F McCarthy New York Transurethral Resection of Bladder Neck Obstruction
Dr Hugh H Young Baltimore, Surgical Treatment of Obstructions at the Neck of the Bladder

An exhibit of books and of pathologic and research material will be presented, with demonstrations at regular intervals.

NORTH CAROLINA

Changes in Staff of State Board of Health—Dr John W Roy Norton, Raleigh, has recently been made assistant director of the division of preventive medicine in the state board of health, succeeding Dr Thomas C Worth. Dr Robert L Robinson, Raleigh, has recently been added to the staff of the division of industrial hygiene, and Dr George M Leiby was appointed during the past year as consultant in venereal disease control.

Special Society Elections—Dr Malcolm T Foster, Fayetteville, was elected president of the North Carolina Public Health Association at the recent annual meeting in Winston-Salem, Dr Joseph A Morris, Oxford, vice president, and Dr Avon H Elliot, Wilmington, secretary.—Dr Harry L Johnson, Hickory was elected president of the North Carolina Hospital Association at the annual meeting in Raleigh in conjunction with the hospital associations of Virginia and South Carolina.—Dr Robert P Noble Raleigh, was made president of the North Carolina Radiological Association at its annual meeting in Winston-Salem in May, during the meeting of the Medical Society of the State of North Carolina.

OHIO

University News—The University of Cincinnati College of Medicine announces a gift of \$4,000 to establish a laboratory for research on the effect of diet in nervous diseases. Drs Tom D Spies, associate professor of medicine, and Charles D Aring, instructor in medicine, will be in charge of the laboratory. The gift was made by Mr William J Shroder and his sisters in honor of their parents, Judge and Mrs Jacob Shroder, whose name the laboratory will bear.

OREGON

Plague Infection in Oregon—Tissue taken from a ground squirrel found dead on a ranch five miles northeast of Enterprise, Walla Walla County, was found to be plague infected, according to *Public Health Reports*, June 11.

Personal—Dr R E Lee Steiner has resigned as superintendent of the Oregon State Hospital, Salem, after thirty years in the position. He was succeeded July 1 by Dr John C Evans, assistant superintendent for many years.—Dr Harold M Erickson, The Dalles has been appointed health officer of The Dalles and Wasco County.

PENNSYLVANIA

Society News—Dr Francis A Faught, Philadelphia, addressed the Northampton County Medical Society, Easton, May 21, on periodic health examinations.—Drs William W G MacLachlan and John P Griffith, Pittsburgh, conducted medical and surgical clinics, respectively, at a meeting of the Cambria County Medical Society, Johnstown, June 3.—Dr Gabriel Tucker, Philadelphia, addressed the Washington County Medical Society, Washington, June 23, on "Cancer of the Lower Respiratory Tract"—The Lycoming County Medical Society held an all day cancer meeting June 18 at the Williamsport Hospital. Dr Samuel J Waterworth, Clearfield, spoke on methods of diagnosis, Dr George E Pfahler, Philadelphia, on "Radium and X-Rays in Treatment of Cancer," and Dr W Wayne Babcock, Philadelphia, "Surgery of Cancer." Dr Babcock also addressed an evening session on "The Problem of Eradicating Cancer and Associated Diseases"

Philadelphia

Faculty Changes at Jefferson—Among appointments and promotions on the faculty of Jefferson Medical College during the year just passed were the following

Dr John F Corby professor of military science and tactics
Dr Henry K Mohler clinical professor of therapeutics
Dr Baldwin L Keyes clinical professor of psychiatry
Dr Willard H Kinney clinical professor of genito urinary surgery
Dr Samuel A Loewenberg clinical professor of medicine
William A Kreidler Ph D associate professor of bacteriology
Dr J Hall Allen assistant professor of proctology
Dr Norman M MacNeill assistant professor of pediatrics
Dr William J Harrison assistant professor of ophthalmology
Dr Sidney L Olsho assistant professor of ophthalmology

Dr Hatfield Receives Trudeau Medal—Dr Charles J Hatfield, associate director of the Henry Phipps Institute of the University of Pennsylvania, received the Trudeau Medal awarded by the National Tuberculosis Association at its annual meeting in Milwaukee, May 31-June 3. Dr Hatfield, who graduated from the University of Pennsylvania School of Medicine in 1900, has been engaged in tuberculosis work for many years. He was managing director of the National Tuberculosis Association from 1914 to 1922, was president in 1924 and is now secretary. He has also been president of the Pennsylvania Tuberculosis Society and is at present a director of that society.

SOUTH CAROLINA

Veteran Physicians Honored—The Spartanburg County Medical Society at a meeting at the Spartanburg Country Club, May 31, honored three physicians who have practiced about fifty years. They were Drs John J Lindsay, who graduated from the University of Maryland School of Medicine in 1887, James L Jeffenes, from New York University Medical College in 1889, and Louis J Blake, from the University of Pennsylvania School of Medicine in 1888. All live in Spartanburg. Dr Roy P Finney, president of the society, presided at the meeting and the speakers included Drs Daniel L Smith, Spartanburg, James M Northington, Charlotte, N C, and the guests of honor.

TEXAS

North Texas Meeting—The semiannual meeting of the North Texas Medical Association was held in Paris, June 22-23. Dr Howard R Dudgeon, Waco, recent president of the State Medical Association of Texas, was the guest speaker at a banquet, and guests for the scientific sessions were Drs Titus H Harris, Galveston, who spoke on "Vitamin Deficiency as the Etiological Factor in Acute and Subacute Toxic Organic Mental Reactions", Calvin R Hannah, Dallas, "Brain Injuries Occurring at Birth", Karl J Karnaky, Houston, "Diagnosis and Treatment of Trichomonas Vaginitis," and Arthur C Scott Sr, Temple, "Problems in Early Diagnosis of Cancer"

VERMONT

Personal—Dr Lester E Judd, Barre, has joined the staff of the Vermont Tuberculosis Association and will make a study of silicosis.

VIRGINIA

Society News—Drs Edward H Cary, Dallas, Texas and William B Mason Washington, D C, were the guest speakers at the annual meeting of the Virginia Society of Otolaryngology and Ophthalmology at Staunton, May 8. Dr Cary discussed "Affections of the Optic Nerve" and Dr Mason, "The Use of Protosil and Protynin in the Treatment of Acute Streptococcus Infection in the Ear Nose and Throat." Dr Marshall H Hood, Portsmouth, was elected president and Dr Charles T St Clair, Bluefield, W Va, secretary.

WASHINGTON

State Medical Meeting at Seattle—The forty-eighth annual meeting of the Washington State Medical Association will be held in Seattle July 19-22, at the same time as the annual course of graduate lectures presented by the University of Washington. An announcement of the course appeared in THE JOURNAL, June 19, page 2148. Two of the lecturers will address the association meeting Tuesday afternoon. Drs Hans Lisser, San Francisco, on "Recognition and Treatment of Childhood and Adult Myxedema" and Waltman Walters, Rochester, Minn, "Operative Treatment of Lesions of the Suprarenal Gland and Pancreas." In addition, the following Washington physicians will appear on the program Wednesday afternoon.

Dr Siegfried F Herrmann Tacoma Carcinoma of the Pancreas
Dr Henry S Atwood Yakima Spinal Anesthesia with Special Reference to Dosage
Dr Darcy M Dayton Tacoma Progress in Pediatrics
Dr Leslie L Nunn Vancouver Cancer of the Breast in the Young
Dr Alfred O Adams Spokane Technique of Transplanting Full Thickness and Split Thickness Skin Grafts

The annual golf tournament will be held Monday July 19 at the Broadmoor Golf Club, and the annual dinner and dance Wednesday evening at the Olympic Hotel.

WEST VIRGINIA

Personal—Dr Harwood A Taylor, Mullens, has been appointed superintendent of the McKendree Emergency Hospital, McKendree, succeeding Dr John N Reeves, resigned.

State Medical Election—Dr Charles W Waddell, Fairmont, was elected president of the West Virginia Medical Association at the annual meeting in Clarksburg in May. He will take office Jan 1, 1938. Drs Herbert H Haynes, Clarksburg and Arthur A Shawkey, Charleston, were elected vice presidents. The 1938 meeting will be at White Sulphur Springs.

Society News—Dr James R Bloss, Huntington, a member of the Board of Trustees of the American Medical Association, addressed the Ohio County Medical Society, Wheeling, April 2, on "The Indications for Therapeutic Abortion"—Dr Warren T Vaughan, Richmond, Va, addressed the Kanawha Medical Society, Charleston, April 13, on "Management of the Hay Fever Patient"—Dr Henry Klinzing, Pittsburgh, addressed the Parkersburg Academy of Medicine, April 1, on "Medical Aspects and Treatment of Peptic Ulcer"—Dr Harvey G Beck, Baltimore, addressed the Cabell County Medical Society, Huntington, May 13, on "Chronic Carbon Monoxide Poisoning"—At a meeting of the Monongalia County Medical Society, Morgantown May 7, Dr Claude S Beck, Cleveland, gave an address on "Recent Advances in Cardiac Surgery"

WISCONSIN

Personal—The Northwestern University Alumni Association recently presented an award of merit to Dr Stanley J Seeger, chief of staff at the Milwaukee Children's Hospital and the Columbia Hospital "in recognition of worthy achievement which has reflected credit on Northwestern University and her alumni"—Dr Carl J Rollefson, head of the department of physiology at State Teachers' College, Superior, since 1912, has retired.

District Meetings—The Fourth Councilor District of the State Medical Society of Wisconsin held its annual meeting at Lancaster, May 26, with the following speakers. Drs William D Stovall, Madison, on "Biopsy in the Diagnosis of Early Cancer", William S Middleton Madison, "Cardiac Decompression," and George B Eusterman, Rochester, Minn, "Dyspepsia and Hints on Diagnosis and Treatment." Dr Stephen E Gavin, Fond du Lac, president of the state society, discussed organization activities.—At the annual meeting of the Ninth Councilor District in Stevens Point in May, Drs Roscoe L McIntosh and William J Bleckwenn, Madison, discussed "Treatment of Syphilis from a Dermatologic Standpoint" and "Neurosyphilis in General Practice" respectively.

PHILIPPINE ISLANDS

Society News—At a recent meeting of the Manila Medical Society the speakers were Drs Honoria Acosta-Sison, on "The Advantages of the Semilunar Transverse Uterine Incision in Laparotrachelotomy", Regino J Navarro, "Hematology in Filipinos Normal Blood Iron Content" and Narciso Cordero "Present Status of Hemoglobin Estimations"—The Pampanga Medical Society gave a banquet in honor of Dr Juan S Fernando, recently appointed chief health inspector of Central Luzon and the Southern Islands. A committee has been appointed to take charge of funds for the erection of a monument to the late Dr Gregorio Singian.

GENERAL

Bequests and Donations—The following bequests and donations have recently been announced

Lenox Hill Hospital \$5 000 Misericordia New York Foundling St Vincent's Seton and St Francis hospitals and St Joseph's Hospital for Consumptives all of New York \$1 000 by the will of the late Baroness Anna M. von Zedlitz
New York Hospital New York will ultimately receive \$127 736 under the will of Katherine Grace Snyder
St Luke's Hospital New York, \$20 000 from the estate of Mrs. Lillian J. Langford

Society News—Dr. Walter L. Carr, New York, was elected president of the American Association of Medical Milk Commissions at its annual meeting in Atlantic City, June 8, and Dr. Paul B. Cassidy, Philadelphia, was reelected secretary-treasurer.—Mrs. Marjorie B. Illig, lay field representative of the American Society for the Control of Cancer, New York, has been appointed national commander of the Women's Field Army to succeed Mrs. Grace Morrison Poole, who will be honorary national commander.—Dr. Jay Arthur Myers, Minneapolis, was elected president of the American Academy of Tuberculosis Physicians at the annual meeting in Atlantic City in June.—Dr. Ezra R. Bridge, Rochester, N. Y., was elected president of the American Sanatorium Association at the annual convention in Milwaukee May 31.—Dr. William W. Plummer, Buffalo, was chosen president-elect of the American Orthopedic Association at the annual meeting in Omaha June 2-4, and Dr. Frederick C. Kidner, Detroit, was installed as president. Dr. Ralph K. Ghormley, Rochester, Minn., was reelected secretary.—Dr. Arthur W. Elting, Albany, N. Y., was elected president of the American Surgical Association at its annual meeting in New York June 3-5, and Dr. Charles G. Myrter, Boston, reelected secretary.—Dr. Gordon Berry, Worcester, Mass., was elected president of the American Bronchoscopic Society at the annual session in Atlantic City June 2. Dr. Lyman G. Richards, Boston, is secretary.—Dr. James Herbert Mitchell, Chicago, was elected president of the American Dermatological Association at its annual meeting June 4 at Sky Top, Pa.—Dr. Harold I. Lillie, Rochester, Minn., was elected president of the American Laryngological, Rhinological and Otolological Association at the annual meeting in Atlantic City in June and Dr. Samuel J. Kopetzky, New York, was installed as president. Vice presidents elected are Drs. Louis H. Clerf, Philadelphia, Murdock S. Eguen, Atlanta, Ga., James B. Costen, St. Louis, and Arthur C. Jones, Boise, Idaho. Dr. Carlton Stewart Nash, Rochester, N. Y., was reelected secretary.—Dr. Thomas B. Magath, Rochester, Minn., was chosen president-elect of the American Society of Clinical Pathologists at the annual meeting in Philadelphia June 2-3. Dr. Stanley P. Reimann, Philadelphia, received the Ward Burdick award for his research on cancer, Dr. Henry F. Hunt, Danville, Pa., received a gold medal for an exhibit on the etiology of eclampsia and Dr. Bernhard Steinberg, Toledo, a silver medal for an exhibit on the etiology and treatment of acute peritonitis.—Dr. Charles A. Eisberg, New York, was elected president of the American Neurological Association at its annual meeting in Atlantic City in June. Drs. Walter D. Shelden, Rochester, Minn., and Percival Bailey, Chicago, were chosen vice presidents and Dr. Henry Alsop Riley, New York, was reelected secretary.—Dr. Temple S. Fay, Philadelphia, was chosen president of the Harvey Cushing Society at its meeting in Philadelphia, May 6-8, Dr. Frederick L. Reichert, San Francisco, vice president, and Dr. Louise C. Eisenhardt, New Haven, Conn., secretary.

FOREIGN

International Congress on Mental Hygiene—The second International Congress on Mental Hygiene will be held in Paris, July 19-25, with Dr. E. Toulouse, Paris, as president. Among physicians of the United States who will appear on the program are

Dr. Howard C. Taylor, New York, Eugenic Sterilization Laws and Results of Their Application
Dr. Franklin G. Ebaugh, Denver, Progress of Psychiatric Education in the United States and Canada
Dr. Ruth E. Fairbank, Baltimore, Factors Considered to Be Favorable and Unfavorable to Youth
Dr. Gilbert J. Rich, Milwaukee, Recreational Therapy in Preschizophrenic Patients
Dr. Arthur H. Ruggles, Providence, R. I., Mental Hygiene and the Individual
Dr. Samuel H. Epstein, Boston, Psychometric Response of Patients with General Paresis to Treatment
Walter R. Miles, Ph.D., New Haven, Conn., Prophylaxis of Alcoholism
Mr. Clifford W. Beers, New York, secretary of the National Committee for Mental Hygiene, is permanent secretary of the International Committee for Mental Hygiene. The late Dr. William Alanson White, Washington, was president of the international organization.

Government Services

Annual Report of Veterans' Administration

According to the annual report of the Veterans' Administration, there were 120,365 admissions to hospitals during the year ended June 30, 1936, 41,875 remained at the end of the year as compared with 42,984 in 1935, a decrease of 1,109, about 2.9 per cent. A total of 173,817 patients were hospitalized during the year, of whom 168,570 were veterans, representing an increase of 14 per cent over 1935. Of the total remaining in hospitals, 11 per cent were under treatment for tuberculosis, 58 per cent for neuropsychiatric diseases and 31 per cent for general medical and surgical conditions. Of the same group, 38,844 veterans were in facilities controlled by the Veterans' Administration, 1,856 in other government hospitals, and 842 in state or civil institutions. More than 61 per cent were receiving treatment in facilities located in the state of their reported home address.

Deaths in hospitals totaled 8,465, or 6.7 per cent, of the discharges, as compared with 7,253, or 7 per cent, in 1935. Of the total number of deaths 5,193, or 61.35 per cent, occurred among patients under treatment for general conditions, 2,058, or 24.31 per cent, for pulmonary tuberculosis, and 1,214, or 14.34 per cent, for neuropsychiatric diseases. A total of 95,742 World War veterans were discharged after treatment for diseases or conditions not connected with service and 11,107 for disabilities of service origin. Since March 1919, when the government facilities were authorized for treatment of veterans of the World War, there have been 1,568,786 admissions to hospitals. The total admitted in 1936, 120,365, represents an increase of 12.6 per cent over 1935 but is 19 per cent less than the peak of 148,662 in 1932. The administration reported 9,586 veterans under domiciliary care June 30, 1936, as compared with 9,323 the previous year. Of this number 84.21 per cent were veterans of the World War, with an average age of 44, 7,208 were disabled by general medical and surgical conditions, 2,152 by neuropsychiatric diseases and 226 by tuberculosis. About 87 per cent of the admissions were for non-service connected disabilities. Of the 25,488 veterans discharged after an average period of five months' domiciliary care, 21,811 were World War veterans.

At the end of the year covered by the report the administration was operating facilities at eighty locations in forty-three states and the District of Columbia, which provided a total of 45,873 beds, an increase of 1,080 over the number available on June 30, 1935. There were 18,756 beds available for domiciliary care, a decrease of 1,317 from the number on June 30, 1935. The total number of beds available in facilities controlled by the administration was 64,629 as compared with 64,866 in 1935, a decrease of 237.

During the year the net operating expense for all hospital and domiciliary facilities controlled by the administration totaled \$46,860,361.49 of which \$42,386,484.65 was for hospital and \$4,473,876.84 for domiciliary facilities. Throughout the year there was a daily average of 40,972 patients of all types under treatment, and a daily average of 12,008 beneficiaries receiving domiciliary care as compared with 39,030 and 10,406, respectively during the fiscal year 1935. The per diem cost of operation for all hospital facilities was \$2.82, as compared with \$2.78 for 1935. A total of 1,094,109 physical examinations for outpatient purposes were made, an increase of 208,760 over the number in 1935. About \$589,564.326 was expended in the various states and the District of Columbia on veterans and their dependents for both direct and indirect benefits. When completed construction under way at the close of the report will provide about 3,400 additional beds while approved or proposed new construction provides for the erection of new facilities in Detroit, White River Junction, Vt., Reno, Nev., middle Tennessee and Alabama for extensions to existing facilities at twenty-seven locations in twenty-two states, and for the conversion of the facilities at Roseburg, Ore., and Tuscaloosa, Ala., to hospitals of the neuropsychiatric type. A new cancer center was opened in January 1936 at Atlanta, Ga., equipped with high voltage x-ray therapy machines and radium bringing the number of cancer centers of the administration to six, providing a total of 502 beds. Centers for the special surgical treatment of pulmonary tuberculosis were established toward the end of the year at six facilities: Aspinwall, Pa., Castle Point, N. Y., Legion, Texas, Oteen, N. C., San Fernando, Calif., and Tucson, Ariz., and special attention was paid to graduate courses in various subjects, including two classes in allergy at the facility in Aspinwall.

Foreign Letters

LONDON

(From Our Regular Correspondent)

June 5, 1937

The British Medical Association and the Treatment of Fractures

The report of the Fracture Committee of the British Medical Association shows an enormous annual loss in industry due to accidents resulting in fractures and associated injuries of the limbs. The report recommended the extension of organized clinics for the treatment of fractures because of the much better results achieved in them. Whereas 276 cases treated by unorganized methods involved incapacity for a period of 13,206 weeks, this period could have been reduced to 4,440 weeks if the treatment had been given in organized clinics. Incapacity remained permanent in only 1 per cent of the cases treated in organized clinics, while 37 per cent of the patients otherwise treated remained incapacitated. The committee therefore proposed a scheme for a model fracture unit which would be in charge of a special surgeon and would provide for inpatient treatment and for weekly and biweekly clinics for ambulant cases. It suggested that employers of labor on a big scale might provide their own rehabilitation centers whether attached to hospitals or situated in the factory. In this matter employers, hospitals, physicians and insurance companies should maintain the closest cooperation.

The report of the Fracture Committee aroused much interest both in medical and in nonmedical circles. A number of divisions of the British Medical Association arranged lectures on the subject of fractures, the plans of certain new hospitals have included provision for fracture units, and the General Federation of Trade Unions convened a conference to consider the application to industry of the recommendations of the Fracture Committee. The Home Office and the Ministry of Health have appointed an interdepartmental committee to inquire into the arrangements at present in operation with a view to the restoration of the working capacity of persons injured by accidents and to report on what improvements are desirable, having regard to the report of the British Medical Association.

Sir Arthur Hurst

The conferring of a knighthood, among the coronation honors, on Dr Arthur Hurst, senior physician to Guy's Hospital, is a recognition of the most important researches carried out by any British physician of the present generation. Educated at Magdalen College, Oxford, and Guy's Hospital, after a distinguished career as a student, he became Radcliffe traveling fellow in 1905 and studied in Munich, Paris and America before he became assistant physician in 1907. He took over the neurologic department and his work on war neuroses was so important that he represented the war office at the congress of the American Neurological Society. In 1918 he became full physician to Guy's Hospital and in addition to editing its reports has been responsible for an enormous amount of original work. It is interesting to survey the landmarks of modern medicine to his credit. 1 The earliest radiologic investigations on deglutition, intestinal movements and defecation in man, with subsequent application to the study of constipation and its classification into colonic constipation and dyschesia. 2 The sensibility of the alimentary tract in health and disease. 3 War neuroses, especially proof of the hysterical nature of contractures following wounds and their cure by psychotherapy. The psychology of the special senses and their functional disorders and a lecture to the neurologic section of the American Medical Association in 1919. 4 The functional element in organic diseases of the nervous system and rheumatism, and the hysterical nature of the so called pernicious vomiting of

pregnancy. 5 The physiology and pathology of the sphincters achalasia of the cardia the cause of megaloesophagus, and of the sphincter, the cause of Hirschsprung's disease. 6 The constitutional factor in disease with the revival of the old conception of diathesis. 7 The proof that subacute combined degeneration of the cord is associated with achlorhydria and is a result of the same underlying causes as pernicious anemia. 8 The control of the status asthmaticus by the continued administration of epinephrine. 9 The unity of gastric disorders (Alvarez lectures to the American Gastro-Enterological Association in 1933). 10 The proof that "intestinal auto-intoxication" is not due to constipation but to the injudicious use of aperients and enemas.

This teaching is to be found in addresses and papers published in medical journals and also in his books "Constipation and Allied Intestinal Disorders," "Gastric and Duodenal Ulcers," "War Neuroses," "Psychology of the Special Senses and Their Functional Disorders" and "Essays and Addresses on Digestive and Nervous Diseases and on Addison's Anemia and Asthma."

PARIS

(From Our Regular Correspondent)

June 3, 1937

A Bill to Prohibit Illegal Practice

A bill to modify a law passed in 1892 aiming to close the loopholes in that law was presented by Dr Cousin at the Jan 19, 1937, session of the lower house (chambre des deputes) of the legislature. The bill prohibits any one who is not licensed to take any part in the treatment of a patient. Thus, making a diagnosis cannot be strictly considered as illegal practice. Reference was made in a recent letter to the increase of those quacks who make a diagnosis by exerting pressure on the sympathetic nerve endings in the nasal septum, the "sympathotherapists," and a still later form of quackery, "radiesthesia," in which a diagnosis is made according to the oscillations of a pendulum held in front of the photograph of a patient. The advertisements of the miraculous cures effected by these two newer types of quackery fill column after column in many daily journals here. So far these quacks have escaped the illegal practice clauses of the existing law, because if called on to treat a patient they employ, as an assistant, some licensed physician, who in the present medical crisis in France can be readily found to be willing to receive money in this unethical manner. Although any one is prohibited from "treating" patients in the strict interpretation of the term, there is no clause in the present law which prevents any one from giving 'care' to persons in good health. Hence all sorts of vaccine cures, electric treatments, and the like which can be followed by serious consequences, are still considered as "within the law."

The simple infliction of a fine on a quack is not considered by him as anything more than an ordinary "overhead" expense and does not prevent him from continuing to carry on with his methods. According to an article by Jean Mignon in the April 4 *Concours medical* the present law ought to be modified as follows:

1 The definition "illegal practice of medicine" should include the act of participation, even in the presence of a licensed physician, in the making of a diagnosis or treatment of a patient by verbal or written methods, by circulars or other means of publicity. The term treatment should include any act which has either a hygienic or an anesthetic objective necessitating the utilization of minor surgical procedures or electrotherapy.

2 Only medical students or the assistants of a licensed practitioner can take part in the treatment of a patient, and then only under his or her supervision and responsibility.

3 The penalty for a first offense ought to be raised to from 500 to 1000 francs and fifteen days imprisonment, and for a

second one to from 1,000 to 5,000 francs and imprisonment for from one to three months, with confiscation of all apparatus

4 Any foreigner licensed to practice in France or its colonies must state the name of the university from which his or her diploma was received, after the term "doctor"

Mineral Waters and Bacillus Coli Content

Every mineral water, before being allowed to be sold in France, must be examined by the laboratory of the public health ministry. As the presence of *Bacillus coli* is considered the best evidence of water pollution, the results obtained at this laboratory were reported at the April 20 meeting of the Academie de medecine by Cruveilhier and Magnier de la Source. They confirmed previous studies as to the upper (1185) and lower (385) limits of hydrogen ion concentration at which *B. coli* is no longer viable. Such limits are never found in mineral waters and hence their hydrogen ion concentration does not prevent the development of *B. coli*. On the other hand, it does not interfere with identification of the various strains of this organism, because they retain their indole producing property as long as they are viable.

Mineral waters can be divided into three groups according to whether or not they favor the conservation and development of *B. coli*. Certain waters, such as those rich in sodium chloride, calcium and sodium carbonate, or sodium sulfate, are a poor medium for *Bacillus coli*. Others, at least over a period of several months, do not have much influence on its biochemical properties. In this group belong waters containing magnesium carbonate, small amounts of sodium bicarbonate or arsenic, and those rich in albumin. Others, finally, although they do not favor growth of the bacterium, permit it to live for some time, practically uninfluenced. In this group can be placed waters with slight mineral content. None of the mineral waters that were studied were mediums unfavorable to the existence of *B. coli*.

Foch Foundation Changes Name

A very large hospital in one of the suburbs (Suresnes) of Paris is nearing completion. It, like the recently constructed Beaujon Hospital in another suburb (Clichy) of Paris, is eleven stories in height, thus surpassing in this respect any other European hospital. The Suresnes hospital had been called "The Foch Foundation," but in order to avoid confusion it has been decided to change the name to "Medical Foundation of Mount Valerian," because a hospital in Paris which provides care for wounded veterans is termed "Foch Hospital." The honorary president of the almost completed Medical Foundation of Mount Valerian is the widow of Marshal Foch, but the president of the ladies auxiliary, which deserves credit for the major portion of the work of building this new hospital, is Mrs. Jacques Balsan (nee Vanderbilt).

The Suresnes institution is located in a densely populated suburb, and one of its chief objectives is to provide hospital facilities for members of the liberal professions and middle class wage-earners whose means do not permit the expense of care in private hospitals. The new hospital is only fifteen minutes by automobile from the center of Paris.

Method of Conservation of Blood Specimens

Every candidate in France for the medical degree must present a thesis based on clinical problems. As a subject for his graduating thesis, Ducros-Gastinel studied the various methods hitherto employed in preventing changes in blood taken for the Bordet-Wassermann reaction. He states that it often occurs that the blood is so altered when it reaches the laboratory as to make the utilization of it impossible. He attempted to find a method which, while preventing bacterial contamination, would not interfere with the specific properties utilized in carrying out the Bordet-Wassermann reaction. It was found that all reagents hitherto used to eliminate contamination alter or modify one or several factors which enter into the reaction,

hence all, after having been given a trial, were discarded. Only the derivatives of quinoline proved to be efficacious. The neutral sulfate of oxyquinoline has strong antiseptic properties and is only slightly toxic and caustic in solution. The author found that this antiseptic had no influence on coagulation, retraction of the clot and exudation of serums taking place in a normal manner. The solution added to blood serum in a proportion varying from 1:100 to 1:600 causes flocculation of the serum. When a 1:1,000 solution is added, the serum remains clear. The use of the neutral sulfate of oxyquinoline does not confer any hemolytic activity to the lipid solution used as an antigen, does not interfere with sensibilization of the red cells and does not prevent or diminish the atoxic property. The concentrations employed were 1:5,000, 1:10,000 and 1:20,000. Forty blood specimens, of which twenty showed a distinctly positive reaction in all degrees, four a feebly positive reaction and sixteen a negative reaction, were submitted to comparative tests for both heated and nonactivated serums. There was not the slightest difference noted in this double control. The antiseptic power of the neutral sulfate of oxyquinoline solution was marked in 1:5,000 and even in 1:10,000 dilution. The blood remained unaltered long enough to permit the serologic examination to be made under favorable conditions. In spite of the proved value of this method, the necessity of taking the blood under aseptic conditions should not be changed.

Tuberculin Reactions in Nurses

In 1935 Troisier, Bariety and Nico reported observations of the relative frequency, especially among recruits from rural districts, of negative epidermal reactions in the French army. They found 25 per cent frankly negative, 60.6 per cent distinctly positive and 14.4 per cent of reactions that were doubtful but tended toward the positive side. In a second paper read by these authors at the April 6 meeting of the Academie de medecine they presented the results of 100 observations on nurses between 19 and 30 years of age in the new Beaujon Hospital. Both the epidermal and dermal reactions were employed. In a first group of sixty nurses between 19 and 23 years of age they found 63.3 per cent positive and 36.7 per cent negative epidermal reactions. Of the latter group the dermal reaction was positive in 28.5 per cent and negative in 82 per cent. In a second group of forty nurses from 23 to 30 years of age the epidermal reaction was positive in 72.5 per cent and negative in 27.5 per cent. Of the latter, the dermal reaction was positive in 12.5 per cent and negative in 15 per cent.

The chief interest of this study is to show that, even in a large collectivity like Paris, among adolescents and young adults the index of tuberculinization is not what it is generally considered to be. Twenty-eight and five-tenths per cent of the nurses up to the age of 23, one out of six or seven (15 per cent) up to the age of 30, react to tuberculin in the form of the dermal reaction like young immune children, raised in healthy surroundings. This study shows the great value of the tuberculin reaction as a clinical test, even for young adults.

Exemption of Professors from Compulsory Retirement Law

Some time ago a law was passed according to which all members of medical faculties who had reached the age of 65 and whose rank was that of professor must retire from the position of attending physician, surgeon and the like in public hospitals and cease their work as teachers in the medical schools of France or its colonies. This law, if enforced strictly, would have affected many of the present-day outstanding medical men.

Fortunately, a government ruling of Dec. 31, 1936, has created a special class for those holding the rank of professor in the medical schools but the number who could be included in this exemption was limited to thirty. The list of those who will be able to continue their teaching work to the age of 70

includes Professors Gosset, Ombredanne, Bezançon, Carnot, Claude and Tiffenau of Paris, Professor Berard of Lyons and Professor Boin of Strasbourg

It is of interest to note in this connection that the Rumanian parliament has just passed a bill according to which Professor Marinesco of Bucharest, the internationally known neurologist, can continue his teaching activities without any age limit. Reference was made in a previous letter to a proposed law here which would compel the members of all the liberal professions to surrender their diplomas at the age of 65. There have been so many protests to such a law that the bill has made but little progress.

International Medical Days During the Paris Exposition

The program has just been published of a series of conferences on endocrine problems to be held in Paris from June 26 to 30 inclusive. Many clinicians and research workers from most of the European countries will take part in the discussions. The first day will be devoted to general introductory papers, such as (1) neurohormonic and hormonal control, by Professor Roussy (Paris), (2) hormonal control as related to internal medicine, by Professor Mauriac (Bordeaux), and (3) hormonal control as related to surgical problems by Professor Leriche (Strasbourg). The mornings of the other days will be devoted to visits to Paris clinics and the afternoons to papers on the endocrine influence on the function of various organs and tissues.

Award of Prize by Academy of Medicine

At a recent meeting of the Academy of Medicine in Paris the Prince Albert of Monaco prize amounting to 100,000 francs (nearly \$5,000) was awarded to Professors Boin and Ancel of the Strasbourg Medical School for their research work on sex hormones.

MOSCOW

(From Our Regular Correspondent)

June 1, 1937

Degrees for Scientists

Degrees for scientists and university teachers are established by the Council of People's Commissars of the Union of Socialist Soviet Republics in a decision issued March 20. There are to be two science degrees, that of a Candidate of Science (approximating the Master of Science degree in English-speaking countries) and that of a Doctor, and three degrees for university and research workers: assistants (equivalent to instructors in American universities), docents (equivalent to assistant professors) and professors. Aspirants to the degree of Candidate of Science must pass certain examinations and publicly defend a dissertation on any chosen subject. Doctors' degrees are granted to candidates of science who publicly defend a dissertation for a doctor's degree in any chosen subject. Persons already known by their scientific works, discoveries or inventions, and persons having the title of professor, may be allowed to defend a doctor's dissertation without possessing the degree of candidate of science. Prominent scientists, explorers and inventors, may be granted a doctor's degree without defending dissertations. Science degrees will be granted in eighteen different branches of science, including medicine, pharmacy, veterinary science, biology, chemistry, physics and mathematics. The title of instructor (assistant) will be given to university teachers or to research workers working under the supervision of a docent or professor. The title of docent will be given to candidates of science who teach or conduct research in universities and research institutes under the supervision of a professor. The title of professor will be given to persons possessing the degree of a doctor who teach or conduct research in universities and research institutes.

Appended to the decree are two lists of universities and research institutes which are entitled to grant degrees of doc-

tors and candidates of science. The first list contains sixty-eight universities and institutes controlled by various people's commissariats in the different republics. The second list contains thirty-one names of universities and institutes. The People's Commissariat of Health establishments that have the right to grant degrees of doctor and candidate of science are the All-Union Institute of Experimental Medicine, the First and Second Moscow and First and Second Leningrad medical institutes, the medical institutes of Kiev, Charkov and Kazan, the Leningrad pedagogic institute and the Moscow and Leningrad Institute for physicians as well as the Leningrad Military Medical Academy. The following establishments have received the right to grant only the degree of candidate of science: the medical institutes of Tomsk, Rostov-on-the-Don, Saratov, Voronezh, Odessa, Minsk, Tashkent, Baku and Tiflis, as well as the Kharkov and Leningrad pharmaceutical institutes. All other institutes that formerly had the right to grant scientific degrees can do so only until May 20, after this term any dissertation defense in the institutes not mentioned will be forbidden. The degrees must be confirmed by the Highest Attestation Commission of the All-Union Committee on Higher Schools.

The All Union Antimalaria Conference

An all union conference on the campaign against malaria was held in Moscow, April 25-30. It was attended by heads of the union republics, representatives of large antimalaria organizations and directors of tropical institutes. A report entitled "Results of Combating Malaria in 1936 and the Plan of Work for 1937" was made by Dr. Buslayeva, acting chief of the malaria department of the Peoples Commissariat of Health of the Union of Socialist Soviet Republics. Thirty-two million inhabitants were examined last year for malaria, while more than five million were treated for malaria. More than 2,866,000 hectares of land infected with malaria mosquitoes were sprayed by airplanes, while land spraying and petroleum treatment were applied on 239,000 hectares. It involved an expenditure of about 30 million rubles. The number of malaria cases in 1936 fell by 26.6 per cent as compared with 1935.

The plan for the current year comprises government appropriations of 129.4 million rubles for combating malaria. Training of malaria specialists has been extended. Last year 1,082 physicians and 1,032 assistant physicians were trained at special two months courses in addition to other workers engaged in the struggle against malaria. About 68,000 collective farmers are being trained to assist physicians in carrying out these measures. A synthetic quinine substitute of Soviet manufacture is the chief drug used for malaria treatment and it gives excellent results.

In the resolution passed at last year's conference an obligation was undertaken to lower the incidence of malaria in 1936 by an average of 30 per cent throughout the Union. This decision was carried out. According to the resolution made by the conference this year, malaria, which is highly prevalent in certain regions, should disappear in the Soviet Union by the end of the third five year plan, as a result of treatment and preventive measures carried out on a large scale. Various organizations engaged in combating malaria will have many more malaria specialists. In order to popularize methods for combating malaria, special cinema films will be made. The conference decided to obtain government approval for calling an all union malaria congress at the beginning of next year.

The French Soviet Conference

A group of French scientists visited the Soviet Union from March 25 to April 7. The delegation participated in the Franco-Soviet conference on surgery and microbiology. The French delegates included Prof. Alexandre Besredka of the Pasteur Institute, Prof. Marcel Lisbonne of the Montpellier Faculty of Medicine, Dr. Henri Rouvillois, sanitary medical inspector of

the French army, Drs Paul Giroud and Eugene Wollman, both of the Pasteur Institute laboratory, Professor Macheboeuf of Lille, Prof Pierre Fredet, Firmin Cadenat, Robert Monod, Ernest Desmarest, Robert Merle d'Aubigne and Colonel Marcel Liegeois of the French military hospitals. On their arrival in Moscow the guests were greeted by G. N. Kaminsky. The French scientists visited the All-Union Institute of Experimental Medicine. The head of the laboratory, Professor Ermoljeva, acquainted them with the action of lysozyme, a substance capable of destroying certain microbes by inhibiting their growth. Lysozyme, obtained from egg white, cabbage and horseradish, kills the diphtheria and typhoid bacilli. The delegation also visited Moscow and Leningrad medical establishments.

March 27-30 a joint Franco-Soviet scientific conference was held at which surgical and microbiologic problems were discussed. Dr Liegeois described methods of inoculation against diphtheria, tetanus and typhus applied in the French army. In the inoculation of 70,000 persons there were no complications. Two inoculations are enough, instead of three used in other methods. Speaking about typhus immunization, Dr Giroud pointed out that best results were given by vaccination with an emulsion of desiccated brains of rats infected with typhus. He explained that the vaccine was prepared from living virus by Charles Nicoles and Legret. The mass vaccination made in Morocco by the Casablanca branch of the Paris Pasteur Institute has given brilliant results since 1934. For this purpose the mice typhus virus in lice was used. It stopped the exanthematic typhus epidemic twenty-six days after the beginning of the vaccination.

March 29, in the Neurosurgical Institute, local anesthesia was discussed. April 1 a public session of the conference was held with more than 2,000 Moscow physicians in attendance. Prof Alexandre Besredka delivered in Russian a report on vaccination against cancer, Professor Monod spoke on general noninhalation anesthetics used in French surgical practice.

The Moscow Institute of Physiology

The Institute of Physiology was founded in 1929 in Moscow by the physiologist Prof Lina S. Stern, well known for her work on oxidation processes in living tissues. The principal questions investigated by the institute are at present problems of barrier function in the living organism, problems of sleep and oxidation processes. The researches of the institute have been reported at many conferences and congresses, including the fourteenth and fifteenth international congresses of physiology. They are published in the three symposiums of transactions and in a volume devoted to the thirty years' work of Lina S. Stern. Since 1936 a monthly bulletin of experimental biology and medicine in Russian, English, French and German has been published by the institute, in which preliminary reports of experimental work made in different Soviet institutes are printed, acquainting readers with the achievements in experimental biology and medicine.

The Campaign Against Cancer

The Central Oncologic Scientific Institute of the People's Commissariat of Health in Moscow is the leading organization engaged in the study of tumors. The institute has a surgical clinic with ninety beds under the direction of Prof Jacob M. Brouskin, an x-ray and radiologic department, an experimental laboratory, a department of morbid anatomy, biomorphologic, microbiologic, biochemical and biophysiology laboratories, a laboratory of genetics, and departments of social oncology, statistics and other subjects. The oncologic institute has branches in Rostov-on-the-Don, Sverdlovsk, Voronezh and Novosibirsk. In Moscow there are twenty-two oncologic "points" in large ambulances where oncologists examine patients

and direct those with tumors for ambulatory and hospital treatment to the central institute. In 1935 the institute organized five months' graduate courses for surgeons, gynecologists and radiologists working in other districts. They receive a theoretical and practical course of tumor study—morbid anatomy, pathologic morphology, experimental oncology, immunology, cytology, genetics, operative surgery in the surgical and gynecologic clinic of malignant growth, and oncologic statistics. Having attended this course of lectures, the physicians, after graduating, become organizers of branches of the institute in the provinces. The institute does educational work also. Its scientific collaborators and qualified specialists deliver lectures to physicians, hospital workers and the general population on different questions of prophylactics and the treatment of tumors.

The Leningrad Cancer Institute

At the March 23-29 sessions of the Leningrad Institute of Roentgenology, Radiology and Cancer, summing up the institute's work for the past year, attention was centered chiefly on the effect of x-rays on the nervous system. Of greatest interest were the institute's observations proving that this effect is due not to the direct action on the affected organ but to the influence on the sympathetic nervous centers. It confirms Prof M. S. Nemenov's theory regarding the biologic action of x-rays and makes desirable changes in current methods of treatment. A new method for treating stomach ulcers by x-rays was described, consisting of the treatment of the spinal cord centers directing the stomach functions. Forty-four papers were read and about 200 scientists of Leningrad, Moscow, Kiev, Minsk and other cities of the Soviet Union took part in the sessions.

Increase in Birth Rate

In January 1937, compared with the same month of last year, the birth rate increased 21.6 per cent. The highest birth rate is recorded by the Ukrainian republic, an increase of about 70 per cent. In the capital cities of the Soviet republics the increase was also very high during the first three months of this year. By decree of June 27, 1936, 566 million rubles is to be paid this year by the government to assist mothers with large families. Incomplete data of the People's Commissariat of Health show that 270,000 mothers are receiving government help.

CAPE TOWN

(From Our Regular Correspondent)

May 16, 1937

National Health Insurance

Nearly two years ago the union government appointed a commission to inquire, for the third time, into the desirability of establishing a system of national health and invalidity insurance. Two previous commissions had reported in its favor, but the government has been so busy with party politics that social legislation has had little chance of being attended to. The medical profession has repeatedly declared itself in favor of some state aided contributory scheme of national invalidity insurance and the present commission, which has just published its lengthy report, has accepted virtually all the recommendations made by the Medical Association of South Africa, which spoke as the mouthpiece of the profession. The commission recommends that the scheme shall apply, for the present at least, only to urban areas, it is manifestly impossible, under present circumstances, to apply it to the sparsely populated rural areas. Every employed person earning less than £400 a year in wages or salary is to fall under it, and the contributions to be exacted from the employer, the workman and the government respectively are calculated on a liberal scale which makes provision for sick pay, maternity and funeral benefit and full sick benefit, both for the insured and for his

dependents, inclusive of specialist and hospital benefits. The medical profession has asked for a capitation fee of 9 shillings per insured for all those below the £180 yearly income limit and for 13 shillings per caput for all those over that limit. This capitation fee has been fixed after a great deal of discussion and is an attempt at a compromise between the higher fees now paid by the rich benefit societies on the Rand and the poorer medical benefit societies in the coastal areas. The commission recommends that it be accepted and that contracts be entered into with the medical association for medical service under the act when it becomes law. Unfortunately there is no immediate prospect of an invalidity insurance act appearing on the statute book. This year's legislative program includes only one measure that is of interest to medicine, and that is the proprietary medicines bill, which is an attempt that will certainly be contested by the vested interests involved, to restrict the irresponsible activities of proprietary medicine concerns in advertising their wares in a manner calculated to mislead the public. The bill makes provision for the suppression of trade advertisements that contain statements which cannot be proved, and for the prohibition of the advertisement of anything that claims to be a cure for an incurable disease. A list of what is generally regarded as incurable diseases is given in the schedule and agrees, on the whole, with what would generally be regarded as such by modern science.

Nutrition and Wine Drinking

The Cape is a wine producing country. Indeed, the wine farmer is the only farmer that has so far not come whining to the government for relief and for bounties and protection. Notwithstanding this he is probably more heavily burdened by legislative restrictions on his industry than any other producer in the country. The government has now appointed a special interdepartmental committee to undertake a preliminary survey of the nutritional needs of the country. Incidentally it may be mentioned that there is as yet no fixed standard of nutrition which can be applied to the Negro and native population, and that the assessment of nutrition, by the scientific standards laid down by Franzen in America, appear to be totally unknown here. The nutritional value of sound grape wine, especially as a factor in maintaining the acid-base equilibrium of the blood, has now been established by numerous experiments and wine growers have been urged to carry this dietetic research further by investigating the influence of the "tot system," whereby laborers in the vineyards are given a daily ration of wine, on the physique and working capacity of the Negro and native laborers. Such an inquiry may obtain results that are of real importance in the study of dietetics and the wine industry can well finance it, and indeed carry it out for the KWV, the large Wine Growers Cooperative Society, has not only most complete chemical and bacteriologic laboratories but a staff of well trained research students, who have already done excellent work in investigating and elucidating purely oenological problems.

The Gold Medal for Distinguished Service

The South Africa Medical Association awards, at rare intervals, a gold medal for distinguished services rendered to the profession in South Africa. This year the medal has been unanimously awarded to one who is probably the best known and most respected of all our confreres, Dr W. T. Davies, who for many years has been president of the South Africa Medical Council. Dr Davies, who is also a colonel in the British army, has had a distinguished record of military service and has sat in parliament as a staunch supporter of the late General Botha's policy. He has a high reputation as an able surgeon. He has consistently upheld the high ethical standards of the profession. He is at present on a visit to Europe and has retired from practice.

Deaths

The profession has lost a distinguished and able member in Dr D. J. Wood, who enjoyed somewhat of an international reputation as an ophthalmic surgeon. He had been invited to deliver the Doyne lecture at Oxford this year. For more than thirty years he had served on the medical council and for more than forty-five he had been the chief consulting ophthalmologist in South Africa. He was a man of wide culture, a keen scientist and an indefatigable worker. Up to a day or two before his death he was actively at work and he wrote the last review of a textbook of ophthalmology a few hours before he died. His death was caused by heart failure. Another senior member of the profession who died recently was Dr Hoole, the oldest man on our register, who had retired from practice several years ago. He practiced in the Free State and Cape Colony and was much interested in military medicine and was an enthusiastic volunteer. He had been elected an honorary life member of the association shortly before his death. Dr Bampfylde Daniell, whose death was also recently announced, was another senior member of the association, who had represented it on several occasions at congresses overseas. He was a specialist in anesthesia.

BUCHAREST

(From Our Regular Correspondent)

May 18, 1937

Regulation of the Title X-Ray Specialist

The position of the X-ray specialists has undergone an unfavorable change in recent years. The number of X-ray installations is growing by leaps and bounds, owing to the fact that the peasants falsely believe that only physicians who own an X-ray apparatus can establish a good diagnosis. General practitioners, almost without exception, own X-ray sets, even in villages where there is no electricity and where they have to work their sets with gasoline motors. This situation affects badly the X-ray specialist, who receives his patients from the general practitioners. Another drawback for the X-ray specialist is that the general practitioner shows on his name plate that he possesses an X-ray apparatus, so when a patient drops in, seeing the name plate, for a roentgenogram of a dislocated wrist, he does not refer the patient to the X-ray specialist but keeps the case for himself. The X-ray specialists held a conference to find a remedy for this situation. The result was that the Supreme Health Council made the following resolutions:

- 1 Physicians who have an X-ray apparatus in their office with the aim to establish diagnoses and control the progress of certain diseases on their own patients must not call themselves specialists in radiology and they are not entitled to display on their name plates and on their prescriptions that they have an X-ray apparatus or that they deal with radiologic treatment, and they are not entitled to issue X-ray reports.
- 2 Only such physicians can be acknowledged as X-ray specialists as those who have gained their diploma in Rumanian universities and received a license to call themselves "specialist in radiology."
- 3 Physicians who in 1930 had been in roentgenologic practice for five years receive the title of specialist simply on the verification of the city medical officer of health.

A Novel Method for Establishing the Income of Physicians

The regular method of assessment of the income tax for physicians is as follows. Every physician makes a written declaration in January, in which he declares his taxable income during the preceding year and he compiles the list of his professional expenses. Thereupon he is invited to the financial administration, where a committee consisting of two government officials and a delegate of the local medical chamber makes

the assessment on the ground of the information procured. In general, in their estimation they take as a basis the rent paid by the physician, which is not quite a reliable basis, for even physicians with large incomes may economize and live in a flat of two or three rooms, while one with less income, who obtained a house of six or seven rooms as a dowry with his wife, may live on a large estate. The officials were not contented this year with the rent as a basis, but searched for another one, which in their opinion is more reliable. As druggists are obliged to conduct a ledger on all prescriptions registering the names of the prescribers, government agents visited the drug stores and recorded the number of prescriptions each physician wrote. This of course is not an absolute indication of one's practice but it is something that approaches reality. The greatest losers in this method are the pharmacists, for many of the medical practitioners will stop writing prescriptions when they find that a household remedy or some proprietary medicine will do.

Personal

Dr. Dimitrie Paulian, professor of neurology at the University of Bucharest, has been appointed by the Rumanian Academy of Sciences as a regular member. Professor Paulian is one of the most prominent members of the Bucharest University, whose reputation extends far beyond the boundaries of Rumania. Recently he read a paper at the Vienna Medical Society and some days ago described his own researches in the domain of neurology at some clinics in Paris.

ITALY

(From Our Regular Correspondent)

May 30, 1937

Acclimatization to Tropical Countries

Dr. Amedeo Herlitzka, professor of physiology at Turin University, in a recent lecture before the Accademia dei Lincei of Rome, spoke on acclimatization of Italians in Africa. The problem concerns Italians and, later on, their offspring. The speaker indicated the advisability of establishing two institutions for physiologic studies on acclimatization, one at Addis Ababa and the other at Mogadiscio. The climate of eastern Africa is different in various regions. There is a tropical climate at the seashores and a subtropical climate in the central regions of the country. In certain regions the lowlands have a climate like that of the desert. In the plateaus the climate is temperate but there is the superimposed factor of barometric depression. The main factor concerned with the ability to live in tropical countries is the regulation of temperature. It depends on the bodily perspiration and its evaporation. Excessive perspiration may induce demineralization of the body fluids. Persons living in Africa have to wear light clothing to permit ventilation of the skin. They must also maintain the physicochemical equilibrium of the blood. Feeding will be based on taking carbohydrates, but not to the complete elimination of nitrogen from the food. Alcohol should be prohibited. The speaker said that, in selecting groups for the different climates, only persons with good physical and psychic development can live in the lowlands with a tropical climate.

Tumoral Action of Hydrocarbons

Professor Bisceglie, in a lecture before the Societa Medica di Catania, reported results of experiments aimed at determining the properties of polycyclic hydrocarbons. He found that the injection of 0.02 Gm. of 1,2-antipyrine benzoate, dissolved in olive oil, causes sarcoma of rapid development with infiltration in 100 per cent of the injected rats. Frequently the tumors produce metastases. They "take" by transplantation up to the fourth transplantation. If a smaller dose (0.01 Gm.) of 1,2-antipyrine benzoate solution is injected the proportion of developed sarcoma is from 80 to 85 per cent of the cases with

a longer period of latency for the development of the tumor than that observed in rats which are injected with 0.02 Gm. of the 1,2-solution of antipyrine benzoate. The injection of olive oil without hydrocarbons fails to produce tumor. Professor Bisceglie made a microscopic study of the organs of the animals in the experiment. He found myeloid and paramyeloid degeneration of the liver and the spleen and great increase of megakaryocytes in the spleen. The myeloid degeneration may be substituted in some cases by an activation of the reticulo-endothelial cells, which diffuses itself to the histiocytes of the lung. The renal parenchyma shows amyloid degeneration. The thyroids show signs of hypofunction. All the changes show more clearly when the action of benzene is combined with that of antipyrine benzoate.

Influence of Sun on Sympathetic System

Professor Pende of the University of Rome, in a paper recently read before the Centro Universitario di Nizza, spoke on the mechanism of sudden death and on the influence of sun irradiations on the sympathetic nervous system. Persons who have a sympathetic system in constant condition of hyperstimulation are in danger of sudden death from the effects of intense atmospheric changes and of cosmic and sun irradiations. The speaker's preventive treatment consists in maintaining a low tonus of the vagal nerve by the systematic administration of atropine preparations, in association with certain doses of quinine and camphor.

Personals

Vincenzo M. Palmieri, professor of legal medicine at the Sassari University since 1935, was recently appointed director of the Istituto di medicina legale e delle assicurazioni of the Bari University. Professor Palmieri was born in 1900. He has written about sixty articles on forensic medicine, hematology, industrial diseases and social insurance. His studies on blood groups and biologic diagnosis of drunkenness are regarded as of great value. Recently he published three volumes on blood groups, medicolegal problems of alcoholism and the diminished birth rate.

Deaths

Prof. Angelo Ceconi, emeritus professor of medical special pathology at the Turin University, is dead. He wrote about 190 scientific articles and several books, among which there are a six-volume textbook on internal medicine, a textbook on diseases of the metabolism, a course of clinical lectures and a volume on arthritis and rheumatism. Professor Ceconi was a teacher for thirty years. He wrote in several medical journals and was the associate director of *Minerva medica*.

Marriages

JAMES BEEBE HAWES, Charleston, W. Va., to Miss Helen Forbes White of Greenville, N. C., April 28.

WILLIAM BLOUNT NORMENT to Miss Katherine Williams, both of Greensboro, N. C., in April.

HUGH K. MILLER, Brooklyn, to Mrs. Sarah Frances Barrows Bubendey of New York, May 15.

MYRON J. TREMAINE, Youngstown, N. Y., to Mrs. Esther Wirtz Smith of Chicago, May 5.

CHARLES E. GILL, Boston, to Miss Freda Gertrude Fasenbaker of Baltimore, June 19.

ALBERT G. LOVE, Washington, D. C., to Miss Evelyn Ramsey of Memphis, Tenn., May 4.

JAMES MADISON BATCHELOR, New Orleans, to Mrs. Bernice Bowling Fassman, May 1.

GEORGE W. HOBSON, Pittsburgh, to Miss Florence Klein of Lakewood, Ohio, June 19.

PAUL B. NUTTER to Miss Lois Braden, both of Spokane, Wash., May 17.

Deaths

Lewis Edwards * Kingston, Pa., Jefferson Medical College of Philadelphia, 1891, past president of the Luzerne County Medical Society, president of the board of county commissioners, formerly president of a bank in Edwardsville, member of the board of health, and for several terms school director, county treasurer from 1906 to 1909, for many years a member of the consulting staff of the Nesbitt Memorial Hospital, Kingston, and on the staff of the Wilkes-Barre (Pa.) General Hospital, aged 68, died, April 4, of congestive heart disease and mitral stenosis

Ernest Albert Farrington, Haddonfield, N. J., Dunham Medical College, Chicago, 1902, Hahnemann Medical College and Hospital of Philadelphia, 1909, member of the American Psychiatric Association and the American Association for the Study of Internal Secretions, fellow of the American Association for the Advancement of Science, lecturer in chemistry, Hering Medical College, Chicago, 1901-1904, and assistant professor of chemistry and toxicology, 1904-1905, lecturer in physiology, Hahnemann Medical College of Philadelphia, 1905-1909, medical superintendent of the Bancroft School, aged 56, died suddenly, April 5, of cerebral hemorrhage

Robert Emmett Flannery * Chicago, College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1906, associate clinical professor of surgery, Loyola University School of Medicine, fellow of the American College of Surgeons, served during the World War attending surgeon, Alexian Brothers and St. Mary of Nazareth hospitals, consulting surgeon to St. Anthony's Hospital, aged 53, died, April 20, of peptic ulcer and gastric hemorrhage

Rufus James Coultas * Mattoon, Ill., Bellevue Hospital Medical College, New York, 1890, member of the House of Delegates of the American Medical Association, 1912-1913, 1918-1920, past president of the Coles-Cumberland County Medical Society, formerly member of the school board and board of health, aged 71, on the staff of the Memorial Hospital, where he died, April 27, of heart disease

W. Lee Dodge, Afton, N. Y., University of Buffalo School of Medicine, 1897, member of the Medical Society of the State of New York, past president of the Chenango County Medical Society, served as health officer for the town and village for many years and was a member of the school board, serving as its president for several terms, aged 64, died, April 3, of coronary occlusion

Robert Edward Davison * Pittsburgh University of Pennsylvania Department of Medicine, Philadelphia, 1899, member of the Associated Anesthetists of the United States and Canada and the American Urological Association, served during the World War, on the staff of the Suburban General Hospital, Bellevue, aged 66, died, April 18, of cerebral hemorrhage, while playing golf

Paul Newkirk Bowman * Lieut.-Colonel, M. C., U. S. Army, Denver, University of Pennsylvania School of Medicine, Philadelphia, 1913, served during the World War, entered the medical corps of the U. S. Army as a captain in 1920, fellow of the American College of Surgeons, aged 51, stationed at the Fitzsimons General Hospital, where he died, April 18, of coronary occlusion

Ernest Fahnestock * New York, Columbia University College of Physicians and Surgeons, New York, 1900, fellow of the American College of Surgeons, an honorary police surgeon, visiting surgeon to the New York Foundling Hospital, consulting surgeon to St. Vincent's and Misericordia hospitals, aged 60, was found dead, April 5, of a self-inflicted bullet wound

Walter Henry Chapin, Springfield, Mass., College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1883, member of the Massachusetts Medical Society, formerly medical examiner for city public schools, and city physician, on the staff of the Springfield Hospital, aged 78, died, April 2, of carcinoma of the pancreas

William Howe Doolittle, Lockwood, N. Y., New York University Medical College, New York, 1898, member of the Medical Society of the State of New York, formerly health officer of the town of Chemung, on the staff of the Tioga County General Hospital, Waverly, aged 61, died, April 14, of cerebral hemorrhage and arteriosclerosis

Daniel Francis Daley * Kingston, Pa., Jefferson Medical College of Philadelphia, 1915, fellow of the American College of Physicians, member of the American Society of Clinical

Pathologists, served the Mercy Hospital, Wilkes-Barre, in various capacities, aged 49, died, April 24, in the Nesbitt Memorial Hospital, of chronic myocarditis

William Wallace Behlow * Surg. Lieutenant Commander, U. S. Navy, retired, Palo Alto, Calif., Harvard University Medical School, Boston, 1912, entered the navy in 1917 and retired in 1931, fellow of the American College of Physicians, aged 50, died, April 29, in the Palo Alto Hospital, of tuberculosis and portal cirrhosis of the liver

Clarence La Vergne Boyd, Forest Hills, Pa., Baltimore University School of Medicine, 1903, member of the Medical Society of the State of Pennsylvania, aged 56, died, April 20, in the Homeopathic Hospital, Pittsburgh, of carcinoma of the fingers on the left hand due to exposure to x-rays, and metastasis to the left axilla

Richard L. Foster, Danville, Ky., Hospital College of Medicine, Louisville, 1900, member of the Kentucky State Medical Association, past president of the Boyle County Medical Society, formerly on the staff of the Danville and Boyle County Hospital, aged 66, died, April 27, of angina pectoris

William Prentice Farrington * Munday, Texas, Vanderbilt University School of Medicine, Nashville, Tenn., 1904, past president of the Baylor-Knox-Haskell Counties Medical Society, aged 55, died, April 17, in the Wichita Falls Clinic-Hospital, Wichita Falls, of melanocarcinoma and cholecystitis

Franklin Pierce Farwell, Galeton, Pa., Jefferson Medical College of Philadelphia, 1906, member of the Medical Society of the State of Pennsylvania, county medical director, aged 58, died, April 24, in the Warren (Pa.) State Hospital, of bronchopneumonia, chronic myocarditis and arteriosclerosis

Green B. Gillespie, Covington, Tenn., Vanderbilt University School of Medicine, Nashville, 1875, Confederate veteran, formerly bank president, and member of the city school board, was president of the county board of health, and county health physician, aged 92, died, April 15, of myocarditis

John Oscar Elrod * Forsyth, Ga., Atlanta College of Physicians and Surgeons, 1901, past president of the Medical Association of Georgia, member of the state board of medical examiners, fellow of the American College of Physicians, aged 59, died, April 21, in a hospital at Macon

Charles Mayer Franklin, La Fayette, Ind., University of Pennsylvania Department of Medicine, Philadelphia, 1881, formerly professor of psychiatry at the Woman's Medical College of Baltimore, aged 82, died, April 19, of malignant disease of the prostate and cerebral hemorrhage

Hermann Goldenberg * New York, Ludwig-Maximilians-Universität Medizinische Fakultät, München, Bavaria, Germany, 1886, member of the American Dermatological Association, on the staffs of the Bronx and Mount Sinai hospitals, aged 74, died, April 1, of cerebral thrombosis

Ralph Freeman, Hoschton, Ga., University of Georgia Medical Department, August, 1909, member of the Medical Association of Georgia, formerly mayor of Hoschton, member of the city council and board of education, aged 53, died suddenly, April 13, of heart disease

Harlan Page Bowman, Greensboro, N. C., University of Tennessee Medical Department, Nashville, 1894, member of the Medical Society of the State of North Carolina, aged 67, died, April 7, in the Clinic Hospital, of cholecystitis, hypertension and cerebral hemorrhage

Arthur Myers Gibbs * Hamburg, Ark., University of Arkansas School of Medicine, Little Rock, 1930, formerly secretary of the Ashley County Medical Society, county health officer, aged 32, died, April 17, in a hospital at Bastrop, La., of carcinoma of the stomach

Arthur Garfield Frey * Chicago, Northwestern University Medical School, Chicago, 1911, fellow of the American College of Surgeons, on the staffs of the Lutheran Memorial and Grant hospitals, aged 53, died, April 8, of coronary occlusion and arterial hypertension

Winfield Scott DeVausney, Newark, N. J., Medico-Chirurgical College of Philadelphia, 1899, member of the Medical Society of New Jersey, aged 58, died, April 6, in the Presbyterian Hospital as the result of injuries received when struck by an automobile

Parvin Douglas Gillum * Owensboro, Ky., University of Louisville Medical Department, 1905, member of the Radiological Society of North America, on the staff of the Owensboro City Hospital, aged 55, died, April 12, of cardiorenal vascular syndrome

George Kuester Cotton * Denver, University of Colorado School of Medicine, Denver, 1929, member of the staffs of the

Colorado and Denver General, Mercy, Children's, St Luke's, Presbyterian and Beth Israel hospitals, aged 34, died, April 26, of pneumonia

Clark Eli Beede ☉ David City, Neb., University of Nebraska College of Medicine, Omaha, 1918, formerly secretary of the Butler County Medical Society, aged 42, on the staff of the David City Hospital, where he died, April 12, of acute nephritis

Eugene S. Dalton ☉ Brooklyn, Syracuse University College of Medicine, 1908, fellow of the American College of Physicians, aged 54, on the staff of the Methodist Episcopal Hospital, where he died, suddenly, April 19, of coronary thrombosis

Albert Franklin Fitch, Flushing, N. Y., College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1893, died, April 25, of subdural hemorrhage following a fall and pulmonary tuberculosis

Charles William Heitzman ☉ Muskogee, Okla., Tulane University of Louisiana Medical Department, New Orleans, 1899, aged 67, on the staff of the Oklahoma Baptist Hospital, where he died, March 8, of hypochromic anemia

Albert A. Dixon, Pensacola, Fla., Louisville (Ky.) National Medical College, Medical Department State University, 1910, aged 57, died, April 28, in the Pensacola Hospital, of cerebral hemorrhage and arteriosclerosis

Jacob M. Gross, York, Pa., Jefferson Medical College of Philadelphia, 1872, member of the Medical Society of the State of Pennsylvania, formerly bank president in Dover, aged 93, died, April 6, of cerebral hemorrhage

Charles S. Burnside, Marion, Ohio, Starling Medical College, Columbus, 1897, member of the Ohio State Medical Association, formerly county coroner, aged 68, died, April 1, of secondary anemia and acute nephritis

Samuel Clifford Wood, Leesburg, Fla., University of Georgia Medical Department, Augusta 1904, member of the Florida Medical Association, health officer of Leesburg, aged 60, died, March 30, of pneumonia

James Edward Bell, Baltimore, University of West Tennessee College of Medicine and Surgery, Memphis, 1915 Meharry Medical College, Nashville, Tenn., 1918, aged 46, died, April 25, of lobar pneumonia

George Laurin Dewey, Cedar Rapids, Neb., Tulane University of Louisiana Medical Department, New Orleans, 1900, aged 74, died, April 22, of a malignant growth of the right lung and bronchogenic carcinoma

Walter Scott Grant ☉ Brooklyn, University of Pennsylvania Department of Medicine, Philadelphia, 1899, on the staff of the Bushwick Hospital, aged 64, died, April 10, of carcinoma of the lungs and rectum

Samuel E. Sanger, Monrovia, Calif., Hahnemann Medical College of the Pacific, San Francisco, 1908, aged 72, died, March 2, of comminuted fractures of the leg with exhaustion and hypostatic pneumonia

John Franklin Gardner ☉ Montgomery, Pa., Medico-Chirurgical College of Philadelphia, 1899, past president of the Lycoming County Medical Society, aged 59, died, April 7, of coronary thrombosis

Edgar Garland Ferrier, Oak Forest, Ill., Jenner Medical College, Chicago, 1916, on the staff of the Cook County Tuberculosis Hospital, aged 57, died suddenly, April 16, in Chicago, of chronic myocarditis

Fannie Davis, Oil City, Pa., Western Pennsylvania Medical College, Pittsburgh, 1906, member of the Medical Society of the State of Pennsylvania, aged 75, died, April 28, of coronary thrombosis

James Erman Bridgwater, Albany, Ore., St. Louis University School of Medicine, 1910, formerly mayor of Creswell, aged 53, died, April 28, in the Albany General Hospital, of duodenal ulcer

Frederick Ira Acheson, San Diego, Calif., University of Kansas School of Medicine, Kansas City, 1906, aged 70, died, April 26, of arteriosclerosis, coronary sclerosis and acute purulent bronchitis

William Willis Durden, Columbus, Miss., College of Physicians and Surgeons, Medical Department of Columbia College, 1872, Confederate veteran, aged 92, died, April 18, of a hip fracture

Willis J. Bryant, Summerville, Ga., Vanderbilt University School of Medicine, Nashville, Tenn., 1882, member of the Medical Association of Georgia, aged 82, died, April 5, of hemiplegia

George Lincoln Broadrup, Lancaster, Pa., College of Physicians and Surgeons, Baltimore, 1891, aged 73, died April 28, in the Lancaster General Hospital, of coronary occlusion

John Edwin Beck ☉ Tulare, Calif., College of Physicians and Surgeons of San Francisco, 1905, on the staff of the Tulare Hospital, aged 63, died suddenly, April 8, of coronary occlusion

John Stannard Campbell, Cleveland, Western Reserve University Medical Department, Cleveland, 1883, aged 80, died, April 18, in Painesville, Ohio, of lobar pneumonia and phlebitis

John Lewis Davis ☉ Portland, Maine, Medical School of Maine, Portland, 1906, head physician of the Jewish Home for the Aged, aged 53, died, April 13, of coronary thrombosis

Joseph L. Clemmer, Gentry, Ark., Kansas City (Mo.) Medical College, 1901, member of the Arkansas Medical Society, aged 59, died, April 1, of coronary occlusion

Le Roy A. Cockfield, Bermuda, La., Tulane University of Louisiana Medical Department, New Orleans, 1908, aged 52, died, April 4, of myocarditis and diabetes mellitus

Oren Ellsworth George, Cleveland, University of Wooster Medical Department, Cleveland, 1889, aged 71, died April 8, of monocytic leukemia and cholelithiasis

Augusta Stone, Los Angeles, California Eclectic Medical College Los Angeles, 1913, aged 68, died, March 29, in Glendale, of arteriosclerosis and cerebral hemorrhage

Frederick Mears Gedney, San Francisco, Cooper Medical College of San Francisco 1903, aged 59, died, March 26, in the Franklin Hospital, of coronary thrombosis

William Thomas Boon ☉ Philadelphia, University of Pennsylvania Department of Medicine, Philadelphia, 1897, aged 63, died, April 14, of coronary occlusion

John Franklin Crawford, Clay, Ky., University of Louisville Medical Department 1901, formerly mayor, aged 59, died suddenly, April 17, of coronary occlusion

William Tilton Crawford, Fowler, Calif., Western Pennsylvania Medical College, Pittsburgh, 1889, aged 73, died, April 11, of cerebral hemorrhage

Sterling O. Hays, Dallas, Texas, Baylor University College of Medicine, Dallas, 1904, aged 67, died suddenly, March 29, of coronary occlusion

Sol D. Ebersole, Chicago, Hahnemann Medical College and Hospital, Chicago, 1891, aged 71, died, April 10, of lobar pneumonia and nephritis

John Woodward Pierce, Brooklyn, Long Island College Hospital, Brooklyn, 1894, aged 67, died suddenly, March 26, of coronary thrombosis

Kate Whipple Cory, Geneva, Ohio, Homeopathic Hospital College, Cleveland, 1880, aged 87, died, April 23, of cerebral hemorrhage

Zia Mabsut Bagdadi, Augusta, Ga., Chicago College of Medicine and Surgery, 1911, aged 54, died, April 11, of coronary thrombosis

Charles A. Chumbley, Oakland City, Ind., Kentucky School of Medicine, Louisville, 1902, aged 69, died, March 15, of acute gastritis

Harvey F. Bean, Mountainville, Pa., Jefferson Medical College of Philadelphia, 1889, aged 70, died, April 25, in Bath, of heart disease

John Kennerly Farris Jr., Manchester, Tenn., University of Nashville Medical Department, 1899, aged 70, died, April 1, of gastric ulcer

Frank F. Bernard, Boston, College of Physicians and Surgeons, Boston, 1897, aged 72, died, April 19, of cerebral hemorrhage

Jane Roney Husted, Columbus, Ohio, Ohio Medical University, Columbus, 1901, aged 68, died, April 24, of heart disease

Hinton James Eve ☉ Augusta, Ga., University of Georgia Medical Department, Augusta, 1899, aged 59, died, April 27

Louise Acres, Western Springs, Ill., Woman's Hospital Medical College, Chicago, 1890, aged 78, died, April 27

Fred H. Gault, Lewisburg, Tenn., Chattanooga Medical College, 1894, aged 65, died, April 4, of heart disease

Lewis J. Blanton, Atlanta, Ga., Atlanta Medical College, 1898, aged 66, died, April 4, of cerebral hemorrhage

Charles M. Greiner, Detroit, Detroit College of Medicine, 1897, aged 70, died, April 8, of coronary thrombosis

Bureau of Investigation

HELENA RUBINSTEIN INVADES "HEALTH FIELD"

"Palace of Beauty" Combines Physical Examination,
Milk Bath, Ultraviolet Rays, Manicure
and Latest Hair-Do

Mme Helena Rubinstein
715 Fifth Avenue
New York
Dear Helena

A Florida physician has just sent the Bureau of Investigation a copy of your advertisement, "One Thrilling Day at 715". He wants to know about the Rubinstein health treatments.

Naturally, the medical profession is interested in all health programs. Yours seems so unusual, we are anxious to obtain

ONE THRILLING DAY AT 715 WILL CHANGE THE STORY OF YOUR LIFE

It began with Eve. And since then there has scarcely been a woman born who has not at one time or another dreamed of stepping into the pages of a fairy tale into an enchanted world of glamour and beauty where a magic palace awaited her and a series of thrilling adventures that ended in her being turned into a fairy princess.

Today a woman who has herself dreamed this dream is for the first time making it come true for the women of America.

Her name is known around the world. It is Madame Helena Rubinstein.

As soon as the portals of her new "palace of beauty" close behind you, a day of thrilling adventure begins.

First you have a physical examination by a physician. Then to the Beauty Gym for a workout.

Now for a massage on the exclusive Helena Rubinstein sano therm table which generates penetrating infra red rays.

Enter next—the Sun Ray Clinique where a shimmering ceiling sends ultra violet rays to give you an even coat of tan as you lie on a warm bed of real white sand.

Oh luxury of luxuries now is yours a Pasteurized Milk Bath with its breakers of foam exhilarating relaxing.

Now your luncheon is served—from Helena Rubinstein's new Health Bar.

After an examination by the Derma Lens a face treatment follows consisting of the Hormone Creams or the new Beautilift Masque or whatever meets your individual requirements. Then comes a hand massage manicure and a ravishing make up. Finally Josef gives you a Balsam Oil Permanent and the latest hair-do photo-cabled from Paris.

You walk out of Helena Rubinstein's palace of beauty no longer just a charming woman but a modern princess. © 1937 H. R. Inc.

Helena Rubinstein
715 FIFTH AVENUE

princess might be the start of a psychosis. Maybe it would be advisable to include a mental examination along with a physical one.

As you announce, "First you have a physical examination by a physician. Then to the Beauty Gym for a workout," it would appear that the mental examination is omitted.

"Now for a massage on the exclusive Helena Rubinstein sano-therm table which generates penetrating infra-red rays." You've got us there, Madame. What is a sano therm table? We have consulted several prominent physicians, specialists in physical therapy and physical therapy devices, and none of them have ever heard of the "exclusive Helena Rubinstein sano-therm table." We note that you say it "generates penetrating infra-red rays." But so does a hot brick or a hot potato. According to "The Modern Materia Medica" (second edition), "Sanotherm is a mixture for making oxygen baths, which in addition to the usual constituents, contain a radio-active substance (pitchblende) and pine-needle extract." Obviously, this is not the "exclusive Helena Rubinstein sano-therm."

"Enter next—the Sun Ray Clinique where a shimmering ceiling sends ultra-violet rays to give you an even coat of tan as you lie on a warm bed of real, white sand." And then, "Oh, luxury of luxuries now is yours a Pasteurized Milk Bath with its breakers of foam, exhilarating, relaxing." For the benefit of interested physicians, we should like to know if the Rubinstein clinical records show more beneficial results with pasteurized milk than with certified or raw. Offhand, we would think raw milk more appropriate.

"Now your luncheon is served—from Helena Rubinstein's new Health Bar." As you give no sample menus and as the word "bar" always brings to mind cocktails, we are wondering if you are serving the real thing or those Benjamin Gayelord Hauser concoctions of carrot juice and celery juice.

"After an examination by the Derma-Lens, a face treatment follows, consisting of the Hormone Creams or the new Beautilift Masque or whatever meets your individual requirements." In an endeavor to answer our inquirer, we called on several nationally known dermatologists (dermatologists, Helena, are graduates in medicine who specialize in diseases of the skin) to ask if they used the Derma-Lens, and we are unable to find any who use the device.

After the Derma-Lens examination "comes a hand massage, manicure, and a ravishing make-up. Finally Josef gives you a Balsam Oil Permanent and the latest hair-do photo-cabled from Paris." Madame, do you think Josef and the doctor could get together and do anything for a patient with paramnesia?

"You walk out of Helena Rubinstein's 'palace of beauty' no longer just a charming woman but a modern princess."

Dear Helena, our experience with princesses is somewhat limited. Most of them were hardly ravishing. But those princesses had something else to do besides putting in a day at 715. But really, Helena, the thing that is worrying us is this: "What does Cinderella do next morning, when her fairy coach has turned again into a pumpkin, when her sun-tan has begun to fade, and when she turns pale and weak at the sight of the bill?" In the words of Hashimura Togo, we inquire to know

Sincerely yours,
THE BUREAU OF INVESTIGATION

VAN-TAGE

Food and Drug Administration Declares "Van-Tage"
Adulterated and Misbranded

"Van-Tage," a "patent medicine," product of Gilbert H. Mosby, Van-Tage Medicine Company, Inc., Los Angeles (Bureau of Investigation, THE JOURNAL, Nov 12, 1936, p 1655), has been declared sold under false and fraudulent claims, according to a May 1937 report of the Food and Drug Administration.

Feb 18, 1936, the United States attorney for the District of Utah, acting on a report by the Secretary of Agriculture, filed a libel praying seizure and condemnation of thirty dozen bottles of Van-Tage at Salt Lake City, Utah, alleging that the article had been shipped in interstate commerce from Los Angeles and was misbranded in violation of the Food and Drugs Act as amended. May 28, 1936, no claimant having appeared,

some first-hand information. The advertisement says "It began with Eve." Now, Helena, so many things began with Eve, including "original sin," that we don't think you should blame poor Eve for any more sins unless you have documentary evidence to back it up.

But to get on with the advertisement "and since then there has scarcely been a woman born who has not at one time or another dreamed of stepping into the pages of a fairy tale." Sigmund Freud could help your clientele out on this dream business. An unfulfilled wish to become a fairy

a judgment of condemnation was entered and it was ordered that the products be destroyed. According to the government report, analysis showed the article to consist essentially of potassium iodide (0.2 Gm per hundred milliliters), pepsin (0.1 Gm per hundred milliliters) and extracts of plant drugs including aloe, glycerin, water and flavoring material, preserved with salicylic acid.

Correspondence

ERYTHEMA NODOSUM

To the Editor—In THE JOURNAL, May 1, is an editorial entitled "Causative Factors in Erythema Nodosum." The editorial is based chiefly on a recent article in the *Archives of Internal Medicine* by W. W. Spink, who reported a critical study of ten cases of erythema nodosum in which only one gave evidence of tuberculosis. The relationship to streptococcal infections was particularly stressed. His conclusion was that "erythema nodosum appears to be a nonspecific inflammatory reaction of the skin to a variety of bacterial, toxic and chemical agents."

It would seem timely to draw attention to the fact that in the San Joaquin Valley in California there is endemic a relatively mild febrile disease which is characterized by a bad cold or bronchopneumonia, associated with erythema nodosum. The patients usually recover promptly and, apparently, without complications. The disease is often diagnosed as erythema nodosum and is popularly known in the valley as "San Joaquin Valley fever" or "desert fever." In a large percentage of the cases which have been studied at the Stanford Medical School in San Francisco and in the County Health Department of Kern County at Bakersfield, the sputum contains typical sporulating and nonsporulating spherules of *Coccidioides*, from which pure cultures of the fungus *coccidioides* may be obtained and proved virulent by guinea-pig inoculation. In one instance, the case of a small child, I obtained positive results in the washings, which were obtained by gastric lavage. Intradermal *coccidioidin* tests are violently positive.

These observations add another important disease to the list of those which may be associated with erythema nodosum. There seems to be no doubt that we are dealing with the symptom complex of primary acute infection with fungus *coccidioides*.

ERNEST C. DICKSON, M.D., San Francisco

Professor of Public Health and Preventive
Medicine, Stanford University School of
Medicine

VITAMIN K

To the Editor—It seems unfortunate that the recent editorial on the antihemorrhagic factor in foods (THE JOURNAL, May 15, p. 1717) failed to consider certain researches bearing directly on the subject of vitamin K, for obviously at this stage in the study of this new vitamin all results obtained by carefully executed research are apt to be helpful in determining its function and possible therapeutic usefulness.

Vitamin K appears definitely to be a food accessory factor required for the synthesis of prothrombin. By means of a new quantitative method for prothrombin (*J Biol Chem* 109 [May] 1935) I was able to follow the changes in this important clotting factor in chicks deprived of vitamin K (*Am J Physiol* 118:260 [Feb.] 1937). In some of the chicks, a drop of 50 per cent in the prothrombin concentration was observed as early as the fourth day. When the prothrombin fell below 20 per cent, active hemorrhage readily occurred. Naturally one is interested in knowing whether vitamin K is important in human physiology and whether it may be of value in such conditions as hemophilia. Drs. Bancroft, Stanley-Brown and I (*Am J Med Sc* 190:501 [Oct.] 1935) found that the prothrombin content of hemophilic blood was the same as that

of normal blood. We also obtained evidence that the prothrombin in hemophilia is activated as readily by thromboplastic substance as is the prothrombin in normal blood. Thus, one drop of my highly active thromboplastic preparation when added to 1 cc of freshly drawn hemophilic blood caused coagulation in twenty-four seconds, whereas the control containing no added thromboplastic substance remained fluid for thirty-eight minutes. These facts strongly suggest that the prothrombin is not the factor responsible for the delayed coagulation in hemophilia, and it is not surprising therefore that Dam and his associates (*Biochem J* 31:22 [Jan.] 1937) failed to find any beneficial effects accruing from the use of vitamin K in hemophilia.

Vitamin K may perhaps prove to be of real benefit in the treatment of the hemorrhagic diathesis of obstructive jaundice. We found a definite, and occasionally a marked, decrease in the concentration of prothrombin in various types of biliary obstruction. One can conclude that the cause of bleeding in jaundice is a prothrombin deficiency. In my recent article I have offered a possible explanation for this decrease in prothrombin. The jaundiced patient presents peculiarly suitable conditions for the development of a deficiency of the fat soluble vitamins. The prolonged restricted low fat diet, and the poor absorption of fat soluble material due to the absence of bile in the intestine can conceivably so reduce the supply of vitamin K that the stored reserve is no longer adequate, whereupon the prothrombin begins to diminish. If this hypothesis is correct, vitamin K is therapeutically indicated. In fact it is not improbable that small amounts of powdered alfalfa, a substance particularly rich in the prothrombin vitamin, and bile salts administered orally may perhaps effectively prevent the postoperative hemorrhage encountered in certain jaundiced patients.

ARMAND J. QUICK, M.D., Milwaukee

Associate Professor of Pharmacology,
Marquette University School of Medicine

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

CONCENTRATED MILK FOR CAMPS

To the Editor—I am camp surgeon in charge of 100 men in what is probably the most isolated spot in the continental United States. This camp will be shut off from civilization for at least four months during the freeze. After December 1 we shall have no means of transportation to this island from the mainland 60 miles away except by radio and plane for emergency when possible. During these four months we shall have no fresh meat except the frozen type and no fresh fish, fruits or milk. We shall have assorted dried and canned fruits and vegetables but no forms of citrus fruits. We are using ordinary canned condensed milk which I believe is suitable only for tea and coffee. I have recommended Borden's Eagle Brand Evaporated Milk and canned grape fruit which may contain some antiscorbutic vitamins. Some camps have used a powdered form of milk for cooking with which I am not familiar. Can you make any comments or suggestions on what brands and forms of milk and canned fruits will be suitable for the needs of these men for the winter?

M. D. Michigan

ANSWER—For the conditions described there are several excellent forms of concentrated milk available, including powdered whole milk, unsweetened evaporated milk and sweetened condensed milk. These products are nutritionally equivalent to ordinary milk except for vitamins B₁ and C, and they are clean and safe. Evaporated and condensed milks are obtainable in 14½ and 16 ounce cans, respectively. Powdered milks such as Klrim (dried whole milk), on the other hand, can be purchased not only in one pound sealed cans but also in 50 pound containers and in larger quantities at material savings. This dried milk can be stored for considerable periods and reliquified with pure water when needed. Powdered and condensed milks are, of course, low in vitamin C, and evaporated milk has none of this vitamin, therefore it should be supplied in the diet by

means of canned tomatoes or tomato juice, which is rich in this vitamin. This food factor may also be supplied by canned citrus fruits or fruit juices, any of the standard brands of which should be satisfactory.

MIGRAINE

To the Editor—Can you suggest any treatment for a case of migraine that will not respond to ergotamine tartrate (gynergen)? The patient aged 38 has three children 13, 5 and 4 years of age. There have been no miscarriages. The Wassermann reaction is negative. Attacks of migraine started four years ago after the last childbirth. They used to be premenstrual but now occur three or four times a month. Symptoms include occipital headache, pain behind and in the right ear, nausea and vomiting, weakness and inability to walk. Skull roentgenograms are negative, the ears are normal, the eyes are normal, and the patient is in perfect health between attacks. I have used theelin, theelin emmenin and so on intermenstrually and gynergen with morphine during the attacks with poor results. I have read O'Sullivan's article in *THE JOURNAL* of Oct 10, 1936, but cannot get any response. I am about to suggest pregnancy or hysterectomy, as the woman is a burden in this state. Would hysterectomy or oophorectomy produce a cure? I may add that there are religious objections to surgery. Please omit name.

M D, Ontario

ANSWER—From the description there is some doubt as to whether this is an instance of the usual type of migrainous attack of headache. It is neither ophthalmic nor ophthalmoplegic migraine. It may be a symptomatic headache due to organic disease of the brain. The patient's first attack occurred at 34 years of age, which is late for the onset of true hemicrania. It is suggested that a detailed neurologic and ophthalmologic examination be made for the purpose of finding objective evidence of organic brain disease. If no such evidence is found the patient might be given a two or three weeks course of potassium or sodium bromide and sodium salicylate, 1 Gm of each three times daily. At the end of this period fluid extract of cannabis should be given, starting with three drops three times daily and increasing the dose by one drop daily until the dosage is eleven drops three times a day. Then the dose is decreased by one drop daily until it reaches three drops. The dose is then increased to eleven drops and again decreased to three drops. This process is continued indefinitely if favorable results occur. If favorable results have not occurred at the end of two months, this treatment should be discontinued. In association with this therapy the patient should be advised to get sufficient physical and mental rest, should be kept free from excitement or worries, and should not overeat. Hysterectomy or oophorectomy, it is believed, would not stop attacks of migraine.

SENSITIVITY TO ARSPHENAMINE

To the Editor—I have recently had a severe case of dermatitis exfoliativa following the sixth injection of 0.6 Gm of neoarsphenamine given for congenital syphilis in a woman 25 years of age. Are any specific remedies being advanced in this condition? The only medical measure so far employed has been sodium thiosulfate which has proved very disappointing. Please omit name.

M D Michigan

ANSWER—Sodium thiosulfate, though of great value in most of these cases, fails signally in some of them. The reason for this is not known. In such cases quinine may be used. It has long been one of the most reliable helps in the treatment of exfoliative conditions. Starting with a small dose to discover whether any sensitization to the drug exists, one can increase the dose until signs of saturation, ringing in the ears or gastrointestinal disturbance make their appearance. Some patients with exfoliative dermatitis are able to take with great benefit enormous doses of quinine.

Calcium may be of great assistance. It is possible that the milk diet advocated by some authorities acts largely because of its content of available calcium. Calcium gluconate in the muscles or veins may be required.

The blood should be watched for signs of agranulocytosis, one of the most serious accompaniments of cases due to arsphenamine. General supportive and protective treatment is of great importance. The diet should be digestible and nutritious, with attention to vitamins and avoidance of condiments. Constipation must be avoided.

The skin must be protected from irritation in all ways possible. Scratching is the chief danger in this respect. The ear canal should be cleansed with warm boric acid solution, and a watch should be kept for furunculosis. The mouth and the conjunctival sac, if inflamed, must be given cleansing and soothing treatment. The air of the room should be warm and moist. Chilling, so apt to occur in any generalized dermatitis, must be avoided.

The patient must be protected from exposure to infection of the respiratory tract. Poole and Wehger, however, have shown

that fatalities from exfoliative dermatitis seem to be due frequently to an exfoliative condition in the air passages rather than to pneumonia. A similar condition in the kidneys was found by these authors. The urine should be examined during the course of the disease. (Poole, A. K., and Wehger, R. T. Fatalities in Exfoliative Dermatitis, *THE JOURNAL*, March 10, 1934, p. 745.)

One of the most valuable aids in the treatment of these cases is the colloid bath. Oatmeal two or three cupfuls, should be boiled in a gauze bag for five minutes. A cupful of sodium bicarbonate should be stirred into the bath water, which should be about blood heat. Then the bag of oatmeal should be stirred about in the water and squeezed gently. The patient's knees should be covered by towels frequently wet with the bath water, which should be kept at about 98 F by the addition of small amounts of hot water. At first ten or fifteen minutes should be the limit two or three times a day, but, if agreeable and beneficial, the length and frequency may be increased. During a longer bath, cool cloths should be kept on the head and the patient must be protected from drafts. A nurse should be constantly in attendance.

On removal from the bath, the skin should be patted partly dry and an ointment applied either zinc oxide ointment or 10 per cent boric acid in rose water ointment or petrolatum. Furuncles should be watched for and treated promptly.

The warning given by Stokes against interference with foci of infection in the teeth, tonsils or elsewhere during the course of an exfoliative dermatitis must be heeded, for such interference is dangerous. He cites a case in which chance recovery was lost by too early an attack on such foci. They must be left until the dermatitis is well cleared before operations can be undertaken with safety. (Stokes J. H. *Modern Clinical Syphilology*, ed 2, Philadelphia, W. B. Saunders, 1934, p. 491.) Stokes's outline has been followed in this summary.

If the dermatitis in certain areas is slow to resolve, small doses 37 or 70 roentgens, of unfiltered rays each week will usually speed up recovery and stop the itching.

EFFECTS ON CHILD OF USE OF MORPHINE AND CALOMEL IN LACTATING MOTHER

To the Editor—A patient was delivered of a normal apparently healthy baby which seemed to do all right in every way until after the mother was given a hypodermic of morphine for the relief of pain from hemorrhoids. The baby was allowed to nurse and following this became somewhat drowsy. Later the patient was given broken doses of calomel and the baby developed a diarrhea. I would appreciate your opinion as to the action of the morphine and calomel on the child.

M D, North Carolina

ANSWER—Shute and Davis (*Surg, Gynec & Obst* 57:727 [Dec] 1933) studied babies born of mothers who had received morphine during labor. The babies showed positive tests for morphine on their stools, most readily from the fourth to the seventh day after birth. These authors say "Reiche, in working on dogs, demonstrated that morphine given to the mother does not appear in her milk, and cites Walter's corroborative work. Our work shows that morphine appears in the stools of both breast-fed and wholly bottle-fed infants in an identical way, thus substantiating Reiche's experiments." Terwilliger and Hatcher (*Surg, Gynec & Obst* 59:823 [April] 1934) studied the question of elimination of morphine in the human milk in a morphine addict who received 128 mg of morphine sulfate daily for many weeks after her baby was born. Not a trace of morphine could be detected in the milk of this woman. These authors examined the milk of a normal woman seven and a half hours after the administration of 16 mg of morphine sulfate and they believe that the milk may have contained a trace of morphine. Talbot (*Am J Dis Child* 7:445 [June] 1914) felt certain that morphine had not been found in human milk up to the time he wrote his article. Kvit and Hatcher (*Am J Dis Child* 49:900 [April] 1935) examined the milk of a woman four hours after she had received 16 mg of morphine sulfate. The milk contained at most a trace of morphine.

Shute and Davis point out that infants in the uterus can tolerate large doses of morphine over a period of days or even months without showing any unusual effects. Likewise the literature contains numerous references concerning the tolerance of very young infants for opiates. Mason reported a 56 hour old baby who tolerated 0.008 Gm. of morphine, and Kayser observed a 10 day old child who tolerated 0.01 Gm. of morphine.

On the other hand De Lee (*Principles and Practice of Obstetrics* ed 5, p. 229) says "Drugs often reappear in the milk. This has been known since Hippocrates, in connection with cathartics. One may, in order to purge the infant give the mother the cathartic. Opium has caused narcosis

of forty-three hours in the baby Iron, arsenic, iodine, lead and mercury are well known to pass over"

Holt (The Diseases of Infancy and Childhood, New York, D Appleton & Co) says that the effect of opium in the milk is "inconstant, although it is possible, when the milk is poor, for toxic symptoms to be produced when full doses are given to the mother A fatal case is on record in a child a few days old"

Little is known about the transmission of calomel through the milk It has long been believed that mercury when administered to the mother is in part eliminated through the milk One of the ways of treating a baby born of a syphilitic mother was to have the baby nurse at the breasts of its mother who was receiving antisyphilitic treatment, particularly mercury Nevertheless as Bucura (*Ztschr f exper Path u Therap* 4 398, 1907) pointed out years ago, extremely few drugs have been found in the milk with certainty Last year in Kwit and Hatcher's study of the excretion of drugs in human milk they examined milk for morphine, codeine, salicylic acid, phenolphthalein, barbitol, sodium bromide and potassium iodide They concluded that none of the drugs except sodium bromide were present in the milk in an amount sufficient to indicate that the continued use of such milk would injure a normal nursing child

INJECTION TREATMENT OF VARICOSE VEINS

To the Editor—It has become my duty to supervise the injection therapy of a group of patients afflicted with varicose veins of all degrees of duration and extent In the course of my reading regarding the choice of a sclerosing agent and the technic of injection I was able to decide on a 5 per cent solution of sodium morrhuate but the variety of injection technics left me completely at sea By this I mean that the use of the tourniquet is advocated by some and scoffed at by others Authorities differ as to whether the patient should be upright or lying down with the leg elevated Should one or several veins be injected at one sitting was another moot point I would appreciate your advising me on these sources of equivocation and discuss for me the treatment nonsurgical of varicose veins, uncomplicated complicated by eczema and complicated by ulcer referring to the course of injection therapy to be followed and not the general care of such conditions Please omit name

M D, California

ANSWER—It is recommended that the correspondent obtain from the American Medical Association a pamphlet issued by the Committee on Varicose Veins The subject matter was demonstrated at the Philadelphia session in 1931 Generally speaking, the sclerosing solution should be in contact with the intima of the injected vein in as concentrated a solution and for as long a time as possible It is always preferable to inject in a horizontal position because of the active vasovagal reflexes of some patients, resulting in loss of consciousness Whether a tourniquet or finger pressure is used to keep the solution in place is relatively unimportant What is important is the slowing down or standstill of venous return, so that the solution may sear the intima These and other questions are all answered in the pamphlet which represents the joint experience of a number of men throughout the country

TESTS OF CYSTINE IN NAILS—USE OF SULFUR FOR IMPROVING NAILS

To the Editor—Are there any reliable laboratories giving tests for the cystine content of the nails? If so are they of any significance in treating drying and ridging of the finger nails with the use of forms of sulfur intramuscularly?

STANTON S ENDS JR M D Middlebury Vt

ANSWER—M X Sullivan and W C Hess and others have shown that sulfur in the nails is almost entirely in protein combination as cystine which contains 26.7 per cent of sulfur They describe a procedure of analysis of the finger nail clippings for cystine (*J Bone & Joint Surg* 16 185 [Jan] 1934) used in the course of their investigations of the cystine content of the finger nails in arthritis J V Klauder and Herman Brown (*Arch Dermat & Syph* 31 26 [Jan] 1935) report the results of studies of the sulfur content of the nails in diseases or abnormalities of the nails The sulfur content of the nails in their investigations was determined by the method of Stockholm and Koch (*J Chem Soc* 45 1953, 1923) In their article Klauder and Brown detail their observations on the effect of hydrolyzed wool in the treatment of patients with pathologic nails and the effect of such treatment on the sulfur content of the nails

Hydrolyzed wool (Brown, Herman, and Klauder, *J V Arch Dermat & Syph* 27 584 [April] 1933) was administered orally two teaspoonsful to an adult and one teaspoonful to a child, three times daily, and continued for about three months The cystine content of hydrolyzed wool was about 1.5 Gm in 32 cc Clinical improvement was apparent only in patients

with congenital dystrophy of the nails The ingestion of hydrolyzed wool may or may not increase the sulfur content of pathologic nails

Klauder and Brown conclude from their experiments that "it does not appear that determination of the sulfur content of the nails is of any value in the study of diseased nails"

The use of sulfur intramuscularly should not offer any greater hope of response and would entail great expense in a therapeutic procedure of doubtful efficacy In their earlier article Klauder and Brown further commented that "it appears more pertinent to utilize all the constituents of keratin" Sulfur orally has been used by some of the older writers

The possible role of external irritants used to clean and polish the nails, contacts in the daily routine of housework, or the patient's occupation, and the possible role of associated or pre-existing cutaneous or systemic disease should be ruled out as contributory factors to the "drying and ridging of finger nails"

Hypovitaminosis as an etiologic factor should be considered, and the administration of vitamins B and D may clear up the condition

NERVE IRRITATION FROM FIBROSIS AFTER OPERATION ON WRIST

To the Editor—Dec 4 1936, I was in an automobile accident and sustained a severe laceration of the right wrist This laceration is on the flexor surface and runs diagonally all the way across the wrist It is situated about 1 inch above the junction of the wrist and the thumb The radial artery and median nerve were completely severed also the flexor tendons to the middle and index fingers Sensation has not yet started to return although I am able to flex my fingers to the extent of about half closing my fist Beginning about December 11 I developed severe needle-like constant pains in the middle joints of my ring, index and middle fingers and the terminal portions of the thumb I could not control this pain even with the use of morphine Heat gave best relief but only partial As time has elapsed and with increase of exercise of my fingers the pain has completely left the ring finger but with regard to the other fingers the pain has now moved out to the terminal phalanges Would you please give me some idea as to when I can expect tactile sensation to return? Also in your opinion what is the cause of the constant pain I am having? May I also state on this point that I was given one opinion that this pain may be due to irritation of nerve endings in the scar With this idea in mind the area about the scar was infiltrated with procaine hydrochloride but this procedure had no effect on lessening the pain Do you think that impairment of circulation would cause this pain since to me it has the same feeling as if one would place a tight band around a finger cutting off the circulation At present this pain is only in the terminal phalanges If the pain is due to impairment of circulation what can I do about it besides heat and massage? How long will it be before this will leave? I would appreciate it if you could supply me with information regarding injuries of this kind Needless to say it is a very important problem to me as far as my future is concerned as a physician and surgeon as to whether I am going to have a useful hand again Please omit name

M D Minnesota

ANSWER—The pain described is characteristic of nerve irritation, and since it developed so soon after the injury the most likely cause would seem to be the irritation of inflammatory reaction and of the fibrosis that follows it

The division of the radial artery and of the sympathetic nerve fibers that surround it does not offer an adequate explanation for the symptoms complained of, since such an injury occurs frequently and the history of subsequent pain such as is described, is very unusual

The important information one would like to have concerning this case is lacking, that is, what was done immediately after the injury to the divided tendons and nerve and, if suture was carried out, the exact technic of operation

ANESTHESIA AND ALLERGIC STATE

To the Editor—Does general anesthesia alter the allergic state? Is it possible to prevent an immediate serum reaction in a hypersensitive patient by the use of anesthesia? Please omit name

M D New Jersey

ANSWER—The query brings up important points, both experimental and clinical In *THE JOURNAL*, Oct 1, 1932, page 1194 appeared a somewhat similar query followed by an answer concluding "It would appear that a general anesthetic is likely to prevent or at least delay anaphylactic shock, if, during anesthesia, foreign protein is injected in a sensitized patient It must be remembered, however, that there are great individual differences in the reactions of animals and also in man, and the apparently favorable effect of anesthesia in preventing shock should not be allowed to displace other precautionary measures which may be taken for its prevention"

Carl A Dragstedt (*THE JOURNAL*, July 27, 1935, p 300) objected strenuously to these conclusions and quoted several authorities to prove that anesthesia in animals does not in the least prevent anaphylactic shock As a matter of fact, Dragstedt

inclines to the belief that anesthesia not only does not diminish anaphylactic shock but may actually increase it. He points out that most of the work on anaphylaxis in dogs has been done under various anesthetics and he himself has used ether, chloroform, paraldehyde, barbital and vinethene, with and without morphine, and often in combination, without any apparent ameliorating effect.

Prof A C Ivy, head of the physiology department of Northwestern University Medical School, agrees with Dragstedt that anesthesia in experimental anaphylaxis does not prevent shock.

Clinically, in man, there is no known comparable piece of work. No one has apparently tried to anesthetize a person during an immediate serum reaction or during a severe constitutional reaction that quickly followed an injection of a protein extract, e g, ragweed pollen or horse dander. The physician gives epinephrine as quickly as possible in such a case and repeats it if necessary. In severe cases he injects it intravenously or even intracardially and he may resort to artificial respiration or other methods of stimulation. But he would not attempt any form of anesthesia. This is strictly contraindicated in such cases.

In long continued cases of bronchial asthma (intractable asthma), anesthesia is sometimes helpful. Ether and oil by rectum are frequently helpful. Complete ether anesthesia for about thirty minutes has also been given severe asthmatic patients, with good results, by I S Kahn (*J Allergy* 6 556 [Sept.] 1935) and by Leon Unger (unpublished), also with benefit. Unfortunately, only temporary relief is obtained but in some cases the anesthesia has apparently been a life-saving procedure.

ACUTE THROMBOPHLEBITIS

To the Editor—An unmarried woman aged 21 became ill at about 9:30 in the morning. Her initial symptom was chills followed several hours later by vomiting. About midafternoon she began having pain in the lower right quadrant of the abdomen. I saw her that evening about 9:30 in one of the local hospitals. She was acutely ill and lay with her legs flexed. Her temperature was 104 F, pulse 120 and respiration rate 26. The blood pressure was 120 systolic 76 diastolic. Complete examination revealed moderate voluntary rigidity of the lower right rectus muscle and tenderness in the right lower quadrant most marked over McBurney's point. There was tenderness over the right femoral ring which was localized and more pronounced than the abdominal tenderness. On the anteromedial aspect of the lower third of the right leg there was an area of moderate tenderness 4 cm in diameter in which there was yellowish green discoloration. There was no swelling. The white blood count on admission was 23,300 with 88 polymorphonuclears. The urine showed albumin one plus and from 4 to 6 white cells per high power field. Aside from the usual childhood diseases and a secondary anemia for which she was treated some five years before the patient had been in excellent health. The family history was irrelevant. Red blood cells numbered 4,500,000 and hemoglobin was 85 per cent on admission. I saw the patient again the following morning at which time the condition was about the same as on the preceding night. The fever had persisted throughout the night but there had been no further chills or vomiting. The physical examination revealed the same condition. The leukocyte count was 19,800 with 80 per cent polymorphonuclears. The urine showed many pus cells but no clumps. The patient stated that about ten days prior to the onset of the present illness she had dropped a wooden grocery box on her right shin but paid no particular attention to the injury at that time. The following day it was black and blue at the site of the bruise but she disregarded it. Because of the persistence of the abdominal pain, fever and leukocytosis an exploratory laparotomy was performed that afternoon. No pathologic changes were noted and a normal looking appendix was removed. The microscopic report was chronic appendicitis. The morning after the operation the temperature and pulse were still elevated and the area of tenderness over the femoral ring was still present and pronounced. That afternoon the right foot and ankle became swollen, red and painful. This swelling gradually subsided and convalescence was further uncomplicated. She left the hospital on the twelfth day. When she began to walk the swelling of the right leg returned and has persisted until now, some ten months after the operation in spite of the use of a support and of heat and massage therapy. Please omit name. M D Iowa

ANSWER—Ten days after an injury to the leg with ecchymosis, the sudden onset of chills, fever of 104 and a high leukocytosis with tenderness over the site of the injured leg, the femoral ring and the iliac fossa should suggest an acute thrombophlebitis.

It is unusual for an appendicitis to begin with a chill but the conditions found should have been sufficient to make a clinical diagnosis rather than resort to an exploratory laparotomy.

The persistence of swelling of the leg indicates that the deep femoral vein and probably the external iliac were involved, although acute inflammation of the femoral and pelvic lymph glands might have caused the tenderness over the groin and the iliac fossa.

Continued bandaging of the leg is indicated as it will relieve the swelling and permit collateral circulation to develop. It should be used as long as the swelling increases on standing.

CARCINOMA OF COLON

To the Editor—A man aged 79 gives a history of abdominal cramps with constipation alternating with explosive diarrhea. A barium sulfate enema revealed an obstruction at the junction of the sigmoid colon and descending colon. The symptoms are of about five months duration. The patient's general condition is good for his age. The blood pressure is 140 systolic 90 diastolic and the pulse rate is 76. An exploratory laparotomy revealed a large mass at the area of the colon mentioned which was considered irremovable because of its being matted down and because of its being inflamed and almost ready to perforate. The operator palpated the liver and felt no metastatic nodules. The patient progressed well after the operation and the colostomy which was performed at the operation functioned satisfactorily but he still complains of cramplike pains over the area of the mass which require the administration of opiates. Please discuss the efficacy of x-ray treatments in such a case or the use of radium seeds through the colostomy into the mass. Are the reactions to the use of x-rays or radium quite severe? If there are no reactions would such treatments relieve pain? What is the prognosis in such a case as to comfort until the carcinoma proves fatal? If published please omit name. M D New York

ANSWER—Radium seeds are distinctly contraindicated in this case for numerous reasons, but primarily because of the extent of the lesion. X-rays and radium have generally not proved successful in the cure of cancer of the colon. Under certain conditions these agents have relieved pain. By a proper technique reactions can be minimized and sometimes entirely avoided. Whether or not roentgen treatment should be used in this particular case is an individual decision which must be governed largely by the general condition of the patient. In view of his age one should be careful to maintain and not influence adversely his general condition. Since cure is practically out of the question only palliation can be expected. If it is decided to try irradiation as a palliative measure, the dose must be small and the fields not too large. Treatment should be continued only in the face of improvement and promptly discontinued if the general condition of the patient becomes worse. In general, treatment under these conditions, even as a palliative measure, is questionable.

TREATMENT OF PRURITUS VULVAE

To the Editor—A woman aged 60 first came to me with arthritis of the thumbs which has improved with a dietary regimen and active ray treatment. She also complained of pruritus vulvae. Pelvic examination showed a reddened mucous membrane and some abraded areas. The outer portion of the right labium majus had a follicular papular eruption. The uterus was small and retroflexed. The vaginal secretion was very acid, small in amount and negative for *Trichomonas vaginalis*. The urine was negative. Local application of zinc oxide ointment and douches of sodium bicarbonate and aluminum acetate and occasional ultraviolet irradiation improved the condition for a while. Then the condition became worse and I used theelin in oil December 4, 7 and 10. The condition grew much worse with both labia majora half covered with follicular papules, the mucous membrane reddened and raw. Theelin was discontinued. The patient is now taking douches. I painted the mucous membrane with 10 per cent silver nitrate and used Mennen's Baby Oil on the labia. The ointment dried and irritated on removal. The patient's arthritis has improved and her general condition is good but she is nervous and this vulvar condition makes her more so. She is taking phenobarbital now and promises to stay in bed for several days. Is there any suggestion? Is roentgen irradiation the only other possibility? Please omit name. M D Ohio

ANSWER—A small amount of secretion such as is stated to be present in this case, is seldom highly irritating except in the presence of obstructed drainage. The first thing to be determined is whether there is a blockage of the cervical canal predisposing to retained secretion. If this is present, relief of the obstruction may effect a cure.

Employment of contraceptive medicaments, the use of inadequately lubricated or irritating condoms, or too hot or too cold or too strong douche solutions may be factors in the irritation.

Despite the absence of trichomonads on a single examination they may be present. Other causes of high grade inflammation, such as yeast infection or a virulent pure growth of a specific organism, should be looked for in wet preparations, in stained smears, and perhaps in cultures.

Failure to ascertain a specific cause of the trouble either systemic such as diabetes, or local, as suggested, impels one to turn to nonspecific care. Vaginal instillation of 3 per cent tannic acid in glycerin 3 cc instilled nightly with the hips elevated, tends to keep the parts dry and alleviates inflammation. In severe cases the tannic acid-glycerin mixture may be used twice daily.

Kaolin ointment is superior to all other ointments in genital rawness and irritation, such as this.

The parts should be kept dry, washed little and doused as little as possible. Open air treatment, with sunlight lamp therapy once or twice daily for a half hour or more is helpful.

Even in the certain absence of diabetes, a blood sugar determination should be made. Whether normal or too high, a reduction of carbohydrates in the food promotes healing of stubborn vaginal inflammations and infections.

The present discussion presupposes not only a careful routine examination of the genital tract but repeated examinations in search for a pathologic condition that may have been overlooked. In this study the services of an internist and local examination by a dermatologist should be utilized. Many vulval lesions that are baffling to the gynecologist are promptly recognized and quickly cured by a dermatologist.

HERNIA IN INDUSTRIAL WORKER

To the Editor—A man aged 65 in fair general health has a hernia that has never produced symptoms is easily reducible but comes out readily when standing and is about the size of a marble (three-fourths inch or 2 cm). He absolutely refuses operation and has been given a light job. Should he also be made to wear a truss (the downward extension attached to a spring truss frame)? One group here says yes but the other holds that (1) all a truss can possibly do is to prevent the hernia coming out of the saphenous opening (2) it rarely even accomplishes this if the man is active, (3) it is a definite source of danger in that by constant irritation over the femoral canal adhesions may be produced and the hernia rendered irreducible and (4) strangulation almost never occurs at the saphenous opening but over the sharp edge of Gimbernat's ligament and is almost as likely to occur with a truss as without. Please omit name.

M D New York

ANSWER—In a femoral hernia, operation should be recommended unless contraindications exist, when a truss should be advised if it can be properly fitted. In some instances a truss will be satisfactory, in others it may permit light or clerical work, while in a few instances, usually owing to a large hernia or to improper fitting, it may be not only useless but harmful.

Since many persons with a femoral hernia do their ordinary work for years without distress or strangulation, one must conclude that while operative or mechanical treatment is advisable it is not absolutely vital.

Operative treatment as often performed through the saphenous opening frequently results in a recurrence and while the inguinal approach is satisfactory it requires considerable surgical experience neither being entirely free from a variety of serious complications.

After the onset of incarceration or strangulation, if the operation is performed early the risk should not be increased to any extent. Practically the mortality is considerably higher, because of late diagnosis and operation.

Since no treatment can be called entirely free from danger or recurrence of the hernia, the patient should be informed and given a voice in the decision. Precautions in work may minimize the dangers of strangulation or the disadvantages of a truss.

Since a femoral hernia is a potential hazard, it should be within the province of the employer to make certain rules giving the physician familiar with the physical condition and occupation of the individual and with the local surgical practice a certain flexibility in enforcement.

While it is possible to outline certain principles and based on them make basic rules the first consideration of which should be the welfare of the individual or groups of individuals, their application may vary in different communities but as a general policy the individual should be permitted the final decision.

THE END REACTION OF PRUNES IN THE BODY

To the Editor—Are prunes acid in their end reaction?

M D California

ANSWER—A short general classification of foods into those which yield a neutral ash, an acid ash or an alkaline ash was provided in the discussion on acid ash foods and salty taste in the mouth (THE JOURNAL, April 3, p 1200).

The potential alkalinity of dried prunes as calculated by the method of Sherman appears to be about 270 cc of tenth-normal alkali per hundred grams of the edible portion. It was pointed out by N R Blatherwick years ago, however (*Arch Int Med* 14 409 [Sept] 1914), that the eating of prunes causes an increase in the excretion of acid in the urine and a decrease in the urinary pH . Blatherwick and Long repeated the work (*J Biol Chem* 57 815 [Oct] 1923) with the same results. They found that the increased acidity of the urine was caused by the excretion of organic acids which are present in the prune and which cannot be oxidized to carbon dioxide and water by the body. These acids are benzoic acid and other compounds such as quinic acid, which yields benzoic acid in the body.

Mrah, Smith Fessler, Lambert and Harper (*J Nutrition* 8 633 [Dec] 1934) confirmed earlier observations regarding

the increase in the organic acids in the urine following the ingestion of prunes. Human subjects were placed on a neutral diet, and the eating of from twelve to eighteen prunes caused an increase in organic acids, a decrease in ammonia and total acids and an increase in the hydrogen ion concentration of the urine. The carbon dioxide-combining power of the plasma was not changed significantly when prunes were eaten, an observation which might be expected in view of the fact that the blood tends to maintain a constant composition, as shown by Bischoff, Sansum, Long and Dewar (*J Nutrition* 7 51 [Jan] 1934) and others.

Prunes, therefore, should be thought of as a food the ingestion of which tends to make the urine more acid but which has no effect on the alkaline reserve of the body.

CALCIUM LEVELS IN JAKE PARALYSIS

To the Editor—A man aged 31 a research worker whose duties entail the frequent handling of ortho meta and para cresol phosphate, has come to me for care. He complains of soreness over his entire body particularly marked over the tips of the shoulders. There is some slight pain on beginning joint motion which subsides but does not disappear completely with activity. The general physical examination is negative. There are no joint signs no true paralyses and no signs of focal infections. His fasting blood calcium on the two occasions tested was respectively 14.7 and 14.4 mg. His blood phosphorus is 4.4 mg. The blood count shows no peculiarities of blood cells but a very moderate anemia of secondary type. The urine is negative for sugar and albumin. Have any studies been done on the calcium levels in jake paralysis? Tricresol phosphate, as you remember, is the active substance in those paralyses. Please omit name.

M D, New York

ANSWER—A thorough study of jamaica ginger paralysis, or "jake" paralysis, has been made by the National Institute of Health of the U S Public Health Service. The final conclusions on the etiology of this kind of paralysis were given in a second report by Smith, Elvove and Frazier (*Pub Health Rep* 45 2509 [Oct 17] 1930). The following quotation from the 1930 Year Book of Nervous and Mental Diseases refers to the query: "A pharmacologic study of the action of phosphoric acid esters of phenol and some of the cresols has shown conclusively that triortho cresyl phosphate, and in so far as the present evidence goes, it alone, can produce in experimental animals a specific type of motor paralysis of the extremities in every sense comparable with that which occurred recently in human victims who drank of an adulterated fluid extract of jamaica ginger." In this study and in a preliminary report by the same authors (*Pub Health Rep* 45 1703 [July 25] 1930) will be found the results of phosphorus determinations in "jake" paralysis. It is difficult to explain a high calcium level in association with a rather high phosphorus level as reported in the correspondent's case.

PULSE VOLUME IN CERVICAL RIB

To the Editor—I am writing to ask you to settle a dispute which has arisen between some men in our suite on the subject of cervical rib. The argument centers on the fate of the pulse when the arm on the affected side is raised or lowered. Textbooks give contradictory answers, Homan's Surgery leading the reader to believe that the diminution of pulse volume is greatest when the arm hangs by the side and Meakin's textbook on internal medicine giving the opposite view. Your opinion on the question would be appreciated. Kindly omit name.

M D Illinois

ANSWER—In the majority of cases of cervical rib, the radial pulse is entirely unaffected. Less than 10 per cent of cervical ribs cause symptoms of any kind and only a fraction of this 10 per cent produce changes in pulse volume. Consequently, as a diagnostic point indicating the presence of cervical rib, change in pulse volume is of no great significance because of its infrequent occurrence.

In almost all cases in which the pulse is affected, it is found to be diminished when the shoulder girdle is lowered and the arm is hanging by the side. This occurs not because of direct pressure by the rib on the subclavian artery but because of elevation and displacement of the scalene muscles. This displacement causes a stretching upward of the subclavian arch. Lowering the shoulder girdle causes a pull against the elevated subclavian artery with a consequent diminution of the radial pulse volume.

In rare instances the accessory rib extends around to unite with the first rib near the sternum. In these rare instances elevation of the arm may compress the artery against the under surface of the accessory rib and thus cause a diminution of the pulse volume in the elevated arm. It is in such cases that thrombosis of the artery is likely to occur because it is subjected to trauma with any arm movement. Fortunately, such cases are exceedingly uncommon.

EFFECT OF FALL ON PELVIC ORGANS

To the Editor—A woman previously well was injured in the act of sitting down when the chair tipped and she fell to the floor in a squatting position. At the time of her accident she felt severe pain in the back, the pelvis and both inguinal regions. Roentgenograms of the back taken shortly after the fall disclosed no spinal injury. No pelvic examination was done at that time. Afterward she complained of pain in the lumbar region, a feeling of heaviness in the pelvis, constipation and urinary frequency. Nine months later examination of the heart and lungs gave negative results, the blood pressure was 125 systolic and 80 diastolic, the hemoglobin content was 70 per cent and there were pus cells in the urine. On pelvic examination rectocele, cystocele and prolapse of the uterus were observed. The previous medical history is irrelevant. An appendectomy and an oophorectomy and salpingectomy on the right side had been performed fifteen years previously. Since the patient was perfectly well prior to the fall could the injury at the time of the fall have caused her rectocele, cystocele and prolapse or have aggravated a previously asymptomatic condition? M D New York

ANSWER—A fall to the floor could not produce rectocele or cystocele, at the most it could be a precipitating cause of these lesions if they were about to develop. A jolting fall, notably on the sacrum, sometimes causes retrodisplacement of the uterus in an apparently healthy patient. It is doubtful that prolapse of the uterus would result from a similar fall. Any lesion may become symptomatic after an injury.

PATHOLOGY OF THE APPENDIX

To the Editor—At a recent staff conference the attending pathologist smilingly asserted that he never found a normal condition in any specimen removed from the abdomen. Does this violate the code of ethics? It seems to me grossly immoral. I would be interested to know how the American Medical Association regards a statement like this. Is there any way to differentiate the dilatation of vessels in the appendix due to inflammation and merely clamping the base of the appendix? Please omit name. M D New York

ANSWER—The statement of the pathologist does not violate the code of ethics if it reflects correctly his experience in the examination of specimens removed from the abdomen. The essential difference between dilatation of the vessels of the appendix from clamping the base and from inflammation is that in the latter case there are present also exudation and leukocytic emigration. In the earliest stages of inflammation, microscopic examination may be necessary to determine the true nature of the process.

INTRAMUSCULAR INJECTION IN BUTTOCK

To the Editor—With regard to your reply to my query of Oct 4 1936 regarding intramuscular injection into the buttock I feel that your directions are not sufficiently exact to be useful. You say "Divide the buttock into four quadrants." My point is that one must outline an area before one can divide it. I should like to have you give me the exact anatomic outline of the buttock from which you arrange it into four quadrants. Trusting you will bear with me in persisting in this. Please omit name. M D Washington

ANSWER—The doctor may drop a line horizontally on his patient from the midline of the crest of the ilium. Another line should be drawn transversely to this at just above the insertion of the coccyx into the sacrum and running across to just about the insertion of the head of the femur into the acetabulum of the hip bone. The injection should be given into the upper and outer quadrant formed by these two lines. The physician so interested might look up Shaffer, L W. The Fate of Intragluteal Injections, *Arch Dermat & Syph* 19 347 (Feb) 1929. The entire anatomy and technic is well illustrated.

EVIDENCE OF LEAD POISONING

To the Editor—Does the presence of 12 mg of lead per liter of urine constitute evidence of lead poisoning? A man aged 47 is in the printing business but not connected with type setting. For six months he has had a mild neuritis of the peroneal nerves more marked on the right side. In my own library I cannot find requisite data. Your help would be much appreciated. Please omit name. M D Maine

ANSWER—One of the most difficult tests that clinical laboratories are called on to make is the quantitative determination of lead in the urine. Some high type of clinical laboratories, as found in hospitals and elsewhere, turn out flagrantly erroneous results of urinary lead determination. Though this report of 12 mg per liter of lead in the urine is by no means condemned as inaccurate, the suggestion is made that a conclusion should not be drawn from one single quantitative test but from a series of several. Most normal persons without demonstrable exposure to lead excrete lead in the urine in quantities on the order of 0.1 mg per liter. So high a figure as 12 mg per liter is out of the normal range and strongly suggests the possibility of lead poisoning, provided always the test has been accurately made. Reference should be made to a publication by

Kehoe, Thamann and Cholak entitled "On the Normal Absorption and Excretion of Lead" (*J Indust Hyg* 15 257 [Sept] 1933) and a somewhat similar article by the same authors in the same journal (18 42 [Jan] 1936).

VITAMIN B₁ IN HERPES ZOSTER

To the Editor—I have noticed that vitamin B₁ is giving excellent results in many cases of polyneuritis, fascial neuralgia and similar conditions. Can you give me any information as to the value of vitamin B₁ in old people with severe neuritic pains occurring years after an attack of herpes zoster? J M MEYERS M D, Superior Wis

ANSWER—In a recent paper by Martin G Vorhaus on the present evaluation of vitamin B₁ therapy (*Am J Digest Dis & Nutrition* 3 915 [Feb] 1937), mention is made of the value of vitamin B₁ in the treatment of postherpetic neuritic pains. Attention is directed to the clinical observation that modification of the postherpetic paresthesia and anesthesia occurs following large doses of vitamin B₁ in comparison to a control group of cases without vitamin therapy.

It is recommended that vitamin B₁, either natural or synthetic, be administered orally in doses of 2000 international units daily. The duration of treatment depends on the severity of the attack and the length of time elapsed since the attack. In mild or moderate cases of herpes zoster, modification of the postherpetic sequelae is often noted in from three to four weeks. In severe cases, and in those cases in which the postherpetic pains have lasted for three months or more, treatment should be continued for eight weeks or longer.

The response to vitamin B₁ therapy depends, apparently, on the state of the peripheral nerves involved. When complete destruction of these nerves has occurred, no response can be expected. When only partial destruction seems to have taken place, improvement in the symptom may be noted.

PROTECTION OF HANDS FROM INDUSTRIAL IRRITANTS

To the Editor—A patient working with Sol Kleen an 'acid' to remove grease from metal cannot use rubber gloves because he also uses pyroxylin solution, which seems to dissolve rubber. His hands crack badly. He cannot use petrolatum on them for he gets it on the metal. What do you suggest? D C ANSTUTZ, M D, Bellefontaine Ohio

ANSWER—It is by no means necessary to use acids as degreasing agents in industry, nor is it essential that the hands of workers come in direct contact with metal parts in the process of degreasing. One of the most salutary features of automatic industrial processes is that often the worker is removed from close proximity to injurious agents. At present, much polishing and buffing is carried out under conditions preventing any close proximity between the worker and the dusty operations. Degreasing may also be carried out automatically. A pharmaceutical manufacturer has introduced a protective agent for the skin of industrial workers called Tar Dermament. It is said to be greaseless and thus to obviate the difficulties growing out of the use of greasy protective agents. Final proof of the efficacy of this new agent is lacking, but its judicious use seems to be warranted.

CALCIUM IN EGG SHELLS

To the Editor—1 What is the chemical combination of calcium in the egg shell? 2 How effective is powdered egg shell as a means of therapeutic calcium administration? M D West Virginia

ANSWER—1 The calcium of the egg shell is almost entirely in the form of calcium carbonate. The shell of the average sized egg contains approximately 5 Gm of this salt.

2 Calcium carbonate, which makes up more than 90 per cent of the egg shell, is in an easily utilizable form and appears to be absorbed as well as the water-soluble chloride, lactate or acetate, which is generally prescribed.

USE OF BLOOD SERUM OF THYROIDECTOMIZED GOATS IN HYPERTHYROIDISM

To the Editor—Will you kindly comment on the value of blood serum of goats deprived of the thyroid gland in treating hyperthyroidism. I have at hand some literature on this subject received from a drug house which obtains this material from the Instituto Sieroterapico Milanese. Please omit name. M D Rhode Island

ANSWER—Some years ago, use of milk from thyroidectomized goats and also the serum from thyroidectomized goats was advocated in various places abroad and here. There has been no evidence, however, that it has any value and there is no reason to believe that it deserves anything but the oblivion attached to it.

Council on Medical Education and Hospitals

ADDITIONAL HOSPITALS APPROVED

The Council on Medical Education and Hospitals of the American Medical Association has given its approval to the following hospitals since the publication of the last previous list in THE JOURNAL, March 13, 1937

Hospitals Approved for Intern Training

Hospital of St Raphael New Haven Conn
Cook County Hospital Chicago
W A Foote Memorial Hospital Jackson Mich
Mercy Hospital Jackson Mich
Buffalo Hospital of the Sisters of Charity Buffalo
Beekman Street Hospital New York City
Crouse Irving Hospital Syracuse N Y

Hospitals Approved for Residencies in Specialties

St Vincent's Hospital Birmingham Ala Mixed
Cook County Hospital Chicago Radiology
Sanatorium Division of the Boston City Hospital Boston Tuberculosis
Cambridge Hospital Cambridge Mass Surgery
Foxboro State Hospital Foxboro Mass Neuropsychiatry
North Reading State Sanatorium, North Wilmington Mass Tuberculosis
Meadowbrook Hospital Hempstead N Y Pathology
St Luke's Hospital Bethlehem Pa Surgery
Temple University Hospital Philadelphia Neurology neurosurgery and ophthalmology
Western Pennsylvania Hospital Pittsburgh Pathology
Davidson County Tuberculosis Hospital Nashville Tenn Tuberculosis
McMillan Hospital Charleston W Va Mixed

Hospitals Approved for Additional Residencies

University of California Hospital San Francisco Dermatology
syphilology and neuropsychiatry
University Hospitals Iowa City Pathology
Beth Israel Hospital Boston Radiology
Boston City Hospital Boston Obstetrics gynecology and urology
Massachusetts General Hospital Boston Neurosurgery
University Hospital Ann Arbor Mich Urology
Henry Ford Hospital Detroit Neurosurgery
Eloise Hospital Eloise Mich Pathology
Ancker Hospital St Paul Urology
St Louis Maternity Hospital St Louis Obstetrics
Metropolitan Hospital New York City Anesthesia
Morrisania City Hospital New York City Pathology
Grasslands Hospital Valhalla N Y Radiology
Milwaukee County General Hospital Wauwatosa Wis Medicine
orthopedics pathology and surgery

Medical Examinations and Licensure

COMING EXAMINATIONS

STATE AND TERRITORIAL BOARDS

Examinations of state and territorial boards were published in THE JOURNAL, June 26 page 2249

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS Parts I and II Sept 13 15 Ex Sec Mr Everett S Elwood 225 S 15th St Philadelphia

SPECIAL BOARDS

AMERICAN BOARD OF INTERNAL MEDICINE Written examination will be held in different centers of the United States and Canada Oct 18 Chairman, Dr Walter L Biering 406 Sixth Ave Rm 1210 Des Moines

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY Group B Written examination will be held at various cities throughout the United States and Canada Nov 6 Case histories must be submitted at this time Sec Dr Paul Titus 1015 Highland Bldg Pittsburgh (6)

AMERICAN BOARD OF OPHTHALMOLOGY Chicago Oct 9 All applications and case reports, in duplicate must be filed at least sixty days before the date of examination Sec Dr John Green 3720 Washington Blvd St Louis Mo

AMERICAN BOARD OF ORTHOPAEDIC SURGERY Los Angeles Jan 14 15 Sec Dr Fremont A Chandler 6 N Michigan Ave Chicago

AMERICAN BOARD OF PEDIATRICS Los Angeles Nov 14 Sec Dr C A Aldrich 725 Elm St Winnetka Ill

AMERICAN BOARD OF SURGERY Part I (written) Sept 20 Sec Dr J Stewart Rodman 225 S 15th St Philadelphia

Texas April Report

Dr T J Crowe, secretary, Texas State Board of Medical Examiners, reports 48 candidates licensed by endorsement at the meeting held in Dallas, April 14, 1937 The following schools were represented

School	LICENSED BY ENDORSEMENT	Year Grad	Endorsement of
Univ. of Arkansas School of Medicine (1933)	(1935)	(1936)	Arkansas
Loyola University School of Medicine (1924)		(1924)	Kansas
Northwestern University Medical School		(1933)	California

School of Medicine of the Division of the Biological Sciences	(1936)	Illinois
Indiana University School of Medicine (1927)	(1936)	Indiana
State University of Iowa College of Medicine	(1933)	Iowa
University of Kansas School of Medicine	(1929)	Kansas
Louisiana State University Medical Center	(1936 3)	Louisiana
Tulane University of Louisiana School of Medicine (1932)		
(1934 2) (1935 3) (1936 2) Louisiana		
Johns Hopkins University School of Medicine	(1927)	New York
University of Maryland School of Medicine and College of Physicians and Surgeons	(1933)	Maryland
Tufts College Medical School	(1916)	R Island
University of Nebraska College of Medicine	(1933)	Nebraska
Eclectic Medical College Cincinnati	(1919)	Nebraska
Ohio State University College of Medicine	(1930)	Ohio
University of Oklahoma School of Medicine	(1932)	Oklahoma
Jefferson Medical College of Philadelphia	(1933)	Penna
University of Tennessee College of Medicine	(1934 2)	Tennessee
Vanderbilt University School of Medicine	(1933)	Tennessee
Baylor University College of Medicine	(1935)	Louisiana
University of Wisconsin Medical School	(1934)	Minnesota
Osteopaths* Iowa 3 Michigan Missouri, 5 Oklahoma 4 Pennsylvania		

* Licensed to practice medicine and surgery

Wisconsin January Report

Dr Henry J Gramling, secretary, Wisconsin State Board of Medical Examiners, reports the oral, written and practical examination held at Madison, Jan 12-14, 1937 The examination covered 19 subjects and included 100 questions An average of 75 per cent was required to pass Thirty candidates were examined, all of whom passed Fifteen applicants were licensed by reciprocity The following schools were represented

School	PASSED	Year Grad	Per Cent
Northwestern University Medical School	(1936)	82	85
Rush Medical College	(1936)		84
University of Kansas School of Medicine	(1933)		85
Johns Hopkins University School of Medicine	(1931)		85
University of Minnesota Medical School	(1935)		85
University of Oregon Medical School	(1935)		86
Baylor University College of Medicine	(1934)		78
Medical College of Virginia	(1935)		84
Marquette University School of Medicine	(1936 77)	80	82*
University of Wisconsin Medical School	(1934)		83
(1935) 79 80 83 85 88			
University of Alberta Faculty of Medicine	(1928)		84
Queen's University Faculty of Medicine	(1933)		83
University of Toronto Faculty of Medicine	(1933)		87
McGill University Faculty of Medicine	(1932)		83
Friedrich Wilhelms Universitat Medizinische Fakultat Berlin	(1923)		75†
Hamburgische Universitat Medizinische Fakultat	(1920)		82†
Ludwig Maximilians Universitat Medizinische Fakultat Munchen	(1913) 79 (1922) 82 †	(1933)	80
Schlesische Friedrich Wilhelms Universitat Medizinische Fakultat Breslau	(1915) 80 †	(1922)	79†
Osteopaths†			79

School	LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
Rush Medical College	(1924)	(1924)	Illinois
University of Illinois College of Medicine	(1924)	(1933)	Illinois
State Univ of Iowa College of Medicine (1918)	(1932)		Iowa
(1926) Minnesota			
University of Louisville School of Medicine	(1932)	(1932)	Kentucky
University of Michigan Medical School	(1930)	(1932)	Michigan
University of Minnesota Medical School	(1932)	(1932)	Minnesota
University of Nebraska College of Medicine	(1934)	(1934)	Nebraska
Vanderbilt University School of Medicine	(1933)	(1933)	Tennessee
McGill University Faculty of Medicine	(1929)		Michigan
Osteopaths†			Missouri 2

* License has not been issued

† Verification of graduation in process

‡ Licensed to practice osteopathy and surgery

Minnesota January Examination

Dr Julian F Du Bois, secretary, Minnesota State Board of Medical Examiners, reports the oral, written and practical examination held at Minneapolis, Jan 19-21, 1937 The examination covered 12 subjects and included 60 written questions An average of 75 per cent was required to pass Fifty-five candidates were examined, all of whom passed Two physicians were licensed by reciprocity and one physician was licensed by endorsement The following schools were represented

School	PASSED	Year Grad	Per Cent
University of Arkansas School of Medicine	(1934)		83
George Washington University School of Medicine	(1931)		86.6
Georgetown University School of Medicine	(1934)		85.3
Northwestern University Medical School	(1935)		95.1
(1936) 89.6 90 93.2			
Rush Medical College	(1935)		90.2
School of Medicine of the Division of the Biological Sciences	(1934)		90.5
University of Kansas School of Medicine	(1931)		84.2
Tulane University of Louisiana School of Medicine	(1927)		91.4
(1935) 89.6			
Johns Hopkins University School of Medicine	(1934)		89.3
Harvard University Medical School	(1934)		90.2

University of Minnesota Medical School (1933) 88 5 (1934) 83 5 (1935) 85 4 (1936) 82 2 82 4 • 82 5 • 85 2 • 85 1 • 85 4 • 85 5 • 86 • 86 1 • 86 1 • 86 5 • 86 5 • 87 • 87 1 • 87 2 • 87 3 • 87 4 • 87 6 • 88 88 4 • 88 6 • 90 4 • 91 • 92 2 •	(1927)	89 3
Creighton University School of Medicine University of Nebraska College of Medicine Sydney University College of Medicine Duke University School of Medicine University of Cincinnati College of Medicine University of Pennsylvania School of Medicine 89 2 89 6 91 2 91 3	(1936) (1932) (1934) (1935) (1935) (1934)	85 2 93 5 92 6 92 3 87 6 86 5
University of Wisconsin Medical School Queen's University Faculty of Medicine	(1914) (1931)	92 1 81 2
LICENSED BY RECIPROCITY		
School	Year	Reciprocity
State University of Iowa College of Medicine	Grad with	
Columbia Univ College of Physicians and Surgeons	(1930) Iowa (1935) New York	
LICENSED BY ENDORSEMENT		
School	Year	Endorsement
Northwestern University Medical School	Grad of	
	(1931) N B M Ex	

* This applicant has received the M D degree and will receive the M D degree on completion of internship

Book Notices

Safe Driving Human Limitations in Automobile Driving By J R Hamilton and Louis L Thurstone M E I D Boards Price \$1 Pp 74 with 6 Illustrations Carden City New York Doubleday Doran & Company Inc 1937

In this book a psychologist and an advertising man have collaborated to present a study of the factors involved in driving, with a view to determining the causes of accidents and to make recommendations for their prevention. Sixty per cent of all the accidents occur on the highways 40 per cent in traffic lanes. The authors insist that most accidents are the result of human limitations. On the highway, most accidents occur through the driver's ignorance of human vision. In traffic lanes the accidents are the result of delayed responses. The analysis of the relationship of vision to accidents is convincing. When a person is driving at the rate of from 40 to 45 miles an hour the only point at which he gets a clear picture of the foreground is about 80 feet ahead of the car. At 50 miles an hour ruts and breaks in the road are not seen clearly. At 60 miles an hour the foreground is not seen at all. Moreover a last minute glance at trouble does not help because the speed is too great to permit any action. Certainly the importance of good vision for safe driving cannot be overestimated. The analysis of difficulty in traffic lanes is similarly scientific. The limitations of the human being on foot and the limitations of distance at which the life of that human being is in the driver's hands can be measured at any given speed. Even when the pedestrian is 107 feet in front of the moving car, his life is in danger from the driver of that car. The authors conclude that safety for the good driver lies between 40 and 50 miles an hour. Below 40 miles an hour he is not safe against other drivers. In traffic lanes, where driving is more complicated, conditions change. An unprotected intersection should not be crossed at even 20 miles an hour without the foot on the brake. This book lays down a series of yardsticks for drivers and pedestrians which authorities cannot afford to neglect.

On Deficiency of A Vitamin and Visual Dysaptation By C Edmund and Sr Clemmesen Paper Price 5 Danish kroner Pp 92 with Illustrations Copenhagen Levin & Munksgaard London Oxford University Press 1936

The recent progress in the chemical identification of vitamins has brought about a demand for the clinical demonstration of early deficiency states. This has been particularly true for vitamin A. The classic deficiency state of xerophthalmia is seldom seen even in large clinics in this country. Some years ago it was shown that the power of distinguishing variations of light in persons suffering from lack of vitamin A was inferior to the power in individuals on a normal diet. Early investigations were concerned with the determinations of the sensibility of the eye to light of different intensity by measuring the minimum visible. This demonstrated faulty adjustment to darkness and improvement with administration of vitamin A. Later photometric tests were devised. This monograph takes up the historical development of this approach and gives a critical evaluation of the various methods employed. The authors present in detail the method they have employed in the investi-

gation. It is essentially a modification of the technic of Moller and Edmund. The authors do not employ wing lamps for illumination but a single globular electric alabaster glass Osram bulb placed at a certain distance from a concave mirror so that the plate of types is diffusely illuminated. Detail of method and sources of error are given in detail. Normal values are presented together with seasonal oscillations in Denmark which were greater in spring and fall, changes due to age and maximum and minimum fluctuations. The experimental data were concerned with the study of pregnant women who were suspected of A deficiency due to vomiting, liver disease or other pathologic conditions and normal subjects of various types. Of forty-nine pregnant patients examined, twenty-four showed a pathologic decrease of their power of distinction. The authors prefer calling the disease dysaptatis instead of hemeralopia. Three of these had the defect in spite of a previous ample supply of vitamin A by mouth. Intramuscular injection of vitamin A brought about prompt disappearance of the dysaptatis. The recurrence of dysaptatis after recovery by parenteral injection of vitamin A made the authors believe that the resorption of vitamin A absorption from the intestinal tract is reduced in pregnant women. Protocols of the various experimental groups and controls are presented in detail. The work is strictly not a monograph on the subject but a detailed presentation of an experimental investigation of rather limited scope. It should interest the ophthalmologist and obstetrician, particularly if the results are confirmed.

Recent Advances in Orthopaedic Surgery By B H Burns BA B Ch FRCS Orthopaedic Surgeon to St George's Hospital and V H Ellis MA B Ch FRCS Orthopaedic Surgeon to St Mary's Hospital London Cloth Price \$5 Pp 296 with 108 Illustrations Philadelphia P Blakiston's Son & Co Inc 1937

In line with the policy of the "Recent Advances" series, the authors have attempted to discuss the present status of orthopedics in the light of newer developments. The subject matter is judiciously presented and generally expresses the consensus. On controversial problems, the various theories are presented concisely and fairly. The opening chapters, on bone growth, transplantation and chemistry, present an elemental but fundamentally sound review. Tumors of the bone are treated in compendium, almost outline, fashion the classification of Geschickter and Copeland being followed. Osteomyelitis, arthritis and suppurative arthritis are discussed briefly. The section on tuberculosis of the joints is conservative. However, the recommendation of the authors to allow patients to walk in a knee length spica for from six to eight weeks, preparatory to a fusion operation on a tuberculous hip that has just become quiescent, may be questioned. The dangers of recrudescence outweigh the benefits of improved circulation and muscle tone. Furthermore, pyogenic superinfection, through a sinus tract is considered a calamity. It is now believed that such infection may favor sclerosis and healing. One is also inclined to disagree with the statement that "occasionally areas of increased density may be observed in the subchondral bone, and are probably due to filling of marrow space by tubercles and granulation tissue." Such areas would appear less dense in the roentgenogram. Congenital dislocation of the hip is discussed from the standpoint of the Lorenz treatment, Putti abduction in infants, open reduction, shelf operations and osteotomies. The recumbency-traction treatment of Perthes' disease is sound. The authors stress the efficacy of simple traction in abduction and internal rotation in the treatment of adolescent coxa vara (slipped epiphysis). Internal derangements of the knee joint are discussed competently. The descriptions of lesions of the external cartilage, including discoid cartilage, and of MacMurray's sign for the diagnosis of posterior tear of the internal cartilage are worth noting. Painful shoulders" represents a meaty, well organized summary of Codman's work. Disorders of the spine and pain in the lower part of the back are treated intelligently. Bankart's technic of manipulation for sacro-iliac and chronic lumbar strain is stressed. The indications for conservative and surgical treatment of Pott's paraplegia as described are sound. The authors stress the preoperative diagnosis of anterior poliomyelitis and favor the early use of convalescent serum. The operative treatment of stenosing

tendovaginitis, trigger finger and snap thumb is mentioned. One agrees with the statement that the flat foot is not necessarily a painful foot. Lambinudi's operation in cases of pes cavus (tenotomy of the toe extensors and immobilization in extension on a special foot plate) is offered as a substitute for or adjunct to Steindler's plantar stripping. Clubfoot is mentioned briefly, the authors prefer management by manipulation and immobilization in a special splint, as advocated by Denis Browne. The illustrations throughout the book are excellent. Faulty proofreading, however, has left many errors in spelling, sentence structure and grammar in the text.

Les hemorrhagies utérines avant et après la ménopause. Par Claude Bécclere. Préface du Dr Jean Quénu. Papier. Price 50 francs. Pp 209 with 68 illustrations. Paris: Masson & Cie 1936.

This book is divided into three parts. In the first the author deals with the physiology of normal and abnormal uterine hemorrhages and the physiology of the menopause, in the second he takes up abnormal uterine hemorrhages before the change of life and in the third section he discusses abnormal uterine hemorrhages after the climacterium. The author is of the opinion that when the menses have ceased for one year the menopause has already set in. In cases of doubt, hot flashes set the definite time of appearance of the menopause. The hemorrhages that occur before the climacterium are the most frequent ones. Among every hundred women who have hemorrhages between the age of 40 and the completion of the menopause, only thirty have objective lesions which require surgical intervention. In the remaining seventy the bleeding is functional and these women respond only to medical or roentgenologic therapy but not to surgical treatment. Among the thirty women who require surgery, eight have cancer of the body of the uterus. This can readily be determined by curettage or hystero-graphy. Among the seventy cases of functional bleeding under 45 years of age, treatment should be medical, but in those beyond this age, the treatment of choice is roentgen therapy. In the opinion of the author, carcinoma of the body of the uterus in cases of postmenopausal bleeding is not as frequent as is usually believed. He found an incidence of only 40 to 50 per cent in his cases. The other causes of postmenopausal bleeding are senile metritis, polyps and other benign changes in the uterine mucosa. The author reserves hysterectomy for cases of cancer of the uterus and he prefers the abdominal route. The book is based on the author's experience in more than 150 personal cases. It is clearly written and abundantly illustrated. The illustrations include a large number of hystero-graphs because the author is an enthusiast of this diagnostic procedure and relies on it to make the diagnosis of cancer of the body of the uterus. The book does not contain anything new but it is an excellent exposition of the subject of menopausal hemorrhages.

Clinical Roentgenology of the Cardiovascular System. Anatomy—Physiology—Pathology—Experiments and Clinical Applications. By Hugo Roessler, M.D. Associate Professor of Roentgenology and Cardiologist, Department of Medicine, Temple University School of Medicine, Philadelphia. Cloth. Price \$7.50. Pp 343 with 199 illustrations. Springfield, Illinois & Baltimore: Charles C Thomas 1937.

This book presents the application of roentgenologic methods to the diagnosis of disease of the heart and blood vessels. The subject is opened with a discussion of roentgenologic technique and a consideration of the normal anatomy and measurements and the dynamics of the cardiovascular system. Here also are considered the changes brought about by certain physiologic causes, such as exercise and pregnancy, and the changes brought about by a few pharmacologic agents. The remainder of the book, about two thirds of it, is given over to a discussion of cardiovascular disease. The x-ray appearances in disease are taken up, first from an etiologic standpoint and secondly as to the structural changes. Disease of the aorta and the pulmonary arteries is discussed. Pericardial disease is carefully considered, as is also peripheral vascular disease. There is a short chapter on disturbances of rate and rhythm and one dealing with congenital heart disease. So great is the enthusiasm of the author that it is difficult to remember that only an aid to diagnosis in cardiovascular disease is involved. The pages on kymography and densitometry will prove a bit difficult for the clinician, and the portion of the book dealing with measurement

contains numerous mathematical formulas that are most complex. This part of the book, however, will doubtless interest the roentgenologist. One wonders a little about the author's selection of material. Surely the x-rays are of no great value in the diagnosis of anemia, polycythemia and starvation. He occasionally gets a bit off the beaten track when he discusses the pharmacologic action of drugs. In dealing with pure roentgenology, however, he is on thoroughly familiar ground, so familiar that it seems doubtful that such work as he describes could be carried out in many x-ray laboratories. Such an understanding of roentgenology would greatly lighten the burden of the clinician. The book is profusely furnished with excellent illustrations, and the bibliography is tremendous, although the author mentions its incompleteness.

Occupational Hazards and the Painter with Special Reference to New York. By Adolph B. Gersh. Paper. Pp 99 with 26 illustrations. New York: Brotherhood of Painters, Decorators and Paperhangers of America. District Council No 9 1937.

It is encouraging that labor unions themselves are displaying interest in organized efforts for the prevention of accidents and occupational diseases. This brochure, apparently prepared by a layman, presents the hazards in the work of the house painter and the painter's attitude toward them. There are five chapters, dealing with the evolution of the painting trade, the causes of accidents, occupational diseases, the cost of industrial hazards, and administrative problems. Many challenging facts are presented, but exaggeration appears too often. Resort is had to overemphasis when the bald statement of established truths would have carried greater conviction. In chapter 1, for example, mention is made of an alarming increase in cases of chronic benzene poisoning, but in another chapter it is stated that the use of benzene has decreased. As a matter of statistical record, much less benzene is now used as a constituent of paints than in previous years, and it is equally well established that the number of cases of benzene poisoning has definitely diminished. The net result of repeated overstatements is to attribute to house painting as a trade a quality and quantity of exposures not fully justified by the facts. As an outgrowth of activities within organized labor to procure more satisfactory working conditions, this publication may be praised. It stands as evidence of the increasing maturity of organized labor. In some respects, it indicates a state of mind similar to that in the ancient trade guilds of Europe.

Cirugía reparadora de las lesiones de los nervios periféricos. Por Abelardo Ibáñez Benavente, coronel de sanidad. Con la colaboración del Dr. Valentín Gómez, teniente coronel de sanidad. Papier. Pp 126 with 77 illustrations. La Paz, Bolivia: Casa Editora renacimiento 1936.

This is the first of a series of books on surgery of war which the authors are going to publish in the near future and in which their experience in the Chaco war is compiled. The first book deals with the surgical repair of lesions of the peripheral nerves caused by wounding of the nerve, nervous injury by wounded structures or fractured bones and operative trauma. The first five chapters in the book are given to the general study of the subject, with special reference to diagnosis and clinical evolution. The anatomopathologic lesions that the nerves suffer from the wound or by the complicating infection or sclerosis are shown by photomicrographs. Roentgenograms in cases of fractures complicating nervous lesions are also shown. The fifth chapter is given to the treatment. In general the surgical principles established in the World War were followed. Besides, the authors summarize their own principles as follows. All syndromes showing physiologic nervous discontinuation are subjected to a surgical examination. The technique for a reparative operation includes wide and deep incision at the probable seat of the nervous lesion, identification of the nerve and either repair of the nerve or neurolysis. Repair of the nerve is made by approaching the ends in apposition, removing the injured and neuromatous nerve tissues, performing three equidistant transneurlematic suture points at the nerve ends and then an end to end suture. In certain cases it is necessary to change the course followed by the nerve so as to make it shorter than the normal one. This is made by passing the largest nerve segment through an intramuscular tunnel to meet the shorter nerve segment for an end to end suture. After being repaired, the nerve is left in a bed of

muscular normal tissue protected against proximity of bone or cicatricial tissues. The treatment is complemented by physical therapy. The indications, technic and opportunity for using grafts of nervous tissues is discussed. Neurolysis can be perineural or intraneural. Regeneration of the nerves is infrequent in war lesions. A chapter is given to pain from nervous injury and its treatment. One agrees with the author that sympathectomy and reflexotherapy fail to control pain if the anatomic and physiologic continuity of the nerves is interrupted. Because of the fact that the radial and ulnar nerves are the most frequently injured in war wounds, a special technic for their surgical repair is given. Except for slight variations, the steps for the operation, management of the nerve and operative and postoperative care of the patient are almost identical to those previously described by the author in the chapter given to repair of the peripheral nerves. The intramuscular tunnel for passage of the nerve is made at the bicipital or bicipitobrachial muscles in transposing the radial nerve, and through the epitrochlear muscles in transposing the ulnar nerve. The book fulfils its purpose of being of interest for military surgeons. It is well prepared, and the illustrations showing the technic are clear and neat.

The Practitioners Library of Medicine and Surgery. Volume XI. Eye, Ear, Nose and Throat. Superintending Editor, George Blumer, M.A., M.D., David P. Smith, Clinical Professor of Medicine, Yale University School of Medicine. Associate Editors, Arthur M. Yuddkin, M.D., Clinical Professor of Ophthalmology, Yale University School of Medicine, and Paul B. MacCready, M.D., F.A.C.S., Assistant Clinical Professor of Otolaryngology, Yale University School of Medicine. Cloth. Price \$10. Pp. 1153 with illustrations. New York & London: D. Appleton Century Company Incorporated, 1937.

This textbook is directed primarily to the general practitioner rather than to the specialist. Nevertheless, it discusses such matters as the use of the slit lamp in ophthalmology and many other technical subjects. The authors are specialists of repute in the fields on which they write. The general practitioner is frequently called on to diagnose and treat easily apparent conditions affecting the conjunctiva and the eyelids. He will be greatly helped by the excellent illustrations and the practical methods of treatment included in the discussions of these subjects. It is equally important for him to have some knowledge of various operative procedures involving the eye, although it is doubtful whether the descriptions and illustrations of technic that are supplied in this book will be of much service to him in his work. There are certainly few, if any, general practitioners who would undertake the surgical procedure in glaucoma. They should probably be much more familiar with refraction than the amount of space given to this subject. Moreover, much more space might well have been assigned to the ocular manifestations of various neurologic and internal disorders. The material on otitis media is of the greatest importance, but here again an extraordinary amount of space has been assigned to gross and histologic illustrations that can be of little real value to the general reader. The practical material on the diagnosis and treatment of the condition is excellent. This volume helps to make complete the system of which it is a part.

The Ocular Fundus in Diagnosis and Treatment. By Donald T. Atkinson, M.D., F.A.C.S., Consulting Ophthalmologist to the Santa Rosa Infirmary and the W.K. Hospital, San Antonio, Texas. Cloth. Price \$10. Pp. 259 with 106 illustrations. Philadelphia: Lea & Febiger, 1937.

The author has found it "necessary to make the text in this volume as condensed as possible" in order to keep the book small. He has made schematized black and white drawings of the various conditions of the fundus and also colored plates to illustrate the reports of cases which have seemed to him to be of interest to the physician in other specialties. The statement in the preface that many references are made in the text is not confirmed. Not a few of those found are incorrect, and there is no bibliography. The text makes easy reading because of its simple form but inaccuracies and exaggerated statements vie with antiquated terminology in bringing to the reader a distorted picture of the intended description. On page 24 is found the statement "scotomata may be due to disease of the brain or the choroid." The terms "diabetic retinitis" and "albuminuric retinitis" are used with no reference to the fact that other nomenclature is preferred. The chapter on

treatment of atrophy of the optic nerve makes no mention of the use of newer methods found efficacious in some cases. The author's diligence in producing his own illustrations in great numbers is certainly commendable. The schematic nature of the black and white illustrations and also of the colored prints, however, is not conducive to a true picture of the ophthalmoscopic appearances.

Serpents in Symbolism, Art and Medicine. The Babylonian Caduceus and Aesculapius Club. By Edwin S. Potter, M.D., Cloth. Price \$3. Pp. 85 with 36 illustrations. Privately printed, Santa Barbara, California. The Author, 1937.

The serpent symbol goes back in history to the earliest times. The serpent as a medical sign has been considered variously as the symbol of wisdom, rejuvenation, longevity and convalescence. The caduceus with the two twined serpents began in Babylonia. In Rome it was used as a symbol for secret societies and became the emblem of commerce when it was carved on the prow of the ship in trade. The two sex-double snakes conveyed, of course, sexual significance. From the Babylonian days onward, the rod and serpent had a most interesting history with various mythical relationships. These the author describes accurately. The single snake on the rod goes back to serpent worship, which preceded monotheistic religion. The special symbol of healing is the rod and serpent of Aesculapius. While Aesculapius was practicing healing and leaning on a rod, a serpent came and twined itself about his staff. Another serpent then came carrying an herb, with which it brought to life the one that had been killed. Aesculapius thereafter made use of the same drug with the same effect on man. This is the legend which makes the rod and serpent of Aesculapius the emblem of healing. There are, of course, many other emblems of medicine, but the serpent is dominant above all others throughout the world, the single rod and serpent being typical of medicine and the double serpent more frequently associated with commerce and travel.

The History of the Acute Exanthemata. By J. D. Rolleston, M.A., M.D., F.R.C.P., Medical Superintendent, Western Fever Hospital, London. The Fitzpatrick Lectures for 1935-6, 1936, delivered before the Royal College of Physicians of London. Cloth. Price 7s. 6d. Pp. 114 with 10 illustrations. London: William Heinemann Ltd., 1937.

Here are included the Fitzpatrick lectures, which deal with smallpox, chickenpox, scarlet fever, measles and German measles. J. D. Rolleston writes in a most interesting manner. He has made a thorough search of the periodical literature relating to the diseases with which he was concerned and he has an adequate appreciation of the nature of medical progress. He has accepted the contribution of Drs. George and Gladys Dick, as well established. He seems to have failed, however, to realize that the Koplik spots had been adequately described previous to the excellent contribution made by Koplik on this subject. The book is illustrated with excellent plates of some of the greatest contributors to the subject.

The Behavior of Health. By Dr. N. A. Ferri. Second edition. Cloth. Price \$1. Pp. 236 with ten illustrations. Boston: Bruce Humphries Inc., 1937.

The author, in attempting to nourish his mind at the least of reason, appears to have nibbled at everything, swallowed much and digested nothing. His thesis is a nebulous idea that there is "a subtle role played by ideas through suggestion" which will some day solve all problems, from medical through economic, and many more. The reader gets nothing from the book but a jumble of words. Such ideas as it contains are the ideas of others, usually quoted in connections in which they scarcely apply. The book is not worth the time it takes to read it.

Physiology in Health and Disease. By Carl J. Wiggers, M.D., Professor of Physiology in the School of Medicine of Western Reserve University, Cleveland, Ohio. Second edition. Cloth. Price \$9. Pp. 1124 with 191 illustrations. Philadelphia: Lea & Febiger, 1937.

The first edition of this volume was published in 1935. Since that time the author has been preparing the present revision. Certain discussions have been expanded in relationship to new research in the field of physiology. Some of the original discussions have been condensed. Attempts have been made, moreover, to express in simpler language some of the more intricate and involved discussions, particularly those dealing with car-

diology, endocrinology and nerve reaction. Thus the book has been rewritten in large part, many new illustrations have been added, and the bibliography has been brought to date. The book has found for itself a definite place in a field in which many other volumes are now available and in which probably there has been more advancement in recent years than in any other of the basic sciences. Especially to be commended are the excellent printing, the outline form and the use of various sizes of type.

Tableau de la caricature médicale depuis les origines jusqu' à nos jours. Par A Weber. Préface du Professeur Laignel Lavastine. Paper. Price 25 francs. Pp 143 with 130 illustrations. Paris. E. Le François 1936.

While not at all comparable in scope to the classic book by Hollander on this subject, the Weber contribution is more modern and more adequately illustrated. At the same time it follows closely the general development of art throughout the world. The illustrations are interesting.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Malpractice Categorical Answer to Lengthy Hypothetical Question Not Required of Expert Witness—A physician appeared as a witness for the plaintiff in a malpractice suit. The defendant's counsel propounded to him a lengthy hypothetical question, the framing of which began before the morning recess of the court, continued over until the noon recess and was then completed in the afternoon. The trial court required the witness, at the request of the defendant, to answer the question "yes" or "no," without qualifying explanations. A judgment of nonsuit was subsequently entered and the plaintiff appealed to the district court of appeal, second district, division 1, California, contending that the trial court erred in denying to the witness the right to explain his answer.

The record, said the district court of appeal, showed that the witness answered the hypothetical question, as to whether or not the defendant used the degree of skill and care ordinarily exercised by physicians in the vicinity, in the belief that he had to answer it with an unqualified "yes" or "no," that he understood that an affirmative answer would be an approval of all that the physician-defendant had done, an approval that he could not honestly give, and that a negative answer would be a condemnation of the defendant's entire conduct, a position that he was even more reluctant to take. He solved the dilemma in which the trial court's ruling and his understanding placed him by answering in the affirmative. The defendant cited no authority in support of the proposition that the question had to be answered categorically. In the opinion of the district court of appeal, the witness should have been permitted to explain his answer. The defendant argued, however, that no prejudice flowed from the error because the witness had effectively disqualified himself by several statements to the effect that he did not know how other physicians treated the plaintiff's condition. But, said the court, a physician with experience in diagnosing and treating a particular ailment, who has lived for thirteen years in a community, knowing and practicing with the other physicians there, may be qualified to give testimony as an expert concerning the degree of skill, care and learning ordinarily possessed by physicians practicing in the community, with respect to that ailment, although he may not have known of the ailment having been treated before in the community. If a physician, otherwise qualified, cannot measure another physician's diagnosis and treatment of a particular case by the standard of the community, because he does not know of an actual case having established that standard, it follows necessarily, the court said, that no standard of skill and care would be available on the first appearance of an ailment in a community, nor would there be any standard in a new community.

Does a physician, the court questioned, who has passed the rigid tests required before he may practice, hold himself out

to exercise no degree of skill in diagnosing or treating a case of gout because neither he nor any of his fellow physicians in the locality had ever had an actual case before? The limitation on the liability of physicians that they shall be held only to that degree of care and skill which is the standard in the community is not to be extended to relieve them of the duty of exercising any care and skill in a new situation. Physicians have been trained for new situations, the court said, and by their training and general experience have some standard to which they can be held. The judgment of nonsuit was reversed. —*McGuire v Baird (Calif)*, 62 P (2d) 184.

Harrison Narcotic Act Osteopath in New Jersey Not Entitled to Registration—The relator, Robert H. Conover, was licensed to practice osteopathy in New Jersey in 1913 under a law that defined osteopathy as follows:

A method or system of healing whereby displaced structure of the body are replaced in such manner by the hand or hands of the operator that the constituent elements of the diseased body may reassociate themselves for the cure of the disease.

In 1935 the New Jersey legislature repealed the 1913 osteopathic act and enacted a new act, which provided, in part:

Provided however that a license to practice osteopathy shall not permit the holder thereof to prescribe or administer drugs for internal use in the treatment of any human disease, pain, injury, deformity, physical or mental condition or to perform such surgical operations as require cutting.

Thereafter, Conover applied to the local collector of internal revenue for registration under the Harrison Narcotic Act and a special tax stamp was given him as evidence of registration. Later, the collector requested Conover to surrender the stamp on the ground that as an osteopath he was not qualified to use narcotics. The stamp was surrendered under protest and Conover applied to the United States district court, D. New Jersey, for an order directing the collector to show cause why a writ of mandamus should not issue to compel the reissuance of the stamp.

The 1935 osteopathic act, said the court, definitely interdicts the prescription or administration by an osteopath of any drugs for internal use in the treatment of any human disease, pain, injury, etc. Conover argued, however, that osteopaths do not administer drugs or narcotics for internal use as treatment but only for the relief of pain. The osteopathic act, however, the court pointed out, explicitly includes "pain," and the language of the act being plain and unequivocal, a strained construction is not to be applied to it.

Nor, continued the court, was the osteopathic act affected by the provisions of the Uniform Narcotic Law of New Jersey, passed in 1933, which contains the following definition:

Physician means any person authorized by law to practice medicine in this State and any other person authorized by law to treat sick and injured human beings in this State and to use narcotic drugs in connection with such treatment.

The narcotic law, said the court, cannot and does not enlarge the osteopathic act of 1935 or, in the case of Conover, the 1913 act under which he received his license to practice. If an osteopath in New Jersey is to be entitled to prescribe and administer drugs of any kind, the court said, he must obtain legislative authority to do so. Until that time, the collector of internal revenue is justified in refusing the reissuance of a "permit" to Conover. The order to show cause was therefore discharged. —*Conover v Maloney, Collector of Internal Revenue*, 16 F Supp 419.

Society Proceedings

COMING MEETINGS

Montana Medical Association of Great Falls July 13-14 Dr. Thomas L. Hawkins 50 North Main St. Helena Secretary
National Medical Association St. Louis Aug. 15-20 Dr. John T. Givens 1108 Church St. Norfolk Va. General Secretary
Pacific Northwest Medical Association Great Falls Mont. July 8-10 Dr. C. W. Countryman 407 Riverside Ave. Spokane Wash. Secretary
Rocky Mountain Medical Conference Denver July 19-21 Mr. Harvey T. Sethman 1612 Tremont Place Denver Secretary

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers in continental United States and Canada for a period of three days. Periodicals are available from 1926 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American J Digest Dis & Nutrition, Fort Wayne, Ind

4 149 214 (May) 1937

- Carcinoma of the Cardia. A Roentgenologic Discussion. W H Stewart. New York.—p 149
- Studies on Blood Esterase. R Ginsberg, R Kohn and H Neecheles. Chicago.—p 154
- Treatment of Pylorospasm with Digitalis. Report of Five Cases. E Holland. New York.—p 158
- Influence of Large Doses of Vitamin D Administered Systemically and Locally on Healing of Ulcers. M Berg. Chicago.—p 159
- Factor of Spasm in Etiology of Jejunal Ulcer. G B Fauley and A C Ivy. Chicago.—p 160
- Glucose Tolerance as Diagnostic Aid in Jaundice. III. Toxic Hepatitis. H C Jacoby. New York.—p 162
- The Mechanism of Milk Clotting. I. Role of Milk Components in Coagulation. I N Kugelmann. New York.—p 170
- Influence of Fat on Absorption of Dextrose from Human Alimentary Canal. M Wisniewsky, A P Kane and W C Spitz. Brooklyn.—p 174
- Enzymic Efficiency in Avitaminosis. VII. Peptic Digestion in Vitamin B Deficiency. B Sure and R T Harrelson. Fayetteville, Ark.—p 177
- Unusual Course of Pelvic Abscess and Fistulous Tract. H Beaton. Fort Worth, Texas.—p 179
- Pepsin versus Hydrochloric Acid in Experimental Production of Gastric Ulcer. M J Matzner and C Windwer. Brooklyn.—p 180

American Journal of Diseases of Children, Chicago

53 1179 1424 (May) 1937

- Studies of Hypovitaminosis A. III. Clinical Experiments in Vitamin A Balance in Children After Various Diets. C Friderichsen and C Edmund. Copenhagen, Denmark.—p 1179
- *Ingestion of Vitamins A, B, C and D and Poliomyelitis. J A Toomey. Cleveland.—p 1202
- Lichen Urticatus (Papular Urticaria). Treatment with Parathyroid Extract. Theoretical Consideration of Etiology. D M Pillsbury and T H Sternberg. Philadelphia.—p 1209
- *Intracutaneous Tuberculin Tests. Comparative Study of Purified Protein Derivative and Old Tuberculin in 732 Infants and Children. J L Law, with assistance of C W Cory. Ann Arbor, Mich.—p 1220
- Extensive Xanthoma Tuberosum in Childhood Due to Infectious Cirrhosis of Liver. Development of Xanthomatous Changes in Laboratory and Other Cases. F D Weidman and J Stokes, Jr. Philadelphia.—p 1230
- Erythroblastosis Foetalis. Study of Its Mode of Inheritance. Madge Thurlow Macklin. London, Ont.—p 1245
- Graded Sequence in Postural and in Locomotor Development. Its Relationship to Maturation of Central Nervous System. H Abranson. New York.—p 1282

Vitamins and Poliomyelitis.—Some cases of poliomyelitis that Toomey studied suggested a correlation between the lack of certain vitamins and resistance to poliomyelitis. Therefore he experimented on *Macacus rhesus* monkeys and found that the ingestion of large doses of vitamins A, B and C did not protect the animals receiving them. On the other hand, the animals that were given vitamins A, B, C and D were protected from the effect of the virus when it was introduced by way of the gastro-intestinal tract. It is paradoxical that though the lack of vitamin D makes monkeys more susceptible to poliomyelitis, the rise in the morbidity of the disease occurs at that time of year when human beings theoretically should receive plenty of the antirachitic factor from the summer sun. The author has observed recently that the blood serum of eight rachitic children taken during the active stage of the disease contained no agglutinins against organisms of the enteric group, and since the agglutinin titer against enteric organisms of blood serum taken from animals in the prostrate stage of poliomyelitis is practically nil, a possible connection is thought to exist between the lack of vitamin D and the lack of agglutinins against enteric organisms. When the roentgenographic evidence and the readings for calcium and phosphorus in the blood serum had become normal agglutinins against enteric organisms had not yet appeared, their production lagging behind

the other physical and biochemical signs of recovery. Since the lack of agglutinins against enteric organisms makes monkeys more susceptible to poliomyelitis when the virus is given by way of the gastro-intestinal tract and since this susceptibility is further enhanced by subcutaneous injections of enteric organisms and their toxins, it is not illogical to suspect a connection between the loss of agglutinins, the susceptibility to the disease and the lack of vitamin D. The virulence of virus preparations is decreased after exposure to ultraviolet radiation.

Intracutaneous Tuberculin Tests.—The basis of Law's study consisted of 732 children of low economic status who came from households distributed in towns throughout two thirds of the state of Michigan. The behavior of purified protein derivative in its two standard test doses in comparison with three dilutions of potent old tuberculin in about 3000 tests shows that the purified protein derivative is uniform in its reaction potent and reliable. The first strength of purified protein derivative (0.00002 mg) found more reactors than did old tuberculin in a dilution of 1:10,000 (0.01 mg) or about the same number of reactors as did old tuberculin in a dilution of 1:1,000 (0.1 mg). The use of the second strength of purified protein derivative (0.005 mg) found more than seven times more reactors than did the administration of old tuberculin in a dilution of 1:1,000 (0.1 mg), whereas the giving of the second strength of purified protein derivative found twice the number of reactors revealed by old tuberculin used in a dilution of 1:100 (1 mg).

American Journal of Public Health, New York

27 433 554 (May) 1937

- Obstacles and Aids to Communicable Disease Nursing. Alma C Haupt. New York.—p 433
- Staphylococci in Relation to Food Poisoning. G M Dack. Chicago.—p 440
- Tularemia in Czechoslovakia and Austria During 1936 and 1937. E Tomasek. Bratislava, Czechoslovakia.—p 443
- Institutional and Other Small Water Treatment Plants to Meet Unusual Conditions. F R Shaw. Chicago.—p 444
- Identification of Streptococcus of Mastitis in Routine Milk Samples. W L Williams. Louisville, Ky.—p 453
- Recent Progress in Health Education. W P Shepard. San Francisco.—p 454
- Critical Study of Various Types of Detergents and Disinfectants for Use in Dishwashing. W L Mallmann. East Lansing, Mich.—p 464
- Intestinal Parasite Survey in Alabama. I. Comparative Study of Two Hookworm Anthelmintics. W H Smith, J G McAlpine and D G Gill. Montgomery, Ala.—p 471
- Appraising the Educational Content of a Health Service Program. G T Palmer and M Derryberry. New York.—p 476
- Uses of Life Table in Vital Statistics. L I Dublin and A J Lotka. New York.—p 481
- Tests and Promotion of Registration of Births and Deaths. W J V Deacon. Lansing, Mich.—p 492
- Use of Lay Boards by Official Health Agencies. Olivia Peterson. Minneapolis.—p 499
- *Practical Value and Significance of Complement Fixation Reaction in Amebiasis. H E Meleney and W W Frye. Nashville, Tenn.—p 505
- Additional Factor to be Considered in Calculating Automobile Fatality Rate. H L Porsche and P Stein. Chicago.—p 511

Complement Fixation Reaction in Amebiasis.—Meleney and Frye are convinced that the complement fixation test in amebiasis has a practical value in detecting obscure cases of infection. A negative complement fixation reaction is of particular value in patients with chronic diarrhea or other symptoms suggestive of amebiasis, in whose stools *Endamoeba histolytica* cannot be found, and in patients formerly known to have had amebic dysentery who continue to have vague abdominal symptoms, or who fear they are not cured. In both of these groups the negative blood reaction gives reasonable assurance that amebic infection is absent. Despite their evidence that *Endamoeba histolytica* may sometimes exist in the intestine without the production of lesions every case in which this ameba is found in the stools should be treated with an amebicidal drug, both for protection of the individual and for the protection of others. A single strain of *Endamoeba histolytica* may produce no symptoms in one individual and severe amebic dysentery or abscess of the liver in another. The complement fixation test should not replace diligent search for *Endamoeba histolytica* in the stools in suspected cases. A positive complement fixation test is only presumptive or confirmatory evidence of amebic infection. Accurate diagnosis can be based only on identification of *Endamoeba histolytica* itself in the stools or in the tissues of the body.

Am J Roentgenol & Rad Therapy, Springfield, Ill

37 433 576 (April) 1937

- Physiologic Considerations of Ileus A Ochsner New Orleans—p 433
- *Periapical Empyema Report of Three Cases with Necropsy Findings F G Kautz New York, and M Pinner Ithaca N Y—p 446
- *Clinical and Roentgenologic Study of Low Back Pain with Sciatic Radiation Clinical Aspects C E Badgley Ann Arbor, Mich—p 454
- Id Roentgenologic Aspects F J Hodges and W S Peck Ann Arbor Mich—p 461
- Visualization of Salivary Glands Following Use of Opaque Material in the Mouth W E Anspach, Chicago and I W Griffith Elgin, Ill—p 469
- Diaphragmatic Hernia A S Unger and M H Poppel New York—p 472
- Roentgen Analysis of 100 Cases of Ureteral Stone H O Peterson and G W Holmes Boston—p 479
- Discontinuous Disease of Cervical Spine with Segmental Neuritis A Oppenheimer and E L Turner Beirut Lebanon Syria—p 484
- Roentgenologic Chest Volume for Estimating Vital Capacity A L Banyai Wauwatosa Wis—p 494
- Value and Limitation of Oblique View as Compared with Ordinary Anteroposterior Exposure of the Shoulder Report of Use of Oblique View in 1800 Cases I Liberson New York—p 498
- Radiation Treatment of Hypertrophied Lymphoid Tissue of Pharynx and Nasopharynx R J Reeves Durham N C—p 510
- Radium versus Roentgen Radiation in Treatment of Benign Uterine Bleeding J W Cathcart El Paso Texas—p 513
- Use of Radium Element Seeds in Treatment of Cancer G T Pack New York and L R Taber Paterson N J—p 516
- Comparison of Effect of Various Filters in 500 Kilovolt Range K E Corrigan Detroit—p 520
- Factors Influencing Quantitative Measurement of Roentgen Ray Absorption of Tooth Slabs VIII Emulsion Factors H C Hodge G Van Huysen and S L Warren Rochester N Y—p 529

Periapical Empyema—Kautz and Pinner state that the pathogenic factors which lead to a periapical localization remain speculative. In the acute empyemas of early childhood, pre-existing adhesions of the upper lobe play hardly a part, while it may well be the most important factor in chronic empyemas of adults. The relatively greater respiratory expansion and the greater negative pressure in the upper portions of the pleural cavity may be important. But this explanation by itself is not quite satisfactory, because if a physiologic condition were the cause of this pathologic phenomenon the latter should be frequent. That the etiologic agent is not the determining factor is clearly shown by the variety of micro-organisms that have been found both in the literature and in the authors' three cases, which are reported giving the clinical, roentgenologic, pathologic and bacteriologic observations discussed in conjunction with the few cases reported in the literature. The post-mortem changes seem to point to a more frequent occurrence of periapical pleurisy, as shown by the presence of apical pleural involvement in unsuspected cases.

Study of Low Back Pain—The striking preponderance of narrowing of the lumbosacral intervertebral disk which occurred in 256, or 57 per cent, of his cases is a significant factor to Badgley in the production of the symptom-complex. The seventy-three cases presenting normal roentgen signs, which are included in the 191 cases, or 43 per cent, with normal intervertebral joint space, present exactly the same clinical phenomena with the exception of less evidence of true neuritis as demonstrated by Achilles tendon reflex changes and sensory changes. The conclusion that superficial tenderness over the lumbosacral or sacro-iliac area is indicative of skeletal changes in the underlying joints seems to be questionable in view of the same relative frequency of this tenderness in cases with roentgenograms of normal spines as in the cases with abnormal roentgen changes. It is the author's theory that low back pain with radiation of pain into the leg is a clinical syndrome arising from a primary lesion in the lumbar, lumbosacral or sacro-iliac region, muscular, joint or skeletal in origin, producing a radiation of pain by a referred mechanism which is typically postaxial in its distribution. The lack of evidence of true organic nerve injury in 79 per cent of cases is in favor of referred pain. The predominance of reflex changes and sensory changes in the cases showing narrowing of the lumbosacral disk suggests that in this type of lesion direct irritation of the nerve roots may develop in addition to the referred pain. The area of tenderness may also be the result of referred pain through irritation to the sensory nerves of the ligamentous structures rather than indicative of underlying pathologic changes of the joint.

American Journal of Surgery, New York

36 417 602 (May) 1937

- Total Thyroidectomy in Angina Pectoris and Congestive Failure Three Year Postoperative Review of Sixteen Patients M Dinnerstein, I O Woodruff C Weeks and A R Tilley New York—p 421
- Truss in Relationship to Diagnosis and Injection Treatment of Inguinal Hernia F I Harris and A S White, San Francisco—p 443
- Foreign Bodies in Tracheobronchial Tree Observations and Review of Thirty Consecutive Cases M S Bender and M L Som New York—p 462
- Insertion of Smith Petersen Nail for Intracapsular Fractures of Neck of Femur J A Key St Louis—p 466
- *Local Application of Cod Liver Oil in Skin Ulcerations E Epstein Los Angeles—p 472
- Lymphosarcoma of Stomach Clinical and Roentgenologic Aspects Review of Recent Literature Report of Case S D Zaph H A Olin and J D Kirschbaum Chicago—p 476
- Treatment of Abortion M Glass Brooklyn—p 487
- Hyperemesis Gravidarum Analysis of Fifty Cases F A Kassebohm and M J Schreiber New York—p 491
- Helpful Drug in Treatment of Tuberculosis of Urinary Bladder J T Bate, Louisville Ky—p 500
- Factors of Importance in Reducing Morbidity and Mortality Following Operations on Biliary Tract C M Smyth Jr and J B Mason Philadelphia—p 505
- Chronic Painful Conditions Amenable to Relief by Intraspinal (Sub arachnoid) Injection of Alcohol E L Stern New York—p 509

Cod Liver Oil in Skin Ulcerations—Epstein describes thirty-one cases of ulceration of the skin treated by the local application of cod liver oil and anhydrous wool fat dressings, with discouraging results. Slight ulcerations were treated with anhydrous wool fat alone. There were 22 per cent more varicose ulcers in the control series, and there were 22 per cent fewer ulcers of more than one year's duration. The one ulcer that had persisted for thirty-five years made the average duration greater in the second group. Epithelization proceeded more rapidly with the high vitamin preparation, although healthy granulation tissue was formed equally well with anhydrous wool fat alone. The only complication noted during the use of anhydrous wool fat was the appearance of a new lesion in the area being treated in a patient with a trophic ulcer due to a lesion of the central nervous system. The complications with cod liver oil included an attack of dermatitis venenata that developed after two weeks of treatment and recurred with each subsequent application of the oil. This patient also had associated stasis eczema. An infection with *Bacillus pyocyaneus* occurred in another patient and did not improve with further applications of cod liver oil. An ulcer that recurs after being "healed" with either of these preparations does not respond as well when treated with the same preparation a second time. "Good" results were obtained in only two thirds of the cases. Cod liver oil alone does not constitute sufficient treatment, as it does not offer permanent results in the majority of cases of ulceration of the skin.

American Review of Tuberculosis, New York

35 597 712 (May) 1937

- *Summary of Results of Group Tuberculin Testing with P P D (Purified Protein Derivative) in the United States Final Report of the National Tuberculosis Association Jessamine S Whitney and Isabel McCaffrey—p 597
- Similarities in Manifestations of Leprosy and Tuberculosis F A Johansen Carville La—p 609
- Protracted Hematogenous Tuberculosis with Predominant Involvement of the Heart Report of Two Cases S Cohen Jersey City N J—p 618
- *Incidence of Tuberculosis in Silicotics A S Pope Boston—p 638
- Effects of Vitamin D Deficiency on Experimental Tuberculosis in the Rabbit M Steiner M R Greene and B Kramer Brooklyn—p 640
- Effect of Irradiated Milk Compared with Vitamin D Oils on Inhalation Tuberculosis of Guinea Pigs W Steenken Jr Trudeau N Y and E R Baldwin—p 656
- Effect of Synthetic Ascorbic Acid (Vitamin C) on Growth of Tubercle Bacillus Note C H Boissevain and J H Spillane Jr Colorado Springs Colo—p 661
- Thermolability of Tubercle Bacillus H J Corper and M L Cohn, Denver—p 663
- Studies with BCG I Present Method of BCG Cultivation and Vaccine Production as Practiced at the Pasteur Institute and Tice Laboratories S R Rosenthal Chicago—p 678
- Id II Attempts at Dissociation and Increase of Virulence S R Rosenthal Chicago—p 685
- Id III (A) Effect of Phospholipins of BCG and Egg Lecithin on BCG (B) Effect of Cholesterol or Lecithin Dissolved in Olive Oil on BCG S R Rosenthal Chicago—p 703

Tuberculin Testing with Purified Protein Derivative—Whitney and McCaffrey base their remarks on a total of 85,709 group tuberculin tests with first and second strength tuberculin (purified protein derivative) among 56,688 individ-

uals in thirty states and the District of Columbia. The adjusted percentage of positive reactors among the 56,688 persons was 47. The adjusted rate was 10 per cent higher than the nonadjusted rate because of the small proportion of adults and persons of foreign extraction included in the groups tested. There were fewer positive reactors proportionately among the 6 year old children tested than there were at any other age. Following the sixth year of life, the trend of infection was generally upward at an average rate of more than 1 per cent for every year of life up to the age of 20. Adults, 20 years of age or older, evidenced 34 per cent more tuberculous infection than the total number of boys and girls less than 20 years of age. The percentage of positive reactors found among the 8,276 persons reported to have had contact with tuberculosis was 54.2, whereas only 33.3 per cent of those with no history of contact responded with positive reactions to purified protein derivative. The infection rate indicated for the contacts less than 5 years of age was three times that for noncontacts in the same age group, but the proportion of positive reactors increased with age, generally at a more rapid rate among the noncontacts than among the contacts. The adjusted percentage of positive reactors for males was 48.3 as compared with 45.9 for females. There was a larger proportion of male than female positive reactors to purified protein derivative at almost every age group. The trend of infection among the Negroes increased with age up to the age of 20 at a faster rate than that among the whites included in the reports studied. Of the 31,318 native born Americans of native parentage, 27.6 per cent evidenced tuberculous infection, whereas 38.4 per cent of the 6,674 native born of foreign stock and 61.2 per cent of the 814 foreign-born responded with positive reactions.

Incidence of Tuberculosis in Silicosis—Examination of 961 quarrymen in the same towns in Massachusetts showed that 219, or 22.8 per cent, showed roentgenologic signs of silicosis. With the reasonable assumption that the tuberculosis mortality, unconnected with silicosis, among these stonecutters is essentially the same as that for males of corresponding age in the community, there still is an excess of eight tuberculosis deaths a year in that group, which may fairly be charged to less than a fourth of the 793 cutters, or roughly to 180, equivalent to an annual mortality rate of 4,400 per hundred thousand, approximately forty times the expected tuberculosis mortality. Since the original examination during the summer of 1933 Pope has found it possible to check the roentgenologic diagnosis of silicosis and tuberculosis in a certain number of quarrymen in one city. Five with that classification have developed positive sputum, and three others who have come to necropsy all showed definite macroscopic and microscopic evidence of coexisting silicosis and tuberculosis. The fact that the diagnosis of silicosis or of silicosis with tuberculosis is often made on insufficient evidence or by inexperienced physicians in no way detracts from the importance of silicosis as an industrial disease or from the demonstrated frequency or seriousness of tuberculosis as a complication of silicosis.

Archives of Ophthalmology, Chicago

17 765 966 (May) 1937

- Defects in Visual Field of One Eye Only in Patients with a Lesion of One Optic Radiation M B Bender and I Strauss New York—p 765
- Astigmatic Dials in Refined Refraction J J Regan Boston—p 788
- μ and Buffers in Relation to Ophthalmology J B Feldman Philadelphia—p 797
- *Lesions of Fundus in Polycythemia Report of Cases M Cohen New York—p 811
- Short Studies on History of Ophthalmology IV Sir Clifford Allbutt the Apostle of Medical Ophthalmoscopy B Chance Philadelphia—p 819
- Effect of Fatigue on Adjustment of the Eye to Near and Far Vision C J Robertson San Pedro Calif—p 859
- Anterior Capsular Cataract Example of True Metaplasia H D Lamb St Louis—p 877
- The Gold Ball Implant Some Essential Features in Operative Technique M Freiberger New York—p 882
- Coralliform Cataract and a New Form of Congenital Cataract with Crystals in the Lens S R Gifford and I Puntney Chicago—p 885
- Early Simple Glaucoma Its Diagnosis and Management F C Cordes San Francisco—p 896

Lesions of Fundus in Polycythemia—Cohen finds that examination of the fundus in polycythemia is likely to reveal early characteristic lesions which are of value in diagnosis.

The fundus sometimes appears normal, while at other times lesions exist, which may be mild or severe, depending on the severity of the disease and whether or not the patient has responded to treatment. The existence of a high red cell count of the blood, with a corresponding increase in the hemoglobin content, frequently determines the degree to which the fundus is affected and also the extent of the vascular changes in the conjunctiva and iris. The vascular lesion of the fundus is a part of the general vascular disturbance which is not of an inflammatory nature. The characteristic change in the fundus in polycythemia is marked distention and engorgement of the retinal veins, which appear purplish. This distention is due mainly to an increase in the blood volume and a thinness of the venous wall. The change in color is caused by excessive replacement of oxygen by carbon dioxide. The resultant venous stasis is the basic factor in the causation of the ocular lesion. Seven cases of polycythemia are reported, in two of which there were no fundic complications. In two there were lesions of the fundus, while in three the lesions were solely vascular distention of the retinal veins, which were purplish and moderately tortuous. The fundic complications in the two cases of primary polycythemia were as follows. One case presented venous engorgement in one eye, with edema of the disk and retinal hemorrhages, the other showed bilateral postneuritic atrophy of the optic nerve, with distended veins which were bordered by a distinct broad whitish band along the perivascular space, due to a transudation of plasma. The perivascular space of the retinal arteries was not involved.

Arkansas Medical Society Journal, Fort Smith

33 207 226 (May) 1937

- Modern Medical Organization M F Cahal Chicago—p 207
- Modern Management of Traumatic Surgery F L Husband Blytheville—p 213
- Powders and Potents T N Black and J Scott Hot Springs National Park—p 215

Canadian Medical Association Journal, Montreal

36 449 560 (May) 1937

- Adhesive Constrictive Pericarditis (Pick's Disease) Case H V Cranfield N B Gwyn G C Anglin and A C Norwich Toronto—p 449
- Relationship Between Rate of Emptying of Stomach and Sugar Tolerance with Particular Reference to Lag Glycosuria E M Watson London Ont—p 454
- Fibrin Calculi T J Curphey and R B Anderson Brooklyn—p 459
- Experimental Production and Prevention of Appendicitis with Histamine H Selye Montreal—p 462
- Some Aspects of Modern Cancer Therapy L F Craver New York—p 464
- Disease Called Duodenal Ulcer W Goldie Toronto—p 469
- Thoracoplasty in Treatment of Pulmonary Tuberculosis Report of 100 Cases G F Skinner and L Macpherson St John N B—p 476
- Functional Disturbances of Colon Irritable (Spastic) Colon E P Scarlett Calgary Alta—p 484
- *Prognostic Value of Routine Blood Pressure Tests in Pulmonary Tuberculosis A S Kennedy Hamilton Ont—p 490
- Cyclopropane Revolutionary Anesthetic Agent H R Griffith Montreal—p 496
- Difficulties in Differentiation Between Anxiety States and Hyperthyroidism T Owen Toronto—p 500
- Freezing of Human Milk as a Means of Preservation N W Philpott and Caroline V Barrett—p 505
- Mortality from Appendicitis in Alberta A E Archer and M A R Young Lamont Alta—p 507
- German Measles Encephalomyelitis W W Barraclough Toronto—p 511
- Gumma of the Heart Report of Case G F Strong and D S Munroe Vancouver B C—p 513
- Treatment of Epidermophytosis with Formalin C R Salsbury Kingston Ont—p 515
- *Calcium Aspirin Therapy of Chorea Note Gertrude E G Pearson Montreal—p 516

Blood Pressure in Pulmonary Tuberculosis—Kennedy studied the blood pressures of eighty-five patients having far advanced tuberculosis for at least three months, and the period of active study varied from three to seven months. A well maintained blood pressure is of favorable prognostic import, whether consistently high or low. The degree of blood pressure response to cold gives a more accurate standard for measuring cardiovascular tone than does the ordinary series of single blood pressure determinations as far as the prognosis in pulmonary tuberculosis is concerned. A response of 8 systolic, 4 diastolic mm of mercury would seem to be the least rise in blood pressure compatible with a healing case. Patients with

pulmonary tuberculosis, minimal to far advanced, who do not heal rapidly, or who tend to show exacerbations, give a poor blood pressure response to cold. In repeated cold tests, when spread of disease in the lung has occurred, the response to cold usually is impaired definitely before there is any drop in basal, or pretest, blood pressure. The cold test should be applied as a routine in all cases of pulmonary tuberculosis in which the highest systolic blood pressure by ordinary morning determinations is not more than from 120 to 126 mm of mercury. Absence of a rise in diastolic pressure in response to cold implies a definitely unfavorable course of tuberculosis, unless the systolic rise is quite marked.

Acetylsalicylic Acid Therapy of Chorea—Pearson employed calcium and acetylsalicylic acid in the treatment of twenty-three cases of Sydenham's chorea with marked clinical improvement and a shortening of the average duration of the chorea. Spinal fluid calcium estimations in the twenty-three cases of chorea showed that there was no minimal figure below which chorea occurred. Variations in the calcium level in the spinal fluid during the attack of chorea were found to range from 26 to 64 mg per hundred cubic centimeters and after the chorea had subsided they ranged from 28 to 66 mg. With calcium and acetylsalicylic acid treatment seventeen cases of chorea showed an increase in the calcium of the spinal fluid, with a disappearance of the chorea, six cases showed a decrease in the spinal fluid calcium, also with a disappearance of the chorea. Many of the cases showing an increase later showed a decrease to the former level or below it with no return of the chorea. Some patients returned to the hospital several months after discharge with a recurrence of chorea, although the level of the spinal fluid calcium remained the same or was higher than on discharge.

Canadian Public Health Journal, Toronto

28 157 208 (April) 1937

- Recent Advances in Study of Influenza R Hare, Toronto—p 157
Experiment in Health Teaching in Ontario Part I Background of Experiment J T Phair Toronto—p 166
Id II The Experiment Mary Power and R H Roberts Toronto—p 172
The Fundamentals of Air Conditioning G H Ferguson Ottawa Ont—p 179
Staff Education in Public Health Nursing Kate S Brighty Edmonton, Alta—p 182
Further Observations on Staphylococcal Infections of Bovine Udder R Gwatkin Toronto—p 185

28 209 258 (May) 1937

- Tuberculosis I Extent of the Public Health Problem in Ontario N E McKinnon Toronto—p 209
Id II Early Diagnosis of Tuberculosis D W Crombie London Ont—p 211
Id III Provincial Tuberculosis Program in Ontario G C Brink Toronto—p 216
Amendments to Canadian Maritime Quarantine Regulations J J Heagerty Ottawa Ont—p 224
Incrimination of Mill and Milk Products in Staphylococcus Poisonings Suggested Methods for Investigation of Outbreaks H J Shaughnessy and T C Grubb Springfield Ill—p 229
Legal Responsibility of a Medical Officer of Health K G Gray Toronto—p 235
Bacillus Welchii as an Indicator of Pollution in Sanitary Surveys D H Matheson Hamilton Ont—p 241

Colorado Medicine, Denver

34 297 368 (May) 1937

- Serodiagnosis of Syphilis with Particular Reference to the Kahn Test W C Mitchell Denver—p 311
Administrative Problems in Sparsely Populated Areas J R Earp Santa Fe N M—p 317
*Etiology, Symptoms and Treatment of Delirium Tremens J P Hilton Denver—p 321
Surgical Conditions of Esophagus J R Nilsson, Omaha—p 333

Etiology, Symptoms and Treatment of Delirium Tremens—Hilton asserts that countries which rigorously restrict the per capita consumption of alcohol have a low rate of incidence of delirium tremens, the distinctive symptoms of which are delirium, tremor and sometimes peripheral neuritis. Unless interrupted, physical restlessness may lead to collapse and death. Sleep should be induced immediately. The drug of choice is paraldehyde in doses of from 3 to 6 drachms (12 to 24 cc). As soon as the patient is asleep a spinal puncture should be done and from 20 to 50 cc of spinal fluid should be withdrawn in order to relieve the cerebral edema and reduce the spinal fluid pressure to an approximate normal. Following

the administration of the paraldehyde and the spinal puncture the patient sleeps soundly for from four to eight hours and awakens free from the delirium, or at least oriented sufficiently so that he correctly interprets his environment and responds to nursing care. If this or a similar procedure is not carried out the delirium will persist and exhaustion or intercurrent infection may bring about a fatal outcome.

Connecticut State Medical Society Journal, New Haven

1 239 350 (May) 1937

- Foreign Bodies in Food and Air Passages Resume of Sixty Two Cases Including One of Special Interest N Canfield New Haven—p 239
Pyogenic Cystitis Its Diagnosis and Treatment C L Deming New Haven—p 243
Protamine Zinc Insulin B Greenhouse New Haven—p 247
Effect of Presacral Neurectomy on Subsequent Childbirth Case Report J R Miller Hartford—p 253
Injection Treatment of Hernia D C Patterson, Bridgeport—p 255

Delaware State Medical Journal, Wilmington

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- Emotions M A Tarumianz Farnhurst—p 53
Epilepsy Persis F Elfeld Farnhurst—p 56
Hirschsprung's Disease Megacolon J Ballard Farnhurst—p 63
Wide Span Psychometric Patterns C Uhler Farnhurst—p 65
Use of Encephalography in the Delaware State Hospital B G Lawrence Farnhurst—p 71
A Psychiatric Problem What Next? A L Crane Farnhurst—p 74
Research in Schizophrenia During 1936 J K Morrow Farnhurst—p 76
General Paresis Experiences with Diathermy Treatment G J Gordon Farnhurst—p 80
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Psychometric Patterns of State Hospital Patients J Jastak Farnhurst—p 87
Psychometric Patterns in Industrial School Boys A D Glanville Farnhurst—p 91
Verbal and Manual Functions at the Preschool Level Diana S Oberlin Farnhurst—p 95
Treatment of Impacted Teeth W H Norris Wilmington and L Kreshtool Farnhurst—p 98

Georgia Medical Association Journal, Atlanta

26 169 210 (May) 1937

- Do We Want National Sickness Insurance? W H Myers Savannah—p 169
Storage and Purification of Water H Wiggul and J C Norris Atlanta—p 175
Comparative Drug Prophylaxis Survey of Malaria Preliminary Report R A Hill and M H Goodwin Jr Thomasville—p 179
Foreign Bodies in Urinary Bladder Report of Case J M McGehee Cedartown—p 183
Biliary Diseases in the Negro F K Boland Jr Atlanta—p 185
Amended Compensation Act C W Roberts Atlanta—p 187
One Hundred Years of Medicine in Atlanta J L Campbell Atlanta—p 189
Persistent Exophthalmos Surgical Treatment by Recession of Levator Palpebrae Superioris Report of Case S C Howell, Atlanta—p 193
Inoculation Against Smallpox in Georgia J Krafka Jr Augusta—p 195
Congenital Pemphigus Report of Case W W Daniel and A J Ayers Atlanta—p 196
Human Rubbish W L Funkbouser Atlanta—p 197

Indiana State Medical Assn Journal, Indianapolis

30 227 274 (May) 1937

- Selective Treatment of Septic Abortion F J Taussig St Louis—p 227
*Bowel Obstruction Due to Gallstones Report of Three Cases D F Cameron Fort Wayne—p 231
The Medicolegal Autopsy F Forry Indianapolis—p 235
Death from Rabies Following Pasteur Treatment Case Report G E Moses Worthington—p 237
Recent Advances in the Physiology of Anterior Pituitary Hormones and Their Clinical Application J T Witherspoon Indianapolis—p 238
Analgesia in Labor (Modified Gwathmey Method) C O McCormick Indianapolis—p 242
Spinal Anesthesia Correlation of Theory and Practice R B Stout Elkhart—p 245

Intestinal Obstruction Due to Gallstones—Cameron emphasizes the frequency of gallstone ileus and the need for its early recognition. He cites the history and operative procedure in two such cases with recovery and subsequent x-ray study of the gallbladder. A third case, seen only at necropsy, is also reported. In one of the cases in which operation was performed a gallstone half an inch in diameter was vomited a few minutes preceding the operation. In sixty-one cases of mechanical ileus, excluding strangulated hernias, in which operation was performed by the author, the obstruction was

caused by gallstones in two instances, a frequency of 33 per cent. Owing mainly to the early recognition of the obstruction, both of these patients recovered. The gallstones gain entrance to the intestinal tract through a fistula from the gallbladder. The shortest diameter of the obstructing calculus is about 1 inch. Apparently larger stones seldom reach the intestine and smaller ones do not cause obstruction. X-ray study of one case seven years after operation showed that the gallbladder filled and emptied normally. A gallstone ileus should be strongly suspected in any patient, especially a woman, in whom an acute obstruction of the small intestine develops suddenly after an exacerbation of chronic gallbladder disease.

Iowa State Medical Society Journal, Des Moines

27 183 238 (May) 1937

- Surgical Treatment of Head Injuries W D Abbott Des Moines — p 183
*The Heart Throughout Various Periods of Life F A Willis Rochester Minn — p 187
Syphilis in Children Notes M W Dick Iowa City — p 191
Advances in Internal Medicine in 1936 J S McQuiston Cedar Rapids — p 197
Skeletal Traction in Fractures of Lower Extremity G C Blaine and H A Spilman Ottumwa — p 202
New Developments in Study of Hygroma J J Duffy Denison — p 205

The Heart Throughout Various Periods of Life — Willis considers the heart in relation to the ten decades of life and records the incidence of its major diseases and their modifying influence on longevity as derived from a study of 3,418 cases, in 60 per cent of which postmortem examinations were conducted. The eight principal forms of heart disease were represented: coronary disease, hypertensive heart disease, rheumatic heart disease, syphilitic cardiovascular disease, adiposity of the heart, chronic adherent pericarditis, calcareous aortic stenosis and congenital heart disease. The relative incidence of the various forms of cardiopathy were as follows: coronary disease, 33.5 per cent, hypertensive heart disease 26.8 per cent, rheumatic heart disease, 27.2 per cent, syphilitic cardiovascular disease, 6.3 per cent, adiposity of the heart, 2 per cent, chronic adherent pericarditis (nonrheumatic), 1 per cent, calcareous aortic stenosis, 1.1 per cent and congenital heart disease, 2.1 per cent. The greatest incidence of heart disease occurred in the fifth, sixth and seventh decades of life and 67.5 per cent of the patients belonged to these three age periods. The heart, in the journey through life, is at all times subjected to the perils of disease. These perils vary in character and in magnitude, according to the age of the individual. The heart that has escaped the ravages of disease and has withstood the stresses and strains of active life is one fundamentally endowed with superior qualities. Confirmation of this fact is found in the progressively decreasing incidence of heart disease in the closing periods of life and the consequent diminishing death rate from this cause. This tapering incidence is greatly influenced by the already depleted ranks of aged individuals as the result of many other diseases. That the occurrence of heart disease in the last two decades of life is less than that in the first two decades is not without significance.

Journal of Biological Chemistry, Baltimore

118 321 548 (April) 1937 Partial Index

- Convenient Type of Tonometer for Equilibration of Blood L Irving and E C Black Toronto — p 337
Are Phosphatases of Bone Kidney Intestine and Serum Identical? Use of Bile Acids in Their Differentiation O Bodansky New York — p 341
Metabolism and Mode of Action of Vitamin D II Storage of Vitamin D in Different Tissues in Vivo W Heymann Cleveland — p 371
Determination of Cholesterol W M Sperry New York — p 377
Separation of Choline and Ethanolamine E Chargaff New York — p 417
Method for Isolation of Glucosamine E Chargaff and M Bovarnick New York — p 421
Lactate and Pyruvate in Blood and Urine After Exercise R E Johnson and H T Edwards Boston — p 427
Convenient Method of Determining Small Amounts of Ammonia and Other Bases by Use of Boric Acid A E Sohrel H Yaska and J Cohen New York — p 443
Heparin Mucotin Polysulfuric Acid E Jorpes and S Bergstrom Stockholm Sweden — p 447
Colorimetric Determination of Components of 3,4-Dihydroxyphenylalanine Tyrosine Mixtures L E Arnow Minneapolis — p 531
Determination of Serum Calcium by Titration with Ceric Sulfate E Katzman and M Jacobi New York — p 539

Journal of Comparative Neurology, Philadelphia

66 301 550 (April) 1937

- Bilateral Inequality in Number of Sensory Neurons in Trunk of Vertebrates E Delorenzi Turin Italy — p 301
Innervation of Intrinsic Muscles of the Eye of the Cat S L Clark Nashville Tenn — p 307
Further Investigation of Auditory Cerebral Mechanisms L E Wiley Cleveland — p 327
Anatomic Relations of Commissures of Meynert and Gudden in Cat T A Weaver Jr Rochester N Y — p 333
Diurnal Changes in Retina of Catfish *Ameiurus Nebulosus* J H Welsh and C M Osborn Boston — p 349
Total Distribution of Taste Buds on Tongue of the Kitten at Birth R Elliott Columbus Ohio — p 361
Telencephalon of *Tupinambis Nigropunctatus* I Medial and Cortical Areas Alice Osborne Curwen — p 375
Peripheral and Central Connections of Upper Cervical Dorsal Root Ganglions in Rhesus Monkey K B Corbin W T Lhamon and D W Petit Palo Alto Calif — p 405
Function of the Brain in Auditory Localization II Effect of Cortical Operation on Original Learning L A Pennington Chicago — p 415
Cortical Lesion Causing Cell Reaction in Anteromedial Thalamic Nucleus W H Waller Washington D C — p 443
*Myelination in Central Nervous System of Albino Rat Treated with Thymus Extract (Hanson) A C Buckley Philadelphia — p 449
Cells and Fibers in Spinal Nerves III Is a 1:1 Ratio in Dorsal Root the Rule? J F Barnes and H A Davenport Chicago — p 459
Mechanism of Vision VIII Cerebral Function in Discrimination of Brightness When Detail Vision Is Controlled K S Lashley, Boston — p 471
Further Experimental Investigations on Phenomenon of Homologous Response in Transplanted Amphibian Limbs II Nerve Regeneration and Innervation of Transplanted Limbs P Weiss Chicago — p 481
Id III Homologous Response in Absence of Sensory Innervation P Weiss Chicago — p 537

Myelination in Nervous System of Rat — Buckley attempted to determine the rate of advancement of myelination in rats treated with thymus extract as compared with normal control animals, to study the regional order of myelination in the central nervous system of the developing animal and to study the comparative behavior capability in the two sets of animals. Allowing for difference in rate of growth in individual animals, there appeared a consistent similarity in control animals of similar age. The 6 day thymus treated albino rat of the sixth generation shows myelination in the spinal cord equivalent to that of the normal 13 day or older animal, the 6 day thymus treated rat of the tenth generation shows myelination equivalent to that of the rat 20 or more days old. In tenth generation animals, myelination occurs in all funiculi of the spinal cord in thymus treated albino rats at forty-eight hours and at twenty-four hours after birth, except in the corticospinal (pyramidal) and dorsolateral (Lissauer) tract.

Journal of Experimental Medicine, New York

65 613 756 (May) 1937

- Coagulation of Blood by Snake Venoms and Its Physiologic Significance H Eagle Philadelphia — p 613
Electrophoresis of Purified Antibody Preparations A Tiselius Uppsala Sweden — p 641
Quantitative Theory of Precipitin Reaction IV Reaction of *Pneumococcus* Specific Polysaccharides with Homologous Rabbit Antiserums M Heidelberger and F E Kendall New York — p 647
Chemical Properties of Purified Spreading Factor from Testicle A Claude and F Duran Reynals New York — p 661
Studies on Experimental Hypertension III Production of Persistent Hypertension in Monkeys (Macaque) by Renal Ischemia H Goldblatt Cleveland — p 671
Effect of Intense Sonic Vibrations on Elementary Bodies of Vaccinia T M Rivers J E Smadel New York and L A Chambers Philadelphia — p 677
Viruses of Poliomyelitis Immunologic Comparison of Six Strains J D Trask J R Paul Agnes R Beebe and W J German New Haven Conn — p 687
Spontaneous Encephalomyelitis of Mice A New Virus Disease M Theiler New York — p 705
Studies on Haemophilus Influenzae I Infection of Mice with Mucin Suspensions of Organism L D Fothergill J H Dingle and Caroline A Chandler Boston — p 721
*The Probable Nature of the Infectious Agent of Trachoma L A Julanelle R W Harrison and M C Morris St Louis — p 735

Probable Nature of Infectious Agent of Trachoma — Julanelle and his associates made a concentrated effort to determine whether the incitant of trachoma may be considered a virus. As a result of continuing studies on the infectivity of tissues from patients with trachoma, it has been possible to visualize more concretely the infectious agent of the disease.

Adapting to this problem the technic of testicular passage in rabbits, it was found that trachomatous tissues, from both man and monkey, may be purified of the extraneous bacteria usually present on the conjunctiva. While irregular in its execution, this method permits the infectious agent to retain its infectivity a sufficient number of times to support the conclusion that trachomatous tissues liberated of bacteria may still be specifically infectious for monkeys. The evidence indicates, however, that the infectious agent does not multiply during this passage. Successful filtration, employing Scitz, Kramer, Berkefeld and Elford filters, is accomplished only rarely and with difficulty. It may be that filtration of the infectious agent depends on a certain degree of epithelial cell degeneration for its liberation into the surrounding menstium. Since cellular degeneration is slight, particularly in the uncomplicated stages, it is not unlikely that the unattached infectious agent occurs in quantities insufficient for successful filtration. In the rarer cases of marked cellular degeneration on the other hand, the infectious agent is filtrable thus contributing the few examples reported in the literature. Inability of the infectious agent to multiply in various bacteriologic mediums suggested attempted propagation in tissue cultures. The conclusion is inevitable that the infectious agent of trachoma possesses an exquisite tissue specialization. Unable to infect lower animals at all the modified disease it induces in apes and monkeys is confined to the conjunctiva. On careful reflection, the evidence suggests that the infectious agent of trachoma is a virus, filtrable with difficulty, under conditions not yet understood. Its characteristics of low infectivity, marked tissue specialization, poor immunogenic properties, rare filtrability, weak propagative power and fragility before different agents all classify the virus as an extremely unusual variety. Indeed, even the inclusions accompanying its presence in human tissues differ from the virus inclusions heretofore recognized. If future investigation succeeds in confirming its viral nature, it will have to be regarded as possessing properties differing considerably from those of viruses now generally known.

Journal of Immunology, Baltimore

32 271 340 (April) 1937

- Study of Pneumococcal Toxins and Antitoxins in Animals. A F. Coca, P. A. Little, B. M. Lyon and E. F. Voigt. Pearl River, N. Y.—p. 271.
- Differences in Activity of Serum Complement from Various Animal Species. E. W. Shrigley and M. R. Irwin. Madison, Wis.—p. 281.
- Quantitative Study of Ramon Diphtheria Flocculation Reaction. A. M. Pappenheimer Jr. and E. S. Robinson. Jamaica Plain, Mass.—p. 291.
- Hereditary Agglutinogens. M. and N. Among Pueblo and Blackfoot Indians. F. W. Allen and H. D. Larsen. Albuquerque, N. M.—p. 301.
- Blood Grouping Tests on 300 Mummies. Notes on Precipitin Test. W. C. Boyd and L. G. Boyd. Boston.—p. 307.
- *Hemolytic Streptococcus Toxins and Antitoxins. V. Titration by Flocculation Reaction. L. Rane and Louise Wyman. Boston.—p. 321.
- Survival of Virulent Haemophilus Influenzae in Phagocytes. L. D. Fothergill, Caroline A. Chandler and J. H. Dingle. Boston.—p. 335.

Hemolytic Streptococcus Toxins and Antitoxins.—Rane and Wyman developed a flocculative test for the titration of hemolytic streptococcus toxins and antitoxins which is comparable to the Ramon method for titrating diphtherial toxins and antitoxins. The technic employed in flocculation is essentially that of the Ramon test. Concentrated toxins are preferred to crude toxins because they flocculate with greater rapidity. One unit of antitoxin will combine in the flocculative reaction with 60,000 skin-test doses of toxin instead of with the 50 skin-test doses to be expected on the basis of the definition of an *in vivo* unit of antitoxin. This relationship has been true of all toxins tested except those modified by formaldehyde. Streptococcus toxins and antitoxins display individual variations in their flocculating time and are influenced by the same factors as diphtherial toxins and antitoxins. The flocculating antibody is produced in horses in amounts which parallel the antibody produced against the erythrogenic toxin. It is possible that the two antibodies are identical. The average of the *in vivo*/*in vitro* ratios was found to be 0.963. The correlation-coefficient of the values obtained by the flocculative test and by the intracutaneous test in rabbits was 0.947 ± 0.023 . The Dochez NY 5 strain of hemolytic streptococcus was used as the basis for this study, although flocculation was produced with other strains of hemolytic streptococci and their homologous antitoxins.

Journal Industrial Hygiene and Toxicology, Baltimore

19 189 214 (May) 1937

- Syphilis and Unemployment. J. E. Moore. Baltimore.—p. 189.
- Use of Geiger Mueller Counter for Detecting Small Amounts of Radium Stored in Radium Workers. E. O. Braaten and J. D. Leitch. Toronto.—p. 193.
- Investigation of Factors Influencing Dust Determinations Made by Impinger Method. M. H. Kronenberg, A. N. Setterlund and C. H. McClure. Chicago.—p. 198.
- Portable Combustion Apparatus for Field Determinations of Chlorinated Hydrocarbons. B. D. Tebbens. Boston.—p. 204.

Laryngoscope, St. Louis

47 147 220 (March) 1937

- Motor Disorders of Central Nervous System and Their Significance for Speech. Part I. Cerebral and Cerebellar Dysarthrias. P. J. Zentay. St. Louis.—p. 147.
- Clinical Picture of Diseases of Labyrinth Wall. E. P. Fowler. New York.—p. 157.
- Disease of Labyrinthine Capsule. Pathologic Changes. F. R. Nager. Zurich, Switzerland.—p. 161.
- The Tonsil. Part I. Histopathologic Studies. Part II. Mucous Glands Related to the Tonsil. Part III. Relation of Tonsil to Branchiogenic Cysts. L. H. Meeker. New York.—p. 164.
- Disappearance Trends of Stammering. Preliminary Report. C. Quinn. Nevada City, Calif.—p. 184.
- Some Recent Ideas on Deafness. I. W. Voorhees. New York.—p. 197.
- Double Binaural Device as an Aid in Catheterization of Eustachian Tubes. M. M. Kafka. Brooklyn.—p. 201.

New Orleans Medical and Surgical Journal

89 531 602 (April) 1937

- Chronic Benign and Small Malignant Ulcerative Lesions of Stomach. Factors Helpful in Differential Diagnosis. G. B. Eusterman. Rochester, Minn.—p. 531.
- Justification for Exploratory Laparotomy in Absence of Definite Diagnosis. U. Maes and Elizabeth M. McFetridge. New Orleans.—p. 539.
- Continuous Drip Blood Transfusion (Marriott). Indications for Its Use with Report of Cases. D. N. Silverman. New Orleans.—p. 545.
- *Toxic Postpartal Heart Disease. E. Hull and Eleanor Hafkesbring. New Orleans.—p. 550.
- Diagnosis and Conservative Treatment of Ethmoiditis. A. L. Peters. Monroe, La.—p. 557.
- Treatment of Allergy with Nasal Ionization. D. R. Womack. New Orleans.—p. 562.
- Melanosarcoma of the Eye. Malignant Melanoma. J. L. Seates. Shreveport, La.—p. 567.

"Toxic" Postpartal Heart Disease.—Hull and Hafkesbring point out that congestive heart failure not due to any of the usual types of heart disease sometimes occurs in women shortly after the termination of a pregnancy. The causes of the failure are believed to be factors that operate during pregnancy or the puerperium or both. This type of heart disease has tentatively been termed 'toxic' postpartal heart disease. It closely resembles the cardiac form of beriberi in symptoms and signs, and it is believed that relative food deficiencies probably are concerned in its pathogenesis. Other possible etiologic factors are the hypertension, hypoproteinemia and water retention of the toxemia of pregnancy, the tendency to edema present in normal pregnancy and puerperal infection. This condition offers a better prognosis than heart failure of similar severity due to the usual causes, and complete restoration of the heart to normal is apparently possible. Symptoms appear at a variable time after parturition, most frequently within a month. The onset is usually gradual, early symptoms being swelling of the feet and ankles, slight dyspnea and cough. Edema gradually increases, so that after a few weeks it is extreme, involving the face and arms as well as the legs, large effusions are present in the pleural and the peritoneal and sometimes in the pericardial cavities. The triad of anasarca, gallop rhythm and small volume pulse is characteristic. Laboratory data are inconclusive. The incidence of postpartal heart failure might be reduced by the prescription of diets for pregnant women which are adequate in protein, iron and vitamins. The slightest symptoms of cardiac embarrassment during the later months of pregnancy or after the puerperium should call for rest in bed, restriction of the intake of fluid and salt and a high protein and high vitamin diet. Although the response to the usual measures used in the treatment of heart failure is not striking, it is hardly justifiable to omit these measures. The patient should be digitalized, his intake of fluid and salt should be restricted, and diuretics should be employed. Venesection is of benefit when dyspnea is extreme. Measures directed toward correcting possible pathogenic factors are also indicated.

SO 603 666 (May) 1937

- Will We Be Saved? If W Kostmayer New Orleans—p 603
Francis Marie Prevost and Early History of Cesarean Section in Louisiana R Matus New Orleans—p 604
Study of Abdominal Cesarean Section at Charity Hospital 1927 1935 J W Reddock New Orleans and R P Howell Lake Charles La—p 625
Surgical Treatment of Scleroderma M DeBakey, New Orleans—p 631
Color Motion Pictures of Intestine F E LeJeune New Orleans—p 636
Simplified Projection of Roentgen Ray Films E C Samuel and E R Bowie New Orleans—p 640
*Pyogenic Osteomyelitis of the Spine A Mayoral, New Orleans—p 641
Report of the Pasteur Institute of the Charity Hospital of Louisiana at New Orleans for the Year 1936 R D Aunoy and J H Connell New Orleans—p 643

Pyogenic Osteomyelitis of the Spine—Mayoral reports a case of pyogenic osteomyelitis of the spine in which, although osteomyelitis was suspected and the patient was repeatedly roentgenographed, the lesion was not found until he had practically recovered. In the spine, as in any other bone, roentgen diagnosis of osteomyelitis cannot be made before there is bone destruction, and it is at best a late diagnosis. The time at which bone destruction becomes visible in a roentgenogram depends on the "balance of power" between the aggressiveness of the infectious organism and the body resistance, and, to a certain extent, on the site of the infection. Therefore roentgenograms cannot be of aid in making an early diagnosis, but, like postmortems and biopsies, they can be confirmatory. The clinician should be familiar with the limitations of the roentgenogram so as not to place too much emphasis on negative observations. The burden of proof in early diagnosis rests on the clinical signs and symptoms. When metastases lodge in the vertebrae, two types of symptoms develop: septic, accompanied by a high leukocyte count, polymorphonuclears predominating, fever, malaise, muscular pain, headache and vomiting, and the localized symptoms of infection within the bone which cause pain and early disability of the section of the spine involved. Later symptoms depend on the behavior of the local infection. Osteomyelitis is generally a metastatic lesion. If the original focus is found, the relationship between the primary and secondary foci can be established. The etiology can then be reasonably suspected and proved by biopsy, culture or animal inoculation. When these classic methods cannot be applied and when the spinal lesion develops from a hidden, inactive focus, the problem is entirely a clinical one. A rapidly disabling and painful, localized lesion showing marked signs of inflammation accompanied by leukocytosis and rapid bone destruction is a factor pointing to pyogenic infection, in contradistinction to tuberculosis, which is a chronic disease destroying bone slowly.

New York State Journal of Medicine, New York

37 841 928 (May 1) 1937

- *Jaundice C G Heyd New York—p 841
Chaos in Drug Therapy Vicious Circle C Solomon Brooklyn—p 847
Carcinoma of the Colon D P MacGuire New York—p 857
Adenoma Adenocarcinoma of Adrenals Based on a Series of Thirty Four Cases H M Feinblatt and B Alpert, Brooklyn—p 861
Chronic Alkaline Encrusted Cystitis Cure of Case with Contraction of Bladder by Vitamin A Regimen and Indwelling Catheter M Meltzer New York—p 865
Trauma in the New Born W M Hartshorn New York—p 869
Infections of Skin Due to *Monilia Albicans* I Diagnostic Value of Intradermal Testing with a Commercial Extract of *Monilia Albicans* G M Lewis Mary E Hopper and R M Montgomery New York—p 878

Jaundice—Heyd states that jaundice with pain and bile in the stool or duodenal drainage denotes calculous or infectious obstruction of the external biliary system. Jaundice without pain and without bile in the stools or duodenal contents indicates carcinoma of the external biliary system. Jaundice without pain, but with bile in the stool or duodenal drainage, suggests intrinsic pathologic changes of the liver. Hemolytic jaundice, familial jaundice and the jaundice of the anemias are termed "dissociated jaundice" in that there is an excess of bilirubin in the blood, but no retention of bile salts or bile acids, and the excretory function of the liver for the delivery of bile into the intestinal tract is normal. Gallstones, however, may be found at laparotomy in patients with hemolytic jaundice because there is "bile retention" in the intrahepatic bile ducts due to the excess

of bile pigments, with an inability of the liver to excrete this excess. Bile thrombi occur in the intrahepatic bile canaliculi and there is a deposition of bile pigments in the gallbladder with the production of pleochromic calculi.

Ohio State Medical Journal, Columbus

33 489 600 (May) 1937

- Ophthalmologic Problems of Interest to the General Medical Man A D Frost Columbus—p 505
*Precipitation of Attacks of Recurrent Acetonemic Vomiting by Means of a Ketogenic Diet W Heymann, Cleveland—p 510
Treatment of Surgical Conditions Complicating Extraction of Teeth J M Vaughn Cleveland—p 514
Neck Infections in Relation to the Otolaryngologist G E Black Akron—p 520
*Prognosis in Coronary Heart Disease and After Coronary Occlusion H C King Lakewood—p 524
Endocrines in Gynecology A G Sar Louis Cleveland—p 528
Pneumonia Due to Klebs-Loeffler Bacilli F G Smith Marion—p 534
Relationship of Trauma to Constitutional Disease M B Rusoff, Columbus—p 538

Attacks of Acetonemic Vomiting from Ketogenic Diet—Heymann emphasizes that loss in weight and early and severe ketosis, together with the precipitation of uncontrollable vomiting, are specific, that is, they are found only in true acetonemic vomiting. It has been claimed that hypoglycemia is an essential element in cyclic vomiting. However, he found that normal, healthy children, from 3 to 10 years of age, who were placed on a practically carbohydrate free diet, developed the same degree of hypoglycemia that is developed by children during an attack of cyclic vomiting. Therefore the low blood sugar values occasionally found in cases of cyclic vomiting must be due to the carbohydrate starvation obviously present in children who are vomiting and starving. Furthermore, this hypoglycemia may be compensated, depending on the degree of dehydration that often accompanies an attack of cyclic vomiting. Because of the sudden development of hypoglycemia and acetonuria in children suffering from recurrent acetonemic vomiting, it has been thought that the inability of the liver to hydrolyze glycogen might be the cause of the attack. However, the intramuscular injection of 0.5 cc of epinephrine caused a normal rise in the blood sugar value in such a child on a day when the child was healthy as well as on another day just one hour before an attack of cyclic vomiting started. That the once increased blood sugar does not return to normal values in the proper time is most probably a consequence of dehydration. On the basis of observations that children suffering from recurrent acetonemic vomiting develop ketosis and severe dehydration easily under the influence of a ketogenic diet, the author thinks that he is justified in assuming some abnormal regulation and extreme lability of the intermediary carbohydrate metabolism, and perhaps also of the fat metabolism, of the liver. That the accumulation of ketone bodies does not represent the substance responsible for the development of uncontrollable vomiting is rather certain. A decreased glycogen storage in the liver involves a faulty utilization not only of fat but also of protein.

Prognosis in Coronary Heart Disease—King saw 112 patients with coronary heart disease and coronary occlusion. Sixty-two were seen at the time of the acute occlusion and fifty were seen later. The occurrence of an initial shock, auricular fibrillation, persistent high fever and marked leukocytosis at the time of the occlusion influences the prognosis unfavorably. In cases observed some time after recovery from the acute occlusion the appearance of paroxysmal nocturnal dyspnea, acute pulmonary edema and congestive failure, especially with a slow heart rate and normal rhythm, and the presence of considerable cardiac enlargement or anginal attacks on slight exertion indicate impending complete failure. Auricular fibrillation appearing late in the course of coronary heart disease does not materially alter the outlook for the length of life.

Oklahoma State Medical Assn Journal, McAlester

30 111 152 (April) 1937

- Pulmonary Heart Disease H A Ruprecht Tulsa—p 111
The Importance of Fields of Vision F M Cooper Oklahoma City—p 115
Congenital Pneumonia Case Report P N Charbonnet and E O Johnson, Tulsa—p 120
Physiologic Period of Relative Sterility and Fertility in Women F E Dill Oklahoma City—p 123
Supravaginal Hysterectomy versus Total Hysterectomy H C Jones Oklahoma City—p 128

Public Health Reports, Washington, D C

52 587 626 (May 7) 1937

Tuberculosis Control by Small County Health Department J O Dean —p 597
Seasonal Patterns and Trends of Communicable Diseases R Olesen and B C Hampton —p 609

52 627 658 (May 14) 1937

Rural Sanitation by Emergency Relief Workers J O Dean and Kay Pearson —p 629

*Dibenzanthracene Tumors in Mice Production of Subcutaneous Pulmonary and Liver Tumors by Serum Dispersions and Lard Solutions H B Andervont and E Lorenz —p 637

Dibenzanthracene Tumors in Mice—Andervont and Lorenz injected dog serum and horse serum dispersions of 1,2,5,6-dibenzanthracene intravenously or subcutaneously and lard solutions of the same compound were injected subcutaneously into pure strain mice. The serum dispersions, when injected intravenously, induced lung and liver tumors, and, when injected subcutaneously, produced local tumors at the site of injection as well as lung and liver tumors. Lard dispersion, when injected subcutaneously, evoked local tumors at the injection site and also produced lung and liver tumors. The appearance of lung and liver tumors in mice injected subcutaneously is evidence that 1,2,5,6-dibenzanthracene is capable of producing tumors in tissues which are distant from the site of injection.

Rhode Island Medical Journal, Providence

20 73 86 (May) 1937

Brucella Infections in Man C C Dustin Providence —p 73
Review of Sickness Insurance in Foreign Countries H C Pitts Providence —p 76

South Carolina Medical Assn Journal, Greenville

33 111 138 (May) 1937

Painful Lesions of the Eye F R Price Charleston —p 111

Southwestern Medicine, Phoenix, Ariz

21 111 150 (April) 1937

Organized Medicine Responsibilities of Our Association C R Swackhamer Superior Ariz —p 111
Nephropexy—Neglected Stepchild of Surgery B Lewis, St Louis —p 114
*Protamine Insulin Its Use in Routine Office Treatment of Ambulatory Patients with Diabetes Mellitus L B Smith and H J McKeown, Phoenix Ariz —p 118
Autonomic Nervous System Its Relation to Functional Disorders L R Kober Phoenix Ariz —p 122
Lymphopathia Venera An Increasingly Important Clinical Entity D L Secrist Tucson Ariz —p 125
Psycho-Allergic Interpretation of Neuroses and Psychoses W Marshall and J S Tarwater Tuscaloosa Ala —p 128
Birth of Two Malformed Fetuses One a Twin, to Same Mother P G Corliss Somerton Ariz —p 134
Burns Two Case Reports of Extensive Burns in Children Both Recovered One with Curling Ulcer W P Sherrill Phoenix Ariz —p 135

Protamine Insulin—Smith and McKeown treated fifteen ambulatory patients having uncomplicated diabetes mellitus with protamine zinc insulin. These patients were divided into three groups according to the time of day protamine was used. All were taught to keep an accurate check on the sugar content of their urine, testing four or five specimens daily. Diets were adjusted to the individual patient. The administration of protamine insulin was started by a gradual substitution of approximately 70 to 80 per cent of the required dose of the old insulin and gradual alteration of the dose of old insulin, as indicated by the sugar content of the blood or urine. The greatest reduction in the number of units of insulin required was in the group receiving protamine zinc insulin twice daily. The greatest reduction in the number of daily doses required was in the group receiving protamine in the morning. In the group receiving protamine morning and evening only, 33 per cent of the patients dropped one dose a day, with an average reduction of 12.5 per cent in the total number of daily doses required. In some cases control with protamine was accomplished within a few days, but on an average it required from four to six days for the full effects of a given daily dose of protamine to show its maximal effect. Only a few minor hypoglycemic reactions were encountered. All the patients reported from slight to marked improvement in subjective symptoms. If hypoglycemia occurs, it is usually mild but much more prolonged.

Surgery, Gynecology and Obstetrics, Chicago

64 849 976 (May) 1937

*Observations on the Human Being Following Colectomy or Colonic Exclusion with Ileostomy L D Whittaker and J A Borgen Rochester Minn —p 849
Acute Perforation of Peptic Ulcer Evaluation of Contributory and Exciting Causes H L Thompson Los Angeles —p 863
Lymphatics in Omental Adhesions P H Simer and R L Webb Chicago —p 872
Syndrome of Congenital Absence of Fibula Report of Three Cases with Especial Reference to Pathogenesis and Treatment P H Harmon and J J Fabey Chicago —p 876
Pentothal Sodium for Intravenous Anesthesia J H Hutton and R M Tovell Rochester Minn —p 888
Certain Chemical Factors in Experimental High Intestinal Obstruction. E C Cutler and M Pijoan Boston —p 892
*Pitressin (Beta Hypopressin) in Laparotomies L Seed F H Falls and B Fantus Chicago —p 895
Phenomenon of Lightening in Pregnancy and Lower Uterine Segment. L Rudolph Chicago —p 906
Primary Bladder Tumors in Infants and Young Children Report of Case of Hemangioma in a Male Child 27 Months of Age N P Rathbun Brooklyn —p 914
Fractures of Humerus Functional Method of Treatment R Anderson Seattle —p 919
Radical Operation for Malignant Tumors of Thyroid Gland G Crile and G Crile Jr Cleveland —p 927
Ectopic Kidney Review of Ninety Seven Cases G J Thompson and J M Pace Rochester Minn —p 935
Sarcoma of Renal Hilus J D Kirschbaum and H Culver Chicago —p 944
Interlocking Osteoplastic Cranial Flap Method to Prevent Lateral Movement B Stookey, New York —p 949
Injuries of Hands Due to Shattered Porcelain Handles of Water Faucets E J Steenrod R K Ghormley and W M Craig Rochester Minn —p 950
Mortality in Surgical Diabetes Criteria and Technic in Extremity Lesions Five Year Study of 496 Cases F W Williams and T J O'Keefe New York —p 956

Colectomy or Colonic Exclusion with Ileostomy—Whittaker and Borgen studied both the immediate and the late effects of total colectomy or colonic exclusion on forty five patients. Colectomy or colonic exclusion by ileostomy was done only after conservative treatment had failed. The three most frequent indications were refractory chronic ulcerative colitis, chronic ulcerative colitis with polyposis, stricture or perirectal abscess and hereditary polyposis. The values for the serum calcium were slightly reduced following colectomy or ileostomy but returned to normal within a month. Colectomy or ileostomy does not otherwise disturb the physiologic equilibrium of the chemical constituents of the blood. Roentgenologic visualization or the appearance of the terminal portion of the ileum at operation or necropsy revealed a definite dilatation. There was no evidence that the dilatation was sufficient to compensate volumetrically for the excluded colonic reservoir. Stools from the ileac stomas were alkaline. The average weight of the stools while the patients were on a general diet was 433 Gm and the water content was 91.2 per cent. The watery discharge gradually thickened during the first three months. This thickening of the stool is unrelated to the time necessary for the ingested material to be expelled from the ileac stoma. There was no fundamental change in motor activity or in the intestinal response to the ingested food throughout the prolonged period following operation. A period of three months is necessary for the patients to regain their average weight and strength. No permanent deficiencies in metabolism follow ileostomy.

Pitressin in Laparotomies—Seed and his collaborators state that the three most important effects of pitressin in man are the stimulation of intestinal peristalsis, the reduction of kidney excretion and the pressor influence on the cardiovascular system. Pitressin in 20 unit doses produces powerful contractions of the distended colon with expulsion of its contents. Doses of 10 units are preferable in normal individuals, because they are only a little less effective and cause much less distress. The blood pressure generally rises after an injection of pitressin, but the rise is not large or long sustained, the deleterious effects of pitressin on the heart or blood pressure do not occur with ordinary therapeutic doses. The intravenous route of administration is not advisable. The tendency to a decreased urinary output is not sufficient to be of clinical importance, except possibly in patients with an already damaged urinary system. Pitressin given in 10 or 20 units, combined with a rectal tube is effective in postoperative atony. Pitressin given preoperatively has a tendency to contract the intestine. Its routine use after operation tends to reduce somewhat the amount of dis

tention and discomfort following operation. Neither effect is sufficiently important to make its use in this manner mandatory. The postoperative treatment of peritonitis consists largely of the use of parenterally administered fluids, constant gastric siphonage and morphine. A patient with peritonitis will recover or die, regardless of whether he does or does not receive pitressin.

Texas State Journal of Medicine, Fort Worth

33 170 (May) 1937

- Dynamic Interpretation of Certain Idiopathic Internal Medicine Problems A W Hinchfield Seattle—p 6
Congenital Heart Defects Report of Four Cases G Werley El Paso—p 9
Chronic Mediastinopericarditis M F Kreisler and C P Hardwicke, Austin—p 13
Laboratory Technique and Research Work as It Pertains to Malaria S W Bohle Austin—p 15
Sex Incidence of Chondrodermatitis Nodularis Chronica Helios Case Reports D O Poth San Antonio—p 19
Adequate Program for Prevention and Control of Tuberculosis in Texas G A Gray Sweetwater—p 21
External Cephalic Version in Latter Weeks of Pregnancy M A Davison Marlin—p 23
Abruptio Placentae II Beavers Fort Worth—p 28
Surgery of Cecocolon C S Venable San Antonio—p 32
Delayed Tetanus Following Open Fracture of Tibia and Femur W R Snow, Abilene—p 34
Differential Diagnosis of Low Back Pain W G McDeed Houston—p 37
Studies on Intravenous Pycnography H C Harrell, Texarkana and J B Johnson Galveston—p 40
Diverticulosis of Stomach Report of Two Cases P E Wigby Dallas—p 43
Some Ophthalmic Findings in Syndrome of Myasthenia Gravis E W Griffey Houston—p 46
Simple Iridotomy R L Works Brownsville—p 50
Present Status of Frontal Sinus Surgery R E Parrish San Antonio—p 52

United States Naval Med Bulletin, Washington, D C

35 157 292 (April) 1937

- Delinquency in the United States Navy Incidence and Recent Trends H O Cozby—p 157
Immunity in Syphilis C S Butler—p 173
Present Day Concepts of Endocrinology P F Dickens and O J Brown—p 176
Lymphedema of Extremities E V Allen and I L Norman—p 196
*Estimate of Arsenoxide (Mapharsen) in Treatment of Early Syphilis R P Parsons—p 207
Application of Measurements of Nitrogen Elimination to the Problem of Decompressing Divers A R Behnke—p 219
Analysis of Eighteen Syphilitic Reinfections J A Millsbaugh—p 240
Principles Underlying Diagnosis and Treatment of Psychiatric Cases J L McCartney—p 244

Arsenoxide in Treatment of Early Syphilis—Parsons treated twenty-five cases of early syphilis with alternate courses of arsenoxide and bismuth compounds. They have been under observation and treatment from ten to twenty-three months, the average being sixteen months. None had received prior antisyphilitic treatment. The age of the infections (appearance of primary lesion to beginning of treatment) ranged from one to seventy-eight days, the average being seventeen days. Twenty had positive darkfields, and of these, fifteen had positive Kahn tests before treatment was started. The darkfields became negative in from one to five days after the first injection, the average being 1.5 days. Three with primary lesions had negative darkfields but were diagnosed by other means. Three had healed chancre on admission and were diagnosed by other means. Among the twenty-one positive Kahn cases, twenty became negative after from four to twenty injections, the average being 8.9 injections. The other case remained 4 plus until twenty injections each of mapharsen and a bismuth compound had been given and then remained 2 plus until thirty injections of mapharsen had been given. It has since remained negative. No instance of clinical and only one of serologic relapse has been observed. Twenty-two patients have completed one year's treatment, including thirty injections each of arsenoxide and bismuth salicylate. Spinal fluid examination (after a year's treatment) has been accomplished in nineteen of the twenty-two cases in which the spinal fluid was negative in all phases. Nothing but the most negligible types of reaction were seen. Mild Herxheimer reactions were observed following the initial dose in two secondary cases and one late primary case. Subsequent injections produced no further reactions in any of these three cases.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Dermatology and Syphilis, London

49 151 208 (April) 1937

- Glomus and Glomus Tumor (Masson) with Clinical Account of Case W Freudenthal R G Anderson and F P Weber—p 151
*Milk's Warts Infection from 'False Cowpox' with Paravaccinal Virus P Bonnevie—p 164

"Milk's Warts"—Bonnevie presents four cases and gives a description of the clinical and pathologic features of milk's warts—presumably a disease entity. Among the eruptions on the teats of the cow there is a bullous-verrucous condition which is generally called pox. It may give rise to epizootics, especially in the summer. It may be transmitted to man and thus cause small epidemics. The infection produces characteristic granulomatous efflorescences at the sites of inoculation on the hands, so-called milk's warts, in some cases complicated with secondary, more or less extensive exanthems, the elements of which correspond to abortive milk's warts of more vacuiform appearance. The lesion disappears without treatment within a few weeks and without leaving any trace. Probably the infecting agent is a filter-passing virus closely related to variola-vaccinia, Strongyloplasma paravaccinia (Lipschütz), which is known as the producer of 'vaccine rouge,' paravaccinia (Pirquet). The disease may be seen also in slaughter-house workers, and it occurs in other animals besides the cow, e.g., sheep.

British Journal of Experimental Pathology, London

18 83 174 (April) 1937

- Experimental Infection with Haemophilus Pertussis in the Mouse by Intranasal Inoculation F M Burnett and Cecily Timmins—p 83
Investigation of Invasiveness of Strain of Streptococcus Haemolyticus M G Pradhan—p 90
Metabolism of Filter Passing Organism C from Sewage Antoinette Pirie—p 96
Metabolism of Filter Passing Organism A from Sewage Barbara E Holmes—p 103
Salt Optimum in Antibody Antigen Reactions J T Duncan—p 108
*Type of Clostridium Welchii in Human Feces with Especial Reference to Pernicious Anemia G R Borthwick and J D A Gray—p 119
Effect of 1,2,5,6-Dibenzanthracene on Spontaneous Mouse Tumors F C Pybus and E W Miller—p 126
Variations in Fowl Pest Virus R D Mackenzie and G M Findlay—p 138
Transmission of Fowl Pest to Ferrets G M Findlay and R D Mackenzie—p 146
Centrifugation Studies. III. Viruses of Foot and Mouth Disease and Vesicular Stomatitis W J Elford and I A Galloway—p 155
Measurement of Size of Viruses by High Speed Centrifugation J McIntosh and F R Selbie—p 162

Type of Clostridium Welchii in Human Feces—Borthwick and Gray state that all the five strains of Clostridium welchii isolated from the feces of patients suffering from pernicious anemia produced toxins of the A type, as shown by the short period of incubation required to produce the optimal concentration of toxin and the neutralization of the toxins by any of the four standard type antitoxins. Of five strains from the feces of healthy persons, two were either completely or practically nontoxic and the other three produced toxins of the A type. Differences between the toxins of the strains from the two sources could therefore not be elicited other than in the degree of toxicity. Toxin when produced in amounts suitable for testing, was consistently of type A. Evidence therefore is still lacking that man harbors Clostridium welchii of types other than type A.

British Medical Journal, London

1 739 794 (April 10) 1937

- Head Injuries in General Practice J Fraser—p 739
*Insulin Shock Treatment of Schizophrenia E H Larkin—p 745
Carcinoma of Cervix in India Five Year End Results S Mitra—p 747
Hypertrophic Pulmonary Osteo-Arthropathy as the First Symptom of Pulmonary Neoplasm J W Craig—p 750
Ocular Paralysis Following Mumps T H Butler and A J Wilson—p 752

Insulin Shock Treatment of Schizophrenia—All the cases of schizophrenia treated by Larkin with the daily insulin shock method have been advanced cases with marked symptoms.

of dementia praecox. Five patients have completed treatment. Three have apparently recovered. The other two are still being watched, their insight being developed by daily talks with a view to their adapting themselves well to life when they shall have returned to the outside world. Of the two who have not recovered, one is greatly improved and the other is unchanged. All except the one patient in whom the treatment was not beneficial have put on weight while actually under treatment. A sixth has already lost his delusions and hallucinations, after an unremitting attack lasting eighteen months. The starting dose of insulin is 20 units intramuscularly, the patient fasting. This is increased daily by 5 or 10 units according to progress. A shock dose is usually 130 units. Subsequent shocks are easier to induce than the first, and after a few days it may be possible to reduce the dose considerably.

East African Medical Journal, Nairobi

13 363 394 (March) 1937

- A Few Remarks on the History of the British Medical Association, 1832-1932 J B Clarke—p 364
Some Notes on the Common Foodstuffs Used in the Diets of East African Natives M H French—p 374
Queries on Native Circumcision R B Michener—p 378

Edinburgh Medical Journal

44 205 284 (April) 1937

- *Hypertension Associated with Experimental Serum Nephritis W M Arnott R J Kellar and G D Matthew—p 205
Clinical Recollections and Reflections XII Abdominal Surgery in Infancy and Childhood Gertrude Herzfeld—p 218
Studies in Method and Standardization of Blood Examination V Blood Platelet Count W F Harvey—p 231
Erythrocytic Toxins of Hemolytic Streptococci S Thomson—p 235
Tuberculin Survey of Children in the West of Scotland J W S Blacklock—p 245
*Observations on and Methods of Treatment of Tuberculosis of Kidney A Jacobs—p 246
Excretory Bacilluria W S Mack—p 253
Some Observations on Treatment of Lupus A Maclean—p 256
Types of Tubercle Bacilli in 100 Cases of Nonpulmonary Tuberculosis A R Miller—p 260
Collapse Therapy General Results and Their Implications R J Peters—p 266

Hypertension Associated with Experimental Serum Nephritis—Arnott and his colleagues made a study of the hypertension that accompanies serum nephritis, the effect of previous renal denervation on the intensity of the renal lesion, on the hypertension and on an established hypertension. The results confirm those obtained with oxalate nephritis (Arnott and Kellar, 1936) and strengthen the contention that the hypertension of acute diffuse renal disease depends for its occurrence on the integrity of the renal nerve supply. This points to two possibilities (1) that the hypertension is produced by an autonomic vasoconstrictor reflex originating in the damaged kidneys or (2) by some chemical mechanism which depends for its operation on the integrity of the renal nerve supply. There is at present no collateral evidence in support of the second hypothesis, whereas the first hypothesis receives confirmation from work by Pickering (1936) on the nature of the arteriolar hypertonicity in human cases of acute glomerulonephritis. He used the same methods which had already led him to the conclusion that the chronic hypertension of advanced nephritis and essential hypertension was not due to excessive nervous vasoconstrictor tonus. These methods applied to a series of cases of acute glomerulonephritis led to the opposite conclusion—that the hypertension was due to an abnormal degree of such tonus. The authors believe that these results of Pickering may also throw light on the discrepancy between their results and those of Page (1935) and Collins (1936), who found that the hypertension produced by constriction of the renal artery could not be prevented by previous renal denervation. This hypertension was probably of the chronic type and is more comparable with the chronic hypertensive states of advanced renal damage than with the hypertension of acute renal disease. It may well be that integrity of the renal nerves is necessary for the production of acute renal hypertension only.

Treatment of Tuberculosis of Kidney—Jacobs considers any patient with pyuria and a tubercle-positive urine in the absence of a genital lesion to be suffering from a renal tuberculosis. If a genital lesion is present, this should never be accepted as the source of the urinary infection for an investiga-

tion of the upper part of the urinary tract will show that the greater number of these patients have a coincident renal lesion. When the diagnosis of urinary tuberculosis has been established it is essential to ascertain whether the disease is unilateral or bilateral. If it is unilateral, a nephrectomy must be carried out as natural healing of the lesion cannot occur. The presence of tubercle bacilli, without pus in the urine, from a kidney which has a normal pyelographic outline should not contraindicate the removal of the other kidney if it is the seat of an established destructive lesion. The presence of other tuberculous lesions should not be a deterrent to nephrectomy except when they render the patient too ill to stand the operation. Removal of the kidney should be regarded as only an incident in the course of the treatment. After operation, all patients should undergo a prolonged sanatorium regimen. Inoperable bilateral cases should have sanatorium treatment. Although a cure cannot be expected, the defense mechanism of the body may be built up to such a degree that some control of the lesions may result. If this is successful, bilateral disease may be compatible with life for a number of years.

Indian Medical Gazette, Calcutta

72 129 192 (March) 1937

- Radiologic and Laboratory Investigations of Chronic Gastrointestinal Disturbances in the Tropics R N Chopra R T M Hayter and S N Bhattacharya—p 129
Individual Variations in Effectiveness of Synthetic Antimalarial Drugs Preliminary Note R N Chopra B Sen and A C Roy—p 131
Treatment of Pityriasis Rosea P A Maplestone and N C Dey—p 135
Hodgkin's Disease of Pel-Ebstein Type Some Unusual Findings L E Napier R N Chaudhuri and P C Sen Gupta—p 140
Record of Rhinosporidial Polyps with Some Observations on Mode of Infection G S Mandlik—p 143
Disulfite Binding Power of Blood in Cases of Epidemic Dropsy, Anemia and Malaria and Its Possible Bearing on Vitamin B Deficiency H E C Wilson and B K Ghosh—p 147
Eggs of Taenia Solium and Taenia Saginata P A Maplestone—p 149
Giant Cell Tumor of Bone Report of Six Cases V S Hariharan—p 151
Prophylaxis of Chickenpox by Inoculation with Vesicular Fluid R C Wats and N P Dalal—p 155

Irish Journal of Medical Science, Dublin

No 135 97 140 (March) 1937

- The Development and Disorders of Speech T G Wilson—p 97

Journal of Laryngology and Otology, London

52 233 294 (April) 1937

- Bronchspirometry and Its Clinical Application with Short Account of Bronchial Catheterization P Frenckner and S Bjorkman—p 233
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Journal Obst & Gynaec of Brit Empire, Manchester

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- *Weight Changes During and After Pregnancy with Especial Reference to Early Diagnosis of Toxemia A Louise McIlroy and Helen E Rodway—p 221
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Weight Changes During and After Pregnancy—McIlroy and Rodway had under constant observation 704 primigravidae and 296 multiparas from the twenty-fourth week of pregnancy to term. The average periodic gain in weight was 11 pounds 2 ounces (5,046 Gm) for the primigravidae and

11 pounds 7 ounces (5,188 Gm) for the multiparas. The maximal increase occurred from the twenty-fourth to the twenty-eighth week, 3 pounds 5½ ounces (1,517 Gm), and the minimal increase from the thirty-eighth to the fortieth week, 2 pounds 4 ounces (1,020 Gm). The age of the patient has an influence on the gain in weight in pregnancy. The older the patient, the less increase there is in weight. Parity has little or no influence. Heavy patients showed less gain in weight than those of lighter build. The weight of the infant seems to have little influence on the changes in the maternal weight. The infants of primigravidas were rather heavier if the maternal weight showed much increase. Decrease in weight occurs during the last two weeks before delivery in a number of cases, 22.5 per cent in primigravidas and 22.15 per cent in multiparas. A few patients showed a periodic loss of weight throughout pregnancy. This may be due to tissue loss owing to excessive fetal demands, although these patients did not show any marked evidence of malnutrition. In the seventy-five cases of toxemia in the 1,000 cases the average age was 33 years. Albuminuria, a systolic blood pressure of 140 mm of mercury and edema of varying degrees were present in all. The average periodic gain and the total increase of weight were greater in this group of cases. From the twenty-fourth to the thirty-eighth week the gain in weight was 50 per cent greater than in the normal cases. During the last two weeks of pregnancy it was almost three times as much as in the series of normal cases. The total gain was one and a half times that of the nontoxic cases. Excessive gain in weight may also be due to edema of the tissues, although not evident on clinical examination until later. Some toxic patients, however, had marked edema without excessive gain in weight. The prevention of toxemia and the early recognition of signs of its onset are to be obtained by careful attention directed to the routine weighing of antepartum patients. Of 710 patients weighed approximately six weeks after delivery the primigravidas showed an average loss in weight of 21 pounds 5 ounces (9,667 Gm) and the multiparas 18 pounds 14 ounces (8,562 Gm). The birth weight of the infant accounted for one third of the decrease in primigravidas and two fifths in multiparas.

Intrapartum Infection—Anderson states that in a series of 11,075 deliveries at the Johns Hopkins Hospital 207 instances of intrapartum infection occurred, an incidence of 1.9 per cent. Of the 207 cases 33½ per cent occurred among white patients. Whereas in the clinic 34 per cent of the normal patients had vaginal examinations, 56 per cent of the patients having intrapartum infection were thus examined. 56.3 per cent of the maternal deaths in the series were in patients who had been examined vaginally prior to admission to the hospital by their own medical attendants. The character of the labor pains was judged to be satisfactory in 50.2 per cent of the cases. The onset of labor was spontaneous in 77.8 per cent, while induction other than by drugs was performed in 22.2 per cent. The operative incidence for the hospital population (obstetric department) was 22.9 per cent, while in these cases of intrapartum infection it was 48.8 per cent. Both the maternal mortality and the fetal mortality were more than twice as great in the patients subjected to operative procedures. In the cases of intrapartum infection the incidence of manual removal of the placenta was 4.3 per cent as compared with 0.8 per cent in the service as a whole. The mean loss of blood was greater and the incidence of postpartum hemorrhage more than double that noted in normal patients. Whereas 17.5 per cent of the total number of patients in the service developed puerperal infection, this complication occurred in 57 per cent of the cases of intrapartum infection. With an intrapartum elevation of the temperature to 100.8 F or less there was no maternal death, nor was there a fatal result in cases in which the pulse rate did not exceed 100 per minute during labor. The average duration of labor was considerably greater in cases of intrapartum infection than in the service generally. Only one maternal death (6.3 per cent) occurred when the membranes had been ruptured for less than twelve hours prior to delivery. The maternal deaths in the series numbered sixteen (77 per cent). Seven (43.8 per cent) of these occurred within twenty-four hours after delivery and ten (62.7 per cent) within ninety-six hours. Conservatism is advocated in dealing with cases of intrapartum infection.

Journal of State Medicine, London

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Curative Action of Sea Climate. Kestner—p 187

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Curative Action of Sea Climate in Its Clinical Aspect. S. W. Smith—p 197

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1 851 910 (April 10) 1937

*Pathology of Adrenal Gland in Relation to Sudden Death. C. K. Simpson—p 851

*Diphtheritic Myocarditis. Electrocardiographic Study. N. D. Begg—p 857

Action of Corpus Luteum Hormone on Human Menstrual Cycle. T. N. Morgan and S. G. Davidson—p 861

Value of Persisting with Drip Blood Transfusion in Severe Prolonged Hemorrhage. A. W. Cubitt—p 864

Cysticercosis as Cause of Epilepsy in Diabetic Indian. R. L. H. Minchin—p 865

Acute Parotitis as Manifestation of Latent Uremia. R. T. Payne—p 867

Pathology of Adrenal in Relation to Sudden Death—

In discussing the effects of disease of the adrenals, Simpson summarizes certain of the facts known about their developmental anatomy and physiology. Pathologic changes in the body after death from acute insufficiency of the cortex are, for practical purposes, limited to those by which the gland itself is destroyed. Dilatation of the heart, congestion of the lungs or pancreas or other organs, and the presence of bile in the gastric contents have been noted in addition and even credited with some significance in relation to sudden deaths, but these are general changes. The systemic reflections of cortical insufficiency are almost entirely biochemical and attended by functional disorder rather than by any structural change visible to the eye. Even in the gland itself there are but few morbid processes to be found with any frequency under these conditions, three are commonly seen, others rarely. The three common changes are hemorrhagic necrosis or hemorrhagic infarction, acute caseative tuberculosis and rapid metastatic growth invasion of the gland. It is in the examination of changes in the chemistry of the blood that the causes of death become apparent. They are related principally to alterations in hepatic and renal function consequent on deprivation of the essential cortical hormone. Those changes consequent on diminution of hepatic function are reflected in a rise in the cholesterol and a fall in blood sugar. Diminution of kidney function, related clearly to dysfunction of both glomerular and tubular elements, is reflected in a sharp rise in blood urea and other nonprotein nitrogen constituents of the blood the urinary output being decreased. The blood volume is reduced, together with the levels of both sodium and chloride, the urinary output of these substances vastly exceeding the intake over any period after the second day. There is no deviation of fluid into the tissues, which become dehydrated, and no passage of fluid into the red corpuscles these becoming increased in number as the blood concentrates. Sodium diminishes by as much as 15 per cent, potassium values increase by as much as 42 per cent and magnesium by as much as 23 per cent, effectively maintaining the falling osmotic pressure. The chloride loss is relatively less than that of sodium. This results in a decrease in bicarbonate and a disturbance in the acid-base equilibrium the pH falling. In some respects the conditions are analogous to those of hypocalcemia after deprivation of parathyroid, and in this respect it would not be unreasonable to attribute to the adrenal cortex the control of sodium.

Diphtheritic Myocarditis—Begg investigated 100 cases of severe faucial diphtheria electrocardiographically. The average day of death in this series from circulatory failure early or late was the tenth day of disease, and the latest day recorded was the nineteenth. In only three cases could the associated circulatory failure be described as the early type and two of these showed some electrocardiographic evidence of myocarditis. In contrast deaths typical of late circulatory failure numbered twenty-three and in each case there was electrocardiographic evidence of myocardial involvement with or without the addition of a frank conductive lesion. In 84 per cent of the cases some electrocardiographic abnormality developed as a result of diphtheria, and in no less than 27 per cent this abnormality took the form of a conductive lesion, the mortality in the latter group being more than twice that of the group showing no predilection for the conducting system. In many cases the exact nature of

the abnormality cannot be recognized except by the auxiliary evidence of an electrocardiogram. If complete heart block, bundle branch block or paroxysmal tachycardia appear in electrocardiograms during the course of diphtheria, the outlook as regards recovery is relatively bad. In the presence of other evidence of myocardial involvement, including intraventricular block, the prognosis is reasonably favorable. A normal electrocardiogram, particularly within the first few days of the disease, does not preclude the possibility of a sudden circulatory collapse and, in this respect, clinical examination may be equally misleading. Probably at this stage of the disease an intravenous sugar tolerance curve remains the most sensitive guide to prognosis. Except in a small proportion of conductive lesions, recovery after diphtheritic myocarditis appears to be complete as judged by electrocardiograms taken in convalescence.

1 911 968 (April 17) 1937

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Comparative Study of Tuberculin Reactions and Radiologic Findings O Scheel—p 922

Inhibition of Gonadotropic Activity of Human Pituitary by Antiserum I W Rowlands and A S Parkes—p 924

*Regional Ileitis Crohn's Disease J C Hodgson—p 926

Regional Ileitis Crohn's Disease—Seven years ago Hodgson treated a man, aged 51, who came under his care suffering from intestinal obstruction, and at operation the provisional diagnosis of inoperable carcinoma invading the ileum and proximal cecum was made. A lateral anastomosis was performed "to tide the patient over." He rapidly improved, put on 28 pounds (13 Kg), resumed his work—that of a laborer—and was lost sight of. Recently he came under his care again, suffering from a perforated duodenal ulcer, from which he is now recovering. At the recent operation the cecal area could not be palpated for adhesions, and his general condition made speed imperative. Further roentgenography shows "some remaining dilatation of the small intestine, satisfactory anastomosis and filling defects in the terminal ileum and proximal cecum amounting to the 'string sign'—a thin irregular linear shadow running through the filling defect." This string sign is described as characteristic of Crohn's disease. The case suggests that simple short-circuiting is sufficient in certain cases and should be considered when the infiltration of the mesentery renders total excision dangerous.

Medical Journal of Australia, Sydney

1 457 490 (March 27) 1937

*Salmonella Infections Report of Sporadic Case of Bacillus Enteritidis (Gartner) Septicemia T J F Frank—p 457

Metropolitan and Rural Incidence and Distribution of Acute Rheumatism and Rheumatic Heart Disease in New South Wales Part III K Maddox—p 464

Orthoptic Treatment of Squint Its Limitations and Vindication E T Smith—p 468

The Family Doctor and Dental Disease A T Taylor—p 469

Sporadic Case of Bacillus Enteritidis Septicemia—Frank states that sporadic cases of Salmonella infections may not be correctly diagnosed unless agglutination tests are done. Occasionally these infections develop without producing any disturbance of intestinal function. This has happened in infants and young children in whom the meninges have been affected. A case of Salmonella infection due to Bacillus enteritidis of Gartner is reported. The typical onset with symptoms of acute gastro-enteritis was soon followed by septicemia, and on the eighteenth day of the illness a right basal pneumonia developed. The severity of the illness and the amount of offensive sputum suggested the diagnosis of suppuration of the lung. On two occasions thick pus was aspirated from the lower lobe of the right lung by paracentesis of the thorax. The diagnosis was made by the recovery of Bacillus enteritidis from the blood stream and feces, and later from the sputum and the pus aspirated from the right lung. In addition there was a positive agglutination response of this organism, isolated from both feces and blood stream, to the patient's own serum in the high titer of 1:1,280. In obscure febrile illnesses it therefore appears essential to do the agglutination reaction against the Salmonella group if the common tests against the typhocolon and the Brucella group should fail to yield a reaction. Although no definite proof of the source of infection in this patient was dis-

covered, it appeared most likely to have been due to eating two lightly fried duck eggs two hours before the sudden onset of the illness. Early treatment is mainly eliminative, once dehydration sets in, adequate administration of fluids is indicated. In the case recorded, fluid given intravenously by the continuous drip method for eight days undoubtedly saved the patient's life. The patient recovered completely.

South African Medical Journal, Cape Town

11 103 142 (Feb 27) 1937

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*Specific Antivenene in Treatment of Knoppie Spider Bite M H Finlayson—p 163

11 183 214 (March 27) 1937

Some Evidence for Trepanation Cult in the Bushman Race M R Drennon—p 183

Incidence of Brucellosis in Cases of Pyrexia of Uncertain Origin in the Cape Province of the Union of South Africa W Campbell and E C Greenfield—p 192

Medical Establishments and Institutions at the Cape P W Laidler—p 202

Bilharzia Disease in the Cape Province F G Cawston—p 208

The Quality of Our Borehole Water E E Buttner—p 209

Medical Practice in the Early Days in Natal C J Albertyn—p 217

Specific Antivenene in Treatment of "Knoppie-Spider" Bite—Finlayson summarizes the results of eighteen cases of spider bite treated with serum. When serum was issued to physicians, in view of the experimental nature of the treatment they were advised to administer the antivenene by subcutaneous injection. In two cases however, a physician injected serum intravenously with no ill effects and it would appear that this route is to be preferred in serious cases. All the eighteen patients treated recovered, and although in some patients morphine and atropine were injected in addition to the serum, records of eleven patients treated with serum alone are available. Several patients were in a state of collapse when the serum was administered but recovered within twenty-four hours after serum administration. Since October three fatal cases due to spider bite have been reported in the Cape Province. None of these cases were treated with serum. On the other hand patients treated without serum have recovered. Several of the physicians who used serum were of the opinion that it exercised a beneficial effect on the course of the illness. In one case the patient appeared to suffer from serum shock but recovered without further treatment. Latrodectus indistinctus antiserum neutralizes not only the homologous venom but also that of Latrodectus concinnus.

Chinese Medical Journal, Peiping

51 159 294 (Feb) 1937

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Japanese Journal of Gastroenterology, Kyoto

9 176 (April) 1937

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Bull et Mem de la Soc Med des Hôpitaux de Paris

53 517 572 (May 3) 1937 Partial Index

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*Unusual Grouping of Symptoms in Acute Encephalitis M Loeper A
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Laplane—p 554

Diagnosis of Pulmonary Air Cysts—Huber and his asso-
ciates describe a case of pulmonary air cysts in a boy, aged 10
years, whose weight was less than 52 pounds (23.6 Kg).
Purulent pleurisy developed and was drained. The thorax
was underdeveloped and the right side showed a smaller ampli-
tude than the left. The roentgenologic examination revealed
diffuse hypertransparency of the right lung, the right side of
the diaphragm was deformed and its motility weakened. The
heart was displaced toward the right. The pulmonary paren-
chyma could not be detected, and in the lateral and the oblique
views the lung appeared to be irregularly segmented. This
type of cyst easily becomes infected and leads to purulent
pleurisy, which in turn brings about total pneumothorax with
basal adhesions. But what distinguishes such cysts from ordi-
nary pleurisy and suppurated pneumothorax is the absence of
fistulization and of pleural opacities. The differentiation should
be made from bronchial dilatation, purulent pleurisy with sec-
ondary pneumothorax, pneumothorax with secondary infection
and parenchymatous cavity. Their development is usually
benign rarely making surgical intervention necessary.

Unusual Symptomatology in Acute Encephalitis—
Loeper and his associates present the case of a young person
with hemiplegia of the left side with crural predominance,
the condition was slowly progressive and suggested a cortical
lesion due to syphilitic arteritis. It began with lessening of
the muscular force of the lower left extremity, predominating
in the contractor muscles and distal parts. Gradually the upper
left extremity and the facial nerve were affected. Lumbar
puncture and a Wassermann test of the blood gave negative
results. There was some central scotoma. About ten days
later the symptoms became more aggravated, the patient
showed signs of meningitis and had a high leukocyte count
(from 300 to 400 per cubic millimeter, albumin content (0.85
per liter) and sugar content (0.55 per liter) of the spinal fluid.
After a few days the meningeal symptoms disappeared, but the
hemiplegia became spastic. The face was shiny, cold and
expressionless, the patient remained without motion but was
not lethargic. This was mainly a functional paralysis, not
unlike Parkinson's disease, in which the automatic reflexes were
intact. The patient died with signs of bulbar paralysis. In-
cup, respiratory asynchronism in the two halves of the thorax,
frequent vomiting, rapid pulse and, finally, syncope. The
authors state that this was encephalitis based on a syphilitic
disorder, although no syphilitic symptoms were discernible.

Journal de Medecine de Lyon

18 223 252 (April 20) 1937

- Syphilis of Stomach in Form of Pseudocancerous Tumor Difficulties
of Diagnosis P Savy M Girard and J Gonnet—p 223
Role of Fat Bodies in Food Allergies of Adults P Savy P Etienne
Martin and E Receveur—p 231
*Angina Pectoris and Myxedema Objections to Treatment of Angina
Pectoris by Total Thyroidectomy R Froment and M Jeune—p 239
Staphylococci Septicemia Following Furunculosis with Pulmonary
Abscess Then Osteomyelitis Passing into Chronic Stage and Com-
plicated by Amyloid Nephritis H Thiers M Girard and M Jeune
—p 247

Angina Pectoris and Myxedema—Froment and Jeune
maintain that treatment with thyroid extract almost always
aggravates the spasm of the systemic arteries in atheromatous
inflammation of the coronary arteries. As this treatment can-
not influence the cause of the arterial lesions, it only increases
the cardiac output together with the general metabolism. This
treatment is fatal in one third of all cases. The authors begin
with the citation of two cases of myxedema with angina pec-
toris treated with 0.1 Gm of thyroid extract. The dose was

raised to 0.5 Gm and then stabilized at 0.2 Gm. The spastic
crises gradually disappeared completely and the size of the
heart became normal. The two cases have been under obser-
vation for ten years and the spasms always returned as soon
as the treatment was interrupted. These isolated instances are
then confronted with thirteen cases in which even the smallest
daily doses (from 0.03 to 0.13 Gm) elicited violent attacks of
angina pectoris. Only with minimal doses of thyroid extract
(from 0.01 to 0.05 Gm) was it possible to improve the myx-
edema and to space out the coronary spasms. But the arterial
tension was increased in most cases. The contraindications
were the same in women (six) as in men (seven) and it
appears from previous experiments dating back to 1894 that
thyroid insufficiency through the increase of blood cholesterol
favors the development of atheromatous lesions in the arteries
and that degenerative changes due to myxedema may produce
similar lesions. Some authors emphasize the danger of thyroid
treatment because of hyperexcitability of the vegetative system,
while others point out the increased sensitivity to epinephrine
or the increase in cardiac work. Particularly the latter phase,
which causes vasodilatation and thus favors the myxedema, is
dangerous to the damaged coronary arteries. On the other
hand, total thyroidectomy, by lowering the metabolism, by
diminishing organic needs and the cardiac output, may improve
the painful crises, but by increased cholesterolemia favors the
progress of coronary disintegration.

Presse Médicale, Paris

45 641 656 (April 28) 1937

- *Research on Chemistry of Serum Plastic Blood Elements and Celerity
of Sedimentation of Senile Hematoses P Brodin A Aubin and A
Grigaut—p 641
Peripheral Hearts and Blood Sinuses Medical and Physiologic Con-
ception A Mougeot—p 642

Senility—Assuming that old age is due to progressive
changes in the humoral equilibrium, Brodin and his associates
have examined the urea, cholesterol, uric acid, bile pigments,
arterial tension and blood corpuscles of sixty-one persons rang-
ing in age from 80 to 93 years. They found that urea and uric
acid are not increased. It remains normal after the age of 80,
especially in women. As old age advances, the blood cholesterol
diminishes in most cases. Most authors assert that there is
no relation between the ratio of blood urea and arterial hyper-
tension. The same holds true of blood cholesterol. The authors
found that persons older than 80 years whose arterial tension
was scarcely above normal have a blood cholesterol above
2 Gm, which is the same as in persons whose pressure is dis-
tinctly elevated. The ratio of bile pigments is much increased,
while the number of leukocytes is only slightly changed.
Erythrocytes are decreased in number and have come down
to less than 3,000,000 in some subjects. The authors speak of
senile anemia, which is always the result of some disturbance,
the origin of which is as yet unknown. This anemia runs
parallel with the increased sedimentation speed, which becomes
more pronounced as age progresses.

45 657 680 (May 1) 1937

- Eutrophic Deficiencies G Mouriquand H Tete G Wenger and P
Viennos—p 657
New Process of Exploring Terminal Portion of Choledochus A J
Bengolea and C Velasco Suarez—p 659
*Bromine in Gastric Juice C Chatagnon—p 659
*Research on Icterus Following Arsenic Treatment M Graffar—p 661
Acute Abdominal Syndrome with Mesocolonic Especially Mesenteric
Adenopathy P de La Marniere—p 664

The Bromine in Gastric Juice—Chatagnon finds that
bromine is a normal and constant product of gastric secretion.
Compared with chlorine it has a small but not negligible part
in the physiologic acidity of the stomach, in the form of hydro-
bromic acid, which at times may become considerable, espe-
cially after the administration of bromine compounds. The
author gathered his experience mainly on subjects deprived of
bromine for many months and subsisting on an ovo-lacto-vege-
tarian diet or on a normal chlorine diet. From these subjects
he collected from 0.087 to 2.57 mg of bromine ions per thou-
sand cubic centimeters. The relation of these ions to the quan-
tity of blood was from 1.5 to 2.2 mg per thousand cubic
centimeters. By administering larger doses of bromine he
found that the bromine secretions of the stomach increased
effecting a partial substitution for chlorine. In all these cases

he noticed that bromine was retained long after the medication ceased and was then slowly eliminated. Parallel with the increase in bromine secretion in the stomach goes increased bromemia. When one is treating gastric ulcers or dyspepsia, one should know that any addition of bromine increases the acidity of the stomach and may bring about phenomena of intolerance.

Research on Icterus—Graffar noticed that pathogenic icterus resulting from the administration of arsenic to syphilitic patients constitutes a controversial subject. In some patients the icterus is toxic and in others a single hepatic relapse or even a simple infection of the liver, which has been weakened by the specific virus and the arsenic. The toxic theory is the least plausible, since most patients can well tolerate new arsenical administrations during jaundice and be cured and after cessation of the icterus continued nearsphenamine treatments will not cause the icterus to recur. But, concerning the hepatic symptoms, it is possible that injections of arsphenamine for syphilis make the liver prone to simple infections which differ little from common catarrhal jaundice. The author mentions seven cases of icterus following treatment by bismuth alone. A differential diagnosis will have to be made from gastro-intestinal disturbances and exantheams which readily disappear with antisyphilitic treatment. Some authors see in this type of icterus a fortuitous infectious disposition. The presence of spirochetes in the liver could not be demonstrated at necropsy, although the spirochete seems to have a great affinity for the liver in heredosyphilis, thus causing the death of the infant but never of the adult. In fact, nonsyphilitic patients treated with arsphenamine likewise react with icterus, again proving the reactivation of the liver by arsenic. Graffar's patients even showed a certain proportion of arsenic in their hair, nails and blood. They also showed an increased urinary elimination of hippuric and of glycuronic acid. The icterus appeared three or four months after the last treatment and in one case the serologic reaction became positive with the appearance of the icterus. The author supports the infectious theory of postarsphenamine icterus.

Bullettino d Scienze Mediche, Bologna

7 186 (Jan. Feb.) 1937

- Syngomyelia and Congenital Dysmorphism. Cases. V. Neri and S. Giovanni—p. 1
 Etiology of Leukemia. R. Pachioli—p. 9
 *Significance and Importance of Lamellar Pleurisy in Infants. V. Mighori—p. 32
 Influence of Irradiations on Putrefaction of Tissues. G. G. Palmieri, G. Palmieri and F. Ballotta—p. 43
 Congenital Bilateral Aniridia. Case. C. Mariotti—p. 50

Marginal X-Ray Shadows in Respiratory Diseases—According to Mighori, the juxtaleural marginal shadows that show in the roentgenograms of the thorax of children who are suffering from pathologic conditions of the lung indicate lamellar pleurisy, which originates in an inflammatory reaction of the pleura to the pulmonary process. The shadows give the lung the appearance of being covered by a veil. Bilateral shadows indicate an inflammatory reaction of the contralateral pleura, consecutive to that on the pathologic side. The contralateral pleural reaction may evolve to suppurative thoracic polyserositis, especially in infants. Grave pleural reactions overshadow the pulmonary symptoms. The disease follows a grave evolution with respiratory and pericardial complications. The exploratory puncture fails to give exudates. The clinical picture of the condition is different from bronchopneumonia, pleuritis and pericarditis. The author found at necropsy of children who died from acute diseases of the respiratory tract that the pulmonary condition causes lamellar pleurisy on the side involved by the pathologic condition and sometimes also on the contralateral side. In these cases the contralateral lung is normal and entirely coated by a film of thick and sticky exudate, which shows pneumococci. An infant that gave thoracic roentgenograms with evident bilateral juxtaleural marginal shadows had a suppurative thoracic polyserositis of rapid evolution. The presence of the latter was verified at necropsy, during which small amounts of purulent exudate were found in the pleural cavity and the pericardium. The structures were coated with a layer of sticky exudate about the thickness of a finger. The pus from the pleura and pericardium

showed pneumococci. According to the author, intrapleural marginal shadows are neither normal nor related to the technique used in taking the roentgenogram. They do not appear in all cases. Their appearance depends on a special reaction of the pleura, which is common on the side involved by the pathologic process of the lung, rare on both sides and grave in children, especially in infants. If the pleural reaction takes place, the shadows will appear in the roentgenogram regardless of the technique used in taking it.

Giornale di Clinica Medica, Parma

18 443 530 (April 30) 1937

- Relations Between Arterial Pressure and Basal Metabolism. Action of Methylcetylamine on Both Experimental Study. G. Ferretti—p. 443
 Origin of Buscaino's Reaction. P. Manfrini—p. 463
 *Vitamin C and Ketonemia in Man. Action of 1-Cevitamic Acid on Ketone Bodies of Blood. C. Negri—p. 485

Vitamin C and Ketonemia in Man—Negri studied the action of vitamin C (1-cevitamic acid) on ketonemia of normal persons and of diabetic patients and also the action of adrenal extracts on ketonemia of normal persons. The studies were made on living persons and also in vitro. He states that daily intravenous injections of 100 mg. of vitamin C given to normal persons for five days induce a slight and transient increase of acetone and acetoacetic acid followed by lowering of the three ketonemic fractions (acetone, acetoacetic acid and oxybutyric acid) of physiologic ketonemia. The same results are verified by following the ketonemic curves of normal persons every hour after administration of the injection. Daily intravenous injections of the same doses of the vitamin given to diabetic patients for five days induce in all cases an increase of the acetone and of the acetoacetic acid and a transient decrease of the oxybutyric acid. Daily intravenous injections of 75 biologic units of adrenal cortex extract without epinephrine given to normal persons for five days lower acetone and increase oxybutyric acid. Experiments in vitro gave the following results. Vitamin C (25 mg.) added to normal blood induced ketolysis of oxybutyric acid. Acetone could not be determined in the specimens of blood after the time necessary for obtaining the results of the experiments. The ketolytic action of the vitamin in vitro was the same in the blood of normal persons as in that of persons who had received intravenous injections of the vitamin. When the vitamin was added to hyperglycemic blood in vitro, it inhibited the ketolysis from dextrose.

Rinascenza Medica, Naples

14 217 252 (April 15) 1937

- Small Doses. Modern Minimal Treatment in Relation to Homeopathy. Physiologic and Clinical Doses. P. Delore—p. 223
 *Quantitative and Qualitative Modifications of Leukocytes from Mercury. Arsphenamine and Bismuth in Syphilis. G. de Lillo—p. 227
 Magnesium Sulfate in Expectant Treatment of Eclampsia. G. Rossi—p. 231

Modification of Leukocytes in Syphilis—According to de Lillo, patients with recently acquired syphilis have hyperleukocytosis, increase of polynucleated neutrophils, decrease of the mononuclear leukocytes, especially the lymphocytes, and a deviation to the left of Arneith's formula. The patients are in the so-called nonspecific neutrophilic phase, which represents a condition of negative anergy of the organism due to inactivity of the lymphocyte system. Antisyphilitic treatment with mercury, arsphenamine or bismuth causes a diminution of the total amount of leukocytes and polynucleated neutrophils and an increase of the lymphocytes. The results are the same with any of the drugs mentioned. The patients enter the so-called active neutrophilic phase, which represents the fight of the organism against the infection, and then the lymphocytic phase, which indicates that recovery is taking place. Mercury, arsphenamine and bismuth have no direct action on the hematopoietic system. They act on the infection, the control of which results in regeneration of the organic defenses and in control of the disturbances of the blood. The author made determinations of the total amount of leukocytes, the leukocyte formula and Arneith's formula in a group of nine patients, in three subgroups, before and after administration of mercury, arsphenamine and bismuth. The results obtained with the drugs confirmed his statements.

Prensa Medica Argentina, Buenos Aires

24 793 844 (April 21) 1937

- *Generalized Actinomycosis with Pyemia J J Spangenberg H Gattini and E Zunino—p 793
 Lutein Tissue and Bisexual Hormone E Fels and L M Diaz—p 803
 Rogers Disease and Pulmonary Tuberculosis R Denis and A P Heidtlass—p 808
 Chagas Disease Geographic Distribution in Comparison to That of Triatoma Vector of Schizotrypanum Cruzi in Argentina F L Niño—p 813
 Brume's Bitter Drops O A Rossi—p 823
 Total Inversion of Uterus with Spontaneous Late Reduction J C Laseano—p 828
 Nontuberculous Spontaneous Pyopneumothorax in Child Case F Bazan and E Schteingart—p 830

Actinomycosis with Pyemia—Spangenberg and his collaborators state that actinomycosis as a rule is a local condition that may propagate through the blood when it is primarily located in the lungs and bronchi and cause metastases and pyemia. It is difficult to diagnose because the symptoms are those of pulmonary tuberculosis or, in some cases, of cancer or of syphilis of the lung. It is confirmed by the presence of the fungi in the cultures of the sputum, or, if the latter is not available, of those made with the material of one of the abscesses taken by puncture. Actinomycosis of the bronchopulmonary type follows a long evolution and the patient becomes cachectic. The disease generally begins as a chronic bronchitis or pneumonia and the lung becomes the seat of sclerosis or softening processes. In the case reported by the authors the diagnosis was made by identifying the fungi in cultures prepared with the material of a thyroidal abscess and verified at necropsy when multiple abscesses of the lungs, liver, spleen, kidney and thyroids, chronic pneumonia, parenchymatous peribronchial pulmonary sclerosis, passive congestion in one lung and putrid abscess in the other, dilatation of the right cavities of the heart, bilateral glomerulonephritis and amyloid degeneration of the kidney were found. The histologic study of the organs involved in the infection confirmed the diagnosis of actinomycosis of the bronchopulmonary type.

Revista de Cirurgia de São Paulo

3 158 (Feb) 1937

- Clinical Roentgen and Experimental Demonstration of Advantages of Closed Aspiration Drainage in Nontuberculous Pleural Empyema N F Trench—p 1
 Dehydration of Patients After Operation F Ellis Ribeiro and D Belfort—p 33
 *Cerebral Leukotomy Technic A Mattos Pimenta—p 47

Technic of Cerebral Leukotomy—Mattos Pimenta defines Munz's cerebral leukotomy as the section of pathologically fixed nerve fibers of white matter of the oval center made at the frontal lobe by means of a leukotome. The leukotome is an instrument made up of a metallic cannula 11 cm long and 3 mm in external diameter and graduated in centimeters. It is provided with a cutting loop 1 mm in diameter at the distal closed rounded end of the instrument. The cutting loop is enclosed in the cannula and comes out by certain movements of rotation at the proximal opened end of the instrument. Cerebral leukotomy is indicated in cases of functional psychosis which seem to be due to fixity of the cellular connections. The patient is prepared as for a minor operation, and the operation is done under local infiltration anesthesia with a 1 per cent solution of procaine hydrochloride. An oblique incision of 3.5 cm is made. The center of the incision corresponds to a point 3 cm down the middle line and 3 cm forward of an imaginary line perpendicular to the mean plane which joins the two tragi auriculari. A trephining orifice, 1 cm in diameter, is made on each side at the central points of the incision. An incision of 0.5 cm is made through the dura mater, so as to avoid injuring the vessels. The leukotome is gently introduced, with the cutting loop enclosed in the cannula, down to the frontal lobe, and the fixed fibers are sectioned. This has to be done in the absence of blood and cerebrospinal fluid. If any blood or cerebrospinal fluid is present the cutting loop is newly enclosed in the cannula and the latter gently removed and introduced in a new position. Sectioning of the nerve fibers is done at each frontal lobe with the instrument introduced to a depth of 3 or 4 cm. From one to four sections (two internal and two external) can be made at each frontal lobe. The wound is closed by suturing the

superficial planes with silk. The treatment is an attempt to cure psychoses. It has no contraindications. The author resorted to the operation in four cases (schizophrenia and psychoses of anxiety). The treatment failed in one case and caused immediate transient improvement in two and late permanent improvement in one.

Semana Médica, Buenos Aires

44 1305 1364 (May 13) 1937 Partial Index

- Peritoneal Hemorrhage from Nonpregnant Ovary Case F M Bustos D Brachetto Brian and A R Angel—p 1315
 Glenard Lane Disease Esophageal Forms T Martini and J Comas—p 1320
 *Herpes Zoster of Epiglottis Case Y Franchini—p 1323
 Acute Edema of Lung in Course of Mitral Stenosis of Duroziez Type Case J B de Quiros—p 1326
 Bilateral Extra Uterine Pregnancy Case A Giuliano—p 1342
 Gold Treatment Von Lebinski—p 1355

Herpes Zoster of Epiglottitis—According to Franchini, herpes zoster of the larynx is rare. It develops in adults ranging in age from 20 to 50 years. The etiology of the disease presents many unsolved problems. The disease begins with the character of acute grip and evolves to a condition of acute neuralgia associated with painful dysphagia, a local burning sensation and appearance of the eruption, which follows the course of the superior laryngeal nerve, as a rule unilaterally and in exceptionally rare cases bilaterally. The differential diagnosis is made with herpes of febrile diseases, herpetic angina, chronic or recurrent buccal herpes, aphthous stomatitis and laryngeal papulous syphilitic erosion, syphilitic gumma and tuberculosis. The location of herpes zoster at the superior laryngeal nerve causes predominant symptoms of the epiglottitis. The treatment consists of administering drugs to combat the infection and the toxic condition, to stimulate the organic defenses and to soothe the tissues. To relieve painful deglutition, it is advisable to give an insufflation of a powder containing morphine, amylcaine hydrochloride B P, orthoform or dermatol five minutes before meals. Intravenous injections of urotropine preparations, autohemotherapy and injections of sodium hyposulfate give satisfactory results.

Archiv für klinische Chirurgie, Berlin

188 207 390 (April 5) 1937 Partial Index

- Restorative Surgery R Demel—p 207
 Tuberculous Disease of Knee Joint H Hellner—p 215
 Spontaneous Hypoglycemia Case T Kusunoki and M Munakata—p 272
 Shipping of Vertebrae and Accident F E Schanz—p 279
 *Arteriography of Brain Simple Percutaneous Method K Shimidzu—p 295
 *Metabolic Studies in Osteodystrophia Fibrosa Generalisata Before and After Extirpation of an Adenoma of Parathyroids W Brunner—p 330

Percutaneous Method of Arteriography of Brain—Shimidzu says that in 1932 he discontinued the exposure of the carotid artery and resorted to simple percutaneous puncture of the artery. The position of the head is important. It should be bent far backward so that the carotid artery becomes taut and does not escape the needle. The artery is punctured with a needle that is 0.8 cm in length and 0.9 mm in diameter. Anesthesia is generally unnecessary, but if the patient is nervous a local anesthetic may be applied. The site of puncture is the lower portion of the trigonum caroticum, within the sternocleidomastoid muscle, where the pulsation of the carotid artery can be felt best. From 5 to 6 cc of the contrast medium is injected in three or four seconds and the exposure is made immediately afterward. The author asserts that percutaneous arteriography is not only simple but also entirely without danger. It is helpful in the diagnosis of cerebral tumors and makes unnecessary the often dangerous encephalography. Arteriography permits a differentiation of the type of tumor. In case of a slowly growing tumor the involved vessel has a tendency to become thicker, whereas in case of a rapidly infiltrating tumor the involved vessel has a tendency to contract. Intracapsular and suprasellar tumors of the hypophysis can be differentiated on the basis of the connection of the sella with the vessels. For tumors of the frontal region the fronto-occipital exposure is important, and for tumors of the posterior cranial fossa arteriography of the vertebral artery is helpful. The author concludes that arteriography is advisable whenever the diagnosis of cerebral disorders proves difficult.

Metabolism in Generalized Fibrous Osteodystrophy—Brunner reports the history of a woman, now 45, who had generalized fibrous osteodystrophy. At the onset, twenty-two years ago, the disorder was diagnosed as multiple tuberculosis of the bones and shortly after as giant cell sarcoma, originating in the bone marrow. Surgery and roentgenotherapy were employed, the latter resulting in numerous relapsing roentgen ulcers of the skin. Examinations in 1935 and 1936 revealed chronic, severe osteoporosis with honeycombed vesiculated spongy substance, transformed and stringy compact substance, secondary cyst formations and sclerotic processes in the medullary space and the formation of fish vertebra. Hypercalcemia was accompanied by hypophosphatemia, the potassium and calcium contents of the blood were both increased, the blood chlorides were in the upper limits of the normal values and there were slight fluctuations in the mineral salts. The maximal fluctuation in the diurnal calcium curve was 0.2 mg per hundred cubic centimeters. The calcium content of the cerebrospinal fluid was normal as an indication that in the blood those calcium fractions are increased, which are not in solution equilibrium with the calcium of the cerebrospinal fluid, that is, particularly the complex calcium salts. An intravenous calcium tolerance test revealed a paradoxical calcemic reaction (reduction instead of increase of calcium content of blood). There was considerable calcium retention in the tissues. The metabolism tended toward the acidotic side. There was a slight disturbance in the intermediate fat metabolism and in the regulation of the carbohydrate metabolism. There also existed a mild form of adiposogenital dystrophy with a tendency to amenorrhea. A parathyroid adenoma was removed. Then chronic tetany developed gradually, but it responded to treatment with a viosterol preparation. The hyperparathyroidism was completely cured and the intermediate carbohydrate metabolism became normalized owing to the abolishment of the restricting influence exerted by the hyperparathyroidism on the sympathico-adrenal system. However, in spite of the complete cure of the hyperparathyroidism, the bone disorder, which had existed for twenty-two years, was not noticeably improved. The author emphasizes that deficient utilization of the calcium, which is caused by the hyperparathyroidism, plays a more important part in the genesis of the bone disease than does the abnormal increase in calcium elimination in the urine. The disturbance does not have to manifest itself in a negative calcium balance.

Klinische Wochenschrift, Berlin

16 626 656 (May 1) 1937 Partial Index

- Natural and Abnormal Sleep L. Hess—p. 625
 Normocalcemic Hyperirritability and Normocalcemic Tetany E. Freudenberg—p. 626
 Regressive Skeletal Changes in Hypophyseal Gigantism W. von Drigalski and L. Diethelm—p. 628
 *Louping Ill in Human Subjects H. Wiebel—p. 632
 Functional Test of Lungs M. N. J. Dirken and J. K. Kraan—p. 634
 Treatment of Arterial Embolism G. Leiner—p. 639

Louping Ill in Human Subjects—Following a review of four cases of laboratory infections with louping ill, which were reported in 1934, Wiebel gives the detailed clinical history of a woman, aged 26, who, as technical assistant in a laboratory, had been working for several months with the louping ill virus, the cause of cerebral symptoms (ataxia) in sheep. The infection apparently took place after the woman had undergone a minor dental operation. An infection with the virus of louping ill was indicated not only by the symptomatology but by the fact that some of the mice subjected to intracerebral inoculation with the patient's serum died with characteristic symptoms. Moreover, the virus of louping ill was neutralized by the patient's serum. By comparing this case with those reported in the literature, a similarity in certain symptoms can be observed. The disorder begins with influenza-like symptoms: prostration, headaches, dizziness and fever. After the symptoms have completely developed, cerebral symptoms, such as stupor, vomiting and visual disturbances, predominate, there are also high fever, bradycardia and mild leukocytosis with neutrophilia, the cerebrospinal fluid often has an admixture of blood, and there is an increase in its pressure, protein content and cell count. Meningitic signs and disturbances in the speech and in the reflexes are less often found. The case reported differs from others of this type by the absence of bradycardia

and especially by the extremely severe and lasting ataxia. The ataxia is a further proof of infection with the virus of louping ill, for this symptom makes the disorder more like that in sheep, in which the cerebral symptoms always predominate. The author stresses the similarity between louping ill and epidemic poliomyelitis, particularly as to the dromedary type of fever curve and the invasion of the virus through the mucous membrane.

Medizinische Welt, Berlin

11 525 560 (April 17) 1937 Partial Index

- Vitamins and Nutritional Disturbances in Nurlings G. Bessau—p. 525
 *Role of Extracts of Posterior Lobe of Hypophysis in Development of Spontaneous Rupture of Uterus E. Junghans—p. 530
 Oleothorax R. Brenhaus—p. 533
 Cholecystopathy and Abdominal Angina Pectoris O. Bieling—p. 537

Posterior Pituitary Extracts as Cause of Rupture of Uterus—Junghans calls attention to the dangers of incorrect administration of extracts of the posterior pituitary during delivery. He observed four cases in which the administration of excessive doses during delivery resulted in rupture of the uterus. To avoid such mishaps one should obey the following rules in the administration of posterior pituitary: 1 The intravenous injection of posterior pituitary should never be resorted to during the period of dilatation and expulsion. 2 During the period of dilatation ecchols should be given only in small doses. 3 If in case of a relatively small birth canal the labor pains are weak, the administration of posterior pituitary is advisable only if a careful vaginal examination has proved that spontaneous delivery is possible. 4 The dose for injection should never exceed 3 Vogtlin units.

Munchener medizinische Wochenschrift, Munich

84 681 720 (April 30) 1937 Partial Index

- Falling Asleep Sleep and Awakening L. R. Muller—p. 681
 *Discoloration of Hair After Permanent Wave H. W. Siemens—p. 691
 Wound Treatment with Cod Liver Oil Ointment H. H. Mutschler—p. 692
 Acute Gastritis Simulating Perforation of Ulcer W. Klostermeyer—p. 695
 Failure of Sugar Regulation H. Huheschmann—p. 697
 *Results of Examination of Collected Swab Specimens (Taken at Two Hour Intervals) in Diphtheria Patients and Carriers Elisabeth Lenz—p. 698
 *Sedimentation Speed of Erythrocytes in Benign Tumors and Cancers of Digestive Tract F. Stengel—p. 702

Discoloration of Hair After Permanent Wave—Siemens describes three cases in which greenish blue or greenish black discoloration of the hair occurred after a permanent wave. The clinical histories of the patients and experiments conducted by the author indicated that when the scalp has been treated with mercury preparations, the customary methods of permanent waving produce ugly, smoky gray to greenish black discoloration of the hair. In the reported cases, substances containing mercury had been applied because of psoriasis of the scalp. It was found that the discoloration develops even if the mercury preparation has been applied weeks or even months before and the hair has been thoroughly washed. Persons with blond hair particularly should be warned of this. The color reactions could be reproduced in vitro.

Examination of Collected Swab Specimens in Diphtheria Patients—Lenz maintains that the result of a single examination of the nasopharynx is not sufficient for a definite decision regarding the presence or absence of diphtheria bacilli. At the clinic with which the author is connected it has been the practice in the last two years to obtain a specimen for examination not once a day but rather at two hour intervals from 6 a. m. to 8 p. m. It was found that the examination of these "collected specimens" makes the bacteriologic diagnosis of diphtheria much more reliable. The specimens obtained in the morning produced from 40 to 50 per cent more positive results than did those taken during the afternoon and evening. The collected specimens proved valuable also in the recognition of diphtheria carriers, for the collected specimens of almost 30 per cent of carriers gave positive results when the examination of a single pharyngeal swab specimen had been negative. Finally, the collected specimens were used to determine the disinfecting action of lemon juice on diphtheria bacilli, for lemon juice is widely regarded as a pharyngeal disinfectant.

in cases of diphtheria. The equal number of positive results with and without the application of lemon juice demonstrated that lemon juice does not inhibit the growth of diphtheria bacilli.

Sedimentation Speed in Digestive Tract Tumor—Stengel studied the sedimentation speed of the erythrocytes in sixty patients with definitely demonstrated carcinoma of the digestive tract and in 120 patients with gastric ulcer or gastritis. He observed that in a large percentage (88 per cent) of cases of malignant tumor of the digestive tract the sedimentation speed is greatly increased. However since the sedimentation was normal in seven of the patients with carcinoma a normal rate of sedimentation is not a definite proof that malignant neoplasm is absent. In patients with ulcer, on the other hand, even if there is also gastritis, the sedimentation is generally not accelerated, for in only twelve of a total of 120 cases was there a considerable increase in the sedimentation speed, and in some of these cases the acceleration was the result of other inflammatory processes. The author concludes that if it is necessary to differentiate between ulcer and malignant neoplasm, the sedimentation test has some value.

Wiener klinische Wochenschrift, Vienna

50 491 522 (April 16) 1937 Partial Index

- *Hemophilia in Women. Hertha Bauer and J. Meller—p. 495
- Radiologic Demonstration of Anatomic Changes in Intestine with Aid of Solution of Posterior Pituitary. Remarks on Physiologic Course of Intestinal Movements. H. Schur and A. Low—p. 499
- Remarks About Case of Diphtheric Vulvovaginitis. Annje Schwarzauigl—p. 500
- *Attempt to Influence Blood Status in Case of Constitutional Hemolytic Anemia by Irradiation of Spleen with Short Waves. P. Groag—p. 502
- *Turning Syndrome of Frontal Brain. L. Halpern—p. 505

Hemophilia in Women—Bauer and Meller review the literature on hemophilia in female patients. They answer in the negative the question whether the hereditary rule, now generally accepted, applies to all cases of hemophilia. They think that there are families in which the hemophilic factor becomes manifest only in males, that occasionally there are families in which the men and the women show hemophilic symptoms, and that in rare instances only the women show hemophilic symptoms. They do not consider the time ripe for the formulation of definite laws of the hereditary transmission of hemophilia. To be sure, they concede that such frequent, severe and fatal hemorrhages as occur in hemophilic men are only rarely observed in women. After suggesting explanations for this phenomenon, they describe observations on four women whose disorder was characterized by a symptomatology similar to that of hemophilia as well as by a weakness of the thrombocytic apparatus. Whereas the first two cases described in this report lead the authors to reemphasize the definition of hemophilia in women, the latter four cases indicate that combinations of hemophilia and thrombopenia may occur and that it is not justified to draw sharp distinctions between these two disorders. The cases permit the assumption that the female sex organs provide a specific protection against fatal hemorrhages.

Irradiation of Spleen with Short Waves in Hemolytic Anemia—Groag relates the history of a woman with hemolytic icterus in whom he resorted to irradiation with short waves. He subjected the patient from five to six times each week to irradiations of the spleen. The irradiations were applied with a tube apparatus of about 250 watts, which produced waves 4 meters in length. After ten irradiations with short waves, the bilirubin content of the serum decreased considerably and so it was hoped that in the mild cases of hemolytic icterus the condenser field treatment of the spleen would be helpful at least as a symptomatic treatment at the time of the blood crises. The later examinations of the blood have made this doubtful, as far as this can be estimated on the basis of a single case. But the condenser field action on the spleen could perhaps serve another than a therapeutic purpose in hemolytic icterus. If in a larger material blood tests would be made throughout the duration of the irradiations, it might be possible to detect a certain regularity of the changes, which in turn would give an insight into the still unexplained connection between the excessive hormone production by the spleen and the temporary insufficiency of the bone marrow. Thus an explanation

might be found for the apparently unmotivated appearance of blood crises in hemolytic icterus.

Turning Syndrome of Frontal Brain—Halpern says that, in studies of patients with disease or injury of the frontal brain, he found that the disturbances in the equilibrium which appear are not uniform but that symptoms of two entirely different frontal brain syndromes are involved. One syndrome includes frontal disturbances of the equilibrium in the restricted meaning of the term, whereas the other, which is discussed here, originated in the precentral region, in the area agranularis frontalis in field six, and in the adjoining area frontalis intermedia in field eight, according to Brodmann. The disturbances that develop in case of lesions of these areas are essentially of three types: an epileptic spasm, disturbances in the turning of the head and in the innervation of the eyes, and certain disturbances in standing and walking. The author demonstrates that all these symptoms are based on a disturbance in the turning capacity of the organism and that this basic function is localized in the aforementioned area of the frontal brain. This area agranularis has, as is indicated in the term, no internal granular layer and in this respect it resembles more the adjoining motor zone than the other parts of the frontal brain. Moreover, it resembles the motor zone physiologically in that it is the only site in the frontal brain that responds with a motor movement to stimulation. This motor function is understandable when it is considered that this area controls the voluntary movement in an aimed direction.

50 523 554 (April 23) 1937 Partial Index

- *Negative Insensible Perspiration and Capacity of Lung to Regulate Water Content of Blood. A. Frohlich and E. Zak—p. 523
- European and American Orthopedics. A. Lorenz—p. 527
- Injurious Effects in Diagnostic Use of Roentgen Rays. G. Spiegler—p. 532
- *Use of Vitamin B₁ and B in Insulin Shock Therapy of Schizophrenia. R. Freudenberg—p. 535
- Clinical Aspects of Hypophyseal Disorders. W. Raab—p. 537
- Constipation. A. Glaessner—p. 539

Negative Insensible Perspiration—Frohlich and Zak point out that disturbances in the water exchange, as exist in case of insufficiency of the right side of the heart, may be accompanied by disorders in the elimination of water by insensible perspiration. Clinical and experimental observations convinced them that patients with severe chronic cardiac decompensation and some patients with obesity, under certain conditions show increases in body weight which are caused by negative insensible perspiration. These paradoxical conditions are not often demonstrable. In forty one tests on nineteen patients with severe chronic cardiac decompensation they were able to demonstrate negative insensible perspiration only twelve times. The patients were carefully watched and were weighed at intervals of from thirty to sixty minutes for periods of from five to seven hours. The authors cite corroborating and contradicting statements made by other investigators about negative insensible perspiration and suggest reasons why the latter arrived at contradictory results. They are of the opinion that, in patients whose tissues have a great avidity for water, moisture from the air may enter the body either through the skin or through the lungs. Studies on the penetration of moisture through the skin revealed that in cases in which this took place the moisture content of the air was unusually high. The authors describe their experimental studies on the capacity of the lung to regulate the water content of the blood. Tests were made on rabbits with moist oxygen and with dry oxygen. It was found that thickened blood is diluted in the lungs. Moist air in the lungs is a prerequisite for this diluting reaction. The lung takes the moisture (1) from the inspired air and (2) from the respiratory tract. After pointing out that the diluting action of the lung is a further proof of the possibility of a negative insensible perspiration, the authors discuss the significance of the diluting reaction of the lung.

Vitamins B₁ and B in Insulin Shock Therapy of Schizophrenia—Freudenberg shows that the dangers of insulin shock therapy in schizophrenia have been overestimated. The four fatalities that occurred in 250 cases (1.6 per cent) were partly caused by technical errors, which are not entirely avoidable in a new treatment. Greater experience and improvements in the technique have made it possible to reduce the dangers. The chief sources of danger in insulin therapy are

those rare conditions of shock which do not yield at once to oral or intravenous administration of sugar and which persist in spite of hyperglycemia or normoglycemia. Such conditions of shock generally develop only after several reversible shocks have preceded. The time of interruption likewise seems important for the development of these shock conditions, and it is therefore advisable to arrest a deep hypoglycemic coma at the latest after ninety minutes, or approximately five hours after the injection. At the suggestion of Pick, the author tried to influence the refractory conditions of shock by the administration of vitamins B₁ and B. In a number of patients, who did not wake up within thirty minutes after the oral administration of sugar solution and who previously had required intravenous injection of dextrose solution, the author resorted to the administration of vitamin B or of a yeast emulsion. In response to this, the patients woke up rapidly and did not require an intravenous dextrose injection. The author concludes that the administration of vitamin B is indicated at least in the aforementioned cases and says that experiments are now being made with the prophylactic application of vitamin B.

Wiener medizinische Wochenschrift, Vienna

97 481 508 (May 1) 1937 Partial Index

Health Statistics V Gegenbauer—p 481

*Therapy of Migraine and of Other Allergic Disorders in Women by Means of Oxidation Ferments O Zajicek—p 486

Problem of Erect Body Posture E Klinghoffer—p 488

Therapy of Migraine in Women—Zajicek says that it has been proved in recent investigations that the combustion processes are retarded in patients with migraine. This not only proves that migraine is a metabolic disorder with retardation of the oxidation processes but that oxydase therapy is correct in cases of migraine and other conditions that are accompanied by a slowing down of the metabolism. Before reporting his observations on the oxydase treatment of forty-seven women with migraine, the author discusses the theoretic foundations of this treatment by means of oxidation ferments. He used oxidation ferments from the testes and epididymes of young steers, because it had been proved that these products facilitate the respiration of the tissues and that they cause an increase in the osmotic pressure and by this in the activity of all tissues, but particularly of the heart and the circulation. It was detected also that the extracts of the testes accelerate the oxidation of the waste products, promote assimilation and prevent the accumulation of noxious substances in the tissues. The oxidation ferments from testis and epididymis were given either in the fresh form or in the form of powder combined with vegetable ferments. Of the forty-seven women with migraine who were subjected to this treatment, forty-five responded promptly, the headaches subsided in many cases after the second or third dose. In the patients who also had constipation, the intestinal function was normalized although all purgatives had been discontinued. At the onset of the ferment therapy, all administration of analgesics was discontinued and the patients were put on a meatless diet until the headaches subsided. The favorable results obtained in cases of migraine induced the author to resort to the treatment with oxydase powder for other allergic conditions. He demonstrates the favorable effects on such conditions in one case each of severe asthma, urticaria and brachial paralysis in case of cold allergy.

Polska Gazeta Lekarska, Lwów

16 369 388 (May 16) 1937

Psychology of Work W Medynski—p 369

Vicarious and Complementary Menstruation S Liebhart—p 371

*Influence of Electrolytes (Calcium Magnesium) on Chronaxy of Vestibular Nerve J Hurynowiczowna and M Rubinsztejn—p 373

Thymus as Endocrine Gland A Zegbauer—p 376

Finality in Biologic Processes W Moraczewski—p 380

Influence of Electrolytes on Chronaxy of Vestibular Nerve—After prolonged experimentation on rabbits, Hurynowiczowna and Rubinsztejn came to the following conclusions: 1 Calcium salts injected intravenously with the object of increasing the amount of calcium in the blood clearly decrease the chronaxy of the vestibular nerve. 2 Sodium ovalate injected intravenously with the object of decreasing the calcium in the blood increases the chronaxy of the vestibular nerve. 3 Magnesium salts injected intravenously increase the chronaxy of the vestibular nerve and have an antagonistic action toward

calcium salts, in analogy to the known antagonism of magnesium toward calcium, in their action on the nervous system. 4 The modification in the chronaxy of the vestibular nerve after the introduction of the electrolytes changes back to normal in a fairly short time, generally after two hours and at times in one hour. 5 The changes in chronaxy produced by the electrolytes have been different for the different vestibular nerve reactions, this difference has been especially marked after the injection of magnesium sulfate.

Nederlandsch Tijdschrift voor Geneeskunde, Haarlem

81 1899 2038 (May 1) 1937 Partial Index

Pyemic Form of Actinomycosis P H Kramer—p 1900

Ovulation Syndrome J G H Holt—p 1906

*Beginning Duration and Course of Action of Arsenic on Nails R D G P Simons—p 1913

Influence of Zinc on Action of Insulin L A Hulst and E H Vogelenzang—p 1916

Aspects of Cysts on Ala Nasi P Weersma—p 1923

Action of Arsenic on Nails—Simons directs attention to the fact that in arsenic poisoning, particularly in arsenical polyneuritis, the appearance of diagonal white stripes, the so-called Mees's stripes, on the nails is a characteristic sign. Not only are these stripes helpful for the diagnosis, but by taking into consideration the average rate of growth of the nails it is possible also to determine the time when the poisoning took place. After reviewing the literature on leukonychia striata transversa arsenicalis, the author reports two cases. The first patient, a man, aged 32, had psoriasis with ungual and subungual hyperkeratosis. The ungual psoriasis responded to treatment with arsenic and it proved possible to determine the beginning, the duration and the course of the action of the arsenic. Two months elapsed before the effect of arsenic medication became apparent on the nails. The second patient had arsenical polyneuritis. From the diagonal white stripes on his nails it was computed that the acute arsenic poisoning must have taken place six months before. Although chronic exposure had begun two and a half years earlier, when the patient first took up his hobby of stuffing birds (using arsenic), the white stripes on the nails indicated that an acute poisoning had taken place only six months before. The anamnesis revealed that at that time the patient had stuffed a rather large animal, a wolf, on which occasion a far greater amount of arsenic had to be used and must have been ingested.

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Corpuscular Electromagnetic and Periodic Activity of Sun and Atmospheric Electricity as Regulators of Distribution and Time of Appearance of Epidemic Diseases and of General Mortality A L Tehjevsky—p 491

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Complement Fixing Properties of Heparin Salts P J Wisning—p 550

Studies on Granulocytopenia B von Bonsdorff—p 555

Observations on Vaccination Against Smallpox I Holmgren and B Lindstrom—p 610

*Effect of Epinephrine on Blood Pressure and on Addison's Disease C Grill—p 628

Effect of Epinephrine on Blood Pressure—Grill describes a case of Addison's disease in which he tried treatment by means of the intravenous injection of epinephrine. It was found that the epinephrine increased the patient's blood pressure from 75 mm of mercury systolic and 50 diastolic to 120 systolic and 80 diastolic and kept it at this level for about forty hours. However, there was no perceptible improvement in the patient's general condition. After the administration of epinephrine was stopped, the blood pressure fell again, there was a marked decline in the general condition and the patient died. The postmortem examination revealed complete destruction of both adrenals by caseous tuberculosis. The author further discusses the epinephrine requirements. On the basis of earlier observations and experiments, he reaches the conclusion that the effect of a certain dose of epinephrine is not the same at different levels of blood pressure either in the same or in different persons. In the case of extremely low blood pressure, the effect of the administration of epinephrine is usually slight. Epinephrine is most effective in the case of normal blood pressure. At higher levels of blood pressure the effect of epinephrine becomes increasingly poorer.

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FACTORS INVOLVED IN SATIS- FACTORY SHAVING

LESTER HOLLANDER, M D

Chief Dermatological Service Pittsburgh City Hospital Chief,
Dermatological Service Montefiore Hospital Medical Director
Pittsburgh Skin and Cancer Foundation

AND

ELBRIDGE J CASSEMAN, S B

Industrial Fellow Mellon Institute University of Pittsburgh
PITTSBURGH

This article is a summary of the results of four years of investigation on the subject of shaving conducted at Mellon Institute. Our purpose in the study was to ascertain the factors that are involved in obtaining a satisfactory shave, to learn their relative importance and to find such additional information, either in the preparation of the face or in the design of razors, that would lead to improvement in the technique of this daily task.

It is said that it was Scipio the younger¹ who introduced shaving as a daily procedure among the Romans. But of course pogonotomy,² or shaving, is a much older art. Archeological excavations have uncovered objects in most ancient civilizations, including Egypt and Babylonia,³ which today are regarded as razors. The Bible⁴ contains decrees regarding shaving. Barbers were a distinct group of artisans as early as 400 B C in Greece.⁵

Despite the established antiquity of shaving, little reliable information of pertinently technical nature can be found. There have been expressions about the hygienic phases of shaving coming from both medical⁶ and lay⁷ writers. Certain aspects of shaving have also received special attention, such as the effects of soaps and soap constituents on the skin,⁸ the effects of

water,⁹ of detergents,¹⁰ and of other liquids¹¹ in softening the keratin of hair, the effects of repeated cutting and shaving on the hairshaft itself,¹² the variation in the angle which the emergence of the hairshaft forms with the skin,¹³ the variations in skin sensitivity,¹⁴ and the variations in the quality and quantity of sebum secretion.¹⁵ General instructions for shaving have been given occasionally.¹⁶

An extensive search of the literature, however, has not revealed a single or recent publication which integrates the various aspects of this subject. It is to meet this need particularly that this article has been prepared. In it we are going to deal with the softening of the hair in preparation for shaving, with the effects of shaving on the skin and with the technique of controlling these aspects of shaving.

EXPERIMENTAL METHODS

A shaving clinic was established at Mellon Institute in 1931. It consisted at various times of from ten to fifteen experimental shavers who, being scientists, were unusually well qualified to follow directions meticulously and to observe effects accurately. All these men were employees of Mellon Institute. They shaved under the direction of one of us (E J C) daily.

The entire group consisted of thirty-one men of whom twenty were blond and eleven brunet. Of the twenty blonds, five had unusually coarse beard hair with an especially thick growth, the same was true of six of the eleven brunets. Of the blonds, nine had rather light beards, the same was true of three of the brunets. Sensitiveness to the discomfort of shaving

1 Nettleship, Henry, and Sandys J E in Seyffert Oskar Dictionary of Classical Antiquities ed 3 London Standard Book Company p 266.
2 Beard in New Standard Encyclopedia New York Funk & Wagnalls Company 2 277 1931.
3 Perrett J J La pogonotomie ou l'art d'apprendre a se raser soi-meme Yverdon France 1770.
4 Partington J R Origins and Development of Applied Chemistry New York 1935 pp 74 75.
5 Numbers 6 5 and 9 Leviticus 21 5 Ezekiel 5 1.
6 Barber in New Standard Encyclopedia New York Funk & Wagnalls Company 2 457 1931.
7 Adams A M Is Shaving Injurious to the Health? Edinburgh M J 7 566 573 1861.
8 The Beard Question M & S Rep 5 234-236 1861.
9 Wallnitz H Hygienische Nachteile der Stoff-Barbierde Aerztl Rundschau Munchen 17 411 1907.
10 Shall We Stop Shaving? Lit Digest 66 125 128 (Sept 11) 1920.
11 Bowers E F Menace of Whiskers McClure's Magazine 46 90 (March) 1916.
12 On Whiskers and the Brutal Art of Shaving Scribner's Magazine 73 249 250 (Feb) 1923.
13 To Shave or Not to Shave Mentor 16 66 (Feb) 1928.
14 Ricketts B M The Use and Abuse of Soap and Water J Cutan & Genito Urin Dis 8 175 181, 1890.
15 Soap Free From Lye Sc American 121 188 (Sept) 1926.
16 Ittner M H Soaps J Home Economics 17 189 194 1925.
17 Clemm W N Die Bedeutung der Seifen in der Heilkunde Fortschr d Med Berlin 42 100 102 1924.
18 Goodman Herman Cosmetic Dermatology New York McGraw Hill Book Company 1936 pp 246-247 and 489.
19 McGowan E B A Comparative Study of Detergents Columbia University Contributions to Education No 441, 1930 p 34.
20 Walker J E The Germicidal and Therapeutic Applications of Soaps J A M A 97 19 20 (July 4) 1931.

9 (a) Speakman J B The Adsorption of Water by Wool J Soc Chem Indust 49 T 209 213 1930.
(b) The Intercellular Structure of Wool Fiber J Textile Inst 18 T 434 T 453 1927.
10 Nessler C The Story of Hair New York 1928 p 273.
11 Speakman J B The Elastic Properties of Wool in Organic Liquids Tr Farad Soc 26 61 69 1930.
12 Danforth C H Hair with Special Reference to Hypertrichosis Chicago American Medical Association 1925 p 70.
Fuchs H Studien uher die Wachstumsgeschwindigkeit der Kopfhare Med Klin 16 1316 1319 1920.
Seymour R J Effect of Cutting on Rate of Hair Growth Am J Physiol 78 281 (Oct) 1926.
Hausman L A Histological Variability of Human Hair Am J Phys Anthropol 18 415 (Jan) 1934.
Bulliard H Influence de la section et du rasage repetee sur l'evolution du poil Ann d dermat et syph 6 s 4 386 391 1923.
13 (a) Trotter M Form Size and Color of Head Hair Am J Phys Anthropol 14 433 435 (Sept) 1930.
(b) Upham and Landauer Relation of Thickness of Cutis and Subcutis to Hair Slope in the Human Skin Anat Rec 61 359 366 (Feb 25) 1933.
(c) Yamada K Angle of Skin and Hair Roots Folia anat japon 12 106 (April) 1934.
(d) 12 117 127.
(e) Hubbard S D Diseases of the Hair and Scalp Philadelphia Lea & Febiger 1928 pp 49 and 104.
(f) Shoemaker J V Diseases of the Skin ed 2 New York 1888 p 17.
14 McDonough E G Skin Fatigue and Sensitivity Drug & Cosmet Ind 36 277 278 1935.
15 Pusey W A The Principles and Practice of Dermatology ed 4 New York D Appleton & Co 1924 pp 45.
Sutton R L and Sutton R L Jr Diseases of the Skin ed 9 St Louis C V Mosby Company 1935 p 51.
Policard A and Trichkovitch Juliana Sur la fixation directe des graisses par les glandes sebacees Compt rend Acad d sc 174 1364 1922.
Sur le mode de fonctionnement histopathologique des glandes sebacees Lyon med 131 981 983 1922.
Kuzmitsky Sebaceous Secretion Ztschr f Biochem u Biophys Vol 14 p 867.
Pachur R Secretion of Sebum on Human Skin Surface Arch f Dermat u Syph 162 253 259 1930.
16 (a) The Science of Shaving Cambridge England Heffer & Sons 1931.
(b) Pusey W A The Care of the Skin and Hair New York D Appleton & Co 1917 p 150.
(c) Goodman Herman Cosmetic Dermatology New York McGraw Hill Book Company 1936 pp 486 487.

with dull blades was not confined to those having dense beards but included some of those having light beards as well. Included in the group were nine who shaved daily during one year, five who shaved daily during two years, eight who shaved daily during three years or more, and nine who shaved at irregular times.

The time required to soften hair by aqueous solutions was studied by measuring the rate of elongation of the hair when stressed with 16 Kg per square millimeter of load, being immersed in a test liquid. This amount of load does not stretch hair appreciably in its dry state, but when the hair is fully saturated with water it produces a stretch up to 50 per cent of its original length.¹⁶

For this test 25 cm (10 inch) long scalp hairs were used having a diameter of from 0.055 to 0.063 mm (from 0.0022 to 0.0025 inch). The amount of stretch was measured during time intervals up to one-half hour.

To measure the quantity of hair and skin removed by shaving, the accumulated material was washed from the razor with a lather solvent (1 part of ethylene

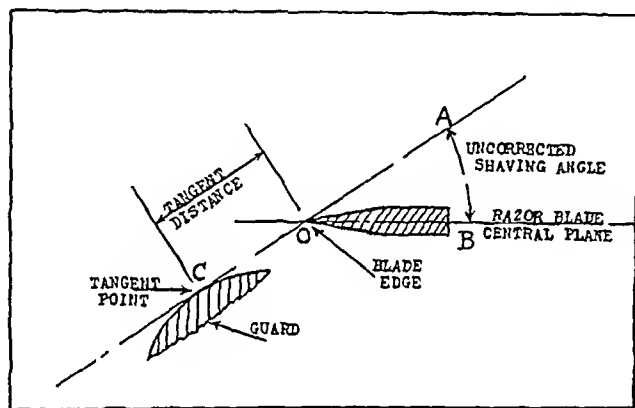


Fig 1—Angle measurements (diagrammatic only, not to scale)

dichloride and $1\frac{1}{2}$ parts of ethyl alcohol), rinsed by decantation with the same solvent and then centrifuged, graduated centrifuge tubes being used. Under these conditions the line of demarcation between the compacted hair chips (lower layer) and the compacted skin particles (upper layer) was quite sharp.

In respect to evaluating the design of different types of safety razors, our experiments showed that the knowledge of an angle, which is called the "effective shaving angle," is the item of prime importance.

This angle was ascertained by taking the measurements of the angle formed between the central plane of the blade near its edge and a plane which passes through the edge and is tangent to the guard bar. In some cases corrections were found to be necessary, as follows: the addition of from 2 to 3 degrees when the guard is composed of teeth instead of being a solid bar, the addition of from 1 to 2 degrees when the distance from the blade edge to the tangent point is in excess of 1.40 mm (0.055 inch) by from 0.38 to 0.75 mm, the subtraction of from 1 to 2 degrees when this distance is under 0.11 mm. The method is illustrated in figure 1, which represents the portions of a safety razor that are actively useful in shaving. Here the angle AOB is the angle that is measured, and the dimension OC is the distance on which the angle corrections are based.

Examination of the freshly shaved skin was made by means of a standard textile "pick counter," in which the handle contained a small flashlight for giving the surface slantwise illumination. The lens magnification was approximately 11.

Other observations were made by the "patients" of the shaving clinic, who, under various conditions (types of safety razors, various soaps or brushless creams), reported their own reactions to the following aspects:

- 1 The relative amount of effort required to obtain a clean shave
- 2 The relative discomfort associated with "pulling" effects during the passage of the razor
- 3 The relative amount of stinging following the use of an after-shaving lotion containing 50 per cent ethyl alcohol
- 4 Other miscellaneous and pertinent information

The director of the clinic (E J C) kept detailed information regarding (1) the kind of soap used in both preparation and shaving, (2) the water temperature, (3) the time consumed for preshave facial preparation, (4) the effective shaving angle of the razor, (5) nondestructive tests of the initial and final sharpness of the blade by means of an instrument designed for this purpose,¹⁷ (6) razor blade hardness, brittleness in bending, composition, metallographic structure, and the like, (7) razor edge conformation, (8) degree and character of the injury sustained by the shavers, and (9) a general record of the individual characteristics of the "patients", i. e., average diameter of the hair, density of spacing, and the average angle between the hairshafts and the skin.

In many cases the conclusions that were indicated by the tests were checked by means of a "comparison shave" method in which two items would be compared in the same shave. For example, for comparing the reactions to dull and sharp blades, identical razors would be loaded with a sample of each, and then the two compared in a single shave.

Experience showed that the time of shaving should be divided for study into two intervals: (1) preparational period, during which the major softening of the hair took place, (2) shaving period, during which the razor was used.

OBSERVATIONS

1 Generalities—The skin and its appendage, the hair of the face, are subjected to a number of normal influences having direct effects on the problem of shaving. Externally these influences are exposure to weather, wind, solar radiation and the effects of shaving, which include facial preparation, trauma of the passage of the razor over the skin, and the after-shaving toilet. Internally one has to consider such things as diet, the excretory mechanism of sweat and sebum, growth and replacement of epidermis and hairshaft, and the circulatory mechanism of the true skin.

There are two types of hairshafts covering the face: hairshafts belonging to the finer class—the lanugo hairs, whose diameter is considerably less than 0.025 mm, and the coarser hair, whose diameter runs from 0.091 to 0.230 mm. It is the latter class that concerns us in shaving. The measurements given agree with those of other writers.¹⁸

The distribution of the coarse hairs varies not only with the individual but also with the location on the face as will be shown later (table 5).

These data agree definitely with the observation that the greatest difficulty is encountered on the upper lip and on the central portion of the chin.

The rate of growth of hair is fastest immediately after shaving, then it becomes slower until a normal average of from 11 to 12 mm a month is attained.

17 Casselman E. J. U. S. patent 1983597
18 Danforth L. Fuchs L. Seymour L.

This normal rate is not affected by shaving or cutting. Neither is the thickness affected by either process.¹⁹

Hair on the face never grows out perpendicularly, except occasionally on the curvature of the chin anteriorly. The actual angle between the hairshaft and the epidermis varies with individuals and also with the various portions of the face of the same subject. The range is ordinarily from 31 to 59 degrees,²⁰ except near the anterior cervical triangle, where the hair may grow out nearly flat or lie in a furrow.

TABLE 1—Relation Between Time of Immersion and Stretch of Single Loaded Hairs

Condition	Fraction of Full Stretch Observed					
	20 Sec	40 Sec	60 Sec	80 Sec	100 Sec	150 Sec
Tests with plain water						
Dark hair 120 F	0.70	0.56				
White hair 120 F	0.70	0.56				
Dark hair 56 F	0.55	0.54	0.90			
White hair 54 F	0.10	0.30	0.60	0.82	0.93	
Dark hair 62 F	0.02	0.08	0.18	0.30	0.60	0.90
White hair 57 F	0.02	0.03	0.10	0.20	0.43	0.88
Tests with saturated soap solution at 75 F						
Dark hair	0.50	0.90				
Dark hair	0.38	0.82	0.92			
White hair	0.11	0.51	0.80	0.90		
White hair	0.09	0.40	0.77	0.91		
White hair	0.08	0.33	0.67	0.87		

There are a few points in regard to the skin of the face that are of interest here. Thickness of the stratum corneum of the face varies between 0.0067 and 0.033 mm. The thickness of the epidermis, including the stratum corneum, varies between 0.2 and 0.3 mm. The thickness of the cutis vera varies between 3.5 and 4.6 mm.²¹

The true cause of ingrowing hairs is not known except in keratosis pilaris, but slanting wounds through the corium above the hair root²² and also traumas of the skin surrounding the hair shafts^{10c} seem to have a predisposing action. Some writers have erroneously ascribed such traumas to "dull razors."^{13e} Our experience indicates that, in respect to safety razors, trauma occurs less with dull blades than with sharp ones.

The skin surface is furrowed and wrinkled. We found that a very slight stretching of the skin was sufficient to make the surface essentially smooth, more severe stretching caused the disappearance of deep wrinkles, still more severe stretching, especially over the bony parts of the face, resulted in the protrusion of the skin at the site of the hair follicles, giving the appearance of gooseflesh (cutis anserina). Thus one can readily appreciate that severe stretching may cause a man to cut himself while shaving, because the protrusion mentioned causes an unevenness of the skin surface.

In some cases the skin forms a deep pit or depression around the emergence of the hair shafts. These deep pits interfere materially with obtaining a close shave.

2 Hair Softening—Composition and Reactions to Water. The chemical composition of hair has been shown to be chiefly keratin, a highly complex organic material containing nitrogen and sulfur. Sulfur occurs in the form of cystine, of which human hair contains more than does that of other animals. The stratum corneum also consists mainly of keratin. Keratin is insoluble in water, but it absorbs water readily. It is

completely soluble in strong alkalis. The tensile strength and consequently the hardness of hair are lessened by water absorption.^{2a}

Hair also takes up sebaceous secretion, which retards water absorption—an important factor in shaving, because in hair covered with sebaceous secretion there is a delay in water absorption during lathering.

The primary purpose in preparing the face for shaving is to modify the initial hard condition of the hairshaft. Secondary purposes are the lubrication of the razor blade, provision of a stiff supporting medium for the hairshaft, the protection of the skin from trauma, and the antiseptic action of soaps. Our experience leads us to believe that those purposes classed as secondary are of minor importance. Dull blades incompletely softened hairs or improper shaving angles are the main causes of unsatisfactory shaving.

The preparational period is concerned largely with the softening of the hair prior to shaving.

The time requirement was studied in the case of single hairs by means of the tests on stretching hairs as immersed under loads in liquids. Typical examples of tests showing the relation between fraction of full stretch and time are given in table 1.

These tests indicate the great importance of the temperature of the liquid in governing the length of time that elapses before stretching the hair is practically complete. They also indicate the value of soap solution as compared with plain water and the slower softening rate that occurs in the case of gray or white hair.

It may be assumed that facial hair is substantially softened under the same conditions that produce 0.85 of its full stretch under load. Table 1 shows that for scalp hair, when water at 120 F is used, the time requirement is from forty to forty-five seconds. We multiply by 4 to correct for the difference in the cross-sectional area in beard and scalp hairs, which gives the minimum time of from two and one-half minutes to three minutes. This minimum preparational time would be increased with the use of colder water, particularly in the case of gray or white hair.

TABLE 2—Average Service Life of Razor Blades as Affected by Duration of Facial Preparation

Preparation Time Minutes	Average Number of Full Shaves
0 dry	Under 1*
1/4	20
3	40
10 (shower bath)	50

* Both the pulling effect and the stinging sensation after the shave were very painful.

Duration of Preparation in Actual Shaving The effects of time of preparation in actual shaving were studied by measurements of the dulling of standard razor blades and were corroborated by reports of discomfort by the shavers.

The results of the tests for the dulling of razor blades are presented in table 2 in terms of the average service life.

The reports on the discomfort of shaving reached a minimum with all types of razors and blades when preparation was extended to three minutes or longer.

These results all indicate definitely that not less than three minutes' preparation is required to soften the hair for the most satisfactory shaving conditions.

3 Soaps and Latherless Shaving Creams—After many trials and errors, civilized men at present prefer soap solutions as hair-softening mediums. The chief reason for this preference lies in the fact that soaps

19 Seymour¹² Bulliard¹² Trotter¹²
20 Yamada (references 13c and 13d)
21 Ricketts⁸ Pusey¹² Dockrell¹² M. An Atlas of Dermatology
London 1905 plate I
22 Bond A K Slanting Wounds of the Hairy Skin Maryland M J
39 851 1893

emulsify the waterproof sebum covering the hairshaft. This emulsification enhances the wetting of the hairshaft.

Irrespective of the fact that the length of the hairshaft after twenty-four hours' growth is but one-fiftieth inch (0.5 mm), most men feel better pleased with their shaving when the lather is half an inch deep on their faces. Such lather can be produced only by the use of a soap specially prepared for shaving and a shaving brush.

Desirable properties of shaving soaps are voluminous lathering quality, resistance to rapid drying on the skin, freedom from the possibility of causing skin irritation, and tendency to prevent delay in the softening of the hair by the water in the lather.

As is well known to soap technologists, the first three properties are mainly dependent on the chemical composition of the soap, with respect to both the type of alkali used and the type of fatty oil or acid combined with it.²³ In respect to the fourth characteristic, it is our experience that the composition of the soap has

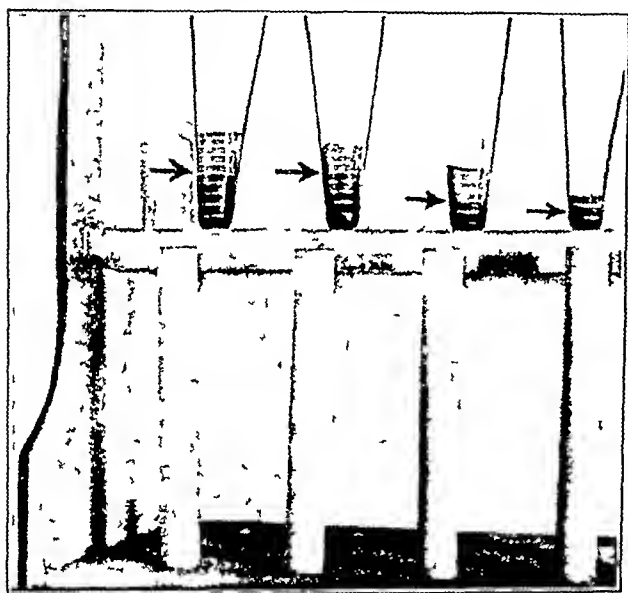


Fig. 2—Centrifuge tubes containing both hair (lower layer) and skin (upper layer) removed in shaving by different persons

little bearing on its effectiveness as a beard-softening agent so long as it has emulsifying properties and meets the limitation that it should not irritate the skin. The best shaving soap devised does not compensate for the use of cold water or for a dull blade. On the other hand, the use of hot water, a preparational time of from two and one-half to three minutes and a sharp blade in a correctly designed razor make the use of any nonirritating soap perfectly satisfactory whether a brush is used for lathering or not.

The beard can also be softened by the special preparations marketed as latherless shaving creams. These mixtures have a wide variety of composition, but for the most part they consist of from 15 to 25 per cent stearic acid, from 5 to 7 per cent glycerol, hydrous wool fat or liquid petrolatum, from 1 to 2 per cent alkaline emulsifying agent, and from 60 to 70 per cent water. Waxes and perfumes are also added in small quantity. Some of them contain small quantities of a wetting agent, such as sodium lauryl sulfate. We have found that the softening action of these preparations when

used alone is slower than that of soaps. The stiffer brands tend to clog the razor more than does soap.

Shaving soaps are usually manufactured to have a p_H of from 8.5 to 9.5. The latherless creams often have a p_H of less than 7.0. The use of either type is unlikely to result in skin irritation such as is caused by strong alkalis. Hand soaps that contain "builders" to counteract the constituents in "hard water" may carry excessive alkali and should be avoided both for preparation and for shaving. If there is a suspicion that one is allergic to constituents of some brand of soap, such a brand should not be used.

We have learned, as have others,²⁴ that the latherless creams tend to cause a decrease in the apparent durability of razor blades, owing no doubt to the p_H value of these creams. In our tests this decrease could be counteracted by mixing soap with the brushless cream on the face, which mixture has essentially the same p_H as pure soap solution.

The practice of some persons of mixing petrolatum with shaving soap results solely in a tendency to stiffen the lather. Stiff lathers tend to protect the skin from trauma by preventing the closest possible shave.

4. Safety Razors—Purpose and General Characteristics. The purpose of all razors, including safety razors, is to provide an instrument by which the growth of hair can be planed off even with the skin. Although the first safety guard was fitted to a razor in 1875,²⁵ the guarded safety razor did not come into common use until the twentieth century. At present it is probable that well over half the adult males in the United States use safety razors for daily shaving.

The original purpose of the safety razor was the addition of a safety factor in the form of a guard to the blade, so that the amount of skill required to shave without cutting the skin would be diminished to the point at which relatively unskilled hands could accomplish it. This safety feature usually results in freedom from gross trauma of the skin.

Except for items of weight, balance, convenience of operation and other features that appeal to personal preferences, safety razors differ in shaving quality largely as a result of their differences in the effective shaving angle.

Mechanics of Shaving. The shaving of a hairshaft having a growth of from 0.5 to 1 mm above the surrounding skin surface is similar to any planing operation. There are a number of complications, however, that enter into the picture. One is that the hair is set in a yielding rather than in a rigid base, thus when the razor blade is forced against the hairshaft there is a tendency to deflect the latter about its root (not at its point of emergence from the skin) as a center, to a position in which it makes an even smaller angle with the skin than it normally does. The result is that, when the hair is shaved off, a somewhat pointed stub remains, and the impression is gained that the shave is not close or clean. The duller the blade, the more conspicuous is this effect.

Likewise the smaller the angle that the hairshaft makes with the skin, the more difficult it is to get a close shave the first time the blade passes over the skin. Some men can never get a close shave on the first passage of the razor because of the combination of an unusually small hair-skin angle and an unusually yield-

²⁴ Fash, R. H. Increasing the Effective Life of Razor Blades. *J. Indust. & Engin. Chem.* 29: 68-70, 1937.
²⁵ Cutlery in New Standard Encyclopedia. New York: Funk & Wagnalls, 8: 266, 1931.

ing character of the skin. This difficulty can be surmounted only by shaving against the grain, that is, against the direction of the hair growth, or by the use of an increased angle between the blade and the skin, or by a dangerous overstretching of the skin to increase its rigidity. It is the guard bar of a safety razor that in reality should function as the stretcher of the skin.

Another complication is the thin dimension common to all types of razor edges. Such edges are subject to localized deflection during shaving, which operates locally at each hairshaft to increase the angle between the blade and the skin.

Like other planing tools, a razor blade should be used with a definite clearance angle between the trailing face of the blade and the freshly cut surface of the hair. This angle should obviously be small enough to prevent the planing off of the stratum corneum as well as the hair. The clearance angle of a razor blade in a safety razor naturally differs from the effective shaving angle by a constant amount. Because the latter is easily measured, we have used the effective shaving angle rather than the clearance angle in our shaving experiments.

Effect of Shaving Angle. Experimentation was conducted on rods one-half inch in diameter made from plasticine to simulate softened hair on a magnified scale. It was concluded that the greater the clearance angle, the shorter would be the point of the stub, corresponding to a closer shave in practice, but greater forces were necessary with the larger clearance angles, corresponding to greater "pulling" discomfort during actual shaving.

These observations indicate that the best effective shaving angle is a compromise between conflicting items of shaving satisfaction, and that this compromise may not lie at the same point for all persons. In actual shaving practice, increasing this angle always resulted in an increase in the discomfort felt during shaving, in an increase in the depth of minor excisions of horny layer surrounding the hairshafts, and in a lessening of the effort required to get a close shave. The minimum amount of injury to the skin was found with effective shaving angles at 25 degrees and less. Razors having such angles might have special applications in unusual cases of extremely sensitive skin, but angles of from 28 to 32 degrees give many men a better combination of freedom from discomfort during shaving, ease of close shaving and minimum damage to the skin.

5 Razor Blades and Blade Edge Durability.—A study of safety razor blades showed that practically all of them are made from steel as good for shaving purposes as the best steel ever used for an old style straight razor, if not better. As a matter of fact, the quality of the steel, except in the newer alloy steels, has little bearing on its value as a razor within the range of quality from which the manufacture of razor blades is attempted. The quality of the steel is of much greater importance to the blade manufacturer in affecting the ease with which he can sharpen it properly.

We studied the durability of razor edges, which subject will be covered in other publications, but there is one item of interest to the medical profession because of its possible bearing on the surgeon's scalpel. The conformation of the edge was the most important single quality affecting its durability. The most durable edges were those in which all serrations were removed that were visible in profile with a 4 mm., 0.85 numerical aperture objective, by proper stropping with canvas

and leather. Such edges also tended to have the best sharpness in the absence of overstropping.

Corrosion of the edge, either during shaving or while the blade was stored between shaves, was a very minor factor in the whole mechanism of edge failure.

The automatic sharpening equipment of the more experienced blade manufacturers produces sharper blades than do any of the devices that are sold for resharpening used blades. Many of these devices, however, will resharpen an unserviceable blade to the extent that it is again useful.

6 Effort Required to Obtain a Close Shave.—The effort required to obtain a close shave was judged from the number of passages of the razor required or from the amount of pressure or "digging" needed during shaving. Our observation on these points can be summarized as follows. The effort needed increased (1) as the effective shaving angle decreased, (2) as the blade became dull, (3) if the preparational period was inadequate, and (4) as the stiffness of lather was increased, or if it clogged the razor. The effort decreased (1) if the skin was stretched enough to smooth the wrinkles and to raise the level of the pits, (2) with dull blades



Fig 3—Chips of hair and skin removed in shaving (slightly reduced from a photomicrograph with a magnification of 35 diameters). Note excised skin particle in center.

when a diagonal or slanting stroke of the razor was used, and (3) if the razor stroke was made against the direction of the hair growth or "grain."

Of these items, blade sharpness and effective shaving angle were the most important in their bearing on the effort required to obtain a close shave.

7 Discomfort During Shaving.—Discomfort during shaving is usually associated with a "pulling" effect. This effect increased (1) as the blade became dull from use or was otherwise insufficiently sharp, (2) if the preparational period was inadequate to soften the hair fully, (3) as the effective shaving angle was increased. (Discomfort was practically absent at from 20 to 25 degrees and was conspicuous over 40 degrees.)

Discomfort decreased when a slanting or diagonal stroke was used. Complaints of discomfort were more frequent from men having coarse, densely spaced hairs. For such men the effects of blade sharpness and duration of preparation were important items in controlling the comfort of shaving.

8 Effects of Shaving on the Skin.—Shaving with both safety and knife type razors was found to remove small quantities of skin along with the hair. Figure 2

shows the manner in which the quantities were measured, while figure 3 illustrates samples of the chips of skin and hair removed

Tables 3 and 4 record typical examples of the measurements

Extreme differences in the quantity of skin and hair removed occurred in different men in the proportion of 4 to 1. Differences in the same person were not

TABLE 3—*The Average Quantity of Skin and Hair Removed in Shaving Each Twenty-Four Hours by Different Persons*

Individual Shaver, Number	Quantity in Cc	
	Skin	Hair
1	0 50	0 63
2	0 32	0 60
3	0 30	0 30
4	0 30	0 29
5	0 19	0 29
6	0 30	0 21
7	0 15	0 30
8	0 13	0 23
9	0 17	0 20
10	0 17	0 17
11	0 25	0 10
12	0 12	0 14

great in the amount of hair removed each twenty-four hours, while the difference in the amount of skin removed varied to a greater extent

Examination of the freshly shaved skin led to the observation that trauma of the skin consisted principally in the excision of the horny layer of the epidermis, such damage occurred mostly at the follicular hairshaft openings. This localized traumatism increased in proportion to all the factors that tend to promote a close shave, specifically (1) when a new sharp blade is used in a razor having a large effective shaving angle, (2) when thin lathers or plain hot water is used, (3) when the skin is excessively stretched, (4) when the shaving is against the "grain," (5) when the face is shaved over more than once, and (6) when the pressure between the razor and the face is increased

Traumatism also increased as the preparational period was shortened or inadequate. It decreased when the interval between shaves was extended to two days or

TABLE 4—*Quantity of Skin and Hair Removed in Shaving (Comparison for Average and Close Shaving)*

Test Number	Quantity in Cc		Notes
	Skin	Hair	
39	0 11	0 22	Once over dull blade
40	0 15	0 05	Second time sharp blade
6	0 32	0 28	Once over fair blade
7	0 04	0 04	Second time sharp blade
26	0 14	0 14	Once over fair blade
27	0 11	0 05	Second time same blade
16	0 28	0 32	Once over fair blade
25	0 50	0 26	Once and twice same person

more. The stiffer latherless cream preparations tended to protect the skin from excessive injury

Of these items, blade sharpness and effective shaving angle were the most important in their relation to gross trauma of the skin. A blade that had been dulled by being used for at least one shave rarely cut into the capillaries on any succeeding shave

9 *Individual Variations*—We have shown in table 3 the amounts of skin and hair removed in each daily shave by different members of the shaving clinic. It will be observed that the relation between the greatest and least of the total quantities is from 1 13 to 0 26, or

a ratio of over 4 to 1. The relative dulling effect on standard safety razor blades for the same subjects was approximately of the same order, but in the case of the extreme examples previously referred to the ratio was 8 to 1. No doubt the differences within the general population are even greater

We also saw great differences in the general condition of the skin of individuals. Some skins were deeply wrinkled, others were not, in some skins the pit around the hairshaft^{18f} was quite deep, in others it was shallow or lacking. In some skins the average angle formed between the hair follicle and the skin surface was very much smaller than in others. When this angle was small, greatly increased effort was required to get a close shave and there was an increased tendency for more conspicuous injury, especially when the stroking was against the "grain."

There were, of course, marked differences in facial contour and in subsurface fat (affecting the resistance of the skin to external pressure)

In certain men the hair was found to have the densest spacing on the upper lip and front of the chin and the least dense on the lower part of the cheek. The hair near the anterior cervical triangle was found to grow out at the smallest angle with the skin, that at the front of the chin the largest (sometimes perpendicular). The extreme values of hair spacing that came under our observation are shown in table 5

TABLE 5—*Size and Distribution of Facial Hair*

	Diameters	Distribution	Hairs per Sq Cm
Face	0 091-0 230 mm	Upper cheek	30- 80
Scalp	0 055-0 084 mm (for reference)	Lower cheek	20- 40
		Upper lip	80 110
		Chin center	70-120

Individuals were found to vary considerably from day to day in their reactions to shaving and in their capacity to dull standard razor blades, even when every effort was made to provide equivalent shaving conditions, including blades of equal quality. Shaving dulled standard blades to a greater extent in summer than in winter, indicating a seasonal variation in certain beard properties

In general, the subjects could be classified according to their reactions to shaving with increasingly dull razor blades. In one large class were those to whom the increasing discomfort was the governing factor for discarding a dull blade. In this class were many but not all the men whose shaving dulled blades rapidly. A second class consisted of those to whom increased effort for getting a close shave was the governing factor, discomfort being a minor or inconspicuous item in their judgment. In this class were most of those who dulled standard blades much less than the average figure

The coloring of the individual gave little indication of his beard growth. Two of the blonds were among the four men having the greatest dulling effect and the coarsest hair, whereas two of the brunets were among those having slight blade damaging effect

10 *The Care of the Face After Shaving*—As we have shown in section 8, daily shaving removes in addition to the hair a fair quantity of epidermis, and this action traumatizes the skin of the bearded regions to some extent. Even the person who is not sensitive to the discomforts of these minor traumas benefits from proper after-shaving care. The purposes of such care include (1) the control of bleeding when the skin has been cut, (2) the antiseptic and astringent action

needed, and (3) the replacing of a protective covering lost by the removal of sebum and epidermis

To control bleeding we recommend the use of bismuth subgallate,^{10a} which acts as a styptic without causing any burning or any other sensation. It is preferable particularly because, being a powder, it can be kept and applied aseptically.

As an antiseptic we have used 50 per cent ethyl alcohol, 70 per cent ethyl alcohol, and 50 per cent ethyl alcohol containing 4 per cent salicylic acid. All these solutions have been found satisfactory.

Talcum powder tinted to lessen its white sheen acts well as a protective coating.

It is our belief that the utilization of these materials in after-shaving treatment of the skin adds a good deal of comfort to the daily procedure of shaving.

HOW TO SHAVE MOST SATISFACTORILY

Satisfactory shaving in normal health may be specified as that in which there is an optimum combination of freedom from discomfort, little effort for close shaving and minimum damage to the skin. Our previous discussion shows that blade sharpness and razor design are inextricably interwoven, they cannot be specified in definite terms because of the wide variation in individual tastes and requirements. Generally speaking, men to whom discomfort of shaving is an important item will require a smaller effective shaving angle and sharper blades than will men having insensitive skins. The same is true in the case of men having particularly thin horny layers of epidermis.

In providing satisfactory shaving for himself the individual can go a long way by means of adequate facial preparation. The best procedure found by us is as follows:

Wash the face first with soap and water, using hot water and some toilet soap that has been found not to irritate the skin. Carry on this operation for about one-half minute and then rinse the face thoroughly. The purpose of this washing is to remove the grit from the face, which might damage the blade, and to remove the external layer of sweat and sebum from the skin and hair, as well as other extraneous material. After the soap has been thoroughly rinsed off with hot water, a second layer of soap should be applied. This may be one's favorite shaving soap. It is to be thoroughly rubbed into the surface of the skin with the hand, copious amounts of water being used. These two operations should be made to consume from two and one-half to three minutes.

If latherless cream is preferred for shaving, it should be applied on top of the soap and should be rubbed around enough to mix thoroughly with the lather. If lather-forming soap is to be used, it should be whipped into a lather with a shaving brush. When this lathering is completed, no harm will be done by extending the time the face is in contact with the soap by finding other things to do at this time, such as brushing the teeth or reloading the razor.

Shaving should be begun by wetting the razor with hot water and keeping the face well lathered, both the razor and the face should be kept wet during the entire operation. It is good practice to shave the less difficult portions of the face first, in order that the more difficult portions shall have the benefit of a still longer contact with water. Following shaving the preferred lotion or other post-shaving preparation can be used after the soap has all been rinsed thoroughly from the face.

Mechanical and chemical traumas associated with the operations of shaving produce in certain men an

abnormal feeling, a hypersensitivity of the face. Good shaving practice includes in its purposes the minimizing of this feeling. For the hypersensitive person we propose the adoption of one of the following changes in the preparational operations: (1) the use of cold water for the final lathering procedure, following the hot water preparational period, or (2) the use of menthol incorporated with the shaving soap or cream.

CLINICAL RESULTS OF ANTERIOR PITUITARY THERAPY IN CHILDREN

A WILMOT JACOBSEN, M.D.

AND

ARTHUR J. CRAMER JR., M.D.

BUFFALO

During the past few years medical literature has contained a constantly increasing number of papers dealing with the anterior pituitary gland. Yet, while there has been recorded a tremendous mass of experimental data demonstrating striking effects of administration of

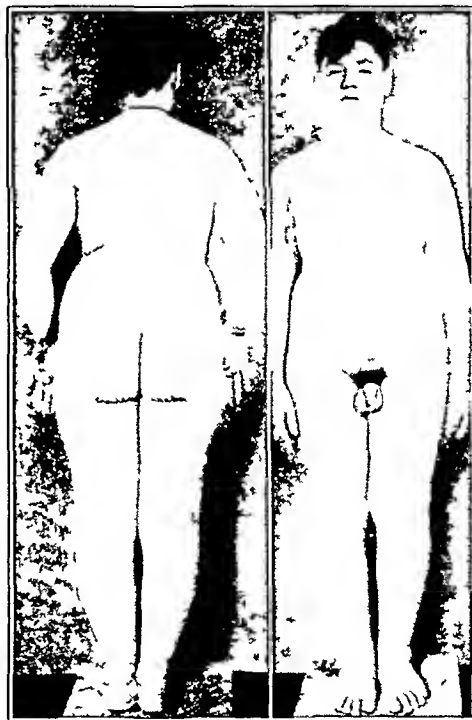


Fig 1 (case 1)—Appearance of patient at beginning of treatment

anterior pituitary substances to animals, there remains a great discrepancy between laboratory knowledge of these substances and their clinical application. Indeed, among conservative clinicians there exists a widespread skepticism as to their value.

Critical clinical reports are few, and it therefore seems worth while to record our own experience with the use of anterior pituitary extracts in children. We have tried them in a variety of conditions such as dwarfism, infantilism, hypogonadism, obesity of the Frohlich type and a few of mental or emotional imbalance. All these children received careful investigations, which included blood studies with chemistry as indicated, basal metabolism determinations, x-ray examination of the osseous system and other special exam-

inations whenever required. Throughout the course of these therapeutic experiments we have attempted to compare periods of treatment with adequate control

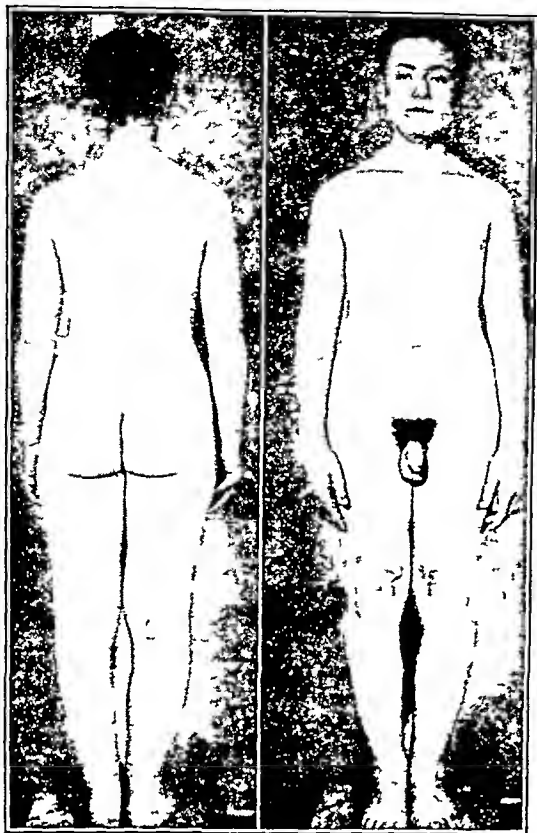


Fig 2 (case 1)—Six months later. Note loss of excess fat disappearance of the high waist line and change in facies



Fig 3 (case 1)—Twenty months later. There has been no return to former appearance, although no treatment has been given for fourteen months

periods during which no treatment was given. In order to facilitate the drawing of conclusions, we have tried as far as possible to avoid polyglandular therapy. Once we had convinced ourselves, however, that clinical results could be obtained by the use of commercial pituitary extracts, it seemed unwise to continue to withhold thyroid extract in a case apparently deficient in both thyroid and pituitary secretion. Therefore, after demonstrating the lesser effects of either product when used alone, we have often combined them.

In this paper we present briefly a selected group of children who have received anterior pituitary therapy.

CASE 1—History—V P, a boy, aged 11 years, was first seen at this age, at which time his weight was 109 pounds (49 Kg) and his height 56 inches (142 cm). A diagnosis of hypopituitarism was made because of the type of fat distribution. No treatment was given. He was next seen two years later, at the age of 13 years. At this time his height was 62 inches (157 cm) and his weight 176 pounds (80 Kg), a

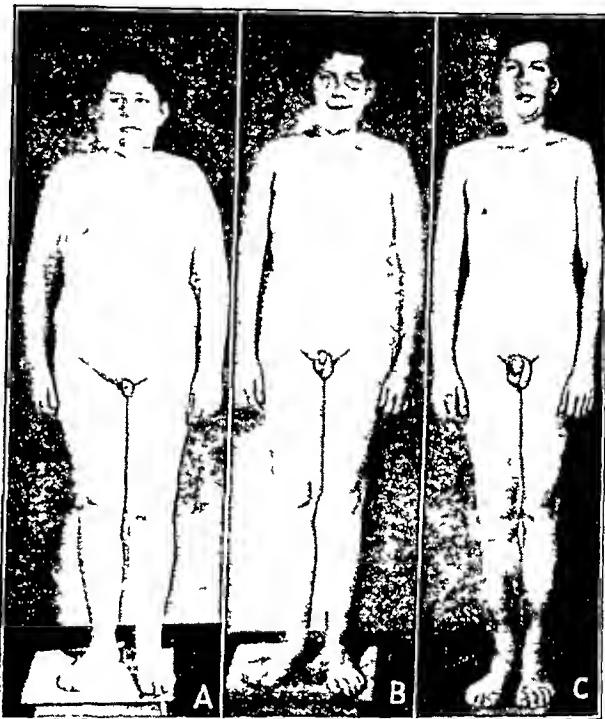


Fig 4 (case 2)—A at beginning of treatment. Note the undescended right testis. B six months later. Note loss of fat maturing of facies presence of right testis in scrotum. C eighteen months after beginning of treatment.

gain of 6 inches (15 cm) in height and 67 pounds (30 Kg) in weight during the two years. Physical examination revealed generalized obesity with fat localized particularly about the breasts, scapulae, pubis and hips, giving the characteristic high waist line. The face was rather pudgy, resembling the facies commonly seen in hypothyroidism. The external genitalia were normally developed, with abundant pubic hair, which had a female type of distribution. His actions and mannerisms were rather feminine.

Treatment—One cc of anterior pituitary extract¹ was given twice a week for six months. There was no thyroid given and no curtailing of food intake.

Result—During the six months he gained 1½ inches (3.8 cm) in height and lost 26 pounds (12 Kg) in weight. His facial appearance completely changed, fat pads disappeared and his actions and manner became more masculine.

Seen again fourteen months after discontinuing injections, he had not lost ground in any way and his weight remained at 145 pounds (66 Kg). A recent visit three years after treatment was begun shows the boy to be entirely normal.

¹ The anterior pituitary extract used in this study was autotrin (Parke Davis & Co.)

CASE 2—History—F H, a boy, aged 12 years, was of normal size until he was 8, since which time he had gained weight rapidly. At the first visit, Feb 2, 1934, his weight was 161 pounds (73 Kg) and his height 62½ inches (159 cm). He was obese, with the fat localized particularly about the trunk. The genitalia were small, the left testis was in the scrotum and the right in the canal at the external ring. X-ray films showed a slight retardation of the epiphyseal centers.

Treatment—Anterior pituitary extract 1 cc was given twice a week, and thyroid from 1 to 4 grains (0.06 to 0.26 Gm) daily as tolerated.

Result—Therapy was continued for ten months, during which period he lost 27 pounds (12 Kg) and gained 2 inches (5 cm) in height. Localized fat pads disappeared. The right testis descended into the scrotum and the genitalia developed normally. One year after discontinuance of treatment the boy was normal in appearance.

CASE 3—History—N M, a boy, aged 13 years, admitted to the hospital in the orthopedic service, complained of an old

156½ pounds (71 Kg) and his height was 60¾ inches (154 cm). Excessive fat localized chiefly about the trunk and hips and hypogonadism were found on physical examination. X-ray



Fig 6 (case 3)—Fifteen months later, showing loss of fat, normal genital development, maturing of facies.

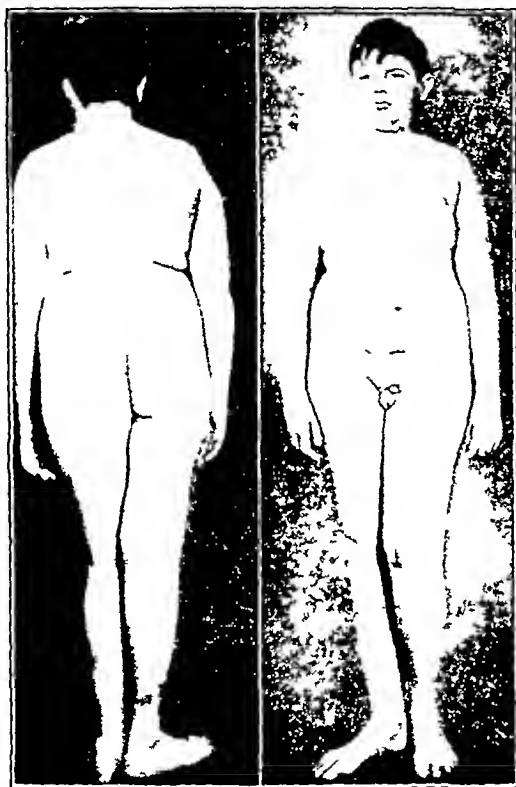


Fig 5 (case 3)—At beginning of treatment. Note excess fat about trunk, normal extremities (a traumatic injury to the right hip accounts for the stance) and poorly developed genitalia.

hip injury. He was obese with fat deposits chiefly about the trunk and face, the extremities being rather slender.

X-ray films showed slight retardation of development of the bone centers, and the basal metabolic rate varied between -7 and -17 .

Treatment—For eleven months thyroid was given in doses varying from 2 to 6 grains (0.13 to 0.4 Gm) a day. Very little change was noted in his condition. His weight at the start was 138 pounds (63 Kg) and at the end of eleven months 137 pounds (62 Kg), he had gained 3 inches (7.6 cm) in height.

During the next four months thyroid was continued, and in addition 1 cc. of anterior pituitary extract was given three times a week. Most of the improvement as noted in figure 6 occurred during this four months period.

Result—All treatment was then discontinued and six months later his weight had not increased and there was no reaccumulation of the fat pads, which had disappeared during the course of treatment.

CASE 4—History—H Z, a boy, aged 12½ years, was brought to the clinic May 1, 1935, because of a rapid weight increase since he was 9 years of age. On admission he weighed

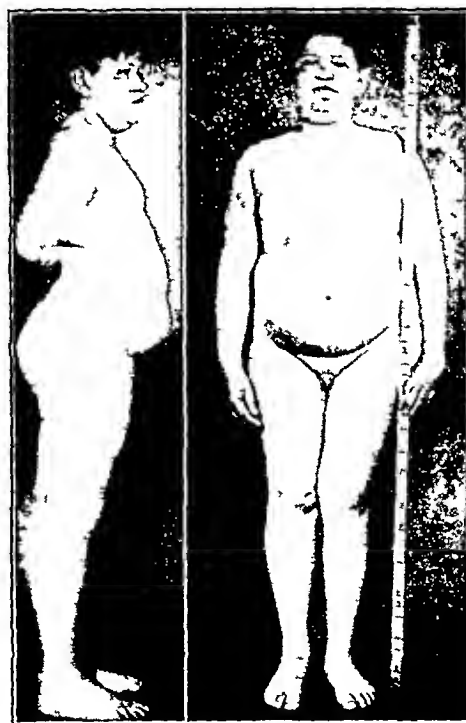


Fig 7 (case 4)—At beginning of treatment.

films of the epiphyseal centers showed normal bone development. Basal metabolism was -3 and blood chemistry was normal.

Treatment—During the first four months anterior pituitary extract 2 cc was given subcutaneously twice a week, then for six months desiccated thyroid to tolerance (from 15 to 18 grains, or 1 to 11 Gm daily) followed by four months of combination anterior pituitary and thyroid therapy.

Result—On anterior pituitary therapy alone the patient lost 6 pounds (2.7 Kg). The total weight loss for the fourteen months of treatment was only 10½ pounds (4.7 Kg), the

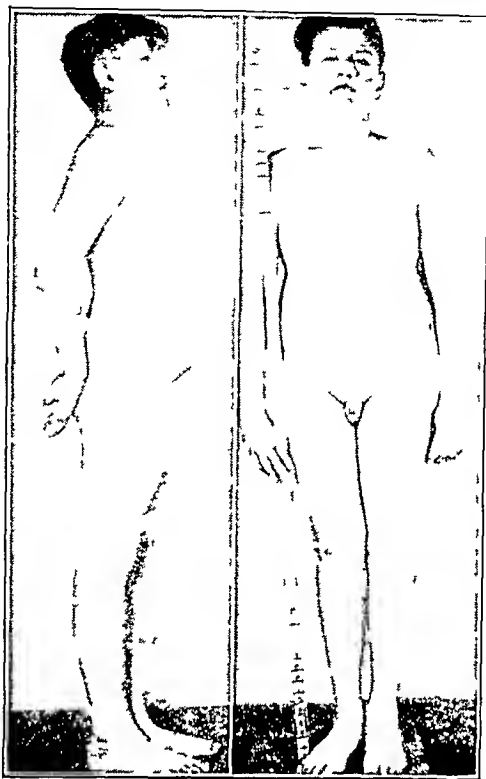


Fig 8 (case 4)—One year later showing redistribution of body fat and increase in size of genitalia

height increase 26 inches (66 cm). These figures are not nearly as indicative of the results obtained as are the views shown in figures 7 and 8, which were taken at the beginning and the end of the fourteen months period. Change in facial appearance with redistribution of fat and some increase in the size of the genitalia may be noted.

At present the boy is continuing under thyroid and anterior pituitary therapy.

CASE 5—History—E M, a girl, aged 13 years, seen in the outpatient department Sept 8, 1931, complained of obesity. At



Fig 9 (case 5)—A at beginning of treatment B eight months later and C seventeen months after beginning of treatment. Change of facial appearance is similar to that which occurred in case 1. Such a change did not occur in this girl while she was being treated with thyroid alone.

that time her weight was 174 pounds (79 Kg), about 64 pounds (29 Kg) overweight. The basal metabolic rate was -22 and x-ray films of the skull and epiphysis were negative. She was treated by diet restriction, thyroid and ovarian extract by injection for six months, with no apparent results. In fact she gained 5 pounds (2.3 Kg) during this period. Nov 7, 1933, she was referred to the endocrine clinic. At this time her weight was 197 pounds (89 Kg).

Treatment—A combination was given of thyroid as tolerated to 6 grains (0.4 Gm) daily and anterior pituitary extract 1 cc twice a week for twelve months. The last four months also included posterior lobe extract (solution of posterior pituitary) in a tolerance dose twice a week.

Results—After twelve months of treatment her weight was 160 pounds (72.6 Kg), a loss of 37 pounds (17 Kg). The height increased only slightly, since the epiphyseal centers had begun to close. Although the obesity has not been entirely corrected, the general appearance and especially the facial features are completely changed. Schoolmates did not recognize the girl when she returned to school after a summer of treatment.

CASE 6—History—D N, a girl, aged 8 years, had been obese since she was 2 years of age and had gained weight with especial rapidity since the age of 5 years. Previous treatment with whole pituitary substance by mouth and a strict dietary regimen had produced poor results. At the first visit, March

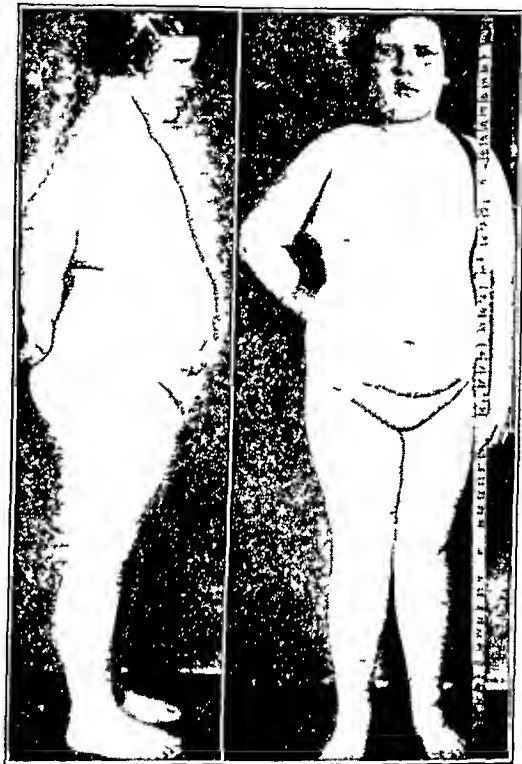


Fig 10 (case 6)—At beginning of treatment

19, 1935, the child weighed 128 pounds (58 Kg) and her height was 54.7 inches (139 cm). She was of short stature and obese, with fat localized over the abdomen, pubis, breasts and scapulae. X-ray films showed normal epiphyseal development. The basal metabolic rate was -10.

Treatment—Anterior pituitary extract 1 cc subcutaneously four times a week was administered by the mother at home, a total of fifty-two injections. Thyroid 1 to 4 grains (0.06 to 0.26 Gm) daily was given as tolerated.

Result—Treatment was continued sixteen months, during which period there occurred a loss of 17 pounds (7.7 Kg) and growth of 3.7 inches (9 cm). The child's appearance is now practically normal and there has been a great improvement in her mental reactions.

CASE 7—History—T S, the brother of J S (case 8), aged 15 years, was normal except for moderate obesity (weight 130 pounds, or 68 Kg) and a feminine distribution of the pubic hair. During the next fifteen months he gained 33 pounds (15 Kg) in spite of efforts to reduce his caloric intake.

Treatment—Thyroid was given in increasing dosage until 6 grains (0.4 Gm) a day was reached, at which level it was maintained. Anterior pituitary extract 1 cc was given twice a week.

Result—Over a period of seven months his weight fell from 185 pounds to 150½ pounds (84 to 69 Kg) and he gained 1 inch (2.5 cm) in height.

Treatment was then stopped for four months, at the end of which time his weight had risen to 169 pounds (77 Kg)

He was then started on thyroid alone, the dosage being quickly increased to 6 grains a day. This was continued for two months, during which time his weight had increased to 174½ pounds (79 Kg). Thus thyroid alone did not produce the weight loss which occurred one year previously under combined thyroid and anterior pituitary therapy.

CASE 8—History—J S, the brother of T S (case 7), aged 14 years, Oct 9, 1933, was moderately obese (weight 133 pounds, or 60.3 Kg), the genitalia were somewhat smaller than usual and pubic hair was scarcely visible.

Treatment—Thyroid was given in increasing dosage until a dose of 6 grains a day was reached, at which level it was maintained. Anterior pituitary extract 1 cc was given twice a week.

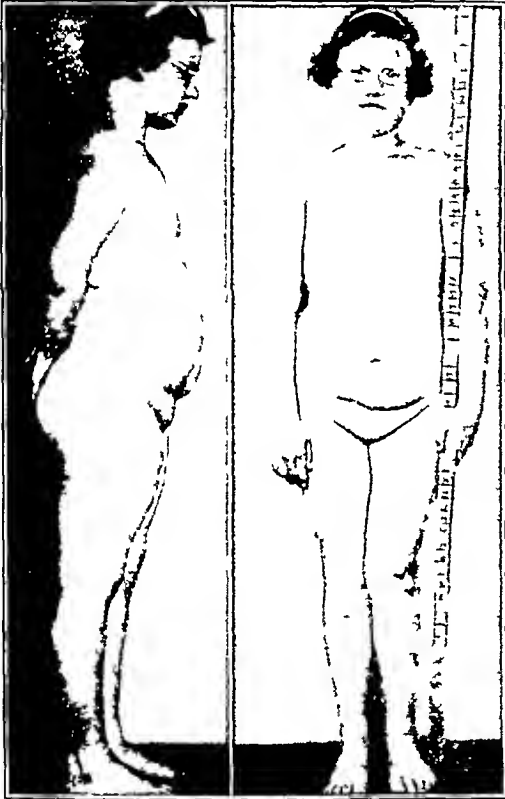


Fig 11 (case 6)—Fifteen months later. Note loss of babyish appearance.

Result—During five months of this regimen the boy lost 28 pounds (13 Kg) and gained 1 inch in height.

The boy then failed to take any medication over a period of five months, during which time he gained from 104¼ to 134¼ pounds (47.5 to 61 Kg), approximately the same as his weight before treatment had been started.

He was then given thyroid alone and the dose was increased to 6 grains (0.4 Gm) a day. The full dose was reached within a period of three weeks, whereas during the first course of treatment thirty-six days was required to reach this dosage.

After five weeks the patient became discouraged and did not return for further treatment, but during this period he had lost only 4 pounds (1.8 Kg), whereas one year previously in the same period of time a smaller total thyroid dosage, but with the addition of anterior pituitary extract had produced a loss double this amount.

This case appears to be a less striking example of the same reaction that occurred in this boy's brother (case 8), who actually gained weight when thyroid alone was used.

CASE 9—History—B S, a girl, aged 13 years, had grown very slowly since the age of 7 years and was not maturing as her parents observed other girls of her age were. Her height was 50 inches (127 cm), about 8 inches (20 cm) below the minimum normal figure for this age and 12 inches (30 cm)

below the maximum normal. She gave the appearance of a normal 9 year old girl.

She was observed for seven months without treatment, at the end of which time her height had not changed.

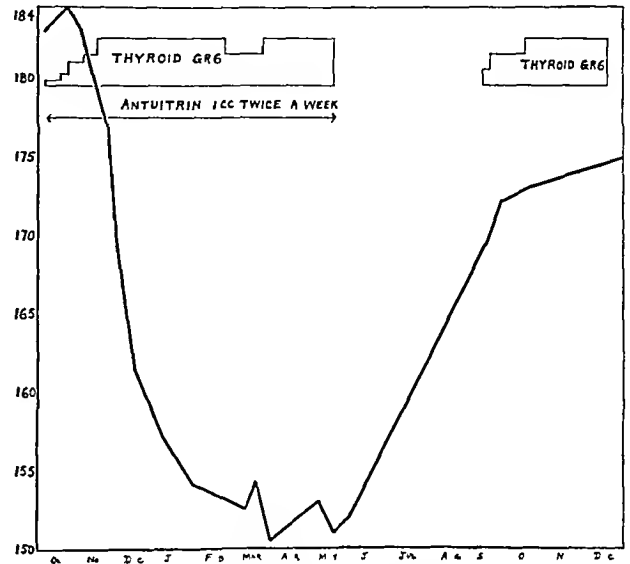


Fig 12 (case 7)—Weight curve.

Treatment—Anterior pituitary substance by mouth 6 grains (0.4 Gm) a day was given for seven months, during which time she grew 2 inches (5 cm) in height. Then for nine months this dose was continued and thyroid up to 2 grains (0.13 Gm) a day was given in addition.

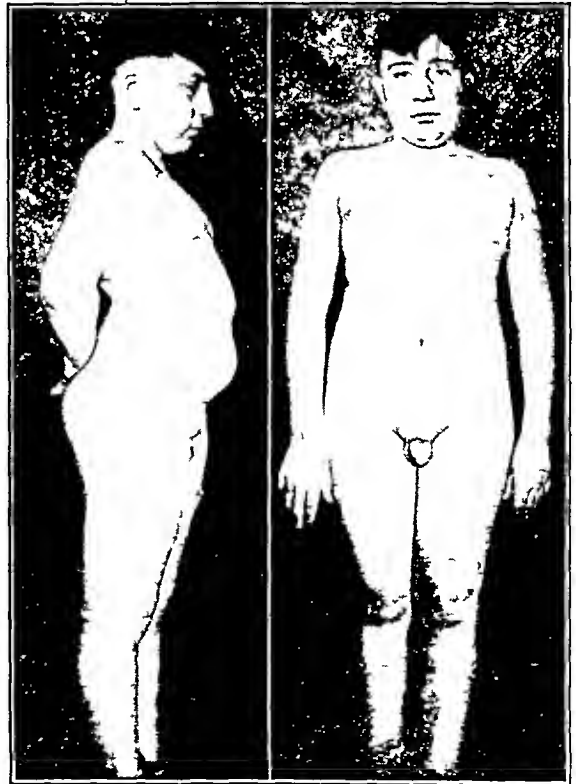


Fig 13 (case 8)—At beginning of treatment.

She was now 15½ years old. During the next four months she received twenty-five injections of anterior pituitary extract. Because no menstruation had yet occurred, extract of pregnancy urine was added. Two weeks later the first menstruation occurred and has continued in normal rhythm ever since.

Result—Her height gain was approximately 5 inches (127 cm) in two years of treatment, which is considerably above average for this age and a good result considering her very slow gain in previous years. There was satisfactory development of secondary sex characteristics.

CASE 10—History—I D., when first seen at the age of 6 years, weighed 23 pounds (10 Kg) and her height was 36 inches (99 cm). She was normally proportioned but markedly

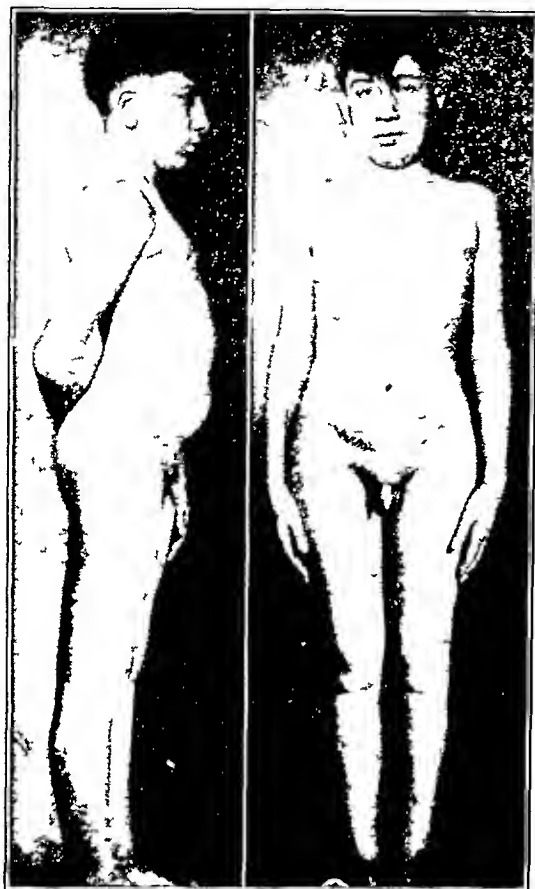


Fig 14 (case 8) —Six months later

undersized for her age. There was no history of severe illness, she was active and alert, and there was nothing to suggest hypothyroidism. X-ray films revealed a normal osseous development. She was observed for two and one-half years, at the end of which time, at the age of 8½ years, she weighed 32 pounds (14.5 Kg), a gain of 4½ pounds (2 Kg) a year, and her height was 40 inches (102 cm), a gain of 16 inches (27 cm) a year. She was then treated as follows:

First six months, anterior pituitary extract plus thyroid. Gain in height 2½ inches (63 cm).

Second six months, no treatment. Gain in height three-fourths inch (29 cm).

Third six months, anterior pituitary extract alone. Gain in height 1¼ inches (32 cm).

This is a gain in height at the rate of 3½ inches (9 cm) a year. During this eighteen months period her weight increased to 45 pounds (20 Kg), a gain of 13 pounds (6 Kg).

COMMENT

From considerable material these cases have been selected as typical of the results that may be obtained when response to anterior pituitary therapy is favorable. We do not wish to imply that such is always the case, for in many patients no improvement is observed or there is only slight or moderate improvement. On the other hand, in spite of the theoretical potentialities for harm in the administration of active endocrine products we have never seen any case in which the slightest evidence of untoward effect could be observed.

In the interest of brevity we have refrained from including full descriptions of the physical characteristics of these children, feeling that the illustrations show clearly the type of case with which we were dealing and also the results of therapy. Unfortunately no picture or chart can depict the mental and emotional transformation that occurs in some of these children coincident with the physical change. A shy, timid inhibited boy without friends becomes pugnacious, self-assured and a class leader. A girl whose only interest has been books begins to take an active part in outdoor sports. Teachers often report an improvement in scholarship. In the case of one boy who had been receiving anterior pituitary extract for three months with no physical effect that could be observed the mother was informed that the course of treatment was now completed and that no more would be required. She departed entirely satisfied only to return a few weeks later demanding that the injections be resumed because the child's actions at home and his reports from school had been so much better while he was under treatment. In spite of numerous apparently authentic reports of this sort we feel that it is difficult to evaluate the action of the administration of anterior pituitary on the psyche. Parents frequently report a variety of desired behavior changes beginning almost immediately after the start of injections, but it is our opinion that most of these observations are due to reaction of the eager parents themselves rather than of the patient. Later on, however, when the child's physical proportions begin to approach normal, there can be no doubt that there occurs a very real change in mental outlook and secondarily in behavior.

We have repeatedly observed that combined anterior pituitary and thyroid therapy is apt to produce more striking improvement than either extract used alone. For example in cases 7 and 8 the two brothers lost excess weight rapidly under the influence of combined therapy. On discontinuance of treatment they returned to their original status. When an attempt was made one year later to repeat the process but with thyroid alone, since the patients refused more injections, both boys became discouraged after two months and stopped treatment because they failed to observe any improvement. Case 5 is another example of failure with dietary restriction plus thyroid but of good results with anterior pituitary extract plus thyroid. In reviewing our material we find that very often our zeal to secure maximum clinical results has led us to add thyroid early in the course of treatment, thus obscuring

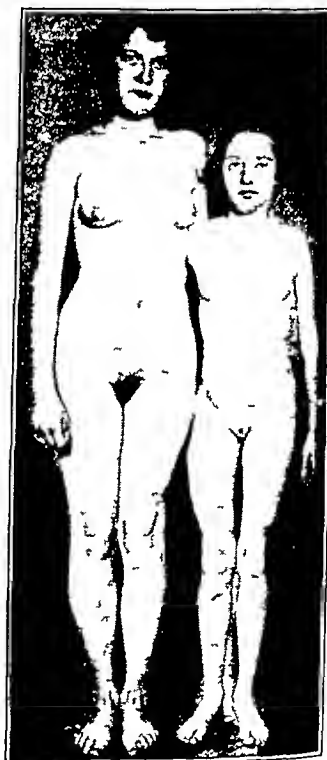


Fig 15 (case 9) —At beginning of treatment showing infantile appearance as compared with a normal girl of the same age

the effects of the administration of anterior pituitary extract and rendering the case inconclusive so far as its reporting is concerned. Hence we have relatively few patients to whom thyroid has not been given at some time while under observation. It is certain, however, that formerly when we treated similar cases with thyroid alone we were unable to secure results comparable to those obtained fairly regularly since anterior pituitary extract has been available.

An example of the occasionally completely satisfactory results of anterior pituitary therapy alone is seen in case 1. No more striking proof than this of the potency of an extract could be desired, since this boy up until the start of treatment had been gaining weight at an extraordinary rate over a period of at least two years. Loss of weight began with the first injection

and continued during the six months of treatment. Thyroid was not given and food intake was not restricted. There was normal sexual development in this case and so it cannot be classified as Frohlich's syndrome, but that the obesity was the result of primary pituitary dysfunction is proved by the therapeutic test. As a result of the administration of anterior pituitary there must have taken place some sort of readjustment of endocrine balance, similar perhaps to that which often, but by no means always, occurs at puberty. In any event no further treatment has been required and at the end of three

years the boy remains quite normal. At present we are unable to predict which cases will require prolonged treatment and which will react as did this boy.

by the time the hoped for change does take place many a sensitive child has come to feel, because of the obvious peculiarities of his physical make-up, that he is a freak, a being set apart from others and untold and often irreparable psychic damage has been done. To us it would seem advisable, therefore, to treat these children whenever they are discovered, preferring the theoretical danger of some sort of endocrine overstimulation to the very real danger of a psychic injury which may leave a permanent impress on the personality.

Whenever hypogonadism is a prominent feature we have found it advisable to give in addition to other therapy the anterior pituitary-like substance derived from pregnancy urine. This usually produces a fairly prompt effect, as indicated by descent of testes and an increase in the size of genitalia in males, and

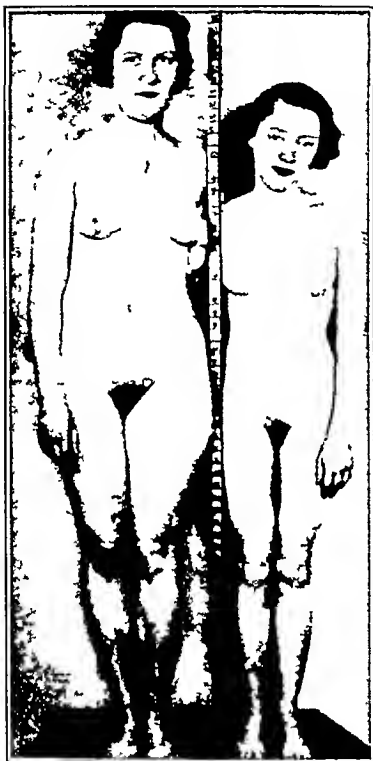


Fig 16 (case 9)—Twenty months later standing beside the same girl in figure 15. Note relative heights.

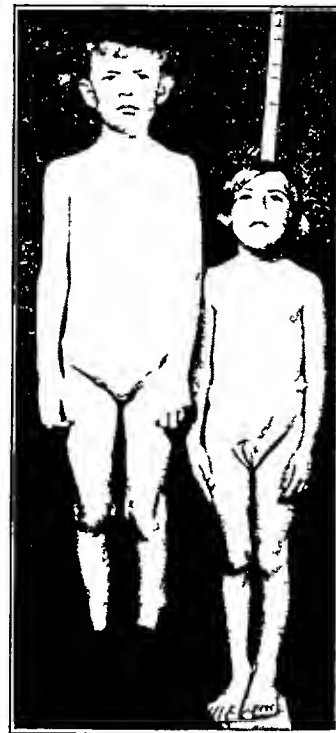


Fig 17 (case 10)—At the age of 8½ years beside a normal body of the same age.

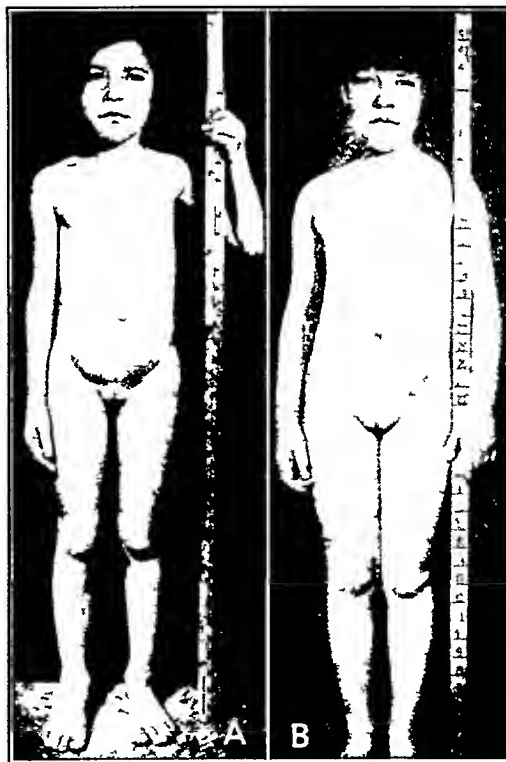


Fig 18 (case 10)—A at beginning of treatment B eighteen months later.

increased breast development and onset of menstruation in females. An example of the latter effect is seen in patient 9, a girl who at the age of 15½ years had

not menstruated Fourteen days after the first dose of pregnancy urine extract, menstruation occurred

SUMMARY

Ten cases are reported of children who have received therapy with anterior pituitary extract These were selected as illustrative of the kind of results that may be obtained in cases of dwarfism, infantilism, hypogonadism and certain types of obesity when the response to endocrine treatment is favorable

Experience has shown that desiccated thyroid administered in conjunction with anterior pituitary extract usually produces more rapid improvement than anterior pituitary extract given alone Patients who have failed to respond when thyroid alone was given have improved rapidly on combined therapy

219 Bryant Street

SYNDROME OF HYPOCHROMIC ANEMIA, ACHLORHYDRIA AND ATROPHIC GASTRITIS

GASTROSCOPIC STUDIES, WITH CASE REPORTS

LESTER M MORRISON, M.D.

WILLIAM A SWALM, M.D.

AND

CHEVALIER L JACKSON, M.D.

PHILADELPHIA

During a review of 400 gastroscopies performed as a routine on patients with gastro-intestinal symptoms, it was unexpectedly observed that a group of patients who had a hypochromic anemia and achlorhydria had a definite atrophic gastritis gastroscopically

It is our purpose in this report to present support of our belief that idiopathic hypochromic anemia is the partial expression of a syndrome and not a disease entity, and that it is as yet an unknown metabolic disturbance in which atrophic gastritis plays a dominating rôle This syndrome may be an etiologic factor in the genesis of pernicious anemia, subacute combined degeneration of the cord, and carcinoma of the stomach and esophagus As Osler¹ originally showed in chlorosis, this syndrome is readily amenable to iron therapy, which will effect cure or marked improvement

Owing to the then unrealized occurrence of this syndrome, detailed studies of the erythrocytes, such as their diameter or hematocrit values, were not accomplished This will be included in the follow-up studies However, the low color index, decreased hemoglobin value and comparatively slight reduction in erythrocytes render the blood changes in these cases characteristic of hypochromic anemia

Practically all these patients had received some treatment in medical clinics before they were referred to the gastro-intestinal clinic, accounting for an absence of a very severe anemia except in cases 2 and 9 in the accompanying table

Case 2, a typical Plummer-Vinson syndrome, was observed to present an atrophic gastritis, which is perhaps a feature of this syndrome

The classification of atrophic gastritis in three stages, as employed by Moutier² and based on pathologic changes in gastric structure, is adhered to owing to its

greater accuracy, especially from the standpoints of genetic and etiologic development As Chevalier Jackson³ has pointed out, the present classification of chronic gastritis into four main groups is inadequate, and probably as many as thirty divisions and subdivisions are necessary in a more thorough evaluation of the significance of the visualized gastric changes from a developmental point of view

As already described,⁴ there are two main forms of chronic atrophic gastritis—the diffuse and the segmented—which occur in three stages of involvement, as demonstrated pathologically by Moutier,² namely, (1) thinning out of the mucosa (early involvement), (2) effacement of the gastric rugae (moderately advanced involvement) and (3) arborization of the underlying and submucosal vessels (well advanced involvement)

The changes in the mucosal aspects of the stomach, when studied by the gastroscope, range from a smoothed, velvety, pale whitish rose color of the first stage to the loss of rugal markings, characteristic of the second stage, through various shades of marked pallor to a dead porcelain hue of the third stage The segmented forms are usually seen in the fundus and may occur as plaques

There has been one previous case gastroscopically described by Chevallier⁵ and Moutier⁶ of chlorosis and of idiopathic hypochromic anemia with atrophic gastritis

There has been a decided tendency in the past few years to consider "idiopathic hypochromic anemia" as a distinct disease entity, although when Faber⁷ originally described it in 1909 his contention was, as later reiterated,⁸ that the achylia is really a "complication" of the anemia This appears to be borne out particularly by the demonstrations of Alvarez and Vanzant⁹ that when the hemoglobin falls to a point below 12 Gm or 72 per cent there is a corresponding fall in gastric acidity with a rapid rise in the incidence of gastric achlorhydria Apperly¹⁰ has also shown that when the hemoglobin of the blood approximates an average of two thirds of the normal value, achlorhydria frequently occurs, that is, anemia can bring about achlorhydria This is in contrast with the opinion of Bloomfield and Keefer¹¹ and of Hurst,¹² who believe that anemia does not cause impairment in the gastric secretion However, in support of Alvarez and Vanzant and of Apperly it has been shown¹³ that, on treatment of the anemia in these cases, free hydrochloric acid can return concomitant with improvement in gastric function

3 Jackson Chevalier in discussion on Schindler R Gastroscopy with a Flexible Gastroscope Am J Digest Dis & Nutrition 2 662 (Jan) 1936

4 Swalm W A Jackson C L and Morrison L M Correlation of Clinical and Gastroscopic Findings in Gastritis Review of Gastro-Enterology 3 219 226 (Sept) 1936

5 Chevallier P Moutier François Stewart W and Sevaux A Aspect de la muqueuse gastrique dans l'anémie hypochrome achylie Sang 8 1003, 1934

6 Chevallier P Moutier François and Ely Z Un cas de chlorose fruste de la puberté avec atrophie gastrique cliniquement latente Sang 9 748 1935

7 Faber Knud Achylia gastrica mit Anämie Med Klin 5 1310 1909

8 Faber, Knud and Gram H C Relations Between Gastric Achylia and Simple and Pernicious Anemia Arch Int Med 34 658 (Nov) 1924

9 Alvarez W C and Vanzant F R Relations Between Hemoglobin and Gastric Acidity, Proc Staff Meet Mayo Clin 11 390 (June 17) 1936

10 Apperly F L Gastric Acidity and Its Significance Lancet 1 5 (Jan 4) 1936 Apperly F L and Cary M K The Relation of Gastric Acidity to the Erythrocyte Content of the Blood Am J Digest Dis & Nutrition 3 466 (Sept) 1936

11 Bloomfield A J and Keefer, C S Gastric Acidity Relation to Various Factors, J Clin Investigation 5 285 (Feb) 1928

12 Hurst, A F and Bell, J R The Pathogenesis of Subacute Combined Sclerosis Brain 45 266 (Oct) 1922

13 Chang H C Yang C S and Keefer C S Nat. M J China 15 752 (Dec) 1929

From Temple University Medical School

1 Osler William An American Textbook of the Theory and Practice of Medicine Philadelphia W B Saunders Company 2 196 1894

2 Moutier François Traite de gastroscopie Paris Masson & Cie, 1935

Recently there has been considerable investigation of idiopathic hypochromic anemia,¹⁴ particularly by Witts, who has gone so far as to differentiate sharply chlorosis and idiopathic hypochromic anemia by the presence of free acidity in the former and none in the latter. In the study of "early" chlorosis^{14a} and "late"¹⁵ chlorosis past the age of 30, Witts found the disease identical with idiopathic hypochromic anemia, except that free hydrochloric acid was present in the gastric secretions of the chlorotic patients. This of course was based on the classic concept that chlorosis occurred only in young girls, whereas idiopathic hypochromic anemia was found usually among middle-aged women, particularly between 35 and 50.

Wintrobe and Beebe,¹⁷ who found normal gastric secretion in two out of twenty-four cases—ten of the twenty-four presented hypochlorhydria, and the remaining twelve showed a histamine achlorhydria.

The absence of free gastric acidity in conjunction with some unknown gastric factor may account for the hypochromic anemia that occurs in gastrectomized patients¹⁸ and gastrectomized dogs.¹⁹ This factor may be some indeterminate hormone that is linked with hemoglobin regeneration in something of the manner in which achylia gastrica is related to bone marrow function in pernicious anemia.

Weiner and Kaznelson²⁰ have examined the bone marrow in a number of cases of idiopathic hypochromic

Observations in Eleven Cases

Case, Sex and Age	Clinical Picture	Examination of Blood	Gastric Analysis	Gastroscope Appearance
1 B D (♂) 52	(a) Continuous gassy distress and belching daily for 12 years (b) nervousness	Hb 54%, 0.0 Gm erythrocytes 4,300,000 anisocytosis polikilocytosis achromia color index 0.60	Histamine achlorhydria occult blood +4 mucus +1 increase	Numerous areas of marked pallor showing branching of submucosal vessels through the thinned out mucosa which is friable and shows fresh oozing
2 E H (♀) 40	(a) Sensation of lump in throat (b) dysphagia (c) neurasthenia (d) burning sensation in tongue (glossitis)	Hb 36%, 6.0 Gm erythrocytes 4,700,000 anisocytosis polikilocytosis achromia color index 0.40	Histamine achlorhydria occult blood negative mucus +1 increase	Mucosa of fundus completely gray and showing plaques of submucosal arborization of veins
3 H B (♂) 54	(a) Anorexia (b) angus dyspepsia (c) chronic dermatitis herpetiformis	Hb 60%, 10.0 Gm erythrocytes 3,500,000 anisocytosis polikilocytosis achromia color index 0.78	Histamine achlorhydria occult blood negative mucus ± increase	Segmented patches of white mucosa thinned out
4 M O (♀) 57	(a) Dysphagia and food and liquid regurgitations (b) benign esophageal stenosis (c) marked asthenia	Hb 59%, 9.8 Gm erythrocytes 4,300,000 anisocytosis polikilocytosis achromia color index 0.68	Histamine achlorhydria occult blood faint trace mucus +2 increase	Large area of marked pallor involving the fundus with arborization of submucosal vessels and effacement of gastric rugae
5 B R (♀) 52	(a) Gassy abdominal discomfort post prandial (b) vertigo (c) dyspnea (d) burning sensation in tongue (glossitis)	Hb 55%, 9.7 Gm erythrocytes 4,340,000 anisocytosis polikilocytosis achromia color index 0.67	Histamine achlorhydria occult blood faint mucus ± increase	Marked dead white pallor involving entire gastric mucosa with typical effacement of rugae
6 G D (♀) 46	(a) Vomiting of mucus (b) frequent and generalized abdominal distress (c) constant fatigue and constipation	Hb 60%, 10 Gm erythrocytes 4,400,000 color index 0.72	Histamine achlorhydria occult blood +4 mucus +1 increase	Mucosa pale dry glazed effacement of rugae slight amount of thick mucus noted
7 S G (♂) 55	(a) Chronic epigastric distress 3-4 hours after meals (b) vertigo (c) burning sensation in upper abdomen	Hb 56%, 0.4 Gm erythrocytes 4,210,000 anisocytosis polikilocytosis achromia color index 0.66	Histamine achlorhydria occult blood +4 mucus +3 increase	Mucosa markedly pallid in segmented areas with complete mucosal thinning and arborization of submucosal vessels patches of tenacious mucus seen
8 M T (♀) 48	(a) Circumscribed upper abdominal distress after meals of 10 years duration (b) marked nervousness and weakness	Hb 50%, 9.8 Gm erythrocytes 4,100,000 anisocytosis polikilocytosis achromia color index 0.72	Histamine achlorhydria occult blood +3 mucus +3 increase	Entire gastric mucosa whitened rugae flattened out marked arborization of vessels in cardia portion mucoid patches seen
9 J O (♀)	(a) Pyrosis gassy distress and belching after meals (1½ years) (b) nausea after meals (3 weeks) (c) marked asthenia	Hb 37.5%, 6.3 Gm erythrocytes 3,100,000 anisocytosis polikilocytosis achromia color index 0.61	Histamine achlorhydria occult blood +1 mucus +3 increase	Marked white appearance entire gastric mucosa with striking picture of vascular arborization and complete thinning out of mucosa increased mucus
10 M G (♀)	(a) Chronic dyspepsia (b) pains in upper abdomen (c) constipation	Hb 57%, 9.5 Gm erythrocytes 4,001,000 anisocytosis polikilocytosis achromia color index 0.71	Hypochlorhydria grade 4 occult blood positive mucus ± increase	Fundus moderately pale pylorus hyperactive slight increase in mucus patchy in distribution
11 Dr A N (♀)	(a) Midepigastric distress after meals (1 year) (b) constant epigastric tenderness (1 year) (c) anorexia (d) gas and belching after meals (1½ years)	Hb 62%, 10.3 Gm erythrocytes 4,040,000 anisocytosis polikilocytosis achromia color index 0.77	Hypo acidity grade 4 occult blood +1 mucus increase +3	Mucosa gray throughout and smoothed out pallor marked in patches no mucus noted small erosions seen

1 All the cases presented radiologically normal stomachs during routine gastro intestinal series

2 In no instance was atrophy of the gastric rugal pattern observed roentgenographically

3 Gallbladder disease was ruled out roentgenographically or by nonsurgical biliary drainage in each case

Patek and Heath¹⁰ described four cases of classic chlorosis between the ages of 15 and 16. One patient was found to have a normal gastric secretion, two had a considerably reduced free gastric acidity and one had a histamine achlorhydria.

That free hydrochloric acid is a frequent occurrence in idiopathic hypochromic anemia has been clearly demonstrated by various authors and particularly by

anemia which showed uniformly red hyperplastic marrow crowded with normoblasts but without megakaryoblasts. Differential counts of bone marrow films showed from 30 to 47 per cent normoblasts to be present, in contrast with the normal value of 20 per cent. Following treatment, one case studied presented a return to the normal percentage of normoblasts. In four cases that came to autopsy red hyperplastic bone marrow was found in one of the long bones. The

14 (a) Witts L. J. Simple Achlorhydria Anemia. *Guy's Hosp. Rep.* 80: 253 (July) 1930. (b) Vaughn T. R. Hypochromic Anemia with Achylia. *Arch. Int. Med.* 47: 71 (Jan.) 1931. (c) Dameshek William. Primary Hypochromic Anemia. *Am. J. M. Sc.* 182: 520 (Oct.) 1931. (d) Mills E. S. Idiopathic Hypochromic Anemia. *ibid.* 182: 554 (Oct.) 1931. (e) Vanderhoof Douglas and Davis Dewey. Anemia of the Microcytic Type in Middle Aged Female. *ibid.* 184: 29 (July) 1932. 15 Witts L. J. Late Chlorosis. *Guy's Hosp. Rep.* 81: 205 (April) 1931. 16 Patek A. J. Jr. and Heath C. W. Chlorosis. *J. A. M. A.* 106: 1463 (April 25) 1936.

17 Wintrobe M. M. and Beebe R. T. Idiopathic Hypochromic Anemia. *Medicine* 12: 187 (May) 1933. 18 Gordon Taylor G. Hudson R. N. Dodds E. C. Warner L. J. and Whithy L. E. H. The Remote Results of Gastrectomy. *Brit. J. Surg.* 16: 641-667 (April) 1929. 19 Ivy A. C. Morgan J. E. and Farrell J. I. The Effects of Total Gastrectomy. *Surg. Gynec. & Obst.* 53: 611 (Nov.) 1931. 20 Weiner W. and Kaznelson P. Ueber die zellige Zusammensetzung des Knochenmarks nach Ebfahrungen mittels der Sternalpunktion nach Seyfarth. *Folia haemat.* 32: 233-261 (May) 1926.

question of a liaison between bone marrow and the stomach is one that would certainly merit further investigation

Likewise Castle and Minot²¹ and Bloomfield²² present considerable evidence to show that chlorosis and idiopathic hypochromic anemia cannot be differentiated into independent entities but are one and the same

The role of dietary inadequacy and malnutrition has been demonstrated by extensive studies by Davidson²³ among the poor of Aberdeen, who were found to have insufficient iron in their diet and a comparatively large part of whom had this hypochromic type of anemia, prompt clinical improvement was noted following adequate iron administration

Alvarez²⁴ has introduced the question of an avitaminosis as an etiologic factor in the production of hypochromic anemia, showing that with diets deficient in vitamin B, the hemoglobin drops about 11 per cent within six weeks and the erythrocytes decrease from 6 to 7 per cent. Similarly, it is known that the dietary restrictions imposed in the management of various gastro-intestinal diseases or food fads may be influential in the production of hypochromic anemia. However, it should be admitted that demonstration of the defective diet as the causative factor in the production of chlorosis really originated in medical and lay writers of earlier centuries, showing that the consideration of improper diet has long antedated our modern data on nutritional deficiency

Levertton and Roberts,²⁵ in a careful investigation, recently showed definitely that menstruation does not have the slightest effect on either hemoglobin or erythrocyte value. Although this study was made in the normal woman, it may tend to discount the belief, commonly expressed, and voiced also by Bloomfield and Polland,²² that the monthly loss of blood through menstruation may be a factor in the production of idiopathic hypochromic anemia. This is of particular significance, since it appears to support the concept that idiopathic hypochromic anemia and chlorosis are one and the same, since "chlorotics" were believed to have scanty menstruation

In contrast with certain observers, we feel as do Castle and Minot²⁶ that the absence or reduction of free acidity in the stomach of patients with lesions of the alimentary tract is of significance as playing a rôle in their pathogenesis

Faber²⁷ has shown most convincingly that in the majority of cases anacidity is principally the result of a disorder of the gastric mucosa or some type of gastritis. By proper fixation of the stomach he demonstrates the signs of chronic inflammation, namely, a diffuse gastritis tending to atrophy

Puchert²⁸ has likewise found that gastritis is more prevalent in cases of anacidity

Henning and Jurgens²⁹ studied the gastroscopic appearances of twenty-nine true achylas following his tamme and noted atrophy of the mucosa in four cases, and severe chronic gastritis in thirteen cases. Blood studies, however, were not reported

This is of great interest, since the occurrence of anacidity in the general population varies directly in proportion to the age limit. Vanzant and Alvarez and their associates³⁰ in an investigation of 3,381 patients at the Mayo Clinic who were free of known gastro-intestinal disease found anacidity in 14.5 per cent; this figure rose consistently up to the age of 70. Bloomfield³¹ and Polland³² in collected material of 5,207 cases examined for acid values found the incidence of achlorhydria to range from 5.3 per cent in the third decade of life to 35.4 per cent in the seventh decade

It thus becomes apparent in noting the wide occurrence of anacidity that the contention of Faber and Hurst is of the greatest significance. They believe that the main cause of anacidity is gastritis, which in turn is the precursor of carcinoma of the stomach, pernicious anemia, combined sclerosis and less clearly defined disabilities, featured by diarrhea and sore mouth

Mathieu³³ in 1889 was among the first to set forth clearly the belief, based on clinical and pathologic studies, that a preexisting gastritis is responsible for the subsequent development of carcinoma of the stomach

Konjetzny,³⁴ in particular, has done considerable pathologic work in support of this theory and has been able to demonstrate very positive evidence in the histologic transitions from gastritis to actual cancer

It is agreed by many investigators that chronic gastritis is frequently symptom free. This is especially true of those who have a constitutional or hereditary diathesis to the development of gastric disease, or those of faulty eating habits such as hasty eaters, alcoholic addicts, or those who bolt hot food or drinks, and those with bad oral hygiene or constant postnasal discharge into the stomach. It must be admitted, however, that there is not an inconsiderable number of the aforementioned indiscreet eaters or drinkers who are found to have perfectly normal stomachs from the standpoint of pathology. This would tend to emphasize the constitutional or hereditary factors

Of especial interest is Ahlbom's³⁵ report from the Cancer Institute of Stockholm that 100 out of 250 cases of squamous cell carcinoma of the mouth, pharynx and esophagus showed evidence of a previous simple achlorhydric anemia or so-called Plummer-Vinson syndrome, previously described by Patterson³⁶ and Kelly³⁷. Ahlbom believes that squamous cell carcinoma has its foundation in the atrophic changes in the mucous membrane

21 Castle W R and Minot G R Pathological Physiology and Clinical Description of the Anemias Oxford Medical Publications 1936 p 74

22 Bloomfield A L and Polland W S Gastric Anacidity Its Relation to Disease New York Macmillan Company 1933 pp 87-95

23 Davidson L S P Fullerton H W Howie J W Croll J M Orr J B and Godden W Observations on Nutrition in Relation to Anemias Brit M J 1 685 (April 22) 1933

24 Alvarez W C Vanzant F R and Osterberg A E Daily Variations in Concentrations of Acid and Pepsin in Gastric Juice Am J Digest Dis & Nutrition 3 162 (May) 1936

25 Levertton K M and Roberts L J Hemoglobin and Red Cell Content of Blood of Normal Women During Successive Menstrual Cycles J A M A 106 1459 (April 25) 1936

26 Castle and Minot 1 p 85

27 Faber Knud Gastritis and Its Consequences Oxford Medical Publications 1935 p 85

28 Puchert H Ueber die Magenschleimhaut bei Geschwür und bei Krebs Virchows Arch f path Anat 280 385 1931

29 Henning Norbert and Jurgens R Beziehungen der Farbstoffe kretion zur Sekretion und Morphologie des Kranken Magens Munchen med Wchnschr 77 1961 (Nov 14) 1930

30 Vanzant F R Alvarez W C Eusterman G B Dunn H L and Berkson Joseph Normal Raoge of Gastric Acidity from Youth to Old Age Arch Int Med 49 345 (March) 1932

31 Bloomfield and Polland Gastric Anacidity pp 55-59

32 Polland W S Histamine Test Meals Arch Int Med 51 903 1919 (June) 1933

33 Mathieu A Etat de la muqueuse de l'estomac dans le caocer de cet organe Arch gén de med Paris 102 571 1889

34 Konjetzny G E in Henke Friedrich and Lubarsch Otto Hand buch der speziellen pathologischen Anatomie und Histologie Berlin Julius Springer 4 904 1928 part 2

35 Ahlbom H E Simple Achlorhydric Anemia Plummer-Vinson Syndrome and Carcinoma of the Hypopharynx Brit M J 2 331 (Aug 15) 1936

36 Patterson D R Brit J Laryng Rhin & Otol 34 285 (Aug) 1919

37 Kelly A B Brit J Laryng Rhin & Otol 31 289 (Aug) 1919

Suzman³⁸ has likewise reported epithelial changes of a precancerous type in the mouth and pharyngeal mucous membrane in a case of so-called Plummer-Vinson's syndrome at necropsy. This is of particular note in case 2, presenting Plummer-Vinson's syndrome, in which esophgogscopy revealed an atrophic blanched mucosa concomitant with a marked atrophic gastritis of great pallor. It appears feasible that the esophagus shares in the gastric changes so far as mucosal atrophy is concerned, subject to the same factors in the predispositions to cancer.

Likewise, the relationship between idiopathic hypochromic anemia and pernicious anemia is now conceded by many investigators. Not infrequently idiopathic hypochromic anemia develops into typical pernicious anemia as demonstrated by Wintrobe and Beebe³⁷ and by Heath,³⁹ whereas the association in families of achlorhydria and idiopathic hypochromic anemia was proved by Meulengracht⁴⁰ and by Witts¹⁴ and corroborated since by various authors.

When one realizes the prevalence of gastritis, the most frequent disease of the stomach, occurring in 35 per cent in routine clinic patients with gastro-intestinal complaints in our series,⁴ the significance of the question becomes at once apparent—in view of the devastation of gastric carcinoma.

It is noteworthy that in our group of cases the featured complaints were vague abdominal discomfort with "gas" formation and nervousness and mental depression. The neurogenic factor is of interest in view of Douthwaite's⁴¹ reports supporting Hurst's contention⁴² that neuropoietin is one of the unknown gastric factors that is absent in pernicious anemia and accounts for the changes in the spinal cord. Likewise Douthwaite has shown the close relationship between gastric achlorhydria with gastritis states in patients with polyneuritis, typical muscle wasting, reaction of nerve degeneration and gastric disturbances.

In our group of cases the hypochlorhydrias were presented also, because of our belief that the acid secretion is a link in the metabolic chain between stomach and bone marrow function. It is also possible, as Chevallier and Moutier⁴³ have shown, that further expressions in this complex exist in the skin and tongue, as demonstrated by cases 2, 3 and 5. Complete achlorhydria is one of the end stages of abnormality of secretion in this syndrome reported, whereas considerable hypochlorhydria is found in patients with moderately advanced stages of the syndrome complex, as in cases 10 and 11.

CONCLUSIONS

This study of a group of patients with hypochromic anemia, achlorhydria and hypochlorhydria with atrophic gastritis and its possibility in the genesis of carcinoma of the stomach and esophagus, pernicious anemia and combined sclerosis of the cord is in the nature of a preliminary report, since these cases as well as others will be studied during ensuing years with particular reference to the development of these diseases.

4901 North Thirteenth Street

38. Suzman M. M. Syndrome of Anemia Glossitis and Dysphagia. *Arch. Int. Med.* 51: 121 (Jan.) 1933.
39. Heath C. W. The Interrelation of Pernicious Anemia and Idiopathic Hypochromic Anemia. *Am. J. M. Sc.* 185: 365 (March) 1933.
40. Meulengracht E. Simple Achylic Anemia. *Acta med. Scandinav.* 78: 387-426 1932.
41. Douthwaite A. H. Gastrogenous Polyneuritis. *Brit. M. J.* 2: 535 (Sept. 12) 1936.
42. Hurst A. F. Schorstein Lecture on Precursors of Carcinoma of Stomach. *Lancet* 2: 1023-1028 (Nov. 16) 1929.
43. Chevallier P. and Moutier F. Langue et estomac. *Presse med.* 43: 1801 (Nov. 16) 1935. L'estomac dans les maladies de la peau. *Rev. de path. comparee* 35: 1325 (Nov.) 1935.

ARTIFICIAL FEVER TREATMENT OF CHOREA

A TWO YEAR STUDY

CLARKE H. BARNACLE, M.D.
JACK R. EWALT, M.D.
AND
FRANKLIN G. EBAUGH, M.D.
DENVER

During the past two years we have treated forty-five cases of Sydenham's chorea with the Kettering hypertherm¹. This study was initiated during the winter of 1935 and is still in progress at the Fever Therapy Department of the University of Colorado. Previously we reported excellent results in thirteen cases, and we have included this group in our present series.

The history of pyretotherapy in chorea dates to von Kern's³ intramuscular injections of milk in 1923. Mas de Ayala⁴ in 1930 was successful in the treatment of chorea by the artificial induction of relapsing fever. The good results of Roeder⁵ and others⁶ with phenylethylhydantoin in the treatment of this disease appeared to be associated with the production of fever. In 1931 Sutton⁷ first called attention to the triple typhoid vaccine method of inducing fever in chorea. Later Sutton and Dodge⁸ reported satisfactory results in 150 attacks of chorea with the typhoid method. These workers felt that the average course of chorea was materially shortened by pyretotherapy. The obvious disadvantage of the methods with foreign protein led to the trial of artificial fever in the treatment of chorea. Neymann,⁹ Desjardins and Popp,¹⁰ Metz,¹¹ Hefke,¹² Wetchler,¹³ and Schnobel and Fetter¹⁴ have all reported excellent results in treating chorea with mechanically induced fever.

From the Fever Therapy Department, University of Colorado Psychopathic Hospital.

Read before the First International Conference on Fever Therapy, New York, March 30, 1937.

1. This apparatus was conceived and perfected at Miami Valley Hospital, Dayton, Ohio, and at the Research Laboratories of the Frigidare Division of the General Motors Corporation, Dayton. Dr. Walter M. Simpson and Mr. Charles F. Kettering of the General Motors Company gave us the privilege of using the apparatus. Three hypertherms are now in constant operation at this clinic.

2. Barnacle C. H., Ewalt J. R. and Ebaugh F. G. Artificial Fever Treatment of Chorea. Preliminary Report. *J. A. M. A.* 106: 2046-2048 (June 13) 1936.

3. von Kern Tibor. *Wien. Klin. Wchnschr.* 36: 164 (March 1) 1923.

4. Mas de Ayala I. Estudio clinico de la fiebre recurrente espanola experimental. *An. de Fac. de med. de Montevideo* 15: 544-682 (July-Aug.) 1930.

5. Roeder F. *Lehr. die Anwendung von Schlafmitteln in die Kinderheilkunde mit besonderer Berucksichtigung des Nirvanols Therap.* *Monatschr.* 33: 54-63 1929.

6. Poyton F. J. and Schlesinger B. Treatment of Chorea by Nirvanol. *Lancet* 2: 267-270 (Aug. 10) 1929. Gottlieb A. Ueber Nirvanol Behandlung der kindlichen Chorea Minor. *Monatschr. f. Kinderh.* 43: 433-438 1929. Pilcher J. D. and Gerstenberger H. J. Treatment of Chorea with Phenylethylhydantoin. *Am. J. Dis. Child.* 40: 1239-1249 (Dec.) 1930. Dennett R. H. and Wetchler Samuel. Nirvanol Treatment of Acute Chorea in Children. *J. Pediat.* 1: 203-209 (Aug.) 1932.

7. Sutton Lucy Porter. Treatment of Chorea by Induction of Fever. A Preliminary Report. *J. A. M. A.* 97: 299 (Aug. 1) 1931.

8. Sutton Lucy Porter and Dodge Katherine G. Treatment of Chorea by Induced Fever. *J. Pediat.* 3: 813 (Dec.) 1933.

9. Neymann C. A. (a) Treatment of Disease by Electroprexia. *Lancet* 1: 1102-1104 (May 11) 1935. (b) The Treatment of Disease by Means of Electroprexia. *Proc. Roy. Soc. Med.* 29: 151-161 (Dec.) 1935. (c) Neymann C. A., Blatt M. L. and Osborne S. L. The Treatment of Chorea by Means of Electroprexia. *J. A. M. A.* 107: 938-942 (Sept. 19) 1936.

10. Desjardins A. U. and Popp W. C. Our Experience with Fever Therapy. report of the 5th Annual Fever Conference. May 16 1935. pp. 78.

11. Metz M. H. (a) Some Unusual Cases Treated with Fever Therapy. report of the 5th Annual Fever Conference. May 16 1935. pp. 101-104. (b) Results Obtained by the Use of Fever Therapy. *J. A. M. A.* 106: 1658 (May 9) 1936.

12. Hefke H. W. Report of the First Year of Fever Therapy at the Milwaukee Hospital. report of the 5th Annual Fever Conference. May 16 1935.

13. Wetchler Samuel. Chorea in Children. *M. Rec.* 142: 30-33 (July) 1935.

14. Schnobel T. G. and Fetter Ferdinand. Fever Therapy in Gonorrheal Arthritis and Chorea. *Ann. Int. Med.* 9: 398-405 (Oct.) 1935.

PROCEDURE

In our clinic we are using three Kettering hypertherms as the means of inducing fever. In the management of the first few cases, fever sessions of two and one-half hours were given at intervals of from three to six days and at temperatures ranging from 103 to 106 F (rectal). Experience convinced us that patients respond more rapidly to daily treatments of two and one-half hours, given at temperatures of from 105 to 105.4 F (rectal). Longer sessions and higher temperatures were tried but were found to be too debilitating, especially in cases complicated by carditis. It

TABLE 1—Results in Treatment of Sydenham's Chorea with the Kettering Hypertherm

Severity	Immediate Results			Recent Follow Up Results			No Follow Up
	No of Patients	Recover ed	Markedly Improved	Recurrence	Recover ed	Markedly Improved	
Severe	14	10	4	2	11	2	1
Moderate	29	25	4	2	23	2	4
Mild	2	2	0	0	2	0	0
Totals	45	37	8	4*	36†	4†	5

* Three patients received two courses of fever

† Four of these patients were previously markedly improved now cured

‡ Three of these patients suffered recurrences

has been our policy to insist on strict rest during these treatments and to prescribe limited activity following the course of fever. Many of the patients were ambulatory and were cared for in the home, while the more severe choreic patients were hospitalized. A cardiologist carefully examined the patients with cardiac involvement and was consulted during the course of their treatment. The progress of the patient was used as a guide to the amount of fever prescribed.

CASES

We have classified the chorea cases as mild, moderate and severe. Mild chorea implies that minimal choreiform movements of an extremity or muscle group are present with trivial functional incapacity. Chorea classified as moderate shows gross choreiform movements of the extremities, trunk or face. Children in this group are unable to perform coordinated acts. They are unable to speak coherently and cannot feed or dress themselves. Hypotonia is a marked symptom. In severe cases there is almost total incapacity. Attempts at voluntary movements result in violent choreiform movements. These patients cannot speak, there is marked difficulty in deglutition, and hypotonia is severe.

In this series there were fourteen severe, twenty-nine moderate and two mild cases. The average duration of symptoms before fever was two months, nine patients had had previous attacks, four had been unsuccessfully treated with triple typhoid vaccine, and the great majority of the other cases had failed to respond to the conservative therapeutic procedures.

RESULTS

In the immediate results of the forty-five patients treated, thirty-seven recovered and eight were markedly improved. We have attempted to follow these patients closely and have succeeded in checking forty of the original number. There have been four recurrences, three of these patients have received a second course of fever. An additional case showed occasional twitching. Thirty-six patients who were followed were cured. Of this number three patients were con-

sidered markedly improved under the immediate results. Four patients were classed markedly improved in the recent follow-up study (table 1).

In table 2 it will be noted that the average number of treatments was 12.6 and the total hours of fever 32.9. The patients were under treatment an average period of 22.3 days. It is interesting to note that a greater number of heatings were needed in the severe type, while the moderate and mild cases required successively less fever.

We found that the presence of carditis, the history of previous attacks and the duration of symptoms prior to fever bore no relationship to the number of heatings required.

The incidence of carditis was 42.2 per cent, that is, nineteen cases. Three of these cases showed evidence of mild decompensation and one presented pericardial effusion. Immediately following pyretotherapy seven patients with carditis had recovered, eight were improved and four were unchanged. The patient with pericardial effusion responded satisfactorily to fever and the effusion disappeared, he is now in school and on full activity twenty months after treatment. Twelve of the nineteen cases of carditis have been carefully checked in recent follow-up examinations. Six patients were cured and are on a full activity program, while six were improved. We have considered all the accepted criteria for carditis in making our diagnosis and arriving at our therapeutic results.

COMMENT

The fact that thirty-six of the forty patients followed in this two year study are found to be cured indicates that pyretotherapy is of lasting benefit. We recognize, however, that this period of time is comparatively short, and further study may prove that the results obtained by this therapeutic method are not sustained.

In the two year period we have had four recurrences among the forty-five patients treated. In one additional patient who suffered from severe chorea occasional muscular twitching has recently developed.

TABLE 2—Treatment of Sydenham's Chorea with Kettering Hypertherm

Severity	Number of Cases	Incidence of Carditis	Average Treatments	Number Hours of Fever	Average Time Under Treatment Days
Severe	14	7	17.9	44.05	39.1
Moderate	29	12	10.3	26.3	19.8
Mild	2	0	9.0	22.5	8.6
Totals	45	19 cases or 42.2%	12.6	39.9	22.3

It will be noted that eight patients, in the immediate results, were markedly improved. In all these choreic patients a maximum amount of fifty hours of fever was given, but occasional choreiform movements continued. It was our opinion that additional heatings would not benefit these particular children. In the recent follow-up study four of these patients were found to have recovered, two had recurrences and two could not be checked.

Through experimentation we agreed that short treatments of two and one-half hours' duration at temperatures of from 105 to 105.4 F (rectal) are most effective if given daily. Longer treatments are necessarily more fatiguing, result in loss of weight, and are dangerous in the face of a complicating carditis. Although fewer fever sessions may be given if the duration of the tem-

perature is longer, the actual hours of fever are approximately the same in the two instances. Daily sessions of short duration do not result in loss of weight nor do they interfere with the child's appetite. Occasionally if the child is markedly emaciated and suffering from severe carditis the interval of treatment is increased to two or three days. The average time under treatment for all patients with chorea was approximately three weeks, the severe cases boosting up the average.

In other studies we¹⁵ have reported the incidence of delirium associated with artificial fever. It is interesting to note that in the 562 treatments administered to forty-five chorea patients there were only twelve deliriums, six of these were mild, five were moderate and one was classic or severe. This incidence is in sharp contrast to the common belief that children are hypersusceptible to delirium. The facts that the heatings are short, that sedatives are but rarely necessary and that the children are very comfortable in the Kettering hyperthermia may explain this low incidence. The nurse technician usually reads stories to the children and carries them along in conversations about their daily activity. Children are rarely bothered with postfebrile nausea and retain 2 liters of salinized water without difficulty.

In a preliminary report we confirmed the conclusions of Sutton and Dodge¹⁶ that advanced rheumatic carditis did not contraindicate fever treatment. In fact, we found that the associated carditis was benefited by pyretotherapy. Fifteen of the nineteen patients showed immediate improvement in cardiac function, and twelve of these continued as improved in a recent examination.

SUMMARY

1 In a two year study, forty-five patients¹⁷ with Sydenham's chorea have been treated by artificial fever with the Kettering hyperthermia.

2 Fever sessions of two and one-half hours' duration at temperatures of from 105 to 105.4 F (rectal) are advocated.

3 The average number of treatments was 126, the average number of hours of fever was 329 and the average time under treatment was 22.3 days.

4 The immediate results have been excellent, with recovery in the majority of cases. There have been four recurrences during this period of time. The majority of cases have been followed and the results indicate that pyretotherapy is of lasting benefit.

5 The incidence of carditis was 42.2 per cent (nineteen cases). Carditis did not interfere with the treatment and the majority of the patients were benefited.

6 Associated delirious episodes were infrequent.

4200 East Ninth Avenue

15 Ebaugh I G, Barnacle C H and Ewalt J R. Delirious Episodes Associated with Artificial Fever. A Study of 200 Cases. *Am J Psychiat* 93: 191 (July) 1936. Psychiatric Aspects of Artificial Fever Therapy to be published.

16 Sutton Lucy Porter and Dodge Katherine G. Effects of Fever Therapy on Rheumatic Carditis Associated with Fever. *J Pediat* 6: 494 (April) 1935.

17 Nine additional patients with chorea have been treated with the Kettering hyperthermia since this paper was written.

Hospital Life—Great hospitals, with their schools, are something more than blocks of buildings where patients are doctored, and students and nurses are taught. I do believe in the spirit of a place. To me, the genius loci is really there and the Religio Discipuli, the student's obedience to the spirit of Hospital life, is a very important part of his education.—Paget, Stephen. *Confessio Medici*, New York, Macmillan Company, 1931.

HAY FEVER AND ASTHMA DURING AND AFTER JAUNDICE

ASCITES DUE TO CINCHOPHEN POISONING

EDWIN BOROS, MD

NEW YORK

Since the publication of the first report of a case of combined jaundice and ascites with recovery by Jones and Minot¹ in 1923, the attention of the profession has been directed to the occurrence of these uncommonly associated conditions, and there have been noted and recorded from time to time similar observations by Bauer,² Weir,³ Meyer and Learner,⁴ McCabe and Hart,⁵ Cavanagh⁶ and others. Among the etiologic factors mentioned as instrumental in the causation of damage to the liver parenchyma sufficient to produce both jaundice and ascites⁷ there may be mentioned arsphenamine, mercurial products, phosphorus, sodium gold thiosulfate, cinchophen, common duct stone, pressure of glands on the common duct, and infections.

As a rather prominent offender, cinchophen has assumed an important role in the production of pathologic changes in the liver. It was discovered by Doebner and Gieseke⁸ in 1887 and gained considerable popularity in the realm of therapeutics until 1913, when John Phillips⁹ published his observations describing its toxic effects. This was soon followed by extended studies on a dog⁹ in which the administration of this product brought about a severe degeneration of the liver with resulting death. With the accumulation of further reports attesting the toxic behavior of this agent on the liver, warnings were broadcast and means were sought to curtail the harmful effects resulting from its usage. Palmer and Woodall¹⁰ made a study as to the possibilities for insuring a safe means of administration of this drug and concluded that such a thing was not possible.

The nature of the liver damage produced by cinchophen or its derivatives is similar to the poisoning produced by phosphorus, chloroform or trinitrotoluene, and the pathologic picture is one in which there is definite evidence of liver damage—local areas of liver necrosis which may extend to the complete disappearance of the hepatic cells. That there is a peculiar idiosyncrasy to the drug in some persons is unquestioned, for fatalities have been encountered even with the smallest of doses, and many times without the merest suggestion of a prodrome. Furthermore, the length of time intervening between the actual administration of the remedy and the onset of symptoms is variable.¹¹ The first toxic effects may appear weeks after the

From the Bronx Hospital

1 Jones C M and Minot G R. Infectious (Catarrhal) Jaundice. *Boston M & S J* 189: 531-551 (Oct 18) 1923.

2 Bauer, R. Zur Frage des Icterus Catarrhalis. *Med Klin* 22: 1558-1561 (Oct 8) 1926.

3 Weir J F. Association of Jaundice and Ascites in Diseases of the Liver. *J A M A* 91: 1888-1891 (Dec 15) 1928.

4 Meyer, Jacob and Learner Aaron. Ascites Occurring During Jaundice with Recovery. *J A M A* 104: 114-116 (Jan 12) 1935.

5 McCabe John and Hart J F. Recovery Following Jaundice with Ascites. Report of Two Cases. *J A M A* 105: 859-862 (Sept 14) 1935.

6 Cavanagh J R. Jaundice and Ascites with Recovery. Case Report. *M Ann District of Columbia* 4: 322-324 (Dec) 1935. Pavel I and Runcan I. Difficulties of Pathogenic Diagnosis. Unusual Case History of Jaundice and Ascites. *Paris med* 1: 432-434 (May 16) 1936.

7 Forbes J R. Case with Ascites Due to Novarsobenzol (Ne-arsphenamine). *Guy's Hosp Rep* 85: 161-162 (April) 1935.

8 Doebner O and Gieseke M. Ueber A Phenylcinchonsaure und ihre Homologen. *Justus Liebig's Ann d Chem* 242: 291-1887.

9 Phillips John. Skin Rashes Following the Administration of Atophan. *J A M A* 61: 1040 (Sept 27 pt 1) 1913.

10 Palmer W L and Woodall P S. Is There a Safe Method for the Administration of Cinchophen? *J A M A* 107: 760-764 (Sept 5) 1936.

11 Willcox William. Toxic Jaundice. *Lancet* 2: 1 (July 4) 1931.

ingestion and withdrawal of the medication. In referring to 191 cases of jaundice in the past decade which arose after the ingestion of cinchophen or its derivatives, Palmer and Woodall¹⁰ cited a mortality rate of 46.3 per cent. The degree of hepatic involvement depends to some extent on the intensity of the irritation. The pathologic lesion may simulate an acute or subacute yellow atrophy, depending on the severity of the damage, and the production of considerable connective tissue may bring about a true cirrhosis with an extensive atrophy. The rarity of the occurrence of ascites in association with jaundice was noted by Meyer and Learner. Whereas jaundice is a frequent occurrence in disturbances of the liver, its combined existence with ascites is exceptional. In the majority of instances a portal obstruction which is followed by a serous transudation into the peritoneal cavity is regarded as a fatal and terminal sign.

REPORT OF CASE

The following case is presented as an addition to the sparse literature on this subject, plus some unusual and interesting features.

J. W., a man, aged 36, referred by Dr. Morris Stahl, Sept. 11, 1935, complained that he had been jaundiced for well nigh three weeks. His family history was without interest other than that his father had died of carcinoma at the age of 63. His past history revealed the usual childhood illnesses. For the past eight or nine years he had been suffering with hay fever, which affected him during the month of August. The present complaint could be traced to the ingestion of about 100 cinchophen tablets, taken sporadically at intervals over a period of about ten months for the control of rheumatic pains in the right leg. At no time were there more than three tablets ingested within the period of one week. The first symptom noticed was about three weeks prior to this visit, when the patient's body became yellow. Anorexia set in with an associated weakness and malaise. The excreta were observed to vary in color from clay to a dark brown. There was no itching, headache or other nervous manifestation, but it was remarked that during August just preceding the onset of the jaundice the patient had experienced a complete cessation of his hay fever symptoms. Incidentally it was observed that during the interim during which the cinchophen medication had taken place there had occurred no actual freedom from pain but that with the onset of the jaundice all his rheumatic symptoms suddenly cleared up.

On delving further into the nature of the hay fever aspects of his complaint, the patient stated that since the year 1927 he had been afflicted with this disease in a severe form, with the usual symptoms of sneezing, lacrimation, coughing and the like, whose onset appeared promptly, August 15 of each year, which date he soon learned to dread, and would last till cool weather set in. As an added problem to his already existent misery it was noticed that daily throughout the season asthmatic symptoms—coughing, dyspnea and the like appeared in the early hours of the morning and added to the already intolerable burden that he was laboring under, and so, from April to August 1930, he applied at the outpatient department of the Morrisania Hospital, where weekly injections of the dwarf and giant ragweed pollen were administered with a view to ameliorating his complaints. Twenty such injections were given without the slightest improvement in the course of his condition. As time passed, the same rhinorrhea, sneezing and breathlessness asserted themselves without any abatement. Then a momentous thing happened, as noted the entire train of symptoms from which he had been suffering over so many years ceased promptly as jaundice with its attendant hepatic involvement appeared.

On physical examination, the patient's complexion was noticed as being of a dark brownish yellow hue, although he did not appear to be acutely ill. He was well nourished and weighed 164 pounds (74 Kg.). The pulse rate was 74 and the temperature 98.6 F. The heart and lungs were normal. Blood pressure was 125 systolic, 80 diastolic. The abdominal examination demonstrated the presence of a slightly enlarged liver, extend-

ing two fingerbreadths below the costal margin, with a slight sensitivity obtainable on deep pressure. The spleen could not be felt, and percussion revealed a tympanitic note throughout.

A gastro-intestinal x-ray series failed to demonstrate any abnormal conditions in the alimentary tract. A dye test of the gallbladder was not attempted.

The gastric analysis (Ewald meal) yielded a free acidity of 25 and a total acidity of 52. No mucus, blood or lactic acid was present.

The urine was a mahogany brown with a specific gravity of 1.020, it was acid in reaction and showed a trace of sugar and albumin but no acetone or acetic acid.

The stool specimen submitted was brown, urobilin was present and there was evidence of poor fat digestion.

Biliary drainage demonstrated a free flow of bile, which was dark and semiviscid, at times almost black, particularly obtainable in the C bile. Microscopic examination showed the existence of large quantities of cholesterol crystals, considerable debris and a large number of white blood cells.

Chemical examination of the blood revealed cholesterol 165 mg., cholesterol ester 84 mg., urea nitrogen 16 mg., uric acid 1.6 mg., and nonprotein nitrogen 35 mg.

There being no contraindication to gastroscopy, it occurred that since the patient's condition was satisfactory it might be of some value to explore the stomach. Under local anesthesia, a speedy examination of the entire gastric cavity was effected. The gastric mucosa was intensely yellow. Especial care was exercised for the detection of small mucosal changes or vascular departures from normal, as well as for local signs of irritation or inflammation. The mucosa appeared to be completely normal and no specially defined pigment areas could be detected in an otherwise deep tinting, nor were any intervening portions of the inner lining observable which were free from the yellowish discoloration noted. Hemorrhagic spots could not be detected, and it is of interest to note that the instrumentation had not evoked the slightest oozing or damage to the stomach.

September 18 the patient was referred by me to the Bronx Hospital. An icterus index determination yielded a figure of 250 units. The blood examination at this time presented a hemoglobin of 90 per cent, red blood cells 4,700,000, white blood cells 10,500, polymorphonuclears 78 per cent, band forms 2 per cent, small monocytes 15 per cent and monocytes 5 per cent. The van den Bergh reaction was immediate indirect, 10.3 units per hundred cubic centimeters of serum.

The treatment comprised the administration of a high carbohydrate, low fat and low protein diet, with the added administration of from 500 to 1,500 cc. of a 10 per cent solution of dextrose and insulin, intravenous injections of a 10 per cent solution of calcium gluconate daily and daily biliary drainages. The patient seemed to feel distinctly better after the withdrawal of large quantities of bile by means of the duodenal tube, as much as 1,500 cc. being withdrawn on each occasion, without any noticeable ill effect on the patient. During this period there was no elevation of temperature, and the pulse rate ranged between 72 and 100 beats to a minute, the lowest figure to be reached being 60, and that for one day only. The progress toward improvement as far as the patient's color was concerned was somewhat slow. Almost four weeks after his entrance into the hospital, ascites and edema of the ankles set in. At this time the liver edge could barely be palpated and the icterus index registered 50.7 units. Several days later the patient signified his unwillingness to remain at the hospital any longer, choosing to be cared for at his home. There the necessary treatment was continued through a period of gradually receding symptoms, all of which disappeared entirely at the expiration of another ten weeks. Subsequent examinations conducted at intervals of about six months demonstrated no discernible departures from normal. A galactose and bromsulphalein test undertaken to investigate a possible impairment of liver function turned out to be negative.

In the summer of 1936 the patient was in fine physical condition and the expected seasonal occurrence was awaited, but no reminder of his past reactions either as hay fever or as asthma were noted. In short, it appeared that he was perfectly free from his ailment. He ventured as far as to spend two weeks during the latter part of August in the Catskill Mountains, where the ragweed literally abounded in countless numbers, enjoying his stay in complete happiness and comfort,

where formerly such an experience could not be possible without insufferable consequences

After sufficient time had elapsed to permit a so called seasoning of some of the possible underlying conditions or factors that may have been instrumental in the causation of this unusual phenomenon, it was deemed advisable to subject the patient to a series of allergic tests with a view to determining his present status and response. Accordingly an intracutaneous injection of 1,000 pollen units per cubic centimeter of ragweed pollen was administered in the outer aspect of his arm by Dr Milton Kissen. This was followed by the formation of a wheel with a pseudopod configuration, measuring 15 cm in diameter and a flare of 35 cm, demonstrating the existence of a skin sensitivity at the present time. A small quantity of a short ragweed pollen was then placed on a small stick and the powder was inhaled through the nostrils with the absence of any response. It was now decided to apply a small amount of this same pollen into the right eye, the left eye being used as a control. Within five minutes a very mild degree of congestion of the conjunctiva ensued unaccompanied by lacrimation. There were no signs of itching, fulness or discomfort. In order to establish definitely that no mechanical factor was responsible for the irritation observed, black walnut pollen was instilled into the left eye without the production of any definite changes.

COMMENT

The slowness in the retrogression of symptoms is in accord with previous observations relative to the tenacity with which impairment of the liver persists. However, there is no better testimony as to the remarkable regenerative powers of this organ than the complete restoration of the patient to normal health in the face of such a severe lesion.

An unusual feature of this case is the interesting statement by the patient that with the onset of the jaundice a complete clinical disappearance of his sensitivity to ragweed occurred. While it is conceded that after a protracted siege of hay fever there may occur a natural tendency toward the improvement of symptoms as time goes on, a complete disappearance such as was experienced in the case referred to is exceedingly rare. Is there something normally formed within the liver which has to do with a patient being allergic, and is it possible that with a certain degree or type of liver involvement such as occurred in this patient that causative agent would be destroyed? That food allergy is capable of producing abdominal symptoms which may simulate liver disease has been well known.¹² Manwaring¹³ and others¹⁴ have noted that an allergic reaction in the liver may ensue as a consequence of a disordered sensitivity to food, and he was able to demonstrate that the complete extirpation of this organ in an anaphylactic dog prevented anaphylaxis in the animal. Whether there is an analogy in the behavior of an inhaled pollen such as ragweed to an allergic producing food substance as described is problematic.

In a patient with hay fever who has been subjected to treatment, the positive and negative responses demonstrated in this case have been known to occur, but then only on rare occasions, it being considered exceptional. It is likewise a rare occurrence for a patient to lose his clinical sensitivity in a sudden manner, although, as emphasized previously, in a protracted disease one may expect a gradual fading in the intensity of his symptoms. It would not be amiss to note that clinical sensitivity and skin sensitivity are two different things. The presence of clinical sensitivity presupposes and establishes the existence of a concomitant skin sen-

sitivity. To this rule there are but few exceptions, but where one is confronted by a skin reaction it does not necessarily follow that clinical manifestations must coexist.

I am convinced that, as far as could be determined, the patient after recovery presented no discernible signs or complaints which could be used as a basis to predicate any noticeable transformation in the organ. That there might be some chemical or physical change as a sequel to his liver injury can be surmised but just what constitutes this change is speculative and merits further study. A significant observation not without interest is the disappearance of pain simultaneously with the ushering in of the jaundice. This might be purely coincidental. Since the obliteration of all vestiges of the hepatic involvement, no cause has arisen for complaint relative to his previous rheumatic tendency.

SUMMARY

The extraordinary recuperative powers of the liver subsequent to a severe toxic injury producing the rare combination of jaundice and ascites with recovery is demonstrated with an unusual phenomenon entailing the disappearance of clinical allergy in the same patient with the advent of a serious hepatic degeneration. If the formation of ascites could be attributed to portal obstruction resulting from the proliferation of connective tissue, even signs of a minor degree pointing to this cause could not be demonstrated in the stomach after gastroscopic visualization. Certainly an earlier case of portal cirrhosis could scarcely have been studied.

322 Central Park West

NONSPECIFICITY OF GONADOTROPIC FACTOR OF PREGNANCY URINE INTRADERMALLY

AS A TEST FOR PREGNANCY

BERNARD SCHNEIDER, MD, DNB

AND

ARMAND E COHEN, MD

Associate Professor of Medicine, University of Louisville
School of Medicine
LOUISVILLE, KY

A recent report¹ on the use of antuitrin-S² intradermally as a test for pregnancy and certain gynecologic conditions aroused our curiosity, since the results reported were at variance with the observations of one of us (A. E. C.) in allergic individuals.

The great number of names given to various glandular products, similar in many respects, has caused much confusion. Some authors have been careless in giving details regarding the product employed and have failed to give information on its source. We have attempted to clarify this situation as far as this intradermal test is concerned.

Mazer and Goldstein³ mention a skin test for pregnancy as follows: "Porges and Pollaczek,⁴ working on the hypothesis that pregnant women whose blood is surcharged with the anterior pituitary sex hormone are desensitized to its effects, and that nonpregnant women

1. Githilen G. C. and Gregg W. K. A New Rapid Economical Test for Pregnancy and Certain Other Gynecologic Conditions. *Am J Obst & Gynec* 32: 498 (Sept.) 1936.

2. Antuitrin S is the gonadotropic extract from pregnancy urine. It is a product of Parke, Davis & Co.

3. Mazer Charles and Goldstein Leopold. *Clinical Endocrinology of the Female*. Philadelphia W. B. Saunders Company 1932 p. 398.

4. Porges Hans and Pollaczek K. T. *Zentralbl f Gynak* 54: 454 (Feb. 22) 1930.

12. Rowe A. H. *Food Allergy*. Philadelphia: Lea & Febiger 1932.

13. Manwaring W. H. and Crowe H. E. The Role of the Hepatic Tissues in the Acute Anaphylactic Shock. *J. A. M. A.* 69: 772 (Sept. 8) 1917.

14. Laroche Guy, Richet Charles Jr and St Girons François. *Alimentary Anaphylaxis* translated by Rowe, University of California Press 1930.

are correspondingly sensitive to subcutaneous injections of the hormone, attempted to employ this difference in sensitivity between pregnant and nonpregnant women as a test for pregnancy. Injections of 0.2 cc of anterior pituitary sex hormone in nonpregnant women are said to produce a distinct red circle about one inch in diameter at the site of injection, several hours later

TABLE 1—Summary of Tests

	Cases	Per Cent
Total number of cases tested	118	100.0
Total number of females tested	95	80.5
Total number of males tested	23	19.5
Total number of pregnant cases	21	17.8
Total number of positive tests	11	9.3
Total number of negative tests	92	78.0
Total number of nonspecific tests	15	12.7

Originally they claimed great accuracy (98 per cent) but later they reported an 18 per cent incidence of error in their tested cases.⁵ In a subsequent report by Deutsch⁶ it is clear that the originators of this test used a gonadotropic extract of pregnancy urine ("prolan") and that they injected it intracutaneously. Deutsch found the test to be quite unreliable. That Porges and Pollaczek employed the gonadotropic extract intracutaneously is further borne out by the Vienna letter in THE JOURNAL.⁷

Strauss⁷ concludes "The results obtained by the writer lead to only one obvious conclusion, namely, that the so-called Porges-Pollaczek skin test for pregnancy is neither definite nor reliable." Strauss used antuitrin, an extract of the anterior pituitary lobe the nature and potency of which is not known, and a gonadotropic extract of pregnancy urine ("prolan") intracutaneously. This author reviews the work of Porges and Pollaczek and Deutsch.

Dowell⁸ employed a few minims of antuitrin⁹ intradermally. A negative skin reaction indicated pregnancy and a positive skin reaction indicated absence of pregnancy. "This test has been accurate in the author's

TABLE 2—Males

	Total Number	Positive	Negative	Non specific
Normal	2	1	1	
Nutritional deficiency	1		1	
Chronic nephritis	1		1	
Pneumonia	3		3	
Pernicious anemia	3		2	1
Arthritis	2	1	1	
Tuberculosis	1		1	
Exfoliative dermatitis	1		1	1
Portal cirrhosis	2	1	1	
Paresis	3		3	
Diabetes	2		2	
Hypertensive cardiovascular disease	1		1	
Urticaria	1		1	
	23	3	18	2
	100%	13%	78.3%	8.7%

hands and in others. It is simple, safe and inexpensive." Dowell made no reference to previous work on this procedure. Dowell writes "My publication was merely a preliminary report and I later found a few (one case to be exact) that it proved to be false, however, all the others were accurate as I remembered it, but the one false one proved to be the one which

prevented me from reporting further on it."⁹ Antuitrin (not to be confused with antuitrin-S) is an unfractionated extract of the anterior pituitary lobe. "The number, nature and potency of the active principles (if any) in such preparations is in general not known. The available evidence indicates that these are usually not assayed but are adjusted to represent a certain weight of fresh or dried gland. Clinical use of products of this type rests on an empirical basis only, their employment should be deprecated."¹⁰ Since this product was employed by Dowell intradermally to determine sensitivity to a gonadotropic principle of the anterior pituitary (according to his hypothesis), the results obtained may be considered without sufficient scientific background to warrant further consideration as evidence of the value of this relatively unknown product as a means of diagnosing pregnancy. In response to a query,¹¹ the question was raised whether

TABLE 3—Females

	Total Number	Positive	Negative	Non specific
Pregnancies				
Third month	2		1	1
Fourth month	4		4	
Sixth month	6		6	
Seventh month	2		2	
Eighth month	3		2	1
Ninth month	4		3	1
Abortions				
Incomplete	3	1	2	
Septic	1		1	
Complete	1		1	
Postpartum	12		10	2
Chronic cystitis	1		1	
Retroverted uterus	10		8	2
Chronic pelvic inflammatory disease	10	1	9	1
Acute pelvic inflammatory disease	2		1	1
Psychoneurosis	2		2	
Diabetes	4	1	3	
Ovarian cyst	2		2	
Hypertrophic endometrium	2		2	
Cervical polyp	1		1	1
Endometritis	1		1	
Ischiorectal abscess	1		1	1
Thyroglossal cyst	1		1	
Fracture	6		6	
Hemorrhage	1		1	
Uterine fibroids	1		1	
Chronic infectious arthritis	1		1	
Pernicious anemia	1	1		
Gallbladder disease	4		4	
Pneumonia	1		1	
Hypertensive cardiovascular disease	1		1	1
Normal	4	3	1	
Acute conjunctivitis	1		1	
Sacro iliac strain	1		1	
Hay fever	1	1		
Chronic endocervicitis	1		1	
Renal calculus	2		1	1
Appendicitis	1		1	
Varicose ulcers of leg	1		1	
Adenocarcinoma of cervix	1		1	
Proclivencia uteri	1		1	
	95	8	74	13
	100%	8.4%	77.9%	13.7%

or not Dowell had used a gonadotropic extract of pregnancy urine. Although Dowell does not indicate whether or not he used other extracts in addition to antuitrin, we have assumed that he used the latter throughout his experiments. Grushkin¹² employs a placental extract intradermally which has been heated, thereby destroying the anterior pituitary-like gonadotropic fraction. He reports good results.

Gillfillen and Gregg¹ have by no means developed a "new" intradermal test for pregnancy. They employed 2 minims (0.12 cc) of antuitrin-S² for the test. They "suggested that if a woman contained this substance in

5 Deutsch A. Zentralbl. f. Gynak. 53: 2920 (Nov. 16) 1929.
6 The Skin Test for Pregnancy. Vienna letter J. A. M. A. 93: 539 (Aug. 17) 1929.
7 Strauss H. The Porges-Pollaczek Skin Test for Pregnancy, Am. J. Surg. 8: 1271 (June) 1930.
8 Dowell D. V. Preliminary Observations on the Menstrual Cycle and Pregnancy with a Simple Pregnancy Diagnostic Test. J. Missouri M. A. 30: 275 (July) 1933.
9 Personal communication to the authors.

10 Biskind M. S. Commercial Glandular Products. Glandular Physiology and Therapy. Chicago: American Medical Association 1935. chapter XXXI, p. 474.
11 Dowell Test of Pregnancy. Queries and Minor Notes J. A. M. A. 103: 510 (Aug. 18) 1934.
12 Grushkin Benjamin. An Intradermal Test for Pregnancy. Am. J. Surg. 31: 59 (Jan.) 1936.

her system, she might not be sensitive to its intradermal application, on the other hand, a nonpregnant woman might show a reaction to its presence." According to their report a positive skin reaction from the intradermal administration of 2 minims of antuitrin-S would indicate absence of pregnancy whereas a negative skin test would indicate pregnancy.

Desiring to repeat the work of these authors, we used¹³ a technic wherein 2 minims of fresh antuitrin-S, which had been stored in a refrigerator, was injected intradermally by means of a 1 cc. all glass tuberculin syringe and 26 gauge needles sterilized by boiling in fresh water. The volar surface of a forearm was first cleansed with a moist alcohol sponge and then wiped with a sponge moistened with physiologic solution of sodium chloride. The latter procedure prevents the reduction of the potency of the antuitrin-S injected by alcohol, although it seems inconceivable that, with reasonable caution the two solutions might be mixed during the injection or following. Many of the tests were read at the end of twenty-four hours. No significant changes were noted. The test was done on both male and female, ward, dispensary and private patients.

The injection itself produces a bleb measuring roughly from 5 to 9 mm in diameter. In reading the test, twenty minutes and one hour after injection, we consider a negative reaction one in which there is no erythema surrounding the bleb. The test is also considered negative when there is redness in the area of from 5 to 9 mm, representing the point of injection. The reaction is considered nonspecific in instances in which there was a faint blush surrounding the bleb, measuring from 10 to 18 mm in diameter. The trauma of injection and the saline solution are probably the cause of this erythema. In those cases in which there was an intense erythema or pseudopods surrounding the point of injection, regardless of size, or in which the erythematous area exceeded 18 mm we considered the reaction indicative of sensitivity to antuitrin-S. In one instance the erythematous area measured 7 cm in diameter.

One hundred and eighteen tests were done on ninety-five females and twenty-three males. Twenty-one women were pregnant. Seventeen cases were postpartum, postabortal or some type of abortion. Six were normal individuals. The remaining seventy-four presented a variety of diagnoses, as noted in the tables. Only eleven individuals yielded a positive reaction (negative test for pregnancy). One of these was a case of incomplete abortion, the others being nonpregnant individuals. There were fifteen nonspecific reactions. The remaining ninety-two patients were insensitive to this substance. These negative reactions, indicative of pregnancy, were obtained in males and females and in pregnant and nonpregnant individuals. The nonspecific reactions occurred in a wide variety of cases.

Our observations would indicate that eleven individuals were nonpregnant and 107 were pregnant. Actually, however, there were only twenty-one pregnancies.

CONCLUSIONS

The results obtained with antuitrin-S injected intradermally in no way exhibit the reliability of this test as a means of diagnosing pregnancy or gynecologic disorders.

321 West Broadway — 305 West Broadway

13 Dr. E. M. Rotarius of Parke, Davis & Co. gave the authors a generous supply of antuitrin-S.

POSTARSPHENAMINE EXFOLIATIVE DERMATITIS

ETIOLOGY, COMPLICATIONS AND TREATMENT¹

ERVIN EPSTEIN, M.D.

SAN FRANCISCO

Arsenical dermatitis exfoliativa is an entity with which a great deal can be accomplished both by the prophylactic and by the therapeutic approach. For this reason a review of the fifty-nine cases observed at the Los Angeles County Hospital since 1928 is presented. Fortunately, approximately one half of these patients were treated identically by a method based on the principles outlined by Stokes.² The remainder were cared for as individuals according to the methods of various physicians. The cases constituting the two series were similar in all respects. Consequently the statistics of the two are grouped together except in the study of morbidity and mortality.

Only patients with definite exfoliative dermatitis were included. Early lesions that did not develop into the typical edematous desquamative eruption were not considered. Patch tests with neoarsphenamine were strongly positive in all patients on whom such tests were performed. Unfortunately it is impossible to state in most instances which arsenical preparation and which heavy metal was used, for most of the time the patient knew only that he was receiving "arm and hip shots for syphilis."

ETIOLOGY

Paradoxically, heavy metals seem to enact a major role in the production of this form of dermatitis. In only one instance did the patient receive a course of bismuth or mercury compounds before the start of the arsenical course that precipitated the eruption. This patient was started on sulfarsphenamine after a four months rest from antisyphilitic therapy and a crustaceous dermatitis developed after the second injection. This case ended fatally. While nine of the patients presented chancre and an additional eight reported with mucocutaneous secondary eruptions, the remainder had tertiary or latent syphilis. Certainly in the last group, which comprises fully 65 per cent of the patients, a heavy metal preparation prior to the introduction of the arsenical was definitely indicated.

As a second phase of the importance of heavy metals in the causation of this type of eruption, 72 per cent of the patients were receiving both intravenous and intramuscular injections concurrently. This type of treatment has its supporters but, from the point of view of complications at least, seems inferior to the alternating method. At the Los Angeles County Hospital Clinic the alternating method is used, and there has been but one exfoliative dermatitis develop in the last three years (approximately 12,000 arsenical injections). Stokes² points out that intensive use of heavy metals increases the reactivity to arsenicals (32.7 per cent as against 56.3 per cent).

It is interesting to note that in most instances the dermatitis appeared during the initial course of therapy. In 80.3 per cent it was first noted before the twelfth intravenous injection. Two patients had been given twenty-five injections each, while a third received thirty-two injections before the onset of cutaneous complications. The average for the entire group was

1 From the Department of Dermatology and Syphilology, Los Angeles County Hospital.
2 Stokes, J. H. *Modern Clinical Syphilology*, ed. 2. Philadelphia and London: W. B. Saunders Company, 1934.

111 injections. An estimate of the amount of heavy metal given these patients can be ascertained when one considers that, in addition to the arsenic therapy, the average patient received nine intramuscular injections.

While each patient had an average of 15 arsenical treatments after the appearance of the dermatitis, 23 per cent were taken off antisyphilitic therapy as soon as the patient noted cutaneous symptoms. This indicates the necessity of watching for earlier signs of intolerance than the rash or the itching for in almost one fourth of the patients these manifestations indicated a process too far advanced to be aborted by the withdrawal of the causative drug or by the intravenous injection of sodium thiosulfate. However, it is surprising to note that patients apparently possessed of a marked idiosyncrasy to the arsphenamines can often tolerate further therapy during the dermatitis. Two patients received five arsenic treatments each after the appearance of the eruption, while one each was given ten and twenty injections respectively. All four patients survived after receiving the routine therapy.

In fifty patients in whom the source of therapy could be ascertained, twenty-three (46 per cent) were treated in clinics and the remaining twenty-seven by private physicians. A sizable proportion of the latter were treated by osteopaths. This is indeed disappointing to those who feel that the patient with syphilis would be treated more efficiently in clinics than elsewhere. Of course, a county hospital practice includes more people who would frequent clinics than would go to private physicians. The number originating at the former source, however, is astonishing.

This attitude seems justifiable because an analysis of these cases shows that nearly every one followed poor therapy. The following are some of the examples. Sixty-five per cent of the patients should have received a bismuth or mercury preparation before the introduction of arsenical preparations. Eight patients with latent syphilis beyond the age of 45 years, four being older than 60 and one over 70, were started on arsenical therapy without any preparation. Another man, aged 70, was given sulfarsphenamine intramuscularly after a four months rest. Of these, 50 per cent received

had been suffering with a desquamative dermatitis for twenty weeks at home. Obviously, the sooner the proper therapy can be instituted the more favorable the prognosis. This can only mean that either the physician did not diagnose the condition correctly or he did not realize the gravity of this complication. Both are serious errors.

Perivital injections were not of significance in this series. In only one case was a definite history of this error in technique obtainable. Dermatitis exfoliativa occurred more frequently in females than in males, the proportion being 34 to 25. Two of the women were pregnant. The age incidence is given in table 1. The individual ages varied from 19 to 78 years.

TABLE 2—Results of Wassermann and Kahn Tests

Test	Positive	Negative	Doubtful
Wassermann (Kolmer)	20	31	2
Kahn	16	33	4

This complication was seen most frequently in the white race, but examples in Negroes, Filipinos, Japanese and Chinese were also noted.

COMPLICATIONS

The complications encountered did not differ materially in the two series and will therefore be considered together. The most common residual of the dermatitis is scattered patches of chronic eczema. This developed in four cases. Multiple attacks occurred in two cases, one patient suffering two attacks a year for the past six years. In general, the recurrences are not apt to be as severe as the original attack. In two other patients mild relapses developed after the application of multiple patch tests to their backs.

In one case the course was complicated by diphtheria and later by a hemolytic streptococcus septicemia. The patient recovered under the routine therapy plus antitoxins for the complications, but a peculiar reticular fibro-atrophoderma persisted in the V area of the neck.

Multiple furuncles were of such frequent occurrence that they were not considered as complications. It was noted in 96.9 per cent of the thirty-two patients whom I observed. In the external ear, furuncles may cause severe symptoms. Perhaps the intravenous use of dextrose increased the frequency of furuncles in this series.

Laboratory tests were not indicative of severe complicating hepatitis. The van den Bergh reactions, direct and indirect, were negative in the eleven patients tested. Mild urobilinuria was present in four of the seven patients examined. The icterus index was normal in eight and between 10 and 16 in four other cases. All returned to normal within two weeks after hospitalization.

Other examinations revealed a normal blood non-protein nitrogen in seven cases. The blood calcium was slightly lower than usual, ranging from 8 to 9.4 mg per hundred cubic centimeters of blood in seven cases. Arsenic was present in the urine in twelve of fourteen cases (85.7 per cent). Albuminuria was noted in seven (26.9 per cent) of thirty-three patients.

While hardly a complication, serologic changes in the blood might be considered here. The observations in fifty-three syphilitic patients are recorded in table 2.

Far reaching conclusions cannot be drawn from so small a series, but it indicates that the serologic reaction is reversed in about 60 per cent of the cases of exfolia-

TABLE 1—Age Incidence

Age in Years	Number of Cases
15 to 20	4
21 to 30	22
31 to 40	15
41 to 50	10
50+	8

simultaneous intravenous and intramuscular therapy. As stated previously, 72 per cent of all the patients were on this form of combined therapy.

Two patients received daily intravenous injections. One was also given daily intramuscular treatments. A third patient received twenty-one injections in the arm and hip in the course of five weeks. Another received two intravenous injections weekly.

In one case an early exfoliative dermatitis developed which was diagnosed as a dermatomycosis and treated accordingly. In two instances a crustaceous dermatitis developed following the local application of strong remedies—10 per cent sulfur ointment in one and a combination of ammoniated mercury and iodine in the other.

The average duration of the dermatitis prior to admission to the hospital was 27 weeks. One patient

tive dermatitis In only one was a serologic relapse noted The cerebrospinal fluid was normal in all respects in the seven patients examined, although in two of these blood serologic tests were positive The spinal punctures were done after the eruption had completely subsided This study also suggests that the Wassermann reaction is more likely to be strongly positive after a crustaceous dermatitis than is the Kahn test

TREATMENT

The routine therapy used in thirty-one of these cases was as follows

- 1 One thousand cubic centimeters of 10 per cent dextrose and 35 units of insulin given intravenously daily
- 2 One gram of sodium thiosulfate intravenously every other day for seven doses
- 3 One gram of calcium gluconate orally three times a day, given as much between meals as possible
- 4 Four grams of sodium bicarbonate orally three times a day
- 5 Daily colloid bath
- 6 Various soothing creams and ointments
- 7 A diet high in proteins, fats and vitamins but low in carbohydrates
- 8 Other agents as indicated

The following measures were adopted in the treatment of the twenty-eight control patients

- 1 Only one patient received 10 per cent dextrose although six others received from 25 to 50 cc of 50 per cent dextrose intravenously once a day for varying periods of time
- 2 In general these patients received much more sodium thiosulfate than the 7 Gm given in the first series One patient received 75 Gm, while several were given more than 40 Gm each In only three instances was this drug withheld, one of these patients died
- 3 One and three-tenths grams of calcium lactate was administered three times a day to eleven patients This was given before meals so probably little absorption resulted One patient was given calcium chloride (1 Gm) in the same manner, while one each received 1 Gm of calcium gluconate or chloride intravenously daily
- 4 Only three patients were given sodium bicarbonate and then only to alleviate gastro intestinal complaints Two others received 500 cc of Fischer's solution intravenously as an attempt at alkalization
- 5 Nineteen had daily colloid or soda baths
- 6 The local treatment was too diversified to be discussed here
- 7 Practically all patients were on the general hospital diet, none received the diet previously listed
- 8 Seven were given intramuscular injections of liver extract
- 9 Iodobismitol was administered to one patient who recovered after 196 days in the hospital

In recapitulation, the two series differed in the following respects in series 1 more dextrose, calcium, alkalizing measures, colloid baths and a lower carbohydrate diet were given, in series 2 more sodium thiosulfate and liver extract were given

The rationale underlying the selection of the routine therapy must also be considered The use of dextrose was advocated by Shaffer,³ but he favored the use of hypertonic solutions despite the danger of producing a venous thrombosis The dextrose probably protects the liver by increasing the store of glycogen in the hepatic cells This is believed to aid the detoxifying function of the liver The insulin is given to prevent the excretion of large amounts of dextrose in the urine Personal experiments have proved that 35 units will prevent glycosuria in most patients receiving 1,000 cc

of 10 per cent dextrose intravenously There were no insulin reactions following this therapy except in the presence of severe hepatic damage Furthermore, increases in edema have not been noted, as the fluid seems to act as an efficient diuretic In three cases the dextrose was given rectally because of febrile reactions following its intravenous use

Sodium thiosulfate was introduced by McBride and Dennie⁴ in 1920 Kahn and Loevenhart⁵ have shown that it decreases the excretion of arsenic so that smaller amounts are excreted over a longer period of time This allows the therapeutic agents more time to cope with smaller amounts of the poison Kabilek⁶ states that it decreases allergic tendencies in general, and Shaffer³ states that it is an alkalizing agent This study does not support the claims made for this drug Shelmire, in discussing Shaffer's³ paper, pointed out that sodium thiosulfate is capable of producing an exfoliative dermatitis in patients with an epidermal sensitivity to sulfur Moore⁷ feels that it is probably of no therapeutic value

Calcium therapy was suggested by Spiethoff and Wiesenach⁸ in 1920 Its mode of action is poorly understood but is believed to produce a decrease in sensitivity and exudative tendencies The low blood calcium figures previously quoted add something to the rationale of its employment in arsenical dermatitis

Sodium bicarbonate was used for alkalization, a time-honored method of combating heavy metal toxicity Fischer's solution could be used for the same purpose Baking soda also proved valuable in relieving patients with gastro-intestinal complaints

It was found that the colloid baths added to the patient's comfort Any soothing cream or ointment can be employed locally The low carbohydrate diet was adopted on the suggestion of Craven,⁹ who showed that a high protein and a high fat diet decreased arsenical hepatic complications It was also deemed advisable, as the patients were receiving 100 Gm of dextrose daily by the intravenous route

Liver extract¹⁰ was not included because it did not prove of much help in other types of arsenical poisoning studied In addition, abscesses in the buttocks were too frequently encountered with the intramuscular injection of this agent Calcium thiosulfate was not used, as it did not appear to offer significant advantages over the agents enumerated Cevitamic acid¹¹ was not given a trial, since it was not available at the time this study was being conducted

RESULTS

The patients comprising the two series were similar in every respect Table 3 summarizes the results in regard to time spent in the hospital

If one eliminates the two patients in the control series who remained in the hospital for 196 and 200 days respectively, the average is only 46.6 days for the con-

4 McBride W L and Dennie C C Treatment of Arspenamine Dermatitis and Certain Other Metallic Poisonings Arch Dermat & Syph 1 651 (June) 1920

5 Kahn H and Loevenhart A S The Antagonism Between Sodium Thiosulfate and Arsenical Compounds J Pharmacol & Exper Therap 27 160 (March) 1925

6 Kabilek J Thiosulfate Therapy Ceska dermat 9 507 1928

7 Moore J E The Modern Treatment of Syphilis Springfield Ill and Baltimore Charles C Thomas 1933

8 Spiethoff B, and Wiesenach H Clinical and Pharmacologic Observations on Intravenous Administration of a Calcium Preparation Deutsche med Wchnschr 46 1219 (Oct 28) 1920

9 Craven E B Importance of Diet in Preventing Acute Yellow Atrophy During Arspenamine Treatment Bull Johns Hopkins Hosp 48 131 (March) 1931

10 Spiethoff B Therapeutic Use of Hepatrat (Liver Extract) in Dermatitis Munchen med Wchnschr 76 577 (April 5) 1929

11 Dainow I Desensitizing Effect of Ascorbic Acid (Vitamin C) Ann de dermat et syph 9 830 (Sept) 1935

3 Shaffer L W Treatment of Postarsphenamine Dermatitis Arch Dermat & Syph 29 173 (Feb) 1934

trol series. However, a considerable difference between the two groups still remains. The fatal cases are not included in these statistics.

Studies of the mortality of both groups indicate that the patients receiving the routine therapy were treated much better than those in the control series. There were five deaths among the twenty-eight patients comprising the second group, while all of the thirty-one in the first series survived.

Other reported series give results similar to those of the control series. Cole and his associates¹² treated sixteen cases with five deaths. Phelps and Washburn¹³

TABLE 3—Days of Hospitalization

	Series 1 Days	Control Days
Shortest time	10	14
Longest time	90	260
Average time	40.5	50.8

had twenty-four cases but five were of the mild type not included in this study. Four of their patients died. It is interesting that all the fatal cases in this series were on simultaneous combined treatment. In addition to the arsenical, one patient each received mercury rubs, mercuric salicylate, metallic bismuth and potassium bismuth tartrate. There was one death due to crustaceous dermatitis for every 1,731 cases of syphilis treated. Of their sixteen severe cases in which details are given, seven were on combined treatment. Cook and Campbell¹⁴ reported two deaths in twenty-four cases. Moore and Keidel¹⁵ reported five deaths in eighteen cases, while Stokes and Cathcart¹⁶ suffered two fatalities in fourteen cases. Shaffer³ had one death in fifteen cases. The mortality for this entire group was 17.9 per cent. The control series had a fatality rate of 17.8 per cent.

An analysis of the fatal cases is also productive of interesting information.

CASE 45—H. A. L., a woman aged 48, Caucasian had secondary syphilis and received an intravenous and an intramuscular injection weekly for ten doses before developing an exfoliative dermatitis. Examination of the urine revealed a trace of albumin. She was treated with a general diet, daily injections of 50 per cent dextrose and sodium thiosulfate, calcium lactate 13 Gm orally three times a day, daily colloid baths, intramuscular liver injections and local therapy. Following the intravenous injection of 50 cc of 50 per cent dextrose, a thrombosis of the right brachial vein developed. She died ten days after admission to the hospital. Autopsy revealed a pulmonary infarction with a secondary bronchopneumonia.

The dermatitis in this case would probably have been prevented if the patient had received only arsenical therapy. The heavy metals probably tend to increase the frequency of arsenical reactions by placing an extra burden on the excretory organs, especially the kidneys. This is more particularly true of mercury than of bismuth. Death was due to thrombosis of a vein with secondary pulmonary embolism, with resulting infarction. This was probably due to the intravenous injection of 50 per cent dextrose, a danger recognized by Shaffer³ in 1934.

12 Cole H. N., De Wolff, Henry, McCuskey J. M., Miskjian H. G., Williamson G. S., Rauschkolb J. R., Ruch R. O. and Clark Taliaferro. Toxic Effects Following Use of the Arsphenamines. *J. A. M. A.* 97: 897 (Sept. 26) 1931.

13 Phelps J. R. and Washburn W. A. Toxic Effects of Arsenical Compounds Employed in the Treatment of Syphilis in the United States Navy. *U. S. Navy M. Bull.* 28: 659 (July) 1930.

14 Cook S. S. and Campbell H. D. Effects of Arsenical Compounds as Administered in the U. S. Navy. *U. S. Navy M. Bull.* 32: 547 (Oct.) 1934.

15 Moore J. E. and Keidel Albert. Dermatitis and Allied Reactions Following Arsenical Treatment for Syphilis. *Arch. Int. Med.* 27: 716 (June) 1921.

16 Stokes J. H. and Cathcart E. P. Contributory Factors in Post-arsphenamine Dermatitis. *Arch. Dermat. & Syph.* 7: 14 (Jan.) 1923.

CASE 48—E. Y., a white woman, aged 37, was given combined therapy because of the accidental discovery of a positive blood serologic reaction. She received four intravenous and four intramuscular injections and a crustaceous dermatitis developed. She was treated at home for six weeks by her private physician and was then hospitalized. She received a high caloric diet, intravenous sodium thiosulfate and local remedies only. A transfusion was given, which precipitated the patient's death.

This patient should have received a heavy metal course prior to the employment of arsenical therapy. The combined therapy was an added insult. The treatment of the exfoliative dermatitis was not adequate in the light of present knowledge. The physician obviously hesitated too long before hospitalizing her. Transfusions are probably contraindicated in exfoliative dermatitis, as it places an extra load on the liver and may prove to be the deciding factor in a subclinical hepatitis developing into a cholemia. This was probably the case in the example of carbarsone poisoning previously reported.¹⁷

CASE 55—P. J., a man, aged 70, Caucasian, had approximately eighteen months of antisyphilitic therapy followed by a four months rest. At the conclusion of this he was given two injections of sulfarsphenamine, and a desquamating edematous erythroderma developed. He was also receiving high voltage roentgen therapy for Hodgkin's disease. Treatment for the dermatitis consisted of a soft diet, local therapy, sodium bicarbonate by mouth and the intravenous injection of sodium thiosulfate. No cause of death was given.

This case constitutes a tragic comedy of errors. A man of 70 years with Hodgkin's disease should never have received antisyphilitic therapy, as the life expectancy in this condition is only about two years. Furthermore, he had already surpassed the average life span, and it is very doubtful whether his positive serologic reaction would ever have caused him any trouble. The use of sulfarsphenamine after a four months rest does not seem to be good medicine either. It is impossible to state with the evidence at hand whether the patient died of his lymphoblastoma or of his dermatitis. The therapy for the arsenical complication was obviously inadequate.

CASE 57—J. H., a white man, aged 26, was given an arsenical intravenously twice a week. After the sixth injection a pruritic eruption appeared, but the physician assured him that it would be "fixed up with a shot of arsphenamine." This was given and a typical dermatitis exfoliativa developed. Treatment consisted of sodium thiosulfate and local remedies. Death was due to bronchopneumonia.

Here one sees the physician's inability to distinguish between a mucocutaneous relapse and an early exfoliative dermatitis. Giving two intravenous injections a week is not accepted technique for the treatment of latent syphilis. Sodium thiosulfate does not constitute sufficient treatment for this serious complication of antisyphilitic therapy.

CASE 59—Mrs. C. G., a white woman, aged 57, was given eight intravenous and four intramuscular injections and a crustaceous dermatitis developed. Treatment consisted of a general diet, calcium lactate by mouth and colloid baths. No cause of death was established.

Case 59 merely reiterates some of the points previously discussed.

CONCLUSIONS

From this study certain conclusions seem justifiable. 1. Postarsphenamine exfoliative dermatitis is preventable in most instances.

17 Epstein Ervin. Toxicity of Carbarsone. *J. A. M. A.* 106: 100 (March 7) 1936.

- 2 Preparation with heavy metals of all patients presenting manifestations other than primary or early secondary lesions would probably decrease the incidence of this complication
 - 3 Simultaneous arsenical and heavy metal therapy is more apt to be complicated by exfoliative dermatitis than is alternating treatment
 - 4 This reaction is most apt to occur during the first course of arsphenamine injections
 - 5 At the appearance of the first cutaneous signs or symptoms, it is often too late to prevent the development of a crustaceous dermatitis
 - 6 The patient should receive immediate hospitalization on the appearance of the dermatitis
 - 7 Dermatitis exfoliativa is most common in white women between the ages of 20 and 40
 - 8 Complications include recurrences furunculosis, chronic eczemas and mild liver and kidney damage
 - 9 The blood serum reaction is reversed in approximately 60 per cent of the cases, the Kahn being more often negative than is the Wassermann reaction
 - 10 The average mortality in this condition is between 17 and 18 per cent
 - 11 The routine therapy outlined in this paper appears to be efficient, and 10 per cent dextrose intravenously seems to be of more importance than sodium thiosulfate and the intramuscular injection of liver extract in the treatment of postarsenical exfoliative dermatitis
- 450 Sutter Street

ACUTE APPENDICITIS IN CHILDREN

PHILIP D ALLEN, M D
NEW YORK

This study of acute appendicitis in childhood is based on 612 cases treated in the Children's Surgical Service at Bellevue Hospital for the ten year period from 1926 to 1935 inclusive. It is made as a sequel to Beekman's¹ report of 145 cases taken from the same service at an earlier date. It includes all children up to the age of 13 years. The final conclusions are based on observations made in our return clinic, where we have observed 475, or 82.4 per cent, of the 576 living patients. These children have been followed for an average of eleven months. No case has been included in this series unless it was pathologically proved to be acute appendicitis.

The cases have been classified as (1) unperforated, (2) abscessed and (3) spreading peritonitis. Cases presenting a question as to which group they belonged have been included in the less serious group.

The method of handling these patients was essentially as follows. All children were operated on as soon as possible after the diagnosis was made. The majority of them received ether anesthesia. The usual incision was a right rectus, this being used in 95 per cent of the cases and the McBurney incision being used in 5 per cent. Until about one year ago a right rectus incision was routine, but at the present time the McBurney incision is preferred. The treatment of the appendiceal stump varied with the condition found and with the individual operator, some preferring a simple ligation while others inverted it. The stump was tied in 350

instances, or 58.59 per cent, while in 237, or 38.78 per cent, it was inverted. In sixteen cases, or 2.6 per cent of the series, the appendix was not removed. These were cases in which abscess formation was so extensive that exploration for the appendix was not considered feasible.

Drainage of the peritoneal cavity was instituted when perforation had taken place or when there was beginning peritoneal inflammation. Drainage was instituted in 408 cases, with drains placed to the peritoneum in

TABLE 1—Distribution and Death Rate of Patients According to Group

	Patients	Percentage	Deaths	Death Rate
Unperforated	314	51	7	2.2%
Abscess	154	25	4	2.6%
Spreading peritonitis	144	24	25	17.4%
Total	612	100	36	5.88%
Infants	72	11.7	11	15.27%
Older children	540	88.3	25	3.9%

forty-seven additional instances. In patients with spreading peritonitis one drain was inserted into the pelvis and one to the region of the appendix, while in those with abscesses one or two drains were inserted into the abscess cavity. The usual drain was the Penrose. The so-called cigaret drain, consisting of a strip of gauze surrounded by a rubber dam, was used in the early part of the series but has been virtually discarded during the last five years. In 194 instances in which it was evident that drainage would be profuse, only the peritoneum was closed, the other layers remaining unsutured. Interrupted chromic sutures were used for the peritoneum and we were always extremely careful to include the transversalis fascia.

Fluids were freely administered postoperatively by hypodermoclysis, although recently venoclysis has been the favored procedure. Blood transfusions were administered to all patients with severe sepsis and to

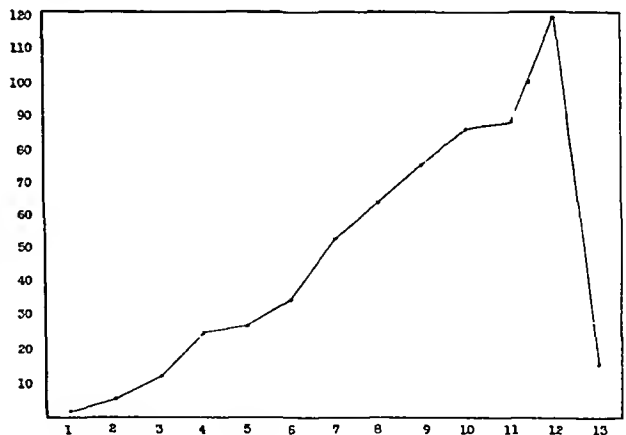


Chart 1—Increase of appendicitis as the child grows older

those having long continued drainage. Since Wangenstein introduced his suction apparatus, we have used it with great satisfaction both as a treatment and as a prophylactic measure for abdominal distention. Cathartics were not administered postoperatively but enemas were used as indicated.

In this series seventy-two cases, or 11.7 per cent, occurred during the first five years of life. From the age of 5 to 12 years inclusive there were 540 cases, or

Read before the Surgical Section of the New York Academy of Medicine, Dec. 3, 1936.
Dr. Fenwick Beekman, surgeon in charge of the Children's Surgical Service at Bellevue Hospital, gave permission for the reporting of these cases.
¹ Beekman, Fenwick. Acute Appendicitis in Childhood. *Ann. Surg.* 79: 538 (April) 1924.

88.3 per cent. It is interesting to note that Beekman¹ in his 1924 report noted exactly the same age distribution. The youngest patient in this series was 11 months of age and this child recovered. There was a yearly numerical increase, the maximum number occurring in the twelfth year of life (chart 1). The reduced number of cases in the thirteenth year in this series is due to the fact that many children of this age are sent to the adult wards. There was a preponderance of males, a ratio of 3 to 2, or 368 males and 244 females. Of the 612 children, 576 recovered and thirty-six died, a mortality rate of 5.8 per cent. Among the seventy-two children under 5 years of age, sixty-one recovered and eleven died, a mortality rate of 15.2 per cent. Of these eleven deaths, nine were in the spreading peritonitis group. Among the 540 children from 5 to 12 years of age inclusive, there were twenty-five deaths, or a mortality rate of 3.9 per cent. The mortality rate of the males was 6.5 per cent and that of the females was 4.9 per cent. Seventeen children in this group were Negroes, of whom three died, a mortality rate of 17.6 per cent (table 2).

Beekman² reported a mortality rate of 7.58 per cent for all children up to 13 years of age. His infant mortality was 25.6 per cent, while it was 3.9 per cent for the children from 5 to 13. It is to be noted that the mortality has shown a marked decrease for the infants while it is the same in the older children.

A definite seasonal variation was noted, there being a gradual rise in frequency from January to April (chart 2). It remained high during the spring and summer, reaching the peak in August. A marked recession followed for the autumn months. A tendency to the same seasonal incidence is reported by other writers, especially Stone.³ His comment that the peak is reached when acute intestinal infections are common is a feasible explanation for this observation.

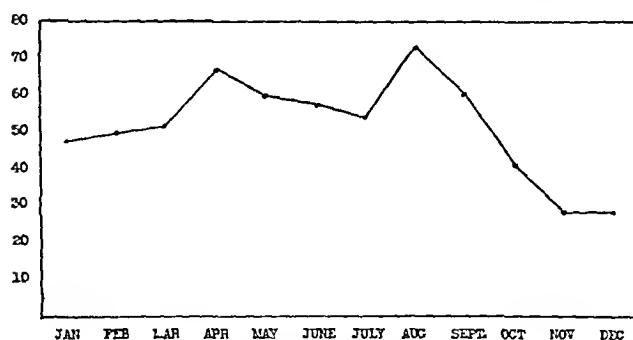


Chart 2—Seasonal incidence

The fatal cases averaged 102 hours from the onset of symptoms to the time of operation. The shortest time was eighteen hours and the longest three weeks. By contrast, cases in which survival occurred averaged fifty-three hours from the onset to operation, the shortest being three hours and the longest four weeks. The latter was an abscess case in which recovery occurred.

It is interesting to note that for the first half of this series the average time between the onset and the operation was fifty-nine hours, while it was reduced to forty-seven hours in the last half.

¹ Beekman, Fenwick. Acute Appendicitis in the Infant. *Ann Surg* 80: 911 (Dec.) 1924.
² Stone, C. S., Jr. Acute Appendicitis in Children. *Arch Surg* 30: 3-6 (Feb.) 1935.

UNPERFORATED GROUP

There were 314 cases, or 51.3 per cent, of the series in which the appendix was unperforated at the time of operation. The patients in this group had been ill on an average of thirty-nine hours before operation. Seven deaths occurred in this group, giving a mortality rate of 2.2 per cent. One 3-year-old girl died on the operating table, and this was accepted by the anesthesia department as a death due to anesthesia. Four children died in whom drainage was not instituted and they died within five days of the operation. In two of these there was diffuse peritonitis at autopsy.

TABLE 2—Mortality Rate Comparison of Negroes with Entire Group

	Cases	Percentage	Deaths	Death Rate
Males	368	60	24	6.5%
Females	244	40	12	4.9%
Colored	17	2.7	3	17.6%

One child died of pneumonia on the eighth day, the wound having become diffusely infected on the fifth day. In the fourth case paralytic ileus developed and the patient died on the fifth day. Death occurred on the sixth day in one case in which drainage was done, with a diagnosis of paralytic ileus. One child, an idiot, died twelve hours after operation, apparently of shock.

ABSCESSSES

Of the 154 patients with localized abscess formation, the operation was performed on an average of 152 hours after the onset of symptoms. There were four deaths in this group, giving a mortality rate of 2.59 per cent. All these deaths were in the older group of children. Two apparently died of sepsis. Autopsy in the case of the third revealed numerous pockets in the peritoneal cavity, with a diffuse peritonitis. In the fourth case the autopsy revealed multiple liver abscesses and a subhepatic abscess. The children in whom death occurred lived from twenty-six to seventy-three days after operation.

SPREADING PERITONITIS

In the group in which there was spreading peritonitis there were 144 patients with twenty-five deaths, a mortality rate of 17.4 per cent. Nineteen of these children died from two to forty-eight hours after the operation, apparently from profound toxemia. Two lived four days, one dying of toxemia and one with pneumonia of the left lower lobe. Two others lived five days, in both paralytic ileus developed and in both a jejunostomy was done without benefit. In one boy who lived thirty-five days an intestinal obstruction developed from a band on the thirty-second day. This was relieved by operation. Three days later the child experienced a sudden severe pain in the chest followed by pulmonary edema and sudden death. There was one nonoperative death in this group. This was a boy 4 years of age who had been ill four days on admission. The patient was moribund and obviously too sick for operation. Expectant treatment was instituted but the child died within twenty-one hours. Autopsy in this case revealed a ruptured, gangrenous appendix with approximately 2 liters of pus in the peritoneal cavity. There had been no attempt at localization.

The average stay in the hospital for all patients who recovered was twenty-one days. Children in whom only the peritoneum was sutured averaged thirty days.

in the hospital, while those with the outer layers sutured averaged twenty-one days

This study shows a direct relation between the length of illness and hospitalization. Those sick one day or less averaged seventeen days. For each additional day of sickness there were approximately three extra days of hospitalization, so that those who were sick six or more days averaged thirty-one and a half days in the hospital.

COMPLICATIONS

Of the 156 cases in which drainage was not done there were forty wound infections, an infection rate of 25.6 per cent. There were seven additional instances in which the abdominal layers were closed down to the drain and it was necessary to remove the stitches within forty-eight hours because of marked retention of pus in the abdominal wall. Vomiting that persisted for two or more days occurred in fifty-six cases. Fecal fistula occurred in ten cases, in nine of which recovery occurred.

Disruption of the abdominal wound occurred in four children, all of whom recovered. Two of these were children 4 and 10 years of age. In both cases there had been no drainage and the disruption made itself evident in both instances on the seventh day, or

TABLE 3—*Reduced Hernia Incidence in Patients in Whom Only the Peritoneum was Sutured*

	Cases	Followed	Hernias	Percentage
Only the peritoneum sutured	194	171	5	2.9
All layers sutured to drain	214	176	7	3.9
Closed without drain	165	128	1	0.7
Total	576	475	13	2.7

just after the skin sutures had been removed. The other two disruptions occurred in boys 7 and 11 years of age, one twenty-four and one forty-eight hours after operation. In these two instances only the peritoneum had been sutured. In one, occurring in twenty-four hours, an untied continuous suture lay free in the wound. The other, occurring in forty-eight hours, was a case in which there had been persistent distention, in this case an intestinal obstruction developed on the sixth day, necessitating a jejunostomy. Later a ventral hernia developed, which was successfully repaired.

Retention of pus in the pelvis was noted in twenty-one instances during convalescence. Twenty of these patients recovered, there being but one death in this group. Retention of pus occurring between loops of intestine or deep in the wound occurred in ten instances. All of these patients recovered with expectant treatment.

The pelvic abscesses were treated conservatively with hot rectal irrigations twice daily in Fowler's position and with hot stupes to the abdomen. Most of them drained from the original abdominal sinus. At least three ruptured spontaneously into the rectum and one into the vagina.

Postoperative pneumonia occurred in twenty-six cases, with but three deaths assignable to this cause. Empyema occurred in two instances, in both of which recovery occurred. One of these cases of empyema was preceded by a subphrenic abscess.

Jaundice was noted in three patients in whom there was long continued drainage, and all recovered.

A secondary hemorrhage occurred on the seventh postoperative day in one girl aged 11 years. In this

case the abdomen had been drained through a right rectus incision and apparently the hemorrhage came from an erosion of a large vessel deep in the wound. The hemorrhage was controlled by packing. A ventral hernia developed, which was successfully operated on fourteen months later.

HERNIAS

Among the 475 children seen in our follow-up clinic, thirteen incisional hernias occurred, a percentage of 2.7 (table 3). All but one of these occurred in cases in which drainage had been instituted. Of the 194 patients in whom only the peritoneum was closed we followed 171 and found five hernias, a percentage of 2.9. Of the 214 patients in whom the peritoneum, muscle, fascia and skin were closed down to the drain, we followed 176 and found seven hernias, or a percentage of 3.9. It is to be noted that the latter group gave a 1 per cent higher hernia rate than those patients in whom only the peritoneum was closed. Nine of these hernias have since been operated on and apparently cured. In four instances the parents either refused operation or the children were subsequently lost from the clinic. The patients in whom hernias developed were almost invariably those with prolonged convalescence. In only two was recovery apparently uneventful. Persistent vomiting, pelvic abscess, fecal fistula and abnormally prolonged drainage was the usual story. The average stay in the hospital for this group of children was thirty-five days.

Of the sixteen children from whom the appendix was not removed, twelve lived. In two of these abscesses developed in the region of the appendix six months and four years later. These were again drained and in neither instance was the appendix seen. One child returned for elective appendectomy after one year although there had been no symptoms during the interval.

SYMPTOMATOLOGY

The usual history was that of sudden onset with severe generalized abdominal pain or epigastric pain followed in a short time by vomiting. In two or three hours the pain localized in the lower right quadrant. This course of events occurred in 267 instances, or 44 per cent of the series. In 136 instances, or 22 per cent, the pain remained generalized while in 204 children, or 32 per cent, the pain started and remained in the lower right quadrant. Patients in the spreading peritonitis group showed a greater tendency to have their pain remain generalized.

Vomiting occurred in 485 cases, or 79 per cent of the group. One hundred and twenty-seven children, or 21 per cent, did not vomit at any time during their illness. In only forty-two instances, or 6.8 per cent of the series, was vomiting the first symptom. Frequently vomiting followed the administration of a cathartic. The vomiting generally occurred during the first twenty-four hours of the illness and ceased thereafter.

Marked anorexia occurred in the greater majority. A history of previous as well as immediate constipation was obtained in 163, or 27 per cent, of the series. Diarrhea occurred in thirty-six, or 6 per cent, of the children. It is questionable whether some of these so-called diarrheas did not follow catharsis. One hundred and ninety-three, or 31 per cent, of the charts noted regular bowel habits, while in 220 instances no data on this subject could be elicited.

It is commonly felt that in children an acute appendicitis is frequently preceded by some respiratory infection. This was found to be true in 198 children, or 177 per cent, of this series.

That many children are brought to the hospital only after several attacks was borne out by this study. Twenty-two per cent of the histories revealed one or more previous similar attacks. This was stated not to have occurred in 64 per cent, while in 14 per cent of the charts no mention was made regarding this subject.

CATHARTICS

It was found that cathartics had been administered to 57 per cent of the children in the perforated group, while in the unperforated group 42 per cent had received cathartics. Information as to catharsis was missing in 32 per cent of the charts. Twelve per cent of the patients had received enemas. In only 5 per cent of the cases was it stated that catharsis had not occurred. Of those receiving purgatives, many children had had two or more. The usual agents were castor oil and solution of magnesium citrate.

Examination of this group of children revealed most of them lying with their thighs flexed on the abdomen. The unperforated group most generally showed localized tenderness with rebound tenderness but rarely true rigidity. Generalized muscle spasm was more likely to be found in the young children.

The abscess group usually presented a definite local tenderness, frequently with rigidity. The children with spreading peritonitis were almost invariably tender throughout with local rigidity, and frequently rigidity was generalized.

Masses were felt in eighteen patients by abdominal palpation alone and in thirty-nine instances on rectal examination. In twelve additional instances, masses were felt both abdominally and rectally. Most of these showed localized abscesses at operation. Little attention was paid to tenderness on rectal examination, as we feel that in the absence of a mass such examination should be considered negative in a small child.

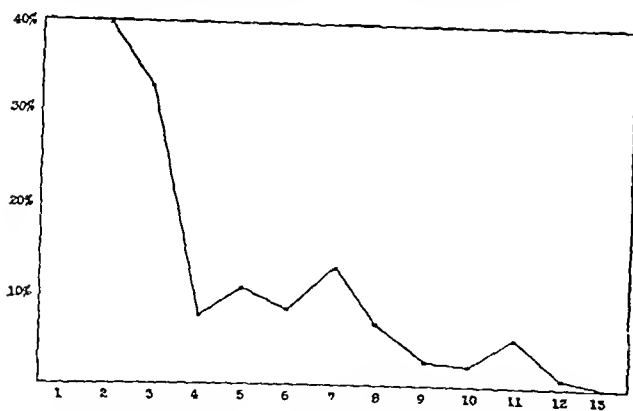


Chart 3—Mortality rate in percentage according to year of age

The temperature was invariably elevated, the mean temperature in the unperforated group being 100.7 F, while it was 101.3 and 101.5 respectively in the abscessed and spreading peritonitis groups. The pulse rate was likewise accelerated. Blood counts revealed an average of 14,600 in the unperforated group, 18,000 in the abscess group and still higher, or 19,700 in the spreading peritonitis group. Polymorphonuclears averaged 83.8 per cent in the simple group and were slightly higher in the cases presenting more extensive

pathologic changes. Respiration rates averaged 24 in the unperforated group, 25 in the abscess and 26 in those with peritonitis.

Exact figures as to the frequency of errors in diagnosis is not available for this paper. Mesenteric lymphadenitis, pneumonia and pneumococcal peritonitis in the order named are the conditions most frequently mistaken for appendicitis. It is safe to assume that



Chart 4—Increase in death rate with increase of length of illness

these mistakes are less frequent in a service limited to children than in a general surgical service. To show that the diagnosis is difficult, and especially among infants, I will relate the following case, which is not included in this series.

M. C., aged 10 days, was admitted to the Children's Surgical Service Aug. 23, 1934, with a diagnosis of complete harelip and cleft palate. The child was operated on two weeks later for a repair of the harelip. The lip failed to unite, so that two weeks later the infant was again operated on. Within twelve hours after operation a temperature of 103.4 F, with rapid respirations and cyanosis, developed. Pneumonia was suspected, although it was not positively diagnosed. The child was treated symptomatically for four days, being seen frequently by members of both the medical and surgical staffs. On the fourth postoperative day the child suddenly died. Autopsy revealed an appendiceal abscess in which the appendix had entirely sloughed away. The abscess apparently had recently ruptured, producing a diffuse peritonitis.

COMMENT

The study carried out in this group of cases emphasizes the old and oft repeated observation that, to reduce the mortality of acute appendicitis, operation must be performed soon after the onset of symptoms. This study shows that prolonged illness before operation increases mortality (chart 4) and morbidity and prolongs hospitalization. The high death rate from spreading peritonitis in the young infant makes early operation especially imperative in this group. The mortality rate of 15.2 per cent in infants compares favorably with the mortality rate of 25.6 per cent noted in Beekman's 1924 report taken from the same service. While this would tend to show that patients were being brought to the hospital earlier and perhaps that our treatment is more efficient, the mortality could be reduced further by still earlier operation in this group of children.

From a perusal of the records in this series and from having observed these children in the hospital, an impression is gained that children over 5 and adults suffering from appendicitis present essentially the same history and physical manifestations. It is the younger group that calls for special attention. While vomiting may be given as the first symptom, it is likely that in most cases the child had been previously suffering from pain. The frequent use of cathartics adminis-

tered by the mother and all too frequently by the family physician undoubtedly increases and hastens the progress of the disease

The infant's lack of resistance to infection and the lack of sufficient omentum to wall off the process makes early operation necessary if one is going to prevent spreading peritonitis with its high mortality

The procedure whereby only the peritoneum is sutured in cases in which it is apparent that drainage is going to be profuse should be especially emphasized. This series shows definitely that the incidence of hernia is lower in this group. It is true that hospitalization was long. The two most common objections are, first, danger of disruption and, second, wide ugly scars. Neither is a valid argument. It is true that two of the four disruptions reported in this study came from among this group of cases. Both occurred when this procedure was first introduced and before we insisted on using interrupted sutures, with care being taken to include the transversalis fascia. It is to be noted that the other two instances of disruption occurred in clean cases in which the wound had been closed without drainage. The second objection, that scars are wide, is also invalid. If proper dressings are employed in these cases and the skin edges are drawn together with adhesive plaster as soon as drainage subsides and all protruding granulations are removed below the surface of the skin, these children will present hair line scars when discharged. The great advantage of this procedure is that destruction of tissue of the abdominal wall is prevented and drainage is facilitated.

The high percentage of infections in wounds closed without drainage in this series is to be deplored. It is accepted that the peritoneum will withstand greater contamination than the abdominal wall. It is also true that the abdominal wall of children is less resistant to contamination than that of the adult. More extensive use of a small rubber dam drain down to the peritoneum in these borderline cases should prevent this frequent infection. These drains may be left for about forty-eight hours, thus providing egress for serum, a culture medium for bacteria. This procedure does not delay convalescence, as these wounds heal practically as if drainage had not been employed.

SUMMARY

Acute appendicitis in children becomes more frequent with each additional year of age. It is comparatively infrequent in the child under 5. The relatively high death rate in the infant is due to the frequency of spreading peritonitis, to which the infant offers little resistance. Cathartics undoubtedly hasten perforation. The death rate increases with the length of illness before operation. Hospitalization likewise lengthens with delay in operation. Suturing of only the peritoneum in cases in which drainage is expected to be profuse prevents sloughing of the fascia and muscles of the abdominal wall, provides more adequate drainage and decreases the incidence of hernia. This report reveals a marked diminution in the infant death rate since the last report from the same service.

116 East Fifty-Eighth Street

Its Value Depends on Files—Mere numbers of books, to be sure, is no measure of the usefulness and value of a professional library. Its real value depends on the completeness of its journal files and important source-books, not on text-books of ephemeral interest.—Cushing, Harvey. *Consecratio Medici and Other Papers*, Boston, Little, Brown & Co., 1928

Clinical Notes, Suggestions and New Instruments

LEFT HEART ARTERIAL AIR EMBOLISM

REPORT OF A CASE FOLLOWING PNEUMOTHORAX

W E B HALL M D ST JOSEPH MO

In contradistinction to venous embolism, arterial embolism is relatively rare. For this reason and because of other unusual features, a report is made of a case of tuberculosis treated by incomplete thoracoplasty and repeated pneumothoraces, the last terminating fatally. Postmortem examination revealed generalized arterial air embolism.

REPORT OF CASE

History—A white man, aged 24, in the summer of 1932 submitted to repeated pneumothoraces for active left apical tuberculosis. Since little improvement was shown, a first stage thoracoplasty was performed in November 1933. Recovery was retarded and painful, and the patient refused to undergo the second stage of the operation. Pneumothoraces were then continued, the disease appeared to be arrested and weight and strength returned. The man was itinerant, and roentgenograms and fluoroscopic checks were not made for the injections of air given when ever they were requested by the patient. The size of the cavity appeared to have decreased gradually, rarely taking more than from 50 to 200 cc of air in the last six months.

Nov 20, 1936, pneumothorax was performed at the usual site by an office assistant. During the injection the patient went into a type of collapse associated with symptoms not unlike those of cerebral hemorrhage, with nystagmus and strabismus. The amount injected was estimated by the assistant as 100 cc of air. With the collapse, as much air as possible was promptly allowed to escape by the needle, and after first aid administration the patient was rushed to the hospital, where he complained vaguely of some chest pain before lapsing into complete unconsciousness. Breathing was free and easy, although there was pronounced cyanosis and collapsed pulse. Death occurred thirty minutes after the pneumothorax, postmortem examination was performed ninety minutes later. Unfortunately examination of the head was not permitted.

Autopsy—The body was that of a young, well developed and well nourished man which gave the appearance of excellent health. Postmortem rigidity was developing. There was considerable cyanosis, particularly marked on the lips, finger nails and toe nails. Petechiae were not observed. A small unhealed puncture wound was seen in the fourth interspace in the mid-axillary line. There was a long old paraspinal scar, the result of the old thoracoplasty.

The body was opened by routine incision. Several old firm fibrous adhesions were present in the right pleural cavity and there was a slight mediastinal shift to the left. The right lung was not unusual. The left pleural cavity was carefully approached and disclosed a complete fibrous pleural obliteration except for a narrow cavity in the left axillary line measuring 10 by 3.8 cm, still containing a small amount of air and some bright red blood. The capacity of this cavity could hardly have exceeded 30 cc. The puncture wound of the chest was located in a raw area, 3 by 3.5 cm, in the center of the cavity and close to some adhesive bands that bridged the space. The apposing lung surface was torn. The injected air apparently had caused a portion of lung to tear loose from an anchoring adhesive band. On pressure of the lungs, blood and air bubbles, coming apparently from a ruptured vessel, were forced readily into the cavity. There was nonunion of the portions of ribs involved in the thoracoplasty, particularly the third and fourth ribs. In the upper part of the chest the lateral wall came within from 5 to 7 cm of the spine. In the gutter produced, the lung was firmly fixed. Exploration of that portion disclosed a posterior apical tuberculous cavity measuring approximately 7 by 3 by 2.5 cm, filled with granular, necrotic, yellowish, semi-liquid material. The lung in general was displaced posteriorly, rarely appearing anterior to the middle to the anterior axillary line. The rest of the chest space was made up by mediastinal shift and the pleural adhesions.

The heart lay intact in a smooth, glistening, pericardial sac. There was a slight amount of blood-stained pericardial fluid. The epicardium was smooth and glistening. The left ventricle was firmly contracted, while the auricles, particularly the right one, showed moderate dilatation. The myocardium muscle tissue was dark purplish red, firm, uniform and well proportioned. No thrombi were noted in the chambers. The valves were smooth and intact. Some dark clot was present in the various chambers. Bright red, frothy blood was found around the aortic valve but more particularly under the mitral valve. The gas bubbles measured from 0.2 to 0.8 cm in diameter. There was no definite occlusion of the coronary orifices. Close examination of the distal branches, however, disclosed, even prior to removal and with the aorta intact, a very prominent beading effect due to innumerable very fine bubbles in the blood stream. On stripping, these bubbles could be readily moved along the vessel channels and subsequently were milked back into the coronary orifices. No epicardial or endocardial ecchymoses were encountered.

All other structures and organs presented an appearance of acute asphyxia, having assumed a very profound purplish or dusky color. Hemorrhage or ecchymosis was not noted. Exploration of the arterial system disclosed blockage or filling of the branches by bubbles of air combined with dark, frothy blood. This was noted in the hepatic, renal, splenic and superior mesenteric arteries and the celiac axis. Beading was distinct in the mesenteric vessels. Exploration was not continued into the extremities.

Microscopic examination of the tissue of the left lung showed marked pulmonary atelectasis together with extensive fibrosis, scarring and production of large caseating abscesses and smaller miliary inflammatory points, associated with typical tuberculous tissue reaction as well as frequent giant-cell formation of Langhans type. This involvement appeared not only in the lung parenchyma but also intimately in the walls of the bronchioles, some of which showed complete ulceration of the mucosa. The inflammation appeared to be in an active state. Myocardial sections showed little tendency toward either degeneration or inflammation. Blood vessels varied from dilated to collapsed forms and were often associated with moderate acute interstitial hemorrhagic infiltration of noninflammatory, degenerative or infectious origin. Kidney sections showed a well developed combination of amyloid change, chronic glomerulonephritis and acute glomerulonephritis of septicemic type, together with a very pronounced congestion both of the occasional glomerular capillaries and of the more frequent interstitial capillaries, associated in the latter with occasional interstitial hemorrhage.

Summary Diagnosis.—The diagnosis was old first stage left thoracoplasty, chronic obliterative fibrous pleuritis, left mediastinal shift, caseating tuberculous abscess of the apex of the left lung, rupture of the adhesion in the pneumothorax due to artificial pneumothorax with secondary tear-laceration of lung pleura and secondary rupture of the pulmonary vessel resulting in left traumatic bronchopleural fistula and air embolism of the pulmonary vein, left hemopneumothorax. Hemorrhagic pericardial effusion, right auricular dilatation, air embolism of the left heart chambers, air embolism of coronary arteries, generalized arterial air embolism with acute congestion and cyanosis of asphyxia. Chronic glomerulonephritis, amyloidosis of kidney.

COMMENT

It has been shown experimentally by Hall and Ettinger¹ that the lethal insult threshold of the lung in thrombotic embolism is very high, degrees of occlusion being tolerated short of complete stoppage of blood flow through the pulmonary arteries. This is chiefly because of the tremendous vascular bed and secondary bronchiolar arterial blood supply in the lung. In the case of arterial embolism, however, one is dealing essentially with a totally different combination of factors involving two very vital organs with inadequate collateral circulations to take care of any acute vascular occlusion, particularly when one considers a massive embolic shower. Thus even a very small amount of air, if not quickly absorbed by the erythrocytes and blood stream, may in its short passage from the lung and through

the heart find lodgment in the coronary vessels. A similar condition must be presumed as effective in the case of the brain. Although the oxygen element in a vascular air embolus is almost instantaneously absorbed, the nitrogen tends to remain intact except for its reduction into the finer frothy foam that lodges about the valves and in the various smaller branches of the arterial system, which lack a mechanism for absorption and disposal of excess gases, such as is present in the lungs. The present case was one of tissue asphyxia due to embolic filling of the smaller vessels. This, in the case of the heart, produced the characteristic anginal pain of coronary occlusion complained of by the patient.

The autopsy showed the inadequacy of an incomplete thoracoplasty in producing quiescence of a tuberculous lesion. It is to be regretted that the patient was allowed to have his way, refusing the second stage of the operation and resorting to pneumothorax. It would appear that a constant check by roentgenograms and fluoroscopic examinations should be made in artificial pneumothoraces as to the size and effects of the pleural collapse and the presence of adhesions. Continued pneumothoraces in small cavities, with the major pleural space obliterated by adhesions, hardly can be expected to produce a therapeutic response. When the available pleural space is known to be considerably reduced and adhesions are probable, it would seem that further pneumothoraces should be performed fluoroscopically under direct supervision of the responsible operator. The manometer should be carefully watched for rapid increase or reduction in pressures, and the amount of air in the reservoir available for injection, or the amount of air injected, rarely should exceed that of the previous injection.

In the present case an amount of air greater than the available pleural space was injected into a pleural cavity bridged by a line of fusion of lung to the parietal wall or into the adhesion itself. In either case a segment of lung was forced from its former covering and in the process produced a traumatic bronchopleural fistula, accompanied by exposure and rupture of an underlying pulmonary vessel. The distention of the cavity by the injected air has subsequently resulted in an increasing stretching and enlargement of the rupture point in the vessel wall, allowing a ready avenue for aspiration and escape of air resulting in the arterial air embolism. Once embolism has occurred, all possible injected air should be withdrawn by disconnecting the needle or by actual aspiration. If, however, air emboli have already gained access to vital organs the insult tolerance of which toward vascular occlusion is low, as in the case of the heart, the prognosis immediately becomes grave. The case should then be treated in the same manner as though solid emboli had gained access to the involved organ or organs. Mild sedatives and heavy oxygen therapy become absolutely mandatory to aid tissues suffering widespread asphyxia.

SUMMARY

1 A case of air embolism of the arterial system originated in rupture of a pleural adhesion as the result of artificial pneumothorax.

2 Air emboli, froth and bubbles were found in the chambers of the left side of the heart, under the mitral valve, about the aortic valves and in the sinuses of Valsalva, the coronary arteries, the celiac axis, the splenic, renal, hepatic and mesenteric arteries and presumably the cerebral arteries.

3 Coronary embolism was accompanied by anginal symptoms similar to those of ordinary coronary occlusion.

4 Death occurred within thirty minutes and was due primarily to myocardial asphyxia resulting from filling of the coronary vessels with gaseous bloody froth or asphyxia of cerebral centers of similar etiology.

5 Insult tolerance of vital organs to arterial occlusion, as in air embolism, is much lower than the tolerance of the lungs in venous embolism.

6 The fatal element in air embolism is nitrogen, which is absorbed slowly in the blood, persisting in the form of frothy bubbles long after the oxygen portion, which is rapidly absorbed.

7 Primary first stage thoracoplasty is an inadequate operation for pulmonary collapse and immobilization in tuberculosis.

8 Pneumothoraces should be performed under responsible supervision with repeated checks by roentgenograms and fluoroscopic examinations.

¹ Hall G. E. and Ettinger G. H. An Experimental Study in Pulmonary Embolism. *Canad. M. A. J.* 28: 357 (April) 1933.

9 Therapeutic results from injections of air into small pleural cavities are debatable

10 Adhesions of the pleural cavity are a constant source of danger in artificial pneumothorax and may be torn, resulting in hemorrhage or air embolism

2026 Clay Street

BILATERAL TRILOBECTOMY

THE REPORT OF A SUCCESSFUL CASE

RICHARD H. OVERHOLT, M.D. BOSTON

Bilateral lobectomy for bronchiectasis has seldom been attempted. Eloesser,¹ Edwards² and Lewis³ have each reported a case. In the series of surgically treated bronchiectasis patients of Churchill,⁴ four successful bilateral operations were done. These few reports would indicate that surgical extirpation of lobes from both the right and left lungs has been considered even more difficult of attainment than the removal of all the pulmonary tissue on one side. However, bronchiectasis is found in far greater frequency in both lower lobes or in the left lower



Fig 1—Bronchogram (retouched) showing marked sacculations of the bronchi of the lower lobes. Note the triangular basilar shadows indicative of atelectasis. Also note the clearness of the lung fields above the triangular shadows which space is filled entirely by the upper lobes.

and right middle lobe than it is found to be limited to the upper and lower lobes on the same side. Therefore in the treatment of this disease the thoracic surgeon will in the future be asked to consider bilateral lobectomy more often than pneumonectomy.

The following case, in which the right middle, right lower and left lower lobes were successfully resected, is of interest from two points of view. 1 The three lobes in which the bronchiectasis was found were totally atelectatic. The entire respiratory burden was carried by the two upper lobes. Compensatory emphysema had taken place in these two lobes and they practically filled the entire thorax. 2 Lung volume studies made before and after operation demonstrated that the removal of the three atelectatic lobes did not greatly alter the respiratory reserve of the patient.

History—Miss S. C., aged 19, referred by Dr. N. R. Pillsbury, superintendent of the Norfolk County Hospital, was admitted to the New England Deaconess Hospital May 13, 1935. The patient had had pneumonia when 3 years of age and since that time there had been a chronic cough, variable amounts of expectoration, frequently streaked with blood, and occasionally a frank pulmonary hemorrhage. The breath had a fetid odor. There was slight dyspnea on exertion. The latter two factors definitely had limited the patient's physical and social activities. There had been no recent weight loss. The remainder of the medical history was irrelevant.

Examination—The patient was a pale, slender girl of normal height for her age of 19 years. The digits showed marked clubbing but no cyanosis of the nail beds. There was no deformity of the chest and its expansion was equal. The excursions of the lower ribs were, however, slightly restricted on both sides. The percussion note was resonant throughout

except over both bases posteriorly near the vertebra. Coarse rales and accentuated breath sounds could be heard over this area. The action of the heart was normal except for a rate of 96. The blood pressure was 138 systolic, 80 diastolic. The temperature was 98.6 F. The remainder of the physical examination was negative.

Laboratory Examination—Roentgenograms of the chest revealed triangular shadows at both bases. The lung markings in the area above the triangular shadows were less dense than normal. Iodized oil, instilled intrabronchially, outlined sacculations within the triangular shadows (fig 1). The right middle and lower and left lower lobes were involved in the process and the upper lobes showed compensatory emphysema and practically filled the entire thorax. The sputum was characteristic and measured between 8 and 9 ounces (235-265 cc) daily. All other laboratory studies were within normal limits except the leukocyte count, which was 12,000. The study of the vital

Vital Capacity and Lung Volume

	Dates	Vital Capacity	Lung Volume (Functional Residual Air)	Average Daily Sputum
Before operation	5/31/35	900*	1 520	245
2½ months after removal of right middle and right lower lobes	2/ 3/36	940	1 675	115
8 months after removal of left lower lobe	11/13/36	1 162	1 950	20

* All estimations are given in cubic centimeters.

capacity and of the lung volume (functional residual air) was made by the Christie method.⁵ The results are shown in the accompanying table.

Operative Notes—1 First stage right lower and middle lobectomy was done June 1. Intratracheal cyclopropane anesthesia was administered by Dr. U. H. Eversole. The pleural cavity was opened in the periosteal bed of the resected eighth rib and the wound enlarged by dividing the seventh and ninth ribs posteriorly. The middle and lower lobes were found to be contracted, airless and completely atelectatic. These two lobes were mobilized, the inferior pulmonary ligaments were divided as far up as the hilus and the fissure was separated. The upper lobe was wiped with dry gauze, reinflated and the chest closed.

The convalescence was uneventful and the patient was discharged on the fifteenth day. Within ten weeks' time the cough and expectoration decreased approximately 25 per cent.

2 First stage left lower lobectomy was done September 27. The same anesthesia was employed. The left side of the chest was opened and the lower lobe found to be completely atelectatic. The upper lobe practically filled the entire chest. The lower lobe

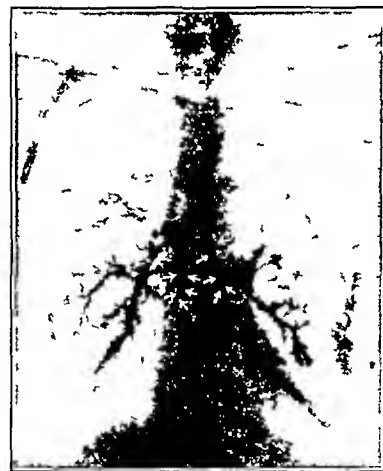


Fig 2—Bronchogram made by injecting the drainage tube with iodized oil three weeks after the last operation. Note the wide ramifications of the bronchi of the remaining upper lobes. Iodized oil can be seen in the stumps of the lower bronchi.

was mobilized, the upper lobe wiped with gauze and reexpanded, and the chest closed. The convalescence was uneventful, the patient was discharged on the thirteenth postoperative day. Within the next month the amount of expectoration continued to decrease and then averaged 4 ounces (120 cc) a day, about one-half the usual preoperative amount.

From the Department of Thoracic Surgery, the Lahey Clinic.
1. Eloesser, Leo. Bilateral Lobectomy. Surg. Gynec. & Obst. 57: 247, 1933.
2. Edwards, Tudor. Report at the French Surgical Congress in Paris Oct. 12, 1936. abstr. Paris letter J. A. M. A. 107: 1650 (Nov. 14), 1936.
3. Lewis, Ivor. Bilateral Lobectomy for Bronchiectasis. Brit. J. Surg. 24: 362 (Oct.), 1936.
4. Churchill, Edward. Results of Lobectomy and Pneumonectomy, presented at a meeting of the Massachusetts General Hospital Medical Society Dec. 17, 1936.

5. Christie, R. V. The Lung Volume and Its Subdivisions and Methods of Measurement. J. Clin. Investigation 11: 1099-1118 (Nov.), 1932.

3 Second stage right, middle and lower lobectomy was done November 13. The incision was made in the scar of the previous operation and the right side of the thorax was opened after resection of the seventh rib, the sixth divided posteriorly and the scar below. All three lobes were adherent throughout. The lower and middle lobes were mobilized. Transfixion ligatures of catgut were placed in the hilus, the needle being passed through the bronchus. A Nelson-Roberts tourniquet containing No. 2 chromic catgut was applied. Multiple catgut sutures were placed in the stump after the two lobes had been excised. The tourniquet was then disengaged, leaving the catgut strands to be tied around the stump as a mass ligature. A catheter drain was introduced through a stab wound 2 inches below the lobectomy incision. The upper lobe was reinflated and the chest closed. The convalescence was uneventful. The patient was discharged on the thirty-second postoperative day. During the next three months, improvement was continuous. The amount of expectoration was reduced to 3 ounces (90 cc) daily.

4 Second stage left lobectomy was done March 3, 1936, by means of the same technic as employed in the previous stage, the left lower lobe was removed. The postoperative period was not remarkable. Iodized oil injected in the drainage tube three weeks after operation outlined the entire tracheobronchial tree on the roentgenogram (fig. 2). The patient left the hospital



Fig. 3—Appearance of patient eight months after the last operation. Note the absence of deformity and the good nutritional state of the patient.

on the thirty-third postoperative day greatly improved. The drain was removed May 13 and the wound was healed a week later.

Follow-up examinations have been made at regular intervals and the patient was last seen nine months after the last of her series of operations. There has been a marked improvement in the general appearance of the patient (fig. 3). Coughing spells and expectoration have been reduced by 90 per cent and the clubbing of the digits has definitely receded. The patient volunteers that she is now able to lead a normal social life. She also reports that she can climb three flights of stairs without becoming short of breath.

A lung volume estimation was made Nov. 13, 1936, eight months after the last operation. The following measurements were made: (1) complementary air 961 cc., (2) reserve air 201 cc., (3) residual air 1,749 cc., (4) total capacity 2,911 cc. (sum of 1, 2 and 3), (5) vital capacity 1,162 cc. (sum of 1 and 2), (6) lung volume 1,950 cc. (sum of 2 and 3), (7) tidal air 400 cc.

COMMENT

The patient was a chronic pulmonary invalid and had been so for sixteen of her nineteen years of life. The three bronchiectatic and atelectatic lobes were functionless and a source of great potential danger. The surgical extirpation of these

abnormal lobes made it possible for the patient to enjoy ordinary physical and social activities. The danger of progression of the disease has been materially lessened. Measurements of the lung volume and of the vital capacity after operation gave higher values than those found preoperatively. These determinations show quite convincingly that the lobes which were removed were functionless. The study also suggests that the remaining upper lobes were better able to function when relieved of the burden of the other three disease-ridden lobes.

605 Commonwealth Avenue

Therapeutics

THE THERAPY OF THE COOK COUNTY HOSPITAL

EDITED BY BERNARD FANTUS, MD
CHICAGO

NOTE—In their elaboration, these articles are submitted to the members of the attending staff of the Cook County Hospital by the director of therapeutics, Dr. Bernard Fantus. The views expressed by various members are incorporated in the final draft for publication. The articles will be continued from time to time in these columns. When completed, the series will be published in book form.—Ed

BLOOD PRESERVATION

This preliminary report on the establishment of a "blood bank" at the Cook County Hospital is perhaps justified by the interest displayed in this development, the inquiries received from various parts of the country, and the importance of the promptest and most generous exchange of experience in a new field of life-saving endeavor.

That blood can be preserved for weeks in condition fit for transfusion is now a well established fact, thanks most especially to Yudin's¹ work on cadaver blood. There is, however, something revolting to Anglo-Saxon susceptibilities in the proposal of using cadaver blood and it is not probable, even were this not the case, that enough blood could be secured in this manner to be of great practical importance. The "blood bank" proposition, on the other hand, seems susceptible of extensive development and it is to this, most especially, that we desire to call attention.

The first question that comes to the mind of any one in connection with blood preservation is: Where does one get the blood? At Cook County Hospital we have experienced no difficulty on this score by following simple rules promulgated by the medical staff of the hospital. The necessity for these rules is obvious. Just as one cannot draw money from a bank unless one has deposited some, so the blood preservation department cannot supply blood unless as much comes in as goes out. The term "blood bank" is not a mere metaphor.

NOTICE TO MEDICAL STAFF

"Hereafter an effort will be made to preserve by refrigeration blood to be used for blood transfusions. This method should accomplish two things: first, it should make blood available at any time it is needed; second, it should make the process of blood transfusion much more simple.

"It is obvious that one cannot obtain blood unless one has deposited blood. Staff physicians may deposit blood

¹ Yudin, S. S. Transfusion of Cadaver Blood. J. A. M. A. 106: 997 (March 21) 1936.

for credit at any time. A record will be kept of all blood credited to each service.

"Depositing Blood"—Staff physicians will obtain from the Solutions Laboratory chilled 500 cc flasks, which will contain 70 cc of 2.5 per cent sodium citrate solution. These flasks carry two test tubes for the collection of 5 cc of whole blood in each for the purpose of typing and for the Wassermann test. The blood will be drawn into the flask in the usual manner and taken immediately to the Solutions Laboratory. The date, the name of the donor, his address, his color, the name of the intern and his service should accompany the flask. By means of this system only one donor needs to be bled and he need not be typed, which greatly lessens the trouble occasioned by transfusion.

"Keeping of the Blood"—In the laboratory the technician at once files it away in the refrigerator, which must maintain a constant temperature between 4 and 6 C, types it, tests it for sterility and the absence of syphilis, and credits it to the service that furnished the blood.

"Drawing on the 'Blood Bank'"—Assuming that a patient needs blood transfusion, the house physician should secure from the patient 5 cc of blood, type it, and make out a requisition in proper form for the quantity and type of blood needed, which will be delivered to him from the refrigerator. It should be warmed by placing it in a water bath, the temperature of which would not feel too hot for the hand, and used immediately after warming.

"Cross-Matching Before Injecting"—The blood thus secured should be cross-matched with the patient's blood by the resident who supervises blood transfusion. Not only should the corpuscles to be injected be matched against the patient's serum, but the serum to be injected should be matched against the patient's corpuscles. Owing to the possibility of serious allergic reactions, the blood of a patient allergic to horse serum should not be injected into a patient who recently had a horse serum injection. Repeated transfusions in which the same donor is used may give rise to anaphylactic shock.

"Administration"—While the hasty injection of blood may produce speedy death from 'speed shock,' the slow injection—literally drop by drop—has no such danger, even in disease conditions of the heart or lungs. Throughout the injection the patient should be carefully observed for any unfavorable reaction. The early and characteristic symptoms are 'uneasiness' in the chest, difficulty in breathing, excruciating pain in the back, and nausea. Failure to recognize these early symptoms may be responsible for a fatal result. Fall in blood pressure and impaired heart action because of insufficient return of venous blood to the right side of the heart with resulting cyanosis, dyspnea and anuria dominate the picture. These symptoms are believed to be due to the liberation of 'histaminoid' bodies from the breaking down of red blood corpuscles, which lead to dilatation of the venous capillaries and spasm of the peripheral arterioles. Embolic closure of the finest pulmonary and renal vessels may also contribute to the clinical picture. It is claimed that the best remedy for this reaction is the immediate infusion of compatible blood.

"Dosage"—Overloading of the circulation must be avoided. In infants 20 cc of blood per kilogram of body weight should not be exceeded. In adults, after hemorrhage, the amount of blood required depends on

the quantity lost. The loss of from 2,000 to 2,500 cc of blood may be fatal and the giving of 1,000 cc of blood may save life in such a case. To increase coagulability of the blood, e. g., in hemophilia, a transfusion of 250 cc suffices."

SOURCES OF BLOOD

The main source of blood will no doubt always be the healthy volunteer donor, whose service should be enlisted whenever possible. No matter what type blood the donor furnishes, the blood is sent to the laboratory, where it is exchanged for blood of the type desired. The advantage of the "blood bank" over the previous method is obvious. Only one donor needs to be bled, which dispenses with the commotion occasioned by calling to the hospital a horde of excited relatives before a suitable donor can be found.

A second source of blood is from patients with cardiac decompensation and those with excessive elevation of blood pressure, provided the patient is not suffering from infection, uremia or other toxemia. It should be a rule that practically all patients in need of digitalis should have a preliminary abstraction of blood to unload the heart before stimulating it.

A third source of blood is the antepartum clinic. Here the blood bank function of this project expresses itself most simply. We deposit in a bank money we do not at the moment need, to be able to draw on it when we do need it. In the same way a pregnant woman can easily spare a little blood a week or two before her expected confinement to have it saved for her against the time she may need it during or right after parturition. If she does not need this blood, it should become available for any one who does.

There are some who seem to be in particular need of this antepartum blood. It is the premature child. Some pediatricians seem to be convinced that a premature infant who is not doing well is much benefited by the intramuscular injection every other day of 5 to 10 cc of blood of a woman who carries a child under her heart.

Now it so happens that the pediatric clinic can furnish blood to the bank also. When a mother brings a sick child to the hospital, it is of great advantage to that child to be given from 10 to 20 cc of the mother's blood injected intramuscularly—10 cc in each gluteal region. This will secure passive immunization against measles and most other contagious diseases to which the child may be exposed while in the hospital. In this manner the specter of cross-infection ever present may be largely banished from a children's hospital. There is no reason why a healthy woman might not easily spare, and without greater inconvenience, 120 cc instead of 20 cc of blood and have the other 100 cc preserved in the bank in case her child needs it and, if it does not, she should permit this blood to save the life of some other child.

A patient who is to have an elective surgical operation could do no better than to deposit a week or two before the ordeal a pint of blood in the bank to have it available in case it is needed during or after the operation.

The bank may also function in the way of "lending" blood. Any one who owes his life to blood transfusion clearly owes some blood to some one else who is in great need of this restorative. This is eminently the case with convalescents from infectious diseases. In streptococcal sepsis, for instance, as well as in scarlet fever and probably also in influenza and many other

infectious diseases, the blood of the convalescent is curative to the victim of the same kind of infection. It should be the plain duty of the one who has recovered from such a disease to donate some of his blood to save the life of a fellow man in the hour of his desperate need. Surely one whose life has thus been saved owes some of his now curative blood to another victim of the same kind of infection. Opsonic index determinations on the preserved blood might permit one to predict in what kind of infection the convalescent's blood would be particularly serviceable.

A SERUM CENTER

The limit of blood preservation is lysis of the red blood corpuscles after their death. Obviously the trick of blood preservation is to compel blood corpuscles to enter a "hibernation" stage so that, life processes being at a low ebb, they may continue to live for a much longer time than they otherwise would. The survival period of blood thus preserved seems to be from three to four weeks. It is entirely probable that intensive research, which should at once be undertaken, may extend somewhat this blood corpuscle survival period. But sooner or later hemolysis sets in. With the appearance of the first traces of hemolysis the serum should be separated from the blood and the serum preserved—as it easily can be—for as long a time as may be necessary.

This will not only furnish a liberal supply of the so much needed human convalescent's serum, but also of normal human serum with its natural immunizing and other therapeutic properties. In shock, for instance, when there has been but little or no hemorrhage, compatible human serum should be much more valuable than the 6 per cent acacia solution now advocated for the purpose. In extensive burns in which shock and the loss of blood serum from profuse exudation are the cause of the circulation depression that may be fatal, the intravenous injection of blood serum is much more rational than that of blood, because these patients usually have an excess of red blood corpuscles per cubic millimeter. In certain hemorrhagic conditions, blood serum may furnish the lacking principles, even though in thrombopenic purpura nothing but transfusion of fresh blood may serve the purpose.

CONTRAINDICATIONS

As blood transfusion is a trying, even dangerous, procedure to the recipient, the indications for it should be drawn strictly and rather narrowly. We have kept statistics for the year preceding inauguration of the blood preservation service and found that death has occurred in about one third of the number of patients in whom transfusion has been done. We hope to better these statistics with the new method. The deaths cannot, of course, be charged to blood transfusion but must be ascribed to the fact that too many antemortem transfusions are being done in this hospital. Unless there is some extraordinary reason for postponing the inevitable end, blood transfusion is not justified in hopeless conditions. The physician's desire to do everything possible for the patient committed to his charge must not lead him to prolong the agony of the dying by major therapeutic efforts.

"In the treatment of sepsis," says Bock,² "it is possible to waste more blood than for any other condition. Severe anemia due to sepsis is an indication for blood

transfusion, but sepsis per se without evidence of anemia is not." Immunotransfusion is, of course, an entirely different matter.

In leukemia, in the anemia of Hodgkin's disease, and in primary anemias with the exception of pernicious anemia, and then only under special circumstances, blood transfusion is inadvisable. It is also contraindicated by pulmonary edema, myocarditis and nephritis.

INDICATIONS

Dangerous hemorrhage and shock are the two most important indications for blood transfusion. Transfusions are probably used more in surgical shock than in hemorrhage.

In rapid profuse hemorrhage, a drop in blood pressure soon sets in. It is this drop of pressure that causes the syncope of such hemorrhage. The blood count does not alter to any great extent until sufficient fluids have entered the blood stream to dilute the blood. A person may suddenly bleed to death and the blood count and hemoglobin percentage remain almost normal. It takes from twelve to twenty-four hours for dilution to occur. So a drop in blood pressure and an elevated pulse rate are the significant factors in the first few hours of severe bleeding.

In case of a slow hemorrhage, on the other hand, the blood pressure may be well maintained, and then a fall in hemoglobin percentage to 50 or below or a rise of the pulse rate to 120 or more indicates that blood transfusion should be undertaken promptly. Blood pressure estimation furnishes, in slow bleeding, no indications of any value, as the pressure is well maintained by vasoconstriction until profound sudden shock supervenes on failure of this mechanism.

"Next to ligature," says Bock, "blood transfusion is the most effective means we have to insure cessation of hemorrhage." When the hemorrhage is of the inaccessible variety, as well as in hemorrhagic diseases, such as hemophilia and purpura hemorrhagica, small (250 cc.) and repeated blood transfusions give better results than a large transfusion.

In preparation for surgical procedures, all markedly anemic patients require blood transfusion. Indeed, before or after any extensive or prolonged operation blood transfusion is of value. In heroic conditions, massive blood transfusion is called for. In grave trauma demanding amputation, 500 cc. of blood given at intervals of half an hour before, during and after the operation may save a life. In profuse hematemeses, continuous drip blood transfusion at the rate of from 90 to 150 cc. an hour may transform, in two or three days, a patient apparently moribund into a good surgical risk. Operation performed immediately after such hemorrhage is usually fatal.

In severe cases of pernicious anemia, blood transfusion is indicated during that critical period of a week, more or less, required for liver therapy to become effective.

In jaundiced patients, small blood transfusions before, during and after operation will minimize the oozing of blood that may be fatal.

Other indications, such as immunotransfusion and possible food function of blood, require definition better than we now possess.

CONCLUSION

This statement of the aims and means of the blood preservation service is primarily intended to secure the better cooperation of the staff of this hospital.

² Bock, A. V. The Use and Abuse of Blood Transfusions. New England J. Med. 215: 421 (Sept. 3) 1936.

Dr Lindon Seed is chairman of a Committee on Blood Transfusion, which consists of a representative of each one of the special services at the hospital, and all matters pertaining to this work should be referred to this committee

We have had enough experience at Cook County Hospital to say that the use of properly preserved blood is safe and efficient

We also know that extensive cooperative investigation will be required to develop this method as rapidly as seems mandatory to save lives now unnecessarily lost

It is this need, as well as the desirability of better financial support for so important a project, that has dictated this preliminary publication

Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION
OF THE FOLLOWING REPORTS HOWARD A. CARTER, Secretary

COLLENS-WILENSKY INTERMITTENT VENOUS OCCLUSION APPARATUS

Preliminary Report

Manufacturer U M A, Inc, 11 East Forty-Eighth Street, New York.

This device is designed for the treatment of peripheral vascular diseases of the extremities. In the opinion of the firm, its use is indicated in such conditions as thromboangitis obliterans, vascular sclerosis, indolent ulcer and gangrene

The apparatus consists of a motor-driven pump which supplies air to a pneumatic cuff. Pressure of this device is regulated by means of a pressure-measuring indicator. A pressure of from 40 to 90 mm of mercury is imposed on the proximal portion of the diseased extremity and results in a restriction of the returning venous blood. It is claimed that the pressure is applied up to a level which does not interfere with arterial filling

A suitable timing mechanism is incorporated in the device, which maintains a pressure for two minutes, after which a release valve is actuated electrically to cause an automatic deflation of the cuff. The promoters claim that during the release period an increased arterial flow through the extremities occurs, giving rise to the following effects in the treatment of organic peripheral vascular obstruction: (1) relief of pain, (2) increase of skin temperature of extremity, (3) increase in walking efficiency, (4) increase in vascularity, permitting amputation at lower levels, and (5) healing of chronic indolent ulcers associated with vascular obstruction

This apparatus was placed in a clinic acceptable to the Council. The investigator reported that

1 From a mechanical standpoint, the performance of this machine is entirely satisfactory. The duration and amount of pressure are controlled automatically and may be thus adjusted to the requirements of the individual patient. During three months of constant use, the machine required no repair, no adjustment. Often cuffs do not fit the patient's thigh, but this objection could be easily remedied

2 From the physiologic standpoint, the production of an intermittent venous hyperemia to increase peripheral circulation seems sound and tests performed indicate that both surface temperatures and the oscillometric curves increase after the application of this method. During venous occlusion there is a filling and stretching of the venocapillary bed, while during release a reactive hyperemia takes place, bringing about vasodilatation. There is, however, no provision made in this type of treatment to empty the vascular bed effectively and for this reason a certain amount of continuous venous stasis exists. This method is to be used only with great caution

While the evidence submitted is favorable to the therapeutic employment of this device, the Council does not believe that the evidence is strong enough to warrant acceptance at this time but believes the manufacturer should be given more time to gather additional data and submit it. When such information is available, the Council will again give the product careful consideration

EMERSON INFANT RESPIRATOR ACCEPTABLE

Manufacturer J H Emerson, 22 Cottage Park Avenue, Cambridge, Mass

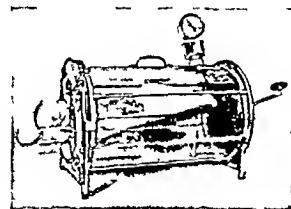
The Emerson Infant Respirator is designed for administering artificial resuscitation of new-born babies whose respiration is delayed or is of poor quality. It will provide continuous artificial respiration over extended periods of time. This unit is hand operated. The device is cylindric, about 17 inches long and 12 inches in diameter. At one end is a diaphragm connected to a lever which may be moved back and forth to create positive and negative pressure within the chamber. At the other end is a soft rubber collar through which the infant's head protrudes. Electrically operated infant respirators were reported on in THE JOURNAL, May 2, 1936, page 1563

Certain advantages were noted in the construction of the respirator. Its compactness combined with its light weight favors portability. Manual operation of the respiratory chamber is an advantage, as it places the rate and magnitude of respiratory diaphragm excursions under complete control of the operator. The pneumometer registers the positive and negative pressure exerted on the body of the infant. The transparency of the respiratory chamber permits visibility of the child's movements and color, thus allowing for adequate determination of progress in resuscitation. The clamps used to attach the head piece to the chamber allow rapid assembly for action. The neck piece of sponge rubber may be cleaned. All parts seem durable

This unit was placed for investigation in a clinic acceptable to the Council. It was used in cases of respiratory lags, such as narcosis from sedation given during delivery, asphyxia from aspirated amniotic fluid and intracranial damage

In using this respirator, the investigators found that certain procedures were necessary for optimal performance. First, the respiratory passages of the infant must be thoroughly cleared of foreign material such as blood and amniotic fluid. This may be done with a sterile ear syringe, if the trachea is not blocked, or with a tracheal catheter if it is. The removal of obstructions is of great importance, as failure to do so may result in the aspiration of the offending material into the bronchial tree. The interior of the respiratory chamber should be heated by some means, as the carrier of the infant is too cold without this preparation. In the trials by the Council investigator, a hot water bottle was covered and placed on the carrier during delivery to allow adequate time for the chamber to become warm and was left on the carrier during use to keep the baby warm

The radially arranged straps used to control the size of the opening in the collar through which the infant's head protrudes from the respirator are of value in enlarging the aperture during passage of the child's head. Their purpose, apparently, is to prevent the collars fitting the neck too snugly during resuscitation. In some instances sufficient air passed beside the neck to prevent the chamber from working as a closed unit, thereby destroying the ability of the system to create positive and negative pressure. On the other hand without an attempt to control the size of the collar about the baby's neck, constriction of the neck occurs with collapse of the trachea. In the opinion of the Council such a pressure placed on the carotid and jugular vessels is not of benefit to the child, particularly in cases of intracranial hemorrhage, because the increased pressure thus caused may add to the severity of the complications



Emerson Infant Respirator

During the course of the forced respiratory excursions, it is found necessary in normal or large infants to insert a tongue blade over the tongue to open a passage for the air. In small and premature infants a tracheal catheter has invariably to be inserted to prevent tracheal collapse by compression from the collar about the baby's neck.

It is found advantageous during its use to administer by mask or intra-oral tube a mixture of 95 per cent oxygen and 5 per cent carbon dioxide.

The flap-valve on the side of the chamber was found to be of no practical advantage and the respirator was observed to function best when the valve was kept closed. Such a device might be useful in a mechanically motivated chamber, but where manual control is exercised at all times its presence seemed superfluous.

Employment of the respirator is of advantage in cases of narcosis in which respirations are delayed for an appreciable period of time, when its use is supplemented by the use of a tongue blade or tracheal catheter and carbon dioxide and oxygen mixture, as described. It may also be used in deep asphyxia from obstruction after the latter has been removed. It is not felt to be advisable in cases of difficult delivery in which intracranial damage may have been done, first, because the added manipulation of the child during the placing of its head through the collar is not in line with proper treatment of cranial injury, and, secondly, because of probable alteration in intracranial pressure and impediment to circulation by the collar, which would be strongly contraindicated.

The respirator has a field of usefulness in cases in which it may be necessary to give artificial respirations over a protracted period of time. Its advantage in acute cases of short duration is doubtful. It does not appear to decrease the period of time when artificial respiration is needed, but it does make such treatment physically much easier for the operator, as well as allow for better control of rate and depth of respiratory excursions.

In view of the foregoing report, the Council on Physical Therapy voted to include the Emerson Infant Respirator in its list of accepted devices.

Council on Pharmacy and Chemistry

REPORT OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT
PAUL NICHOLAS LEECH Secretary

CONDOL AND ERTRON NOT ACCEPTABLE FOR N N R

ConDol and Ertron are marketed by the National Institute of Nutrition and the Nutrition Research Laboratories, Inc., respectively, as preparations of irradiated ergosterol of very high potency, mainly for use in the treatment of arthritis. In advertising booklets issued by the firms concerned, Ertron is claimed to be "a highly concentrated form of vitamin D, prepared by a newly developed process which employs ergosterol as its raw material. It is biologically standardized and supplied in semi-solid form, in gelatin capsules, each capsule containing not less than 50,000 U S P units of vitamin D." ConDol is declared to be "a high grade source of vitamin D—particularly designed for use in the Reed technique in the treatment of arthritis. The method of preparation is by the Campsie process which is the irradiation of ergosterol in high quality Oil of Sesame at a filtered wave length of 2,536 Angstrom's units." Neither product has been submitted by its manufacturer for consideration of the Council. The numerous inquiries received, however, have prompted the Council to consider these products on its own initiative.

The advertising sent to the Council's files by physicians for ConDol is comparatively conservative, merely proposing the use of the product for the treatment of arthritis, according to the suggestions of Drejer and Reed of the University of Illi-

nois. The advertising for Ertron is much more flamboyant. The following paragraph taken from a recently received circular is typical:

"Widespread use has demonstrated the clinical efficacy of Ertron in arthritis. It may be relied upon to produce beneficial changes in every type of the disease, regardless of the stage of its advancement. Affected joints become smaller, periarticular swellings diminish, interosseous muscles relax and lose their spasticity, mobility gradually increases and frequently becomes normal. Pain is lessened relatively early in the treatment, and finally disappears entirely. Psychic and systemic improvement keeps pace with the regression of the disease, the appetite is increased, anemia is overcome, lost muscular strength returns, the patient gains weight, and the general outlook becomes hopeful and optimistic."

Soon after the appearance of the work of Drejer and Reed (*Arch Phys Therapy* 16 537 [Sept.] 1935) the Council considered the question of the use of viosterol (irradiated ergosterol) preparations of high potency in the treatment of arthritis, and decided that there was not sufficient evidence to warrant the acceptance of such preparations for inclusion in N N R. The Council calls to the attention of physicians the fact that there is no proof that such large doses of vitamin D are not toxic.

The Council notes that, whereas a number of firms have been enthusiastically exploiting high potency viosterol preparations, the Wisconsin Alumni Research Foundation desisted from entering this field. The Council desires to commend the Foundation for this evidence of its conservative attitude on this question.

As time went on and exploitation of products such as Ertron and ConDol became more widespread, the Council asked a consultant to investigate the present status of this therapy. The consultant presented the following summary:

VITAMIN D AND ARTHRITIS

In the evaluation of any type of therapy for almost any organic disease, probably the least satisfactory criterion is subjective improvement as estimated by the patient.¹ This is especially true when the disease for which treatment is given is a chronic one with natural periods of varying severity of symptoms. One condition that falls definitely into this category is chronic arthritis. It is fair, therefore, on the basis of probability alone, to expect as a result of the treatment of a series of cases of chronic arthritis, by any method whatsoever, that a certain number of the patients will be reported clinically improved and some, temporarily at least, completely relieved of symptoms, especially pain. Recently reports² have appeared to claim clinical improvement of chronic arthritis as a result of the use of massive doses of vitamin D. This has given some of the manufacturers of concentrates of vitamin D or activated preparations of high potency an opportunity to exploit their products on the basis of scientific medical backing for their claims. In these reports, however, the percentage of cases in which clinical improvement occurred was in no instance greater than has been reported for a similar series of cases of chronic arthritis treated by vaccines and various other methods.³ In the reports the estimate of improvement is based almost entirely on the statements of the patient and in none is there corresponding roentgenographic or other convincing objective evidence of the improvement claimed or admitted by the patient.

Critical examination of the reports on the value of vitamin D in the treatment of chronic arthritis reveals little to warrant the belief that the beneficial effects claimed are specific. As suggested by the authors of one of the reports cited, a conservative attitude toward this means of therapy is desirable.

1 Karsner H. T. and Goldblatt Harry. Evaluation of Methods Used in Physical Therapy. J. A. M. A. 100 1495-1496 (May 13) 1933.

2 (a) Drejer J. The Treatment of Arthritis with Massive Doses of Vitamin D, *Arch. Phys. Therapy* 16 537-540 (Sept.) 1935. (b) Vrbak E. G. and Lang R. S. Observations on the Treatment of Chronic Arthritis with Vitamin D, J. A. M. A. 106 1162-1163 (April 4) 1936. (c) Wyatt B. L., Hicks R. A. and Thompson H. E. Massive Doses of Vitamin D in the Treatment of Proliferative Arthritis. *Ann. Int. Med.* 10 534 (Oct.) 1936.

3 Wyatt B. L., Hicks R. A. and Thompson H. E. Vaccine Therapy of Chronic Arthritis. *Southwest Med.* 20 287 (Aug.) 1936.

The Council, after consideration of the consultant's report and of the available information concerning Ertron and Con-Dol, declared these products unacceptable for inclusion in New and Nonofficial Remedies for lack of evidence for their claimed therapeutic value, and deprecates the unwarranted exploitation of these products to the medical profession

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION

PAUL NICHOLAS LEECH Secretary

MERCURIN—A mixture of 20 per cent of the β -methoxy- γ -hydroxymercuri-propylamide of trimethyl cyclopentane dicar-

boxylic acid $\text{C}(\text{CH}_3)_2\text{C}(\text{CH}_3)\text{COOHCHCHCHCONHCHCHCHCH}_2\text{CHHgOH}$ and 80 per cent of its sodium salt. Mercurin is a complex synthetic mercurial containing about 40 per cent of mercury prepared from d camphoric acid and a racemic substituted propylamide

Actions and Uses—Mercurin is proposed for use as a diuretic to be administered rectally. Its potency is comparable to that of parenterally administered mercurial diuretics. It is well tolerated. It is contraindicated in advanced chronic nephritis and acute renal disease and should be used with caution in the presence of diarrhea, enterocolitis and hemorrhoids or other rectal disorders. It probably acts as a mild renal irritant.

Dosage—Mercurin is supplied in the form of cocoa butter suppositories, each containing 0.5 Gm of mercurin, to be administered rectally in the morning, repeated at three to five day intervals as required by each individual case.

Manufactured by Chino Chemical and Pharmaceutical Works Ltd. Budapest Hungary (Campbell Products Inc. New York distributor). U. S. patent applied for U. S. trademark 338 989.

Mercurin Suppositories 0.5 Gm

Mercurin occurs as a white odorless bitter tasting noncrystalline powder that is very slightly soluble in water, soluble in alcohol and insoluble in ether. An aqueous solution has a pH of about 7.8. Suspend about 1 Gm of mercurin in 10 cc of water, add 30 cc of 2 normal acetic acid and 1.5 Gm of ammonium chloride, heat on the water bath and bubble hydrogen sulfide through the solution until no more precipitate is formed, filter while hot and place the filtrate in the refrigerator for twelve hours, filter and wash the crystals with a little cold water and dry at 75°C. The precipitate with hydrogen sulfide indicates the presence of mercury; the crystals melt at from 157.5 to 158.5°C and are identified as trimethyl cyclopentane dicarboxylic acid monoallylamide. Transfer about 1 Gm of mercurin accurately weighed to a 25 cc standard flask, add 1 cc of sodium hydroxide solution, fill to the mark with water, observe the rotation of the resulting solution within thirty minutes in a layer 200 mm thick at 25°C using the D line of sodium. $[\alpha]_D^{25}$ is not less than 9.5 nor more than 10.5.

Saturate with hydrogen sulfide 5 cc of the solution prepared for observing the rotation, no precipitate forms and no coloration results (Heavy metals—especially mercuric ions). Dissolve 0.1 Gm in 5 cc of water, add 1 cc of diluted nitric acid, filter through paper and divide the filtrate into two portions, to one portion add 1 cc of silver nitrate solution, no more than a slight opalescence results (chlorides); to the other portion add 1 cc of barium nitrate solution, no turbidity results (sulfates). When tested for arsenic according to the U. S. Pharmacopeia X, the product meets the requirements for arsenic (p. 428 Arsenic Test).

Transfer about 0.5 Gm of mercurin accurately weighed to a wide mouth weighing bottle and dry to constant weight in an oven at 80°C. The loss in weight is not less than 6.5 per cent nor more than 7.5 per cent. Determine nitrogen by the micro Dumas method; the nitrogen is not less than 2.75 per cent nor more than 2.80 per cent when calculated to the dried substance. Transfer an accurately weighed specimen of the original to a platinum dish and ash in the presence of sulfuric acid, ignite to constant weight in a muffle furnace at 900°C. The residue calculated as sodium sulfate is equivalent to not less than 4.20 per cent nor more than 4.70 per cent sodium when calculated to the dried substance. Transfer about 0.3 Gm of mercurin accurately weighed to a large platinum dish, add 15 cc of a solution of sodium sulfide (made by dissolving 50 Gm of crystallized sodium sulfide to make 100 cc of solution) and sufficient water to nearly fill the dish, electrolyze at 5 volts for eighteen hours, siphon off the solution while adding water until the ammeter shows that no current is flowing, break the circuit, wash the mercury deposit with alcohol and ether, dry for a few minutes in a warm place and then in a desiccator over sulfuric acid in which a beaker containing mercury has been placed, weigh the percentage of mercury is between 30.2 per cent and 40.2 per cent when calculated to the dry basis.

MERCURIN SUPPOSITORIES

Place a suppository in a beaker containing 150 cc of cold anhydrous ether. When disintegration is complete, transfer the undissolved material to a prepared gossamer crucible using the first filtrate as needed to complete the transfer, dry the crucible in an oven at 80°C, cool in a desiccator and weigh; the weight of the insoluble material is not less than 0.47 Gm or more than 0.53 Gm and it meets the standards for mercurin.

Council on Foods

ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COUNCIL ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION AND WILL BE LISTED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED

FRANKLIN C. BING Secretary

STOKELY'S STRAINED LIVER SOUP

Manufacturer—Stokely Brothers & Company, Indianapolis

Description—Canned, strained liver soup to which is added potatoes, water, carrots, tomato juice, barley and rice flours, celery and salt. The natural minerals and vitamins have been largely retained.

Manufacture—Selected carrots and potatoes are washed, peeled, mixed with finely cut cleaned celery and strained in an atmosphere of steam. Fresh beef livers are cooked, cut and strained. Formula proportions of the ingredients are mixed, heated to 98°C without exposure to air and filled into enamel-lined cans, which are sealed and processed for sixty-five minutes at 116°C.

Analysis (submitted by manufacturer)—Moisture 84.3%, total solids 15.7%, ash 2.3%, sodium chloride (NaCl) 1.8%, fat (ether extract) 0.5%, protein (N \times 6.25) 3.8%, crude fiber 0.9%, carbohydrates other than crude fiber (by difference) 8.2%, reducing sugar as dextrose 1.2%, sucrose 0.6%, total acidity as maleic acid none, alkalinity of ash, cc normal acid/Gm 2.3, pH 5.5.

Calories—0.53 per gram, 15 per ounce

Vitamins—The natural vitamin content is retained in large measure in the manufacturing process by the use of equipment and procedure that exclude incorporation of air; the vegetable material is exposed to steam only.

Claims of Manufacturer—A supplementary food for infants, seasoned to bring out full flavor and packed in enamel-lined cans, useful in the feeding of children and adults on soft diets, because of smooth consistency and bulk without roughness. Retains in high degree the natural flavor, mineral and vitamin values of the raw products. Requires only warming for serving.

(1) SEXTON BRAND HAWAIIAN PINEAPPLE CRUSHED, JUICE PACKED

(2) SEXTON BRAND HAWAIIAN PINEAPPLE SLICED, JUICE PACKED

Distributor—John Sexton & Company, Chicago

Packer—Alexander & Baldwin, Ltd., Honolulu, Hawaii

Description—(1) Crushed pineapple packed in juice. (2) Sliced pineapple packed in juice.

Manufacture—Essentially the same as Hawaiian Cross Brand Hawaiian Pineapple (THE JOURNAL, April 13, 1935, p. 1331, and June 8, 1935, p. 2097).

Analyses (submitted by manufacturer)—(Analyses of entire contents, including liquid)

	(1)	(2)
Moisture	83.1%	83.7%
Total solids	16.9	16.3
Ash	0.3	0.4
Fat (ether extract)	trace	trace
Protein (N \times 6.25)	0.6	0.4
Crude fiber	0.4	0.3
Carbohydrates other than crude fiber (by difference)	15.6	15.2

Calories—(1) 0.64 per gram, 18 per ounce, (2) 0.62 per gram, 18 per ounce

Claims of Manufacturer—For diets in which sweetened fruit is proscribed.

GLENDORA BRAND TOMATO JUICE

Distributor—Glendora Products Company, Warren, Pa.

Packer—North East Preserving Works, Inc., North East, Pa.

Description—Tomato juice containing in high degree the natural vitamin values. Seasoned with salt. The same as North East Brand Tomato Juice (THE JOURNAL, Feb. 20, 1937, p. 641).

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SATURDAY, JULY 10, 1937

THE CLINICIAN AND THE SEROLOGIC TEST FOR SYPHILIS

The results of the two studies of the American Committee on Evaluation of Serodiagnostic Tests for Syphilis suggest certain definite alterations in American medical practice. The proper person to interpret serologic results is not the serologist, who is usually not in contact with the patient. The clinician can fit laboratory data with history and physical appearances. The serologist can report only the objective result of a physicochemical test, the clinician must determine what that result means.

Every clinician who uses the serologic tests for syphilis should assure himself that (a) the laboratory employed is under the direction of a competently trained serologist, that (b) intralaboratory check of the accuracy of the test in common use is constantly maintained by the performance of another test of approximately equal specificity and sensitivity, e g, a complement fixation test is checked by a flocculation test or vice versa, or a flocculation test checked by a different flocculation test, that (c) interlaboratory checks of the accuracy of the tests employed are periodically carried out by the exchange of specimens with a different laboratory, and that, (d) most important of all, the accuracy of the laboratory is constantly checked against the known clinical diagnoses of the patients from whom specimens are submitted. This implies a close association with a large syphilis clinic.

The ideal serologic test for syphilis is one that is completely specific (which gives no false positive or false doubtful results in known nonsyphilitic persons). There is no such test. The results of the two American serologic conferences show, however, that a satisfactory test in this respect must give less than 1 per cent of such false positive results and that only three tests in common use in this country—the Kolmer complement fixation test and the Kahn and Kline diagnostic (not the Kahn presumptive or Kline exclusion tests)—qualify under this requirement. Two other flocculation tests, the Eagle and the Hinton, may also qualify after further trial.

All other tests examined in the serologic conferences and in common use in America except the three (or five) named are unsatisfactory from the standpoint of specificity and should not be used by the average diagnostic laboratory. Even with these named tests the clinician must remember that a false positive (or false doubtful) result may be obtained in about one patient out of a hundred tested, and he must be on his guard against diagnosing syphilis when it is not present and instituting treatment that is not needed.

The ideal serologic test is one that is so sensitive as always to detect syphilis when it is present. There is no such test. To the clinician, moreover, specificity is more important than sensitivity. He must remember that, in the laboratory, sensitivity is usually gained at the expense of specificity as any test is adjusted to give the highest possible proportion of positive results in known syphilitic patients there is a hand in hand increase in the proportion of false positive results in nonsyphilitic patients. However, the five tests named in the preceding paragraph—Kolmer, Kahn and Kline diagnostic, Eagle and Hinton—compare favorably with any known tests as to sensitivity in that they are successful in detecting from 70 to 90 per cent of positive and doubtful results in a known syphilitic population (treated and untreated). The percentage sensitivity in the hands of the originators of these tests is: Kolmer 72.6, Kahn diagnostic 82.3, Eagle 82.6, Kline diagnostic 86 and Hinton 90.

The archaic and confusing system of reporting by plus marks is so confusing that its abandonment has begun to be frequently suggested. Many nonsyphilitic patients have been treated for syphilis on the basis that a test reported as "one plus" means positive, when as a matter of fact it may not mean any such thing. For the plus marks the words "positive," "doubtful" and "negative" should be substituted without qualifying symbols or adjectives.

Many laboratories still perform a complement fixation test with several antigens, e g, plain alcoholic, cholesterinized or acetone insoluble, or check a complement fixation with a flocculation test or one flocculation test with another. While this type of multiple testing is desirable for intralaboratory check, the reporting of such multiple results to the clinician is often confusing. When a blood specimen gives a negative result with, for example, the Kolmer test but a positive result with the Kahn, this signifies only (a) that the patient has but a small quantity of reagin in his blood and (b) that the Kahn test is more sensitive than the Kolmer. The same thing applies to different antigens in the complement fixation test.

If the history is positive and physical signs are present, a single positive test may be accepted. If these are absent, the positive result must always be verified by a repeat test in the same or a different laboratory before the patient is told of the diagnosis or treatment started.

This is in order to guard against the possibility of false positive results in nonsyphilitic persons, a chance ranging from 0.1 to 0.5 per cent even with the five tests named, and greater with other tests. The only other diseases or conditions that give a positive serologic test for syphilis are malaria (rarely), yaws, relapsing fever and leprosy (all frequently). In untreated syphilis the range of positivity of the five tests named is from 90 to 95 per cent in all stages of the infection.

Doubtful would mean that there had not been a definite result and that the test should be repeated. False doubtful results in nonsyphilitic persons are more frequent than false positive (from 0.1 to 1 per cent with the five tests enumerated, greater with others). However, a doubtful result may mean syphilis, especially if the patient has been previously treated.

If the tests are negative there is a 95 per cent chance that the patient does not have syphilis (in the absence of previous treatment), but a negative result does not exclude the diagnosis.

The clinician should possess certain minimum information as to the laboratory he employs, the accomplishments and limitations of the test that it uses, and the meaning of simple terms used in reporting. Without this knowledge he cannot expect to treat his syphilitic patients either scientifically or satisfactorily.

HAZARDS OF CONTAMINATED FRUITS AND VEGETABLES

Recently a case of acute lead poisoning as a result of the ingestion of apples from which spray residue had not been completely removed was reported.¹ Only a short time ago another investigator,² who has studied the problem of spray residues on foods extensively, expressed the belief that the potential danger from lead and, to a lesser extent, arsenic poisoning from contaminated fruits and vegetables has not been sufficiently emphasized. Ingested lead accumulates in the viscera and particularly in the bones and is gradually and continuously released. The continued presence and circulation of small amounts of lead throughout the organism may eventually impair health. The onset of symptoms, such as loss of appetite, malaise, loss of body weight, weakness, fatigue on exertion, anemia, gastrointestinal disturbances, pains in the joints and later paralysis, may be so insidious that chronic poisoning by lead-contaminated foods is not at first suspected.

Analyses of cabbage procured from a public market in the southeastern part of the United States showed an arsenic content of from 0.02 to 0.45 grain and of lead from 0.09 to 1.24 grains per pound. From 1 to 2 grains of arsenic may be toxic or even fatal to an adult. It is thus evident that a pound of these par-

ticular cabbages contained from one fourth to one half of a toxic or fatal dose of this element alone. In addition, the amounts of lead present were by no means small. Similar degrees of contamination were found in certain other foods, such as fresh apples, apple pomace, and cauliflower.

The potential hazard from foods contaminated with lead from spray residues is not limited to man but may also affect domestic animals exposed to contaminated feeds, pastures and water supplies. Economic losses in live stock have been so large in some regions where spraying of fruit trees is common that some stock raisers have been obliged to give up their business. Domestic animals known to have been affected include turkeys fed on vegetation in sprayed apple orchards, and horses that have grazed on alfalfa grown between sprayed trees. Cases are also on record of poisoning of live stock from spray residue carried as "drift" to pastures from orchards that have been sprayed from airplanes. One valley in the Pacific Northwest has received as much as 7,000,000 pounds annually of lead arsenate for the past twenty years. Therefore perhaps 50,000 tons of lead arsenate has permanently contaminated the soil of this valley. Some assume that the spray residue is washed away by rains or is blown away by winds, but the evidence available at the present time indicates that this is not the case. Most of the lead arsenate is gradually taken up by the vegetation grown on that soil.

Satisfactory control rests largely on the producer of fruits and vegetables. As has been pointed out,³ stringent laws to control the lead and arsenic content of these foodstuffs intended for interstate commerce should be enacted. The producer should be compelled to remove spray residues as completely as possible, preferably by the hydrochloric acid rinse procedure,³ from the surface of apples and other deciduous fruits intended for intrastate commerce. He should not use the skins of sprayed fruits in the preparation of cider, vinegar, jelly, stock feed or other products. He should never use lead arsenate or other arsenical sprays on vegetables, such as cabbage, cauliflower, Brussels sprouts, broccoli, spinach, kale, celery and snap beans, which are consumed in their entirety. As an added precaution, the consumer should always wash thoroughly before using all fruits and vegetables that may have been exposed to metallic sprays. These measures are at best only palliative, and the only satisfactory permanent solution of the problem is the absolute elimination of dangerous substances as sprays. This, of course, would necessitate the perfection of other insecticides, harmless to man and to domestic animals. According to Hanzlik, "This is actually being done experimentally, and it is not too much to hope that practical success will soon be achieved."

¹ Spray Residues on Foods editorial J. A. M. A. 108:1178 (April 3) 1937.

² Hanzlik P. J. Health Hazards of Chemo-Enemies in Contaminated Foods. *Scient. Monthly* 44:435 (May) 1937.

³ United States Department of Agriculture Farmer's Bulletin 1752 August 1935.

SEX HORMONES AND TUBERCULOSIS

Clinicians of fifty years ago often noted improvement in the symptoms of pulmonary tuberculosis during pregnancy. Some even went so far as to recommend pregnancy as a therapeutic device for tuberculous girls. The alleged beneficial effects of pregnancy in tuberculosis have been tested on laboratory animals. Jameson,¹ Muller, Burke and Bogen, and others report that in their hands pregnancy has had a favorable action in tuberculous guinea-pigs. Other investigators, however, deny this but agree that pregnancy has little or no injurious effects in tuberculous animals.

Since changes in endocrine balance are prominent features of pregnancy, Steinbach and Klein² of the Josiah Macy Jr. Foundation, Columbia University, have tested the possible therapeutic effects of commercially available sex-endocrine products on tuberculous rabbits and guinea-pigs. The preparations thus far tested by them include (1) blood serum of four month pregnant mares, (2) two gonadotropic extracts of human pregnancy urine, (3) anterior pituitary extract and (4) an estrogenic placental extract. While the questionable therapeutic effects observed by them would not at the present time justify clinical trial of these preparations, their experimental method and results are of interest.

These investigators injected male and female rabbits and guinea-pigs subcutaneously with carefully standardized doses of bovine tubercle bacilli. Endocrine therapy was begun on the day of the injection and continued daily (except Sunday) for from six weeks to four months. At varying intervals after the infection, one or more treated animals and an equal number of untreated controls were killed. The severity of the tuberculous infection was estimated from the number, nature and distribution of the lesions in the lungs, kidney, liver, spleen and lymph glands. In groups of tuberculous rabbits and guinea-pigs treated with anterior pituitary extract or with the estrogenic preparation the severity was practically the same as in the controls. Rabbits and guinea-pigs treated with pregnant mare serum or with one of the gonadotropic extracts of pregnancy urine (follutein), however, showed apparently significant therapeutic effects. The most encouraging results, however, were noted in animals treated with a second gonadotropic preparation (antuitrin-S), estimated as about a third of the severity in the untreated controls. Several animals treated with antuitrin-S were without macroscopically demonstrable tuberculous lesions, although a minute focus in a single lymph gland would be found on microscopic examination. Studies of the effects of castration are now in progress in the New York laboratories, to determine whether or not gonadotropic substance acts independently on

the reticulo-endothelial defenses or indirectly through stimulation of the sex glands.

Interesting as these borderline results are from a purely theoretical point of view, there is as yet no convincing evidence that gonadotropic therapy can be of benefit to the tuberculous patient. Until curative rather than apparently prophylactic effects can be demonstrated for tuberculous animals, clinical trial will not seem to be justified.

Current Comment

PHYSIQUE OF YOUNG MEN DURING UNEMPLOYMENT

The effect of unemployment on health is difficult to assess. It must be disassociated from other factors such as malnutrition and original physique (which may have had something to do with the unemployment) and many others. In spite of these difficulties an attempt has recently been made by McKinlay and Walker¹ to estimate the effect of unemployment on the physique. In the course of their routine duties as medical referees they examined a number of unemployed men with a view to gaging their suitability for reception into training centers organized by the Ministry of Labor. Early in this work it became apparent that the collection and analysis of actual measurements of certain physical and physiologic features indicative of the state of nutrition and physical fitness would provide the most satisfactory evidence on which to base conclusions. They consequently set out to determine the differences between men in and out of employment in respect to body weight and height. For this purpose they utilized the records of a consecutive series of 771 unemployed men, the majority of whom had been out of work for prolonged periods. The investigators attempted to eliminate as many of the disturbing factors as possible and were thoroughly cognizant of the inexactitude of their conclusions. The comparisons of the employed and unemployed men from Glasgow and the west of Scotland showed, however, that the unemployed were neither so tall nor so heavy as the employed at the several ages between 18 and 46 years. The deficit was relatively and absolutely greater among the older than among the younger men. Whether these differences were the result of the selective action of unemployment or the different occupational composition of the two groups or of both these factors was not clear. That it is not an adverse effect of unemployment was suggested, however, by the fact that height was as much affected as body weight. When allowance was made for the observed differences in height, the body weight of unemployed men as a whole was not inferior to that of the corresponding group of the employed. From these inquiries, together with the results of an analysis of a fairly extensive but not yet published

¹ Jameson E. M. *Gynecological and Obstetrical Tuberculosis* Philadelphia Lea & Febiger 1935

² Steinbach, M. M. and Klein S. J. *J. Exper. Med.* 65: 205 (Feb) 1937

¹ McKinlay P. L. and Walker A. B. *A Note on the Physique of Young Adult Males During Unemployment* Glasgow M. J. 8: 313 (Dec) 1936

series of hemoglobin readings, they concluded that the nutritional state of this section of the unemployed population is not at present a cause for more serious concern than is that of employed men of comparable status. The major differences with respect to physical efficiency as revealed in the report by Cathcart and his collaborators suggest the probability of deterioration in other directions and emphasize the importance of extending investigations along numerous lines to other sections of the unemployed and their dependents.

REVISED SHIP QUARANTINE REGULATIONS

February 1, for the first time since the institution of the federal system of maritime quarantine, qualified commercial vessels legally entered a United States port without halting for quarantine inspection.¹ The new ruling allowing this is called "pratique." A wireless message certifying as to the state of health on board the incoming vessel is required, and hence the term "radio pratique" has been adopted to describe the procedure. Although the principle is not new, its application to commercial vessels is new. Only passenger vessels were ever considered for "radio pratique." It has been necessary to investigate world health conditions and, specifically, the eligibility of foreign ports or geographic areas from the standpoint of their sanitary conditions. The qualifications and abilities of all the regularly employed ship's physicians were also investigated. To be eligible, all ships must conform to the following requirements. They must engage principally in the carrying of passengers, the "rat-attractive" and "rat-harboring" items of cargo must be limited to 25 per cent of its dead weight cargo carrying capacity, they must be on regularly scheduled service between New York and certain designated ports, a whole time physician employee of the vessel must be carried as a regular member of the crew, they must visit no port in which a quarantizable disease is known or suspected to have occurred in epidemic proportions within sixty days preceding the visit, no commercial shipments of birds of the parrot family may be carried, and relative freedom from rats must be satisfactorily maintained. A further safeguard is provided by the fact that the medical officer of the Public Health Service who boards the incoming vessel before it reaches the dock himself inspects all persons reported ill by the ship's physician. If no questionable disease is found, the ship may proceed directly to its dock without quarantine inspection. From February 1 to March 26, a period of fifty-four days, a total of 127 vessels had availed themselves of the privilege of "radio pratique." A total of seventy-six different ships of 822,308 net tons belonging to eighteen steamship companies under nine flags were thus passed. These ships carried 42,438 passengers and 48,973 crew members. If this system proves adequate, enormous saving in time and expense will result for the government, passengers and ship owners alike.

¹ Akin, C. V. Radio Pratique. Pub. Health Rep. 52: 507 (April 23) 1937.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

CALIFORNIA

Dinner to Sir Henry and Lady Brackenbury—The San Francisco County Medical Society will sponsor a dinner in honor of Sir Henry and Lady Brackenbury, London, August 14 in San Francisco. Sir Henry is a vice president of the British Medical Association, former chairman of its council and a member of the General Medical Council. He and his wife are en route to a medical meeting in New Zealand at which Sir Henry will represent the British association.

Library Given to University—The medical library of the late Dr. Charles Brooks Brigham, a member of the faculty of the University of California Medical School, San Francisco, for several years, has been given to the university. The collection is said to be a fairly complete history of the progress of medicine in the last three quarters of the nineteenth century. According to the University Clip Sheet, Dr. Brigham is remembered as the physician who in 1898 removed the stomach of a San Francisco woman, who lived seventeen years after the operation. Dr. Langley Porter, now dean of the university medical school, administered the anesthetic to the patient. Dr. Brigham died in 1903. The recent gift to the university includes among other things, the stomach and a description of the operation.

DELAWARE

Fifty Years of Practice—Dr. Robert B. Hopkins, Milton, was guest of honor at a dinner, June 17, given by the Sussex County Medical Society at the Rehoboth Beach Country Club to celebrate his completion of fifty years in the practice of medicine. Dr. John Cooke Hirst, Philadelphia, was the principal speaker. Dr. Hopkins graduated at Jefferson Medical College in 1887. He is 72 years of age.

FLORIDA

New Director of Vital Statistics—Dr. Edward M. L'Engle, Jacksonville, formerly a member of the state board of health, has been appointed registrar of the bureau of vital statistics of the board, succeeding Stewart G. Thompson, Dr. P. H., who resigned to become full time executive secretary of the state medical association. Dr. L'Engle graduated at Johns Hopkins University School of Medicine, Baltimore, in 1902. He is not in practice.

Society News—Dr. Edward Jelks, Jacksonville, president of the Florida Medical Association, addressed the golden jubilee meeting of the Florida State Pharmaceutical Association in St. Petersburg, May 18. At a meeting of the De Soto-Hardee-Highlands County Medical Society in Wauchula, May 11, Dr. Nathaniel L. Spengler, Tampa, spoke on "The Economic Status of Medicine." A symposium on arthritis was presented before the Duval County Medical Society at its June meeting; the participants were Drs. William C. Blake, Tampa; Spencer A. Folsom, Orlando; and Arthur H. Weiland, Coral Gables. The Leon-Gadsden-Liberty-Wakulla-Jefferson County Medical Society was addressed at Chattahoochee, recently, by Drs. Julius C. Davis, Quincy, on intestinal obstruction; James G. Lyerly, Jacksonville, acute craniocerebral injuries; Henry E. Palmer, Tallahassee, venereal diseases; and William D. Rogers, Jr., Chattahoochee, amebiasis. Dr. William C. Blake, Tampa, was elected president of the Florida Tuberculosis Association at its recent annual meeting.

GEORGIA

Chattahoochee Valley Meeting—The thirty-seventh annual meeting of the Chattahoochee Valley Medical Association will be held at Radium Springs, Albany, July 13-14. Dr. Julian Deryl Hart, professor of surgery, Duke University School of Medicine, Durham, N. C., will be the guest speaker, and Dr. Charles W. Roberts, Atlanta, will deliver the W. J. Love Memorial Lecture.

Personal—Dr. Glenn J. Bridges, Atlanta, has been appointed health officer of Jenkins County, succeeding Dr. Hugh B. Senn, Millen, resigned. Dr. Thomas B. Phinizy, Augusta, who has been acting commissioner of public health of Richmond County for the past year, has been appointed commissioner, effective July 15, when he will have completed five years as health officer in compliance with the state law.

ILLINOIS

Hospital News—A new four story wing to the Moline City Hospital, costing about \$256,000, was dedicated May 10. The new addition provides four operating rooms, two delivery rooms and accommodations for forty patients, giving the institution a total capacity of 170 beds.

Personal—Dr and Mrs Thomas A McTaggart, Pawnee, observed their fiftieth wedding anniversary, June 22.—Dr Julius B Stokes, assistant medical director of the Ottawa Tuberculosis Sanatorium, Ottawa, has been appointed medical superintendent of the Livingston County Tuberculosis Sanatorium, succeeding Dr Donald W Tripodi, Pontiac, resigned.

Clinic for Physically Handicapped Children—The newly created state division for physically handicapped children, state department of public welfare, held its first clinic in Shelbyville, June 25. Of seventy children of Shelby and adjacent counties who were examined, 60 per cent were under 10 years of age and about 80 per cent of them have been attending school despite severe handicaps, resulting from infantile paralysis, spastic paralysis and congenital deformities, among other conditions. No tuberculosis was found. Children in need of hospital care will be assigned to the Macon County Hospital, Decatur, and to St John's Sanitarium, Riverton, it was stated. Other clinics are planned as a part of the department's program, which is financed by a state appropriation of \$120,000 and a similar one from the federal government.

Chicago

Hospital News—The name of the Chicago Fresh Air Hospital has been changed to the Birchwood Park Sanitarium. The policy of the hospital has also been changed to permit physicians in private practice to send their patients to the hospital for personal treatment. Founded in 1909 as a tuberculosis hospital, the sanatorium has gradually changed during the past few years and now takes patients suffering from nervous disorders, heart disease and mild mental disease, aged and infirm persons requiring nursing care or rest, and diet cases. The name was changed to avoid confusion between the present policy and its original purpose.

Polish Meeting at State Hospital—The Chicago State Hospital was host to the Polish Medical Society of Chicago, June 16. Dr Edward F Dombrowski, managing officer of the hospital, gave the address of welcome and the following staff members presented papers:

- Dr Milton M Scheffler Malignant Endocarditis
- Dr Jacob V Edlin The Value of Vitamin B in Korsakow's Syndrome for Polyneuritis
- Dr Ola A Kibler The Follow Up Treatment in Cases of Syphilitic Meningo-Encephalitis Ten Years After Malaria Has Been Induced
- Dr Hyman H Goldstein Induced Hyperinsulinism

Dr Dombrowski also reported on the treatment of schizophrenia by insulin shock and the symptomatology of induced hyperinsulinism.

Dr Reed Honored—Dr Charles B Reed was guest of honor at a dinner at the Union League Club, June 23, given by the staff of Wesley Memorial Hospital and other friends to celebrate his completion of fifty years in the practice of medicine. Dr Philip H Kreuscher presided. Speakers at the dinner, at which a testimonial volume was presented to Dr Reed, included Dr Irving S Cutter, dean, Northwestern University Medical School, Mr F J Thielbar, president of the board of trustees, Wesley Hospital, Dr Robert B Blue, chief of staff at the hospital, Paul Fesler, superintendent, Rev John De Lacy and Dr Charles E Humiston Chicago, Dr Frederick G Novy, Ann Arbor Mich, and Dr Charles A Armstrong, Prairie du Chien Wis, a classmate of Dr Reed. Other classmates attended Drs Frederick E Vance, Eddyville, Iowa, Myrwood T Dixon, Columbus, Ohio, William H Cantwell, Shawano, and Henry G Ohls, Chicago. Dr Reed, who is associate professor of obstetrics at Northwestern, served as president of the Chicago Medical Society, 1929-1930, and as president of the Illinois State Medical Society, 1935-1936. He graduated from Rush Medical College in 1887.

INDIANA

Meeting of Laboratory Technicians—The Indiana Society of Clinical Laboratory Technicians held its annual meeting in Indianapolis, June 18-19. The speakers included Dr Clyde G Culbertson, on hematology, Rolla Neil Harger, Ph D, chemistry, and Dr Gerald F Kempf, bacteriology. At the annual banquet, Saturday evening, Dr Louis H Segar was the principal speaker.

Society News—The Grant County Medical Society was addressed at Marion, May 27, by Dr Bert E Ellis, Indianapolis, on "Treatment of Diseases and Fractures of the Nasal Accessory Sinuses".—At a meeting of the Hendricks County

Medical Society in Danville, May 27, Dr Bennett Kraft, Indianapolis, spoke on the allergic diseases.—A round table discussion on the treatment of syphilis was presented before the Orange County Medical Society in Orleans, June 2.—Dr Robert J Hawkins, Chicago, gave a paper before the Porter County Medical Society in Valparaiso, May 25, entitled "Eclampsia, Placenta Praevia, Disproportions".—Dr Eshe Asbury, Cincinnati, addressed the Dearborn Ohio County Medical Society in Lawrenceburg, June 3, on "Intracapsular Fractures of Femur".—The Wayne-Union Counties Medical Society was addressed in Liberty, June 10, by Dr Clyde Clark, son Payne, Dayton, Ohio, on "Physical Defects in School Children".—Dr Edward C Rosenow, Rochester, Minn., addressed the Muncie Academy of Medicine, May 11, on "Focal Infection and Elective Localization, A Review and Newer Findings".

KANSAS

Personal—Dr Claud E Hardin, Oswego, has been appointed health officer of Labette County, succeeding Dr Onnie E Stevenson, who has resigned to become assistant superintendent of the state hospital at Parsons. Dr Stevenson had been health officer twelve years.—Dr Leo V Turgeon, Wilson, has been appointed a member of the state board of administration.—Dr Clyde W Miller has been appointed superintendent of the Sedgwick County Hospital at Wichita.

Society News—At a meeting of the Clay County Medical Society in Clay Center, May 19, Dr Lloyd O E Pecken schneider, Halstead, discussed pathologic chest conditions.—The Ford County Medical Society was addressed, May 14, by Drs Christian A Hellwig and Vern L Pauley, Wichita, on "Colloid or Toxic Gorter" and "Classification of Gorter" respectively.—At a meeting of the Meade-Seward County Medical Society in Liberal, May 7, Drs Jefferson R Lemmon and James W Hendrick, both of Amarillo, Texas, discussed "Pylorospasm" and "Pelvic Pains" respectively.—Dr Norman Reider Topeka, addressed the Pratt County Medical Society in Pratt May 28, on "Brain Tumor" and Dr Warren F Bernstorff, Winfield, "Value and Indications for Sedimentation Test".—The Wyandotte County Medical Society was addressed in Kansas City, May 18, by Drs Ward W Summer ville on "Bronchogenic Carcinoma" and Galen M Tice, "Radiology of Bronchogenic Carcinoma".

LOUISIANA

Personal—Dr Benjamin Freedman, New Orleans, has been appointed in charge of the Washington Parish Health Unit. Dr Virginia E Webb, who was temporarily in charge of the unit, has returned to her work in the maternal and child health unit in New Orleans, it is reported.

New Tuberculosis Hospital—The dedication of the new G B Cooley Sanatorium at White's Ferry, near Monroe, took place in June. The WPA supplied most of the funds for the sanatorium, which cost \$121,000. One unit will care for twenty two white patients, while a second unit will accommodate twenty-six Negro patients. The sanatorium occupies a 26 acre site bought with Christmas seal funds and is named after Mr G B Cooley, president of the Ouachita Tuberculosis and Public Health Association.

MARYLAND

Dr Gregersen Goes to Columbia—Magnus I Gregersen, Ph D, professor of physiology, University of Maryland School of Medicine, Baltimore, has been appointed professor and head of the department of physiology at Columbia University College of Physicians and Surgeons, New York, succeeding Dr Horatio B Williams, who resigned a year ago. Walter S Root, Ph D, associate professor of physiology at Maryland, will also join the Columbia faculty as associate professor of physiology. In 1930 Dr Gregersen received his degree of doctor of philosophy at Harvard, where he taught for several years in the department of physiology.

Dr Ford Retires as Professor of Bacteriology—The retirement of Dr William Webber Ford as professor of bacteriology in Johns Hopkins University School of Hygiene and Public Health, Baltimore, is announced in *Science*. As a memento of the occasion a collection of rare or unusual books in bacteriology and mycology will be presented to him by former students and associates. Dr Ford was born in Norwalk, Ohio, in 1871. Graduating from Johns Hopkins University School of Medicine in 1898, he joined its faculty in 1903 and served subsequently as instructor in bacteriology, associate in bacteriology and associate professor of hygiene and bacteriology and lecturer in legal medicine. He has held the professorship at the School of Hygiene and Public Health since 1917.

MASSACHUSETTS

The Five Year Study of Pneumonia—A final report of the five year survey of pneumonia in Massachusetts has been completed. The study was financed by the Commonwealth Fund and carried out under the auspices of the Massachusetts Department of Public Health. Epidemiologic studies revealed for the first time that of all the types only type I and type II have special epidemiologic significance. Type I was found twenty times as prevalent in immediate family contacts of type I cases as in the population at large and type II ten times as prevalent. Investigation of cases showed that about 20 per cent of family contacts with type I or II cases became carriers of such types, while only about 2 per cent of hospital contacts became carriers. It was found that some factor in addition to contact alone was needed to determine the transfer of type I or II pneumococci from patients to contacts and this factor appeared to be the presence in such contacts of upper respiratory infections such as the common cold. A study of the incidence of all thirty-two types of pneumococci in the specimens sent for examination from patients with respiratory disease showed that, in nearly 10,000 such specimens examined, types I, III, VIII, II, V and VII, in this order, were the commonest and made up 67 per cent of all specimens containing pneumococci which could be typed. Data were gathered on the case fatality rates by types of 338 cases of lobar pneumonia cared for at home and of 367 others treated in hospitals. In none of these 705 cases was specific serum or vaccine administered. Records of 956 cases of lobar pneumonia treated with type I and II antiserum were obtained and analyzed. Of 504 type I cases treated within the first four days of illness only fifty-six, or 11.1 per cent, were fatal. Of 136 type II cases also treated early, thirty-seven, or 27.2 per cent, were fatal. It was estimated that the lives of eighty-nine patients were saved, proving that the early use of serum brought about a considerable reduction in the fatality rate of the treated cases. The report recommended the continuation of typing at the state bacteriologic laboratory for the thirty-two known types, permitting the month by month follow up of the various types of pneumococci in a large group of pneumonias and other respiratory infections. This is important in view of the fact that during the study types V, VII and VIII were the three commonest higher types found, and evidence is accumulating that specific serum is of value for the treatment of pneumonia caused by any one of these types. Of the \$172,000 allowed by the Commonwealth Fund to finance the study, \$143,107.39 was expended. For the first four years the study functioned through "collaborator areas." Thirty trained technicians in twenty-eight hospitals did the typing and seventy-eight physicians collaborated. In 1935 the system was reorganized to distribute serum to all physicians of the state who wished to use it. When the survey ended, sixty-six laboratories scattered throughout the state were prepared to carry out pneumococcus typing. During the study the Krumwiede, Sabin, tube agglutination, precipitin, urine, Rosenthal and Sternberg and Neufeld methods of typing were used experimentally, but subsequent results led to the decision that the Neufeld be adopted as a routine procedure and that in the future it would no longer be necessary to check the results of a Neufeld typing by other procedures when the results were positive. The results of the study represent the combined efforts of nearly 400 Massachusetts physicians located in ninety-eight towns, who treated 213 patients in their homes and 742 patients in eighty hospitals throughout the state. In one case, it was not stated where the patient was treated. The educational aspect of the program included the distribution of literature, graduate courses, lectures for local and national societies, and meetings on pneumonia in areas chosen for intensive work. Dr Roderick Heffron was field director of the survey, in which Dr Elliott S. Robinson, director of the antitoxin and vaccine laboratory of the state department of health, cooperated in the study, which aimed to evaluate serum under conditions of general practice and to develop plans for its distribution.

MINNESOTA

Dr Balfour Named Director of Mayo Foundation—Dr Donald C. Balfour, associate director, Mayo Foundation, Rochester, has been appointed director, effective July 1, to succeed Dr Louis B. Wilson, who has become director emeritus. Dr Balfour received the degree of bachelor of medicine at the University of Toronto Faculty of Medicine in 1906 and that of doctor of medicine in 1914. He has been practicing in Rochester since 1907. He is professor of surgery at the Graduate School, University of Minnesota, and in 1935 was president of the American College of Surgeons.

MISSOURI

New Executive Offices—Executive offices of the Jackson County Medical Society have been opened in rooms 623-628 in the Shukert Building, 1115 Grand Avenue, Kansas City. Floyd K. Helsby was recently appointed executive secretary of the society, with Winona McGovern as his assistant.

MONTANA

Dinner in Honor of Guest Speaker—The Silver Bow Medical Society gave a dinner in honor of Dr Frank S. Rossiter, Swissvale, Pa., May 20. Later Dr Rossiter addressed the society on the effects of carbon monoxide on human beings. Dr Samuel E. Schwartz, Butte, president of the society, presided at the dinner.

NEBRASKA

State Medical Election—Dr Homer Davis, Genoa, was chosen president-elect of the Nebraska State Medical Association at the annual meeting in Omaha, May 13, and Dr Roy W. Fouts, Omaha, was installed as president. Drs William E. Shook, Shubert, and George E. Charlton, Norfolk, were elected vice presidents and Dr Roy B. Adams, Lincoln, continues as secretary. The 1938 session will be held at Lincoln.

NEW JERSEY

Conference on Venereal Disease—A statewide conference on control of venereal disease was held in New Brunswick, May 18. At a noon meeting Drs Jesse Lynn Mahaffey, state director of health, Trenton, and Raymond A. Vonderlehr of the U. S. Public Health Service, Washington, D. C., made addresses. In the afternoon there were group discussions of various problems and demonstrations showing methods of handling venereal disease patients. At an evening session Charles-Edward A. Winslow, Dr. P. H., New Haven, Conn., spoke on "The Romance of Syphilis" and Charles Walter Clarke, director of the social hygiene division of the New York City Department of Health, on "Our Immediate Objectives."

NEW MEXICO

Personal—Dr Julian O. Long, formerly health officer of the eighth district, has been placed in charge of the third district, with headquarters in Albuquerque. Dr John W. Elder has been acting health officer while Dr Long completed a course in public health work at Johns Hopkins University.

NEW YORK

Tuberculosis Hospital Superintendent Appointed—Dr John K. Deegan, Albany, assistant superintendent for several months at the new Hermann M. Biggs Memorial Hospital, Ithaca, has been provisionally appointed superintendent. The hospital which was opened Oct. 1, 1936, is one of three state sanatoriums for tuberculosis. Dr Deegan, a graduate of Albany Medical College in 1927, has been on the staff of the division of tuberculosis, state department of health, since 1933. Prior to his association with the department he served on the staffs of various sanatoriums for tuberculosis in New York and Connecticut.

New York City

Society News—A symposium on pituitary basophilism was presented at a meeting of the New York Endocrinological Society, May 26, by Drs. Bernard S. Oppenheimer, Solomon Silver, Irving H. Pardee and Aaron S. Blumgarten.—Drs. Collier F. Martin and Walter Estell Lee, Philadelphia, addressed the Medical Society of the County of Kings, May 18, on "Lymphopathia Venerea."

Consultants on Cancer Research Appointed—Columbia University has recently appointed a "Consulting Board in Cancer Research" with the following members:

Edmund B. Wilson, LL.D., Da Costa professor emeritus of zoology, Columbia.
Thomas Hunt Morgan, Sc.D., chairman of the division of biology, William G. Kerckhoff laboratories of the Biological Sciences, California Institute of Technology, Pasadena, Calif.
Gary N. Calkins, Sc.D., professor of protozoology, Columbia.
Henry C. Sherman, Sc.D., Mitchell professor of chemistry, Columbia.
Marston T. Bogert, Sc.D., professor of organic chemistry, Columbia.
Paul M. Giesy, Ph.D., associate professor of chemistry, Newark College of Engineering, Newark, N. J.
Ernest O. Lawrence, Ph.D., professor of physics, University of California, Berkeley.
Bergen Davis, Sc.D., professor of physics, Columbia.
Dr. Eugene H. Pool, clinical professor of surgery, Columbia.
Dr. William J. Mayo, Rochester, Minn.
Dr. George H. Semken, consulting surgeon, Knickerbocker Hospital, New York.
George B. Pegram, Sc.D., professor of physics and dean of the faculties of political science, philosophy and pure science, Columbia.

NORTH CAROLINA

Personal—Dr Warren Dallas Carter, Wilmington, has been appointed health officer of Burke and Caldwell counties to supervise units recently established in the two counties—Dr Wyman P Starling, Clinton, has resigned as health officer of Sampson County to enter private practice—Dr Paul A Yoder, superintendent of the Forsyth County Sanatorium, Winston-Salem, was elected president of the North Carolina State Tuberculosis Association at its recent annual meeting in Southern Pines

PENNSYLVANIA

Society News—Dr Ralph L Hill, Wernersville, addressed the Berks County Medical Society, Reading, June 15, on "Psychiatric Problems of Interest to the General Practitioner"—Dr Joseph S Baird, Pittsburgh, recently addressed the Fayette County Medical Society, Uniontown, on "Treatment of Contagious Diseases in General Practice"

Pittsburgh

Society News—Dr Fred L Adair, Chicago, addressed the Pittsburgh Obstetrical and Gynecological Society, June 4, on "Uterine Prolapse and Colpocleisis" and conducted a dry clinic on intracranial fetal trauma

Medical Bureau Not Sponsored by Medical Society—In a news item in THE JOURNAL, June 26, page 2232, appeared the statement "The Medical Bureau of Pittsburgh, sponsored by the Allegheny County Medical Society and the Odontological Society of Western Pennsylvania, opened June 1" According to the secretary of the county medical society, the bureau is not sponsored by that organization

RHODE ISLAND

State Medical Meeting and Election—Dr Walter C Rocheleau, Woonsocket, was elected president of the Rhode Island Medical Society at the annual session in Providence June 3-4 Drs Edward S Brackett, Providence, and Charles H Holt, Pawtucket, were elected vice presidents The mornings were devoted to clinics at the Butler, Memorial, St Joseph's, Miriam and Rhode Island hospitals, afternoon and evening sessions were held at the Rhode Island Medical Library Speakers included

Dr John F Erdmann New York Surgical Curiosities and Rarities
Dr Rosco G Leland Chicago director Bureau of Medical Economics American Medical Association Is Medicine to Be Socialized?
Dr Dana W Atchley New York Observations on Mechanisms Producing Shock
Dr Charles W McClure Boston Affections of the Colon
Dr Gilbert Horrax Boston Diagnosis and Treatment of Trigeminal Neuralgia and Meniere's Disease
Dr Herman A Lawson Providence Practical Aspects of the Diagnosis and Treatment of Pernicious Anemia
Dr Jesse P Eddy, III Providence Experiences with Blood Transfusion at the Memorial Hospital

Drs Frank H Lahey and Lewis M Hurxthal, Boston, John F Kenney, Pawtucket, Frederic V Hussey, Guy W Wells, Isaac Gerber and Cecil C Dustin, Providence, participated in a round table discussion on disorders of the thyroid

SOUTH CAROLINA

Promotions at Medical College—At the commencement of the Medical College of the State of South Carolina, Charleston, in June, the following promotions in the faculty were announced

Drs John F Townsend and Josiah E Smith to be professors of ophthalmology, otology, rhinology and laryngology
Dr Robert Lane McCrady associate professor of gynecology and obstetrics
Dr Henry William de Saussure associate professor of obstetrics
Drs William Atmar Smith Joseph Henry Cannon John Julius La Roche Jr and Olin B Chamberlain associate professors of medicine
Dr Thomas Hutson Martin assistant professor of surgery
Dr Pierre Gautier Jenkins assistant professor of ophthalmology, otology, rhinology and laryngology

TENNESSEE

Society News—At a meeting of the Dyer, Lake and Crockett Counties Medical Society at Reelfoot Lake, June 2, the speakers were Drs Rudolph H Kampmeier, Nashville, on "Chronic Nontuberculous Pulmonary Disease", William David Stravhorn Jr, Nashville, "Management of Cardiac Patients", Peter Whitman Rowland Jr, Memphis, "Diagnosis and Treatment of Rheumatoid Arthritis", and James B McElroy, Memphis, "Diseases of the Kidney"—Dr John M Stockman, Knoxville, addressed the Knox County Medical Society, Knoxville, June 8, on "Injection Treatment of Hemorrhoids"—Among speakers before the Hardin, Lawrence, Lewis, Perry and Wayne Counties Medical Society, Savannah, May 25 were Drs Henry B Gotten, Memphis, on protamine insulin,

and Emmett R Hall, Memphis, treatment of syphilis—Dr Mack I Shanholtz, Bristol, Va, and Thomas B Yancey, Kingsport, addressed the Sullivan-Johnson Counties Medical Society, Kingsport, June 2, on congenital syphilis and bacillary dysentery, respectively—Dr Wallace L Poole addressed the Washington County Medical Society, Johnson City, on "Use of Antipneumococcic Serum"

VIRGINIA

Faculty Changes at University—Dr Claude C Coleman, professor of neurologic surgery at the Medical College of Virginia, Richmond, has been appointed clinical professor of neurologic surgery at the University of Virginia Medical Department, Charlottesville, and Dr William Gayle Crutchfield, assistant professor of neurologic surgery at the Richmond college, associate clinical professor of neurologic surgery at the university They will continue on the faculty at Richmond, according to a newspaper report Dr John Moyer Meredith, resident in surgery at the Medical College of Virginia, Hospital Division, has been made assistant clinical professor of neurologic surgery, and Dr Cuthbert Tunstall has been promoted to be assistant professor of diseases of the ear, nose and throat at the university

WASHINGTON

Personal—Dr John H O'Shea, Spokane, received the honorary degree of doctor of laws from Gonzaga University, Spokane, recently—Dr Alfred E Eyres, Walla Walla, has been appointed health officer for the city and county of Walla Walla

Seattle Paper Prints Medical Supplement—The Seattle Times published an eight page medical supplement May 23 in tribute "to the doctor and medical science" The project was sponsored by the Public Health League of Washington with the approval of the Washington State Medical Association and the King County Medical Society The supplement contains information about the county and state societies and Seattle hospitals, a sketch of medical history in the Northwest, reviews of health conditions in the city and state and numerous bits of health advice

WISCONSIN

New Health Officials Appointed—Dr Milton Trautmann, Prairie du Sac, has been appointed to take charge of a program for control of venereal disease to be carried on by the state board of health Dr Trautmann was designated some months ago and has spent the intervening period in a special course of study at Johns Hopkins University Dr Paul A Brehm, Milwaukee, has been placed in charge of an industrial hygiene program initiated under the terms of the social security act

Society News—At the final meeting for the season of the Medical Society of Milwaukee County, the guest speaker was Dr Dwight L Wilbur, Rochester, Minn, on "Recognition and Treatment of Vitamin Deficiency States", and Dr Hobart K B Allebach, Milwaukee, discussed "Urinalysis as a Diagnostic Aid" The Milwaukee Professional Men's Orchestra presented a program—Dr Harry E Kasten, Beloit, was elected president of the Wisconsin Urological Society at the annual meeting recently in Kenosha—Dr Sara G Geiger, Milwaukee, addressed the Milwaukee Neuro Psychiatric Society, May 27, on "The Treatment of Conduct Problems in Penal Institutions"

GENERAL

Society News—Dr William D Donohoe, Los Angeles, was elected president of the Pacific Coast Oto-Ophthalmological Society at its twenty-fifth annual convention in Salt Lake City, May 25 Drs Donald H O'Rourke, Denver, and Morton J Keys, Victoria, B C, were chosen vice presidents and Dr Clifford Allen Dickey, San Francisco, secretary Next year's meeting will be in Victoria

Officers of Specialty Advisory Board—At the annual meeting of the Advisory Board for Medical Specialties in Atlantic City, Dr Willard C Rappleye, New York, was elected president, Dr William P Wherry, Omaha, vice president and Dr Paul Titus, Pittsburgh, secretary Dr Louis B Wilson, Rochester, Minn, retiring president, was made a member emeritus Drs Walter B Lancaster, Boston, and Robin C Buerki, Madison, Wis, were made members of the executive committee

Research in Child Neurology—Dr Bernard Sachs, director of Child Neurology Research, an organization established by the Friedsam Foundation in 1936 to develop research in child neurology and allied fields, has presented the first annual

report to the officers. Twenty-two grants were made in the first year in three general groups: general diseases of the nervous system, with special reference to their development in early life, early neuroses and psychoses, and a special group concerned with social, personality and home problems. Names of the recipients were not announced. Among the subjects under investigation are epilepsy and convulsions of children, pyknopsy, electrophysiology of brain activity, encephalitis and hydrocephalus, relation of artificial fever and convulsions tissue permeability as a factor in convulsive states, brain tumors of childhood, mechanism of choked disk and its relation to optic neuritis, surgical procedures on the bones, muscles and peripheral nerves in spastic paralysis, mental changes following birth injuries, sex awareness and sex attitudes in children, maladjustments in normal school children arising from inability to learn to read by present educational methods, lipoids in multiple sclerosis, nervous regulation of growth and resistance of tissues to avitaminosis. It is planned to publish all work done under the auspices of the organization from year to year in special volumes.

Requests and Donations—The following bequests and donations have recently been announced:

Beth Israel Hospital New York \$5 000 by the will of David Epstein
Philadelphia Cancer Hospital \$1 000 from the estate of Mrs. Mary C. Vaughan

Methodist Episcopal Hospital Philadelphia \$25 000 by the will of Miss Sarah E. Simpson

Maternity Hospital Philadelphia \$15 000 and University Hospital Philadelphia \$5 000 to provide a prize each year for the nurse graduating at the head of her class by the will of Mrs. Letitia White widow of Dr. J. William White

Bloomsburg Hospital Bloomsburg Pa. \$10 000 and ultimately the bulk of a \$150 000 estate left by Dr. J. J. Brown and his sisters

Shriners Hospital for Crippled Children and Children's Hospital Philadelphia \$1 000 each Bryn Mawr Hospital Bryn Mawr Pa. and Chester Hospital Chester Pa. \$2 500 each and Crozer Hospital Chester \$1 000 by the will of the late Henry W. Roth

New York Post Graduate Medical School and Hospital one half the estate of the late Mrs. Mathilda Watson valued at more than \$100 000

Hospital for Joint Diseases New York \$10 000 by the will of the late Henry Dazian

The First Rocky Mountain Conference—A military hour to close each afternoon's program will be a feature of the first Rocky Mountain Medical Conference at Denver July 19-21. Addresses on "Defense Against Chemical Warfare," "Parasitology" and "Modern Trends in Aviation Medicine" will be presented by medical officers assigned to the conference from the eighth corps area, and reserve officers will receive credit for attendance. Speakers at the conference will include Dr. William C. Woodward, Director, Bureau of Legal Medicine and Legislation, American Medical Association, Chicago; on "Current and Prospective National Legislation Affecting Physicians" and Dr. Eldridge L. Eliason, Philadelphia. "The Surgical Significance of Indigestion" Dr. Thomas Parran, surgeon general U. S. Public Health Service will address a public meeting in the Denver Municipal Auditorium July 20, on "The Campaign Against Syphilis." He will also address the conference. Others on the program include:

Dr. Roscoe R. Spencer, U. S. Public Health Service, Washington, D. C.

Dr. Walter C. Alvarez, Rochester, Minn.

Dr. Walter E. Dandy, Baltimore

Drs. Julius H. Hess, Herman L. Kretschmer and Walter L. Palmer, Chicago

Dr. Hayes E. Martin, New York

Dr. William B. Carroll, Dallas

Dr. Leo G. Rigler, Minneapolis

Dr. Charles C. Dennis, Kansas City, Mo.

Dr. Gabriel Tucker, Philadelphia

Dr. Sterling Bunnell, San Francisco

Dr. Andrew J. Browning, Portland, Ore.

Dr. Earl C. Sage, Omaha

The conference is sponsored by the state medical societies of Colorado, New Mexico, Utah and Wyoming. There will be a registration fee of \$3.

The Golf Tournament at Atlantic City—One hundred and sixty-seven medical golfers from all parts of the United States and from the Hawaiian Islands played the beautiful Seaview Country Club course in Atlantic City on the occasion of the twenty-third annual tournament of the American Medical Golfing Association, Monday, June 7. Most of the entrants played thirty-six holes, with a swim in the club's salt water pool between the first and second rounds. Ideal weather was scored, and the record was broken by the lowest championship scores. The 129 trophies and prizes were awarded after the golfers' dinner at Seaview, presided over by Dr. William Albert Cook, Tulsa, Okla., president of the A. M. G. A. Dr. Walt P. Conaway, Atlantic City, was chairman of the local golf committee in charge of arrangements.

The championship was won by Dr. William J. Van Wie, Mount Vernon, N. Y., who turned in a 75-73-148 for the thirty-six holes. He received the famous Will Walter Trophy,

named in honor of the dean and organizer of the A. M. G. A., who now resides in Charlottesville, Va.

The Handicap Championship was won by Dr. Paul H. Shiffer, Stroudsburg, Pa., who bagged the Detroit Trophy, presented by the Detroit hosts in 1916. The Eighteen Hole Championship went to Dr. Clarence E. Moore, Harrisburg, Pa., with a sterling 73 for the first eighteen holes played. The Eighteen Hole Handicap Championship was awarded to Dr. W. Albert Cook, who won the Ben Thomas Trophy.

The Maturity Event, limited to Fellows over 60 years of age for the best net score on the first eighteen holes, was tied by Drs. Harry M. Schuffell, Canton, Ohio, and Jesse B. Sampsell, Van Wert, Ohio. On the toss, Dr. Schuffell won the Minneapolis Trophy. Dr. Sampsell was presented with the Hotel Dennis prize, the third prize went to Dr. George H. Fellman, Milwaukee, the fourth prize to Dr. Joseph F. Hawkins, Providence, R. I.

Dr. Walter D. Shelden of Rochester, Minn., president and also champion of the A. M. G. A. in 1928, won the Old Guard Championship awarded to past presidents, and received the Wendell Phillips Trophy. Dr. Charlton Wallace, New York, president in 1922, won second prize, and Dr. Edwin G. Zabriskie, New York, president in 1931, took third prize.

The Championship Flight low gross was won by Dr. Edmund B. Sullivan, Mount Vernon, N. Y., who secured the St. Louis Trophy. Other winners were Drs. Farrell T. Gallagher, Lakewood, Ohio, James Marek, Cleveland, and John A. Krosnoff, Bentleyville, Pa. The first net prize in this flight went to Dr. William R. Brewer, Altoona, Pa., who won the President's Trophy, a sterling silver pitcher presented by Dr. W. Albert Cook. Other winners were Drs. John H. Harris, New York, Stanley Q. West, Philadelphia, Clarence W. Hullinger, Springfield, Ohio, and William C. Warren, Atlanta, Ga.

The First Flight gross winners were Drs. James R. Chandler, Daytona Beach, Fla., David H. Houston, Seattle, Carl H. McCaskey, Indianapolis, and Tobias C. Shookers, Lancaster, Pa. First prize among the nets was won by Dr. Homer R. Mather, Latrobe, Pa. Other prize winners were Drs. Thomas A. Kyner, Kansas City, Harry V. Hubbard, Plainfield, N. J., Alonzo C. Smith, Wooster, Ohio, and Herman S. Zeve, Youngstown, Ohio.

The Second Flight gross winners were Drs. John F. Rogers, Poughkeepsie, N. Y., Waltman Walters, Rochester, Minn., Sobisca S. Hall, Clarksburg, W. Va., and George L. Bauman, Cleveland. Net prizes went to Drs. Joseph Halton, Sarasota, Fla., James C. Joyner, New York, Karl R. Ruddell, Indianapolis, and Alvin Hulnick, Staten Island, N. Y.

The Third Flight gross winners were Drs. Frank H. Lahcy, Boston, Nathaniel B. Stanton, Plainfield, N. J., Hugh A. Gestrung, Kansas City, and R. Donald Beck, New York. Net winners in this flight were Drs. John R. Fowler, Spencer, Mass., William McLean, New York, Joseph J. Labov, Elizabeth, N. J., Jacob M. Sutherland, Detroit, and Rial R. Oglevie, Kansas City.

Fourth Flight gross winners were Drs. Wilbur H. Haines, Philadelphia, Lyman W. Crossman, New York, Park A. Deckard, Harrisburg, Pa., and Walter J. Wilson, Detroit. Winners of the net prizes were Drs. Robert H. Ivy, Philadelphia, Lloyd W. Johnson, Pittsburgh, James G. Boyes, Plainfield, N. J., James N. O'Brien, Harrisburg, Pa., and Joseph E. Roberts Jr., Haddonfield, N. J.

Fifth Flight (net only) winners were Drs. George H. Fellman, Milwaukee, Sylvester E. Lentz, Leighton, Pa., Roy L. Langdon, Philadelphia, Bonnelle W. Rhamy, Fort Wayne, Ind., and Francis P. McCarthy, Boston.

The Blind Bogey, or Kickers' Handicap, was won by Dr. John C. Kenning of Detroit, who bagged the new Atlantic City Trophy, presented by the hosts of 1937—a sterling silver platter etched with the Atlantic City skyline. Winners of the other prizes were Drs. John S. Lewis Jr., Youngstown, Ohio, Edwin W. Grubb, Akron, Ohio, William C. Warren, Atlanta, John P. DeWitt, Canton, William R. Brewer, Altoona, Arch M. Paulson, Plainfield, N. J., John W. Shirer, Pittsburgh, Erastus S. Edgerton, Wichita, Kan., Byrl R. Kirklin, Rochester, Minn., Charles Falkowsky Jr., Scranton, Theodore M. Wille, Lakewood, Ohio, Lawrence O. Toomey, Bowling Green, Ky., Warren W. Quillian, Coral Gables, Fla., Joseph O. Collins, Waterbury, Conn., William P. Chalfant Jr., Ventnor, N. J., John L. Lattimore, Topeka, Kan., Frank M. Schrack, Pittsburgh, Louis B. Gloyne, Kansas City, Kan., Leonard G. Redding, Scranton, and Samuel D. Zuker, Toledo.

Dr. Walt P. Conaway of Atlantic City, who managed the tournaments of 1919, 1925 and 1935 in that city, was chosen by unanimous vote as president of the A. M. G. A. for the ensuing year. Dr. Erastus S. Edgerton, Wichita, was reelected first vice president, and Dr. George Washington Hall, Chicago,

was chosen second vice president Dr Cook of Tulsa, retiring president, was made a member of the board of directors The next meeting will be held in San Francisco at the time of the 1938 A M A annual session

CANADA

Dr Archibald Receives Bigelow Medal—Dr Edward W Archibald, professor of surgery and director of the department of surgery, McGill University Faculty of Medicine, Montreal, was presented with the Henry Jacob Bigelow Medal of the Boston Surgical Society, May 21, at the Boston Medical Library Dr William C Quinby, Boston, president of the society, made the presentation, and Dr Archibald spoke on "French Surgery in the First Half of the Nineteenth Century" Under the will of William Sturgis Bigelow, in memory of his father, a sum of money was presented to the society, "the income of which is to be used from time to time for the presentation of a gold medal to some outstanding surgeon for his work in the advancement of the science of surgery" Dr Archibald is 74 years of age He graduated at McGill in 1896

LATIN AMERICA

Law Requires Campaign Against Tuberculosis—A law was recently passed by the Colombian congress outlining an antituberculosis campaign and placing it under the direction of the National Department of Health, according to *Public Health Reports* The department is authorized, after a study of the problem, to provide antituberculosis vaccination To further the campaign, stamps will be issued and associations will be formed, and an appropriation of not less than 300,000 pesos is authorized annually for the next ten consecutive years Compulsory instruction in the prophylaxis of infectious diseases, especially tuberculosis, is to be required in the primary and secondary schools, and annual chest examinations of teachers in all schools and colleges is made compulsory, as well as of children where there is an official medical service

Government Services

Spotted Fever Vaccine

Spotted fever vaccine in sufficient quantities to vaccinate 1,387 persons has been supplied to the Rural Resettlement Administration by the Rocky Mountain Spotted Fever Laboratory, Hamilton, Mont, according to the *Health Officer* Vaccination is limited to persons living in zones having a high incidence of tick infestation in Montana, Oregon and Colorado

Health Education Activities

As a part of its studies in the evaluation of health department procedures, the division of public health methods of the U S Public Health Service plans to undertake studies of the health education activities of health departments, according to the *Health Officer* As a primary step, attention will be paid to the educational work of nurses and physicians in their contact with patients An analysis will be made of the informational content of the contacts and also the educational methods followed in instructing patients, it was stated

Entomologist Honored

Dr Leland Ossian Howard, former chief of the bureau of entomology, was honored, May 27, when entomologists of the U S Department of Agriculture and the Entomological Society of Washington and members of the Insecticide Society of Washington gathered to celebrate his eightieth birthday Dr Howard was made chief of the division of entomology, as it was then called, in 1894 He became assistant entomologist shortly after his graduation from Cornell University in 1877 In 1904 the division became a bureau of the Department of Agriculture, with Dr Howard as director until his retirement from active administration in 1927 He continued his association with it for the next four years Georgetown University conferred on him in 1896 the honorary degree of doctor of philosophy, and in 1911 George Washington University gave him an honorary degree of doctor of medicine He is honorary curator of the U S National Museum and an honorary member of the Medical Society of the District of Columbia He is a member of many scientific societies and has served as president of several Books he has written include "The House-Fly—Disease Carrier," published in 1911, and "The Insect Menace," published in 1931

Foreign Letters

LONDON

(From Our Regular Correspondent)

June 12, 1937

New Regulations for Registration of Medical Students

The Register of Medical Students has been compiled from the forms of request for registration which students filled in at the various medical schools and has never been complete. The General Medical Council has therefore decided to request all the deans of medical schools to send copies of their students' register, from which the council's register will in future be compiled The council has also adopted new conditions of registration The intending student must be 18 years of age or within three months of that age He must have passed a recognized preliminary examination in general education and an additional examination or examinations recognized by the licensing bodies The minimum standard of general education is, as before, that of a university matriculation or entrance examination in the faculties of arts or pure science The additional examination or examinations include chemistry, physics and, for students who have learned their chemistry and physics at school, one or two subjects of general education at a standard higher than that of the recognized preliminary examination in general education Students may take biology either before or after they are registered The reason for this change in the regulations is that since 1923 English schools have been teaching physics and chemistry to boys who intended to take up medicine, and a pernicious tendency has developed of allowing boys to pass their test in general education at 16 and sometimes even before, and then setting them to study nothing but medical subjects for the rest of their time at school The new regulations are intended to combat this tendency

The Treatment of Tabes Dorsalis

At the Medico-Chirurgical Society of Edinburgh, Dr Robert Lees described the results of his treatment at the Royal Infirmary of 200 cases of tabes dorsalis in which a period of two years' administration of tryparsamide and a bismuth compound had been completed He referred to the differences of opinion at present between neurologists, ophthalmologists and syphilologists regarding the treatment of neurosyphilis He arranged his scheme of treatment in courses consisting of one attendance weekly for ten successive weeks and then an interval of one month before the next course The tryparsamide was given by intravenous injection of from 2 to 3 Gm and the bismuth compound by intramuscular injection of from 0.2 to 0.3 Gm. The tryparsamide practically never caused vasodilator phenomena, jaundice was infrequent and dermatitis rare. The risk of toxic amblyopia, provided due care was taken, he considered exaggerated In cases of optic atrophy the risk was considerable but the results appeared to justify the treatment.

The majority of the patients secured marked relief from the tabetic pains, 78 per cent were improved, 16 per cent remained stationary and 5 per cent were worse Ataxia was definitely improved in 65 per cent For this symptom the drug treatment was combined with massage, exercises and, in the advanced cases, reeducation in locomotion The treatment of the urinary symptoms was usually successful, especially in males For cystitis, catheterization, irrigation and instillation were used. The gastric crises became less frequent and less severe under the antisyphilitic treatment In the crises, injections of morphine and atropine were sometimes required, for the rectal crises, suppositories of atropine were used Arthropathies evinced considerable power of recovery under a combination of orthopedic and antisyphilitic treatment In early cases, if the affected joint is immobilized or protected from trauma for

some months the effusion may subside, the ligaments become more taut, the new bone and loose bodies largely disappear, and the joints return to almost normal function. In later cases the best that can be expected is ankylosis in good position. In advanced cases surgery may be necessary. Optic atrophy gave disappointing results, but they were equal to those recorded for other methods of treatment. For this condition the technic was modified. The patient was prepared by intensive and rapid saturation with iodides, and then bismuth was given in a form rapidly assimilated. The tryparsamide was given in moderate dosage. Rapid loss of vision or definite toxic symptoms, such as flashes of light, blurred vision and colored vision, were signals for stopping the drug. In those who showed no visual symptoms and in whom the atrophy progressed but slowly, active treatment was continued. Muscular atrophy was occasionally found. It responded well to treatment, complete recovery taking place if the diagnosis was made early. Juvenile tabes was associated with a high incidence of optic atrophy, but with none of the symptoms of adult tabes except urinary incontinence. The prognosis was not so good as in adults.

In the discussion, Prof. Edwin Bramwell said that nowadays pronounced cases of tabes were rarely seen because syphilis received such thorough treatment in the early stage. There was no evidence, as far as he knew, that any other drug than tryparsamide influenced the progressive course of optic atrophy.

Decline in Venereal Diseases

Venereal diseases are treated in this country at treatment centers maintained by the Ministry of Health. According to the latest annual report, published for 1935, the number of centers is 185, of which 119 are conducted at voluntary hospitals. After the war the number of cases of syphilis treated at the centers reached the high figures in 1919 and 1920 of 42,134 and 42,805 respectively. Then a continuous drop took place, in 1921 to 32,733, and in the following years to 25,762, 23,927 and 22,010. With the interruption of a slight rise (to 22,588) in 1925, the fall was subsequently continuous until 1935 when the number was only 19,335. The cases of soft chancre show a similar fall, from 2,442 in 1920 to 1,112 in 1935. The cases of gonorrhea have shown no such decrease, but a fluctuation. From 40,284 in 1920 they fell to 29,477 in 1922 and then increased to 45,001 in 1930, then falling to 41,332 in 1935. The effect of the war is shown by the fact that from its outbreak on Aug. 4, 1914, to its close on Nov. 11, 1918, the cases of syphilis treated in the British army (excluding dominion, colonial and Indian forces) were approximately 100,000. Between the close of the war and the completion of demobilization, the incidence of venereal diseases in the army greatly increased. The return of the infected men to their homes must have spread these diseases.

Outbreak of Typhoid Due to a Contaminated Stream

Excellent sanitary conditions have rendered typhoid, which was a common disease in the previous generation, very uncommon. An outbreak that occurred last year at the seaside resort of Bournemouth has been traced to an unusual source. When it was reported to the Ministry of Health, one of its medical officers, Dr. W. V. Shaw, sent to investigate, found that thirty cases had been notified in the last twenty-four hours. The patients were scattered and the only common factor was the consumption of raw milk from one distributor. Pasteurization was ordered and the outbreak at once stopped. No source of infection could be found among the personnel employed for distribution. So investigations were directed to the thirty-seven farms, scattered over a large part of Dorset, from which the milk was obtained. Two persons, the wife and son, aged 12, of one of the producers, were found to be suffering from typhoid, pointing to this milk as the source of the outbreak. The water supply was derived from a well 162 feet deep.

Repeated examination of the well water proved that it was liable to pollution. The condition of the nearby stream was investigated, and about half a mile from the farm a sewage effluent was found to be discharging into it from a house. Bacteriologic examination of the effluent for typhoid bacilli at first was negative but later they were found in large numbers. The occupants of the house were then examined and a typhoid carrier was found.

Freeing Cattle from Tuberculosis

A government scheme to increase the number of herds of cattle officially certified to be free from tuberculosis has been issued. It offers additional financial inducements to owners of herds to qualify for a certificate placing them on the Register of Attested Herds. If a herd of cattle has been tested and found not to contain more than 10 per cent of reactors, and these have been disposed of, the owner may apply to the Ministry of Agriculture for financial assistance toward the cost of further tests. This contribution will be at the maximum of 50 cents a head of the cattle tested plus \$5 a herd, but the contribution will not exceed the charge made by the veterinary surgeon carrying out the tests. When a herd fails to pass the test, the owner will have the opportunity of applying for three further official tests at the expense of the ministry. Herds accepted for these official tests will be known as supervised herds, and the owners will have to comply with rules regarding the disposal of reactors and disinfection of premises.

The Centenary of the State Registration of Births and Deaths

It is exactly 100 years since the state service for the registration of births, deaths and marriages was established in England. For vital statistics before 1837 there is only the imperfect substitute of ecclesiastical records. The government has had a silver medal struck to commemorate the centenary. The obverse bears the conjoined portraits of Queen Victoria and King George VI, the sovereigns reigning at the inception and centenary of the service. The reverse bears a device symbolic of the continuity of human life, perennially renewed through the stages of birth, marriage and death. The device is the Lampadephorian torch, the torch borne in the Lampadephoria, or relay races, which were a feature of the games of the ancient Greek city of Amphipolis. The traditional form of the torch was ascertained from its representation on coins in the British Museum.

Reduction of Atmospheric Pollution

Urbanization and industrialization have created a grave problem of atmospheric pollution in this country, with which a smoke abatement movement has tried to grapple. The twenty-second report on the investigation of atmospheric pollution has been issued by the Department of Scientific and Industrial Research and shows that on the whole there has been a definite reduction in the extent of the pollution of the atmosphere of Great Britain in the last twenty years. In the last two years there has been a small increase, which is accounted for by increased industrial activity. London showed a marked improvement between 1915 and 1922, but since then there has been an increase in the deposit of sulfates and a slight increase in the deposit of tar. One of the worst stations for tar deposits was Golden Lane, London, where the gage showed a deposit of 10.44 tons per square mile, an increase of 243 per cent on the general average for the last five years. The deposit of total solids compares unfavorably with last year. The greatest increase was found in London, where it amounted to 405 tons to the square mile, or 158 per cent of the general average. London has the highest average pollution by sulfur gases which accounts for the deterioration of building stone and possibly is injurious to health.

PARIS

(From Our Regular Correspondent)

June 6, 1937

Tuberculin Reactions and the BCG Vaccine

Since the more widespread use of the BCG vaccine, often however not in accordance with the instructions of the Pasteur Institute as to periodic revaccination, there has been a tendency to abandon the tuberculin epidermal reaction in the diagnosis of tuberculous infection in children. At the April 13 meeting of the Academie de medecine Armand-Delille, Lestocquoy and Banu reported a study of 1,048 children, new-born or vaccinated at birth but seldom revaccinated. The ages varied from new-born infants to children 14 years of age, 119, or 119 per cent, of these had been given the BCG vaccine by mouth during the first week of life, with one exception, in which it had been given hypodermically. In nonhospitalized children, not a single positive reaction was observed in those who had been vaccinated. In their hospital service, the positive reactions varied from 10 to 17 in the case of vaccinated and from 10 to 15 per cent in the case of nonvaccinated groups. The intradermoreactions always were found negative in nurslings less than a year old who had been vaccinated at birth. The authors concluded that the epidermal and intradermal reactions conserved all their value for the diagnosis of a tuberculous infection, since the BCG vaccine, given in three doses in a week at birth, given by mouth, did not alone cause it to appear during the first year.

In the discussion, Guerin of the Pasteur Institute stated that some children did not react to tuberculin following vaccination by the oral route, or even following the intradermoreaction in doses progressively higher than those commonly employed. He considered the latter reaction a far more sensitive one. It must be admitted that in such cases the number of "bacillus vaccines" which had been absorbed had not been sufficient to provoke the follicular lesion which should have automatically given rise to the positive tuberculin reaction. In revaccinating with the BCG either by the epidermal or the intradermal route, in increasing the doses of the vaccine, it always happens that a positive reaction to tuberculin is observed. This reaction is slight and diffuse, and an experienced observer cannot mistake it for the positive reaction caused by the virulent bacillus, which is sharply cut, marked and lasting. Following vaccination by mouth, allergy will always be found toward the second or third month. Later it is rarely seen, hence the necessity of revaccinations. If allergy and premunition are considered as two related terms, which appears probable, an indication exists to repeat the vaccinal absorption and if necessary to increase the amount of vaccine to be absorbed. It is toward this eventuality that present trials are being directed.

A Paralytic Form of Infection in Chickens, Possible Relation to Acute Poliomyelitis

A bacteriologist of Romans, France, M. Cotte, reported his observations at the April 20 meeting of the Academie de medecine on a disease in chickens, which has been regarded for some time by veterinarians as a form of rheumatism. The symptoms are somnolence, anorexia and difficulty in remaining in the upright position, accompanied by claudication and a progressive atrophy, with cyanosis of the legs at times. In chicks as well as in adults, on the intestine, liver, peritoneum, pericardium and pleura, a veil-like whitish gray membrane of variable thickness can be seen. In the various joints of the legs and wings and on the inner aspect of the skull, similar discrete areas were noted. A gram-positive micrococcus was found in these membranes, and the same organism can be found in fertile eggs after four days of incubation, in freshly laid eggs and in the ovaries and oviducts. The alimentary origin of the infection was well established for two series of hatchings and appears probable for the others. According to certain

epidemiologic observations, the author raised the question whether this organism (*Micrococcus albus-gallinarum*), found in such infected chickens, could not be etiologically related to acute poliomyelitis in children.

Abuse of Free Medical Care in Parisian Public Hospitals

A bill has been submitted to the lower house of the French legislature which aims to correct the indiscriminate admission of patients who are able to pay for medical care to the many Parisian public hospitals and dispensaries. Paris lies in the department of the Seine, and all the institutions for indigents are under the control of the Assistance publique, whose director, although a physician, has been anxious to present a high number of admissions and correspondingly large receipts in the supposedly free hospitals and dispensaries. There are more than 35,000 beds at the disposal of the Assistance publique.

In the April 1937 Bulletin of the Syndicate of Physicians in the department of the Seine, the secretary, Dr. Barlerin, states that the Assistance publique, which receives hundreds of millions of francs for its budget annually from the city of Paris, ought not to attempt to become a commercial enterprise. As the result of the large subsidies received, of legacies, of the many new buildings that are being erected for it and, above all, of the fact that it pays no taxes, the administration of the public hospitals has innumerable advantages in competing with private hospitals, which are chiefly dependent on their receipts from patients and are obliged to pay relatively high taxes.

The proposed law aims to separate those who in the future will be refused admission to public hospitals from those who must be admitted as indigents. The latter will be given perpetual cards which entitle them to admission as indigents inscribed on the public relief lists. Cards will be given, after investigation, to persons who are temporarily unable to pay for hospital care. The latter class of cards would be given, following an inquiry into the individual case, by a committee in each hospital district. One half of the members of such a committee will be representatives of the Assistance publique, the other half members of the organized local medical profession and respective hospital staffs. Exceptions would be made in the second class of cards for emergency cases. The same form of admission will be used for public dispensaries. There have been many abuses of free treatment in the latter class of institutions, so that the medical profession in Paris has made innumerable protests against people who were well able to pay private physicians being treated, without any investigation of their financial resources, at public dispensaries.

Diabetic Gangrene and Tetanus

At the April 23 meeting of the Societe medicale des hopitaux an unusual complication in a case of diabetic gangrene was reported by Boulon, Uhry and Charousset. A farmer, aged 46, entered the hospital Dec. 26, 1936, on account of gangrene of the toes. A diagnosis of diabetes had been made ten years before. During the two years preceding admission, marked emaciation was noted and during the past year slight recurrent pains in the toes. Toward the end of November 1936 areas of gangrene had been noticed on several toes of both feet. He continued to walk, wearing shoes that were torn, thus permitting contact with the dirt of the country roads. Examination of the urine failed to reveal albumin, sugar or acetone, but the blood showed a definite hyperglycemia. The treatment included the administration of 40 units daily of insulin and a diet containing 68 Gm. of preformed carbohydrates. The toes were dressed with an antiseptic powder. About six weeks after the appearance of the gangrene, a slight trismus was noted. This increased in intensity, so that three days later it was very marked and accompanied by the typical signs of tetanus. Serotherapy was begun immediately. Sixty thousand units of tetanus antitoxin was given on the third day following

the onset of the tetanus symptoms and an injection of tetanus toxoid also was given on the same day. A total of 240,000 units of antitoxin was injected by the subcutaneous and intramuscular routes. A week after beginning the antitetanic treatment the symptoms of this complication had entirely disappeared. Only seven similar cases have been reported and in only two of these (those of Massabau and of Waltman Walters) were the tetanus bacilli found. Such a complication is rare, because contact between the gangrenous areas and dust containing the tetanus bacillus is uncommon. Death occurred in all previously published cases. The tetanus did not seem to have an unfavorable influence on the diabetic condition in the case reported by Boulin and his associates.

Record Book for Venereal Disease Patients

The ministry of public health has just issued an order creating the establishment of a personal record book to be given to every one suffering from a venereal disease. It will be recalled that every physician is now obliged to notify the health authorities when consulted by any person with venereal disease. The name of the patient will not be recorded in the new record book. Only a number will be given to designate the venereal disease patient. In this new book, physicians who have had occasion to treat a given case will record (1) the diagnosis and essential portions of the clinical history, (2) the various treatments that have been given and (3) instructions which the patient should follow. If the patient leaves the public health service in which the diagnosis and treatment were given, the record book can be given to the patient or forwarded to the physician he desires to consult next. The public health services will be obliged to keep duplicate records in order that a new personal book can be furnished, should the patient lose the original book.

Vitamin A Applications in Treatment of Burns

Reference was made in a recent letter to the use of vitamin A in the treatment of typhoid at Marseilles. The property of this vitamin to aid healing of wounds has been utilized by Professor Chevallier of Marseilles and two of his associates, Carcassone and Luccioni. Five patients who had burns of the second and third degree were treated following cleansing of the surfaces, alternately with a 1:4000 dilution of methylene blue and with vitamin A in cod liver oil. After application of these to the burns, the latter were at first left exposed to the air under frames covered by sterile sheets, then dressings saturated with these two solutions were applied every two days. In all five cases cicatrization took place very rapidly and the newly formed epidermis was very supple. The authors warmly recommend the use of vitamin A for burns.

New Director of Public Relief Administration

Dr. Mourier, who has been director for many years of the Assistance publique in the department of the Seine, in which Paris is situated, will retire shortly, having reached the age limit, and Mr. Serge Gas has just been appointed. The new director has for some time occupied an important administrative position in the public health ministry.

Successors to Charcot

The Academy of Sciences has just elected Dr. Louis Martin, director of the Pasteur Institute, as a fellow. He will thus be the successor of Prof. Jean Charcot, who died during a voyage of exploration in the arctic regions. Dr. Martin was associated with the late Professor Roux in the elaboration of the diphtheria antitoxin, became head of the serotherapy department of the Pasteur Institute in 1910 and was elected director of the institute after the death of Professor Roux.

At the May 5 meeting of the Academy of Medicine, Georges Duhamel was elected a fellow as successor to the late Prof. Jean Charcot. Duhamel is a physician but does not practice. He is one of the leaders in literary circles in France.

Professor Parisot Elected Chairman of Hygiene Committee

Prof. Jacques Parisot, head of the department of hygiene and preventive medicine at the University of Nancy, has been elected chairman of the committee of hygiene of the League of Nations. His predecessor was Dr. Madsen, director of the Royal Serologic Institute of Copenhagen, Denmark.

Marriages and Births Decrease

According to official statistics made public May 17 there were 279,743 marriages in 1936 as compared to 284,895 in 1935. The number of births likewise declined from 640,527 in 1935 to 630,059 in 1936. There were, however, fewer deaths, 642,139 in 1936 as compared to 658,379 in 1935.

BERLIN

(From Our Regular Correspondent)

May 22, 1937

Congress of the German Society of Surgery

The congress of the German Society of Surgery convened at Berlin during Eastertide under the presidency of Professor Stich of Göttingen, who in his address urged economy in the use of bandaging materials and of ligation materials such as catgut. He also advocated the greater utilization of domestic products as opposed to foreign imports for these purposes, cellulose as a cotton substitute, for example. The speaker deprecated the breaking away of special disciplines (neurosurgery, urology and so on) from surgery regarded as a whole.

K. H. Bauer, Breslau ordinarius, spoke on the advances of experimental cancer research. More than 24 per cent of the operations performed at his clinic are cancer operations. Many of the tumors produced experimentally in animals are highly malignant. The resistance and type specificity of the inoculated cells of the Brown-Pearce tumor, if contrasted with other cancer material, is astonishing, not only can these cells be used in successful autotransplantation but they will thrive when transplanted to a foreign animal organism. The pathogenesis of cancer in man is quite certainly dependent on from seven to eleven hereditary factors. In addition to the chromosomal inheritance, another important hereditary influence that acts through the protoplasm of the ova has a pathogenic role in cancer. If it is true that a latent predisposition to cancer is based on a combination of hereditary factors, it is equally true that external influences, painting with otherwise innocuous doses of tar, for example, favor the development of the disease. Besides, it is altogether probable that substances within the body (such as hormones) are capable of fostering a latent predisposition. In the pathogenesis and localization of cancer, hereditary factors doubtless play a part. In Bauer's opinion the transformation of normal body cells into cancer cells comes about through abrupt mutational alteration of the sum of hereditary factors. All those substances that are experimentally capable of inducing mutations are likewise cancerogenic, radioactive substances are a classic example of this phenomenon. If mutation is considered the crucial pathogenic factor in cancer, then, according to Bauer, it is reasonable to assume that by yet further mutation the cancer may be destroyed, this explains why roentgen rays both produce and cure cancer. Not infrequently skin carcinoma in man can be eradicated in an amazingly brief period by small doses of benzopyrine, one of the most powerful of cancerogenic agents. The treatment consists in part of painting, in part of injections.

Concluding the discussion of cancer, Ferdinand Sauerbruch of Berlin reported the results of his research. He believes that cancer in youthful persons is almost always coexistent with some type of sexual dysfunction, such as impotence or dysmenorrhea. Sauerbruch attributes the high incidence of the disease among elderly persons to the extinction of sexual function. In experiments with rats it was observed that, of sixty

castrated animals, nine developed spontaneous malignant tumors whereas, among forty not castrated, only one such tumor appeared. The author feels that this difference is based on the flooding of the normal organism with gonadotropic hormone from the anterior lobe of the hypophysis.

Much greater quantities of this substance are found in the urine following extirpation of the spleen. Perhaps a basis for the protection of splenic tissues from cancer is here suggested.

Introducing the next topic, the surgery of the brain, Schönbauer of Vienna pointed out that in the preparation for brain operations, as well as in conservative treatment of cranial traumas, a dietetic therapy which influences the water exchange will be important. After the clinic had established as a preparatory routine two or three salt-free days and the administration of theophylline with ethylene diamine just prior to the operation, there were no further instances of cerebral edema.

NATURE AND TREATMENT OF PSEUDARTHROSIS

At the second day's session the principal report was that of G. Magnus of Munich on the nature and treatment of pseudarthrosis. The speaker defined pseudarthrosis as a completed process that first becomes distinguished from retarded formation of callus when osseous healing fails to appear despite the termination of the other healing processes. The incidence of pseudarthrosis is not constant, it fluctuates between 0.5 and 5 per cent. With respect to etiology, three types of the disorder are to be differentiated: pseudarthrosis resulting from retarded callus formation, that resulting from defects of the bone and the so-called general pseudarthrosis. The origin of the first named type has not yet been satisfactorily explained. Known vitamins and hormones (latterly vitamin C in particular) have been collectively studied with reference to their influence on the formation of callus, since it has been observed that in the presence of hunger and scurvy even a healed fracture area may hinder the osseous healing and result in the formation of the false joint. The condition should in such cases be regarded as a symptom of fatigue. Accordingly, the treatment of a pseudarthrosis in a fracture of the neck of the femur consists of joining the fractured parts in such a way that no movement can tax the callus by false tension. This treatment promises much.

The role that is assumed by an extravasation of the blood in fractures is still a controversial matter, however, it has been observed that complete drainage of the extravasation in complicated fractures exercises a detrimental effect. Marginal necroses are likewise of importance. Magnus was able to demonstrate clinically that marginal necroses are in all probability to be interpreted as sequels of an injury produced by heat, as local temperatures in fracture cases may be as high as 48 C (118.4 F). Metallic foreign bodies may exercise harmful effects chiefly on the surrounding tissues. This is particularly likely to eventuate if combinations of metals are utilized, the metals tend to act as batteries and electrolytic disturbances are apt to result. Surgical treatment of pseudarthrosis consists chiefly of complete resection of the false joint and transplantation of a bone fragment, from the tibia, for example. Optimal results were obtained by the employment of this method. A few pseudarthroses are resistant to all types of treatment.

Professor Guleke of Jena discussed "The Limits of Surgical Responsibility." The successes of surgery have led the public constantly to demand more and expect more of the surgeon. This attitude has its repercussions in jurisprudence, since even the law has come to make unreasonable demands of the medical profession. An example is found in a recent decision of the supreme court whereby a physician is in duty bound to utilize all the most modern methods available for establishment of a diagnosis and is furthermore compelled, in cases in which surgical intervention is indicated, to acquaint the patient with the

exact nature of his illness and with all possible, even the most remote, dangers connected with the operation. Thus the judicial and the medical points of view may sometimes be at variance.

Sauerbruch of Berlin then spoke on the rarer causes of pulmonary hemorrhage as distinguished from more common causes such as tuberculosis, abscesses and infarcts. Hemorrhage may be traced to tumors and to vascular alterations such as varicosities in the region of the intercostal and pulmonary vessels. These varicosities are to be regarded as a result of chronic inflammations, for example, in gunshot injuries in which the missile remains in the organism, enlargement is brought about by the constant irritation of the vessels. Careful investigation has disclosed that in addition to capillary anastomoses between the pulmonary and bronchial arteries a direct medium sized anastomosis may exist between the two vessels, accordingly hemorrhage may originate in either region. Gross varicosities of the intercostal vessels can form direct anastomoses with the lungs and this condition constitutes a grave menace. A pressure or resection with a fragment of the lung may be a surgical indication.

IMPORTANCE OF VITAMINS TO SURGERY

A paper by Fromme of Dresden dealt with "The Importance of the Vitamins to Surgery." He pointed out that a diet which possesses a vitamin content sufficient under normal conditions may produce an avitaminosis because of increased consumption incident to certain diseases, and this deficiency may lead in turn to degenerative alterations in the reticulo-endothelial system. Fromme stressed as of special importance the loss of vitamin as a result of disease in the abdominal cavity and as a result of abdominal operations. Toxic impairment incident to gastro-enterostomies as well as high grade pyloric stenosis and many atonic conditions of the intestine can perhaps be traced to vitamin B₁ deficiency. If prolonged intravenous drip infusion of dextrose is carried on, it will be observed that the need of vitamin B₁ increases considerably with the increased supply of carbohydrate. Complete resection of the stomach can perhaps lead to hyperchromic anemias as the result of an obliteration of the antiperistaltic influences in the gastric wall. Such anemia can be treated only by liver, whereas the more frequent hypochromic anemias react well to iron. Many common kidney disorders following abdominal operations may perhaps be avoided if prior to the operation the organism is reinforced with vitamin C and if vitamin C is parenterally supplied during the postoperative period. Since it may be considered that ulcer diets contain too little vitamin C, they should be planned to include fruit juices. Ordinary hospital fare is as a rule deficient in vitamin, especially vitamin C, regardless of the fact that an increased need of vitamin is present in most diseases. In avitaminotic states the ability of the gastro-enteric canal to absorb the vitamin supply should be considered. Fromme also referred to an as yet uncertain interrelation of vitamin A and the pathogenesis of renal calculi. On this basis cod liver oil may be of value in the prophylaxis of recurrent calculi. Prolonged drainage of the bile ducts is to be cautioned against, as the procedure may lead to disturbances of the vitamin economy.

PHYSIOLOGIC BASES OF CIRCULATORY COLLAPSE

On the final day, Rein, Gottingen, physiologist, read an exceptionally well received paper on "The Physiologic Bases of Circulatory Collapse," which consisted chiefly of excerpts from his own works. According to the prevalent view, collapse consists not only in the failure of the heart but more notably in the failure of peripheral circulation, namely, a dysfunction of the reflux to the heart. In this state the heart is found to be diminished in size and the veins empty in contrast to the enlarged heart and venous congestion observed in cardiac failure. Modern physiology of the vascular system, however,

no longer distinguishes between heart and circulation and besides is closely linked with consideration of the local and general metabolism. By the term "circulatory regulation" is meant the ability quickly to restore at any time an equilibrium between the demands of metabolism and the vascular reserves. The healthy organism places a minimal burden on the heart in all circumstances, namely, normal blood pressure tends to maintain a decreased minute volume. If the heart is called on to meet the demands of physical exercise, the rate may increase to five or six times the normal but the blood pressure, conversely, is subject to relatively slight increase.

The vasodilatation of muscles at work is caused by local metabolic changes. Working musculature may demand as much as 2 liters of blood in excess of its requirement when at rest, thence arises the importance of reflex autoregulation of the circulation by emptying of the depots and contraction in the part at rest. If this regulation does not suffice, the organism possesses still another safety mechanism: the insufficient blood perfusion results in an accumulation of carbon dioxide and this substance exerts a vasoconstrictor effect on the working region, which is blocked against the irritation of the medulla oblongata. Disturbances that ensue in such a situation may lead to collapse. Vasodilatation by histamine, formerly held responsible for the occurrence of collapse, is just as well compensated as any other type of vasodilatation. The effect of histamine is quickly offset by reflex release of epinephrine. Accumulation of histamine cannot be a general cause of collapse. Experiments with a new substance, 1-oxyphenyl-2-methyl-amino propane, provide another explanation of the genesis of collapse. In contrast to epinephrine and related substances, the new substance decomposes slowly and at the same time exerts a constrictive effect on the venous vascular system. In experimental use it produces first an emptying of the peripheral depots, then an increase in minute volume and only finally a rise in blood pressure. Epinephrine, on the other hand, readily induces a rise in pressure by increasing the peripheral current resistance. In experimental collapse and administration of the new substance it was observed that the collapse was not of peripheral origin and that a disturbance of the regulatory mechanism had taken place elsewhere. So operation collapse too must differ fundamentally from artificial collapse induced by histamine. In like manner an impairment due to the use of peptone that resembles anaphylactic shock is a disorder of the regulatory mechanism and not a peripheral disturbance.

For the practical treatment of collapse it is accordingly most important that substances such as epinephrine and ephedrine induce an increase in the peripheral current-resistance only, namely, they bring about a purely symptomatic increase in blood pressure. If it is postulated that through collapse a passive congestion of the lungs has already taken place, it is clear that an increase in the outer blood pressure by this means can have as its consequence acute cardiac failure. Besides, new investigations of Professor Rein's have demonstrated that epinephrine increases the oxygen requirements of the heart and thus reduces the functional capability of the myocardium. Finally Rein pointed out that in experimentation, despite blood pressure increase by epinephrine and related substances, the minute volume of the heart increased not at all and, as a result of this, after cessation of the effect of pressure the entire function of circulation will be even more impaired than before. According to Rein's observations, any narcosis may produce a situation quite favorable to collapse as a result of a reduction of the reflex regulation. At the remission of a narcosis the danger of collapse is particularly great, as the awakening of the organism imposes increased demands on the badly functioning circulation.

In conclusion, another contribution needs to be mentioned, that of Dr. Adler of Berlin, who was able, by repeated transplantations of thymus tissue as well as by injections of hydrous

thymic extract, to induce a classic clinical myasthenia in dogs. As in man, so in these experiments the entire syndrome could be abolished almost immediately by injections of prostigmin, only to appear again some six hours later. These tests supplement various observations of the coincidence of thymic hyperplasia and myasthenia. It may be possible to cure a severe myasthenia by removal of a hyperplastic thymus.

RIO DE JANEIRO

(From Our Regular Correspondent)

March 30, 1937

Surgical Treatment of Cataract

Prof. Hermenegildo Arruga of Barcelona, in a lecture delivered in São Paulo, spoke on the surgical treatment of cataract. Total removal of the cataract is, according to the speaker, a better operation than extracapsular removal. The patients regain a clear sight after the operation and there is no danger of recurrence. The period of incapacity of the patient for work is short because of the fact that total extraction can be performed at a time when the patient is still working with a fairly good sight. The number of patients who decide for the operation is larger when they know that they do not have to wait for complete maturation of the cataract. The speaker advised a moderate dilation of the pupil before the operation. Induction of retrobulbar anesthesia is important. It diminishes pain, the globular tension and the contracture of the rectus muscles of the eye during the operation and also retards the appearance of pain afterward. The incision at the cornea has to be ample in relation to the horizontal diameter of the eye, beginning at the sclera and then following a slightly upward course to the opposite side of it.

Measuring the Diameter of the Aorta

Dr. Agunello Lins of Recife, taking as a basis the work of Dr. Manoel de Abreu on x-ray visualization of the mediastinum, calculated the diameter of the lumen of the aorta at the arch. Three points are marked at any place at the arch, which are then joined by two straight lines. Perpendicular lines are then drawn from the central point of the lines, centrad to the inside of the arch. The point of intersection of the perpendicular lines is the center of the lumen. The length of a line drawn from the center of the lumen to any point at the arch is the radius. Twice the length of the radius is the diameter of the lumen of the aorta at the level of the arch. The author made a study of comparison between the geometrical and the intertracheopulmonary measures. There is a difference in these measures of 1.5 mm, which is given by the thickness of the tracheal wall. Measuring the lumen of the aorta by this method has been done also by Professor Lian of Paris for the last year.

Colony for Lepers

New pavilions will be open to lepers in the colony of Itan-henga in the state of Espirito Santo in April. During 1935 thirteen pavilions were opened to lepers in the colony. The addition of the new ones solves the problem of leprosy in that part of Brazil, where 675 lepers are registered. The colony has large camps for agriculture and the breeding of animals, which helps to keep the lepers happy in their isolation.

Monument to Couto

A monument is to be erected in the near future in memory of Prof. Miguel Couto, who was president of the Academia Nacional de Medicina for twenty years. His professional life and work are full of good examples. Prof. Aloysio de Castro is the president of the committee in charge of construction and dedication of the monument.

Personal

Dr. Lincoln Araujo, Brazilian surgeon and gynecologist, was appointed a member of the editorial staff of the journal *Surgery Gynecology and Obstetrics* of Chicago.

Congress of Chemistry

The second Brazilian Congress of Chemistry was held in Rio de Janeiro in May. The organizing committee works for the success of the congress. A large attendance is expected. Brazilian chemists are writing to the organizing committee that they are ready to collaborate. The topics will deal with the most important branches of chemistry and technology, as well as with several industrial, social and legal problems related to chemistry. Technical committees are already appointed. There will be an exposition.

New Building of the General Polyclinic

The poor of Rio de Janeiro have received free medical care for about fifty-five years at the Policlínica Geral of that city. The building was erected in 1882. Regular work was done in fourteen clinics. At present the number of patients exceed the accommodations of the building. The corner stone for a new twelve story building was recently dedicated. Postgraduate courses will be given also. The board of directors of the polyclinic has received liberal donations for the construction of the new building.

BUENOS AIRES

(From Our Regular Correspondent)

April 30, 1937

New Building of Faculty of Medicine

The project for construction of a new building for the Faculty of Medicine at a cost of 12,000,000 pesos (\$3,500,000) was approved by the government. Plans for the arrangement of the several class rooms are in revision. The faculty reduced its quarters to three fourths of its former space. The class rooms and amphitheatres are now insufficient. The government asked the university to cut down expenses by 12 per cent. The university is requesting the same allowance for expense that it had in 1930, which was cut down from that year up to the present by 47 per cent.

Donations for Scholarships

Mr Esteban Peruhil has donated 2,000,000 pesos (\$580,000), of which the interest is to be used for scholarships for postgraduate medical studies in foreign countries. Other Argentine scholarships for postgraduate studies in foreign countries are the Bartolome Devoto and the Sauberman (with \$2,200 and \$1,500 a year, respectively) and those of the Comision Nacional de Cultura (\$2,350 a year) and of the Asociacion Argentina para el Progreso de las Ciencias (\$2,200 a year). There are also several scholarships for physiologic and other researches in the country. The government gave a donation to the Asociacion Argentina para el Progreso de las Ciencias of 1,000,000 pesos (\$290,000) to use the interest in research work made by Argentines in foreign countries.

Personals

The physicians of the hospitals filed a claim with the city government asking that the twenty vacancies at municipal hospitals for assistant physicians be filled by examination as provided by hospital regulations. The city made the appointments without examinations, and the physicians who filed the claim were requested to resign. It seems probable that a conflict may occur between the body of municipal physicians and the city government.

Drs Jose Arce, the dean of the Faculty of Medicine, A Landivar, A Egües, Castillo Odena, Alfredo Sordelli, Cossio, Meana A Pavlovsky, Bozzola and Garcia were recently in the United States. The interest of Argentine physicians in visiting American clinics, hospitals and universities is growing and it is probable that more visitors will be there during this and the coming year.

Dr G Marañon, Spanish professor and endocrinologist, gave a course of literary and medical lectures in Buenos Aires recently.

Marriages

HAROLD WELLINGTON JONES, Colonel, M.C., U.S. Army, Washington, D.C., to Mrs. Mary Morrison Camper of Charlottesville, N.C., in Arlington, Va., May 1.

JOHN HILLYER BOYD, New York, to Miss Elizabeth Gilmore Locke of Williamstown, Mass., May 8.

MORRIS THEODORE FRIEDEL, Minneapolis, to Miss Barbara Mantel Fishbein of Chicago, July 3.

KIRBY D. SHEALY, Columbia, S.C., to Miss Harriet Elsbeth Way of Cheraw, February 17.

HERBERT JUNIUS FOX, Franklinville, N.C., to Dr. Frances Faison Hill of Durham, May 15.

NORBERT G. RAUSCH to Miss Margaret D. Morrison, both of Buffalo, April 7.

Deaths

Dwight Howe Trowbridge of Fresno, Calif., Tulane University of Louisiana Medical Department, New Orleans, 1893, past president of the Fresno County Medical Society, member of the American Laryngological, Rhinological and Otolaryngological Society and the Pacific Coast Oto-Ophthalmological Society, fellow of the American College of Surgeons, one of the founders, secretary, and on the staff of the Burnett Sanitarium, was examiner for the aeronautics branch of the department of commerce, aged 66, died, May 4, in Pasadena, of bronchopneumonia.

Lewis McFarland Gaines of Atlanta, Ga., Johns Hopkins University School of Medicine, Baltimore, 1903, formerly associate professor of neurology and psychiatry, Emory University School of Medicine, professor of anatomy and physiology, Wake Forest (N.C.) College School of Medical Sciences, 1905-1908, on the staff of the Georgia Baptist Hospital, visiting physician on the staff of the Emory University (Ga.) Hospital, aged 59, died, May 24, of coronary thrombosis.

Harry Lawrence Hall, East Orange, N.J., University of Michigan Department of Medicine and Surgery, Ann Arbor, 1893, served in various capacities on the faculties of the University of Southern California, Los Angeles, Western Reserve University School of Medicine, Cleveland, Boston University School of Medicine and Emory University (Ga.) School of Medicine, aged 64, died, April 22, in the Orange Memorial Hospital, of cerebral hemorrhage.

George Paul Katzenstein, Chicago, University of Pennsylvania Department of Medicine, Philadelphia, 1900, formerly instructor on diseases of the skin, Philadelphia Polyclinic, at one time on the staffs of the John B. Stetson Hospital and the Jewish Hospital, Philadelphia, aged 63, died, April 22, of cerebral hemorrhage and chronic nephritis.

William Wheelock Lazarus of Tunkhannock, Pa., University and Bellevue Hospital Medical College, New York, 1902, past president of the Wyoming County Medical Society, member of the House of Delegates of the American Medical Association in 1932, served during the World War, aged 58, died, April 1, of coronary thrombosis.

Myron Stephen Gregory, Oklahoma City, University of Michigan Department of Medicine and Surgery, Ann Arbor, 1906, member of the Oklahoma State Medical Association, American Psychiatric Association and the Central Neuro-psychiatric Association, served during the World War, aged 67, died, April 9, of coronary occlusion.

Eleanor Bridge Kilham, Beverly, Mass., Woman's Medical College of the New York Infirmary for Women and Children, New York, 1882, was twice decorated by the French government for her services during the World War, at one time a practitioner in New York, aged 79, died, April 5, of coronary sclerosis and hypertension.

Charles Long, Wilkes-Barre, Pa., Jefferson Medical College of Philadelphia, 1882, member of the Medical Society of the State of Pennsylvania, for many years a member of the school board, on the staff of the Wilkes-Barre General Hospital, on the courtesy staff of the Mercy Hospital, aged 75, died, April 7.

Walter Weldon Harloe, Matoaka, W. Va., University of Virginia Department of Medicine, Charlottesville, 1905, member of the West Virginia State Medical Association, bank president, at various times mayor, chief of the fire department and health officer, aged 62, died, April 17, of coronary occlusion.

George William Haskins, Chicago, Chicago Medical College, 1889, professor of metallurgy, 1891-1892, and professor of metallurgy and of prosthetic technic, 1892-1897, Northwestern University Dental School, also a dentist, aged 78, died suddenly, April 30, of chronic myocarditis

Jeremiah Dumas Malone, Marietta, Ga., University of Maryland School of Medicine, Baltimore, 1884, past president of the Cobb County Medical Society, at various times member of the city council and board of education, was president of the county board of health, aged 76, died, April 11

Charles C Hickman, Logansport, Ind., Medical College of Indiana, Indianapolis, 1902, member of the Indiana State Medical Association, on the staffs of the Cass County Hospital, Logansport State Hospital and St Joseph's Hospital, aged 64, died, April 4, of heart disease

Morris David Hartman, Homestead, Fla., Jefferson Medical College of Philadelphia, 1912, member of the Florida Medical Association, served during the World War, aged 48, died, April 13, in Miami, of cerebral hemorrhage due to a head injury received in an automobile accident

Darwin Oliver Lyon, Mount Vernon, N. Y., New York Homeopathic Medical College and Flower Hospital, New York 1912, served during the World War, aged 49, died April 14, in the Grasslands Hospital, Valhalla, of pulmonary tuberculosis and tuberculous peritonitis

Laura Mann Johnson, Boston, Woman's Medical College of Pennsylvania, Philadelphia, 1906, member of the State Medical Society of Wisconsin, aged 61, died, April 2, in the Peter Bent Brigham Hospital, of carcinoma of the thyroid with extensive metastases

John Greenleaf Whittier Knowlton, Exeter, N. H., Harvard University Medical School, Boston 1900, member of the New Hampshire Medical Society, served during the World War, aged 63, died, April 17, in the Exeter Hospital, of cerebral hemorrhage

Frederick Austin Hunt, Pompey, N. Y., Syracuse University College of Medicine, 1898, member of the Medical Society of the State of New York, county clerk, veteran of the Spanish American and World wars, aged 61, died, April 9, of angina pectoris

Christopher H Johnston, Lexington, Tenn., University of Nashville Medical Department, 1890, member of the Tennessee State Medical Association, aged 72, died April 1, in the Webb-Williamson Hospital Clinic, Jackson, following an operation for gallstones

Arthur Herbert Haney, Oklahoma City, University of Oklahoma School of Medicine, Oklahoma City, 1927, member of the Oklahoma State Medical Association, served during the World War, aged 41, died, April 19, of pulmonary tuberculosis

William Francis Grubbs, Hazel, Ky., University of Nashville (Tenn.) Medical Department, 1898, member of the Kentucky State Medical Association, for many years a member of the school board, aged 71, died, April 2, of coronary thrombosis

Frank Charles Klein, Indianapolis, University of Indianapolis Medical Department, 1903, member of the Indiana State Medical Association, aged 63, on the staff of St Francis Hospital, where he died, April 22, of arteriosclerosis and diabetes mellitus

Gross Ransom Long, Nashville, Tenn., Vanderbilt University School of Medicine, Nashville, 1919, on the staffs of the Nashville General Hospital and Protestant Hospital, aged 46, died, April 19, of chronic nephritis and malignant hypertension

Calvin E Helffrich, Fogelsville, Pa., Hahnemann Medical College of Philadelphia, 1880, New York Homeopathic Medical College, 1881, aged 76, died, April 15, in the Allentown (Pa.) Hospital, of chronic myocarditis and hypostatic pneumonia

Elmer Alfred Gunderson, Elgin, Ill., Bennett College of Electric Medicine and Surgery, Chicago 1915, served during the World War, aged 44, on the staff of the Veterans Administration Facility, Hines, where he died, April 28, of pneumonia

Joseph Neree Lalonde, Providence, R. I., Laval University Faculty of Medicine, Quebec, Que., Canada, 1904, member of the Rhode Island Medical Society, aged 59, died, April 3, in the Jane Brown Memorial Hospital, of diabetes mellitus

Benjamin Franklin Janes Jr., Northampton, Mass., Tufts College Medical School, Boston, 1908, served during the World War, on the staff of the Cooley-Dickinson Hospital, aged 51, died suddenly, April 17, of coronary thrombosis

Roberts Bartholow Hays, Birmingham, Ala., Birmingham Medical College, 1913, fellow of the American College of Surgeons, on the staff of the Norwood Hospital and Clinic, aged 52, died, April 29, of acute coronary occlusion

Aubrey Vernon Jones, Louisville, Ky., Kentucky University Medical Department, Louisville 1906, served during the World War, aged 56, died, April 5, in the Veterans Administration Facility, Lexington, of heart disease

Frederic Clinton Hart, Girard, Pa., Western Reserve University Medical Department, Cleveland, 1892, member of the school board for many years, aged 74, died, April 25, in the Hamot Hospital, Erie, of cardiac hypertrophy

Joseph William Gothard, Holbrook, Ariz., Tennessee Medical College, Knoxville, 1891, formerly city physician of Palisade, Colo., aged 75, died, April 16, in Whittier, Calif., of rheumatic endocarditis and lobar pneumonia

Joseph Bernard Guitinan, West Rutland, Vt., University of Vermont College of Medicine, Burlington, 1904, member of the Vermont State Medical Society, aged 60, died, April 14, in the Rutland (Vt.) Hospital, of heart disease

Henry John Harp, Sussex, N. J., University of Pennsylvania Department of Medicine, Philadelphia, 1904, served during the World War, on the staff of the Alexander Linn Hospital, aged 55, was found dead, April 7

Oliver Nixon Huff, Fountain City, Ind., University of Michigan Department of Medicine and Surgery, Ann Arbor, 1878, member of the Indiana State Medical Association, aged 85, died, April 23, of heart disease

Ermine Stevenson Cryder, Cleveland, Starling-Ohio Medical College, Columbus, 1913, member of the Ohio State Medical Association, formerly on the staff of the Woman's Hospital, aged 49, died, April 23

James M Haney, Centralia, Ill., Northwestern University Medical School, Chicago 1897, member of the Illinois State Medical Society, aged 73, died, April 20, in St Mary's Hospital of carcinoma of the lung

Vincent John Fenerty, Philadelphia, University of Pennsylvania Department of Medicine, Philadelphia, 1908, served during the World War, aged 51, died, April 15, in the Methodist Episcopal Hospital

Douglas Largen, San Antonio, Texas, Vanderbilt University School of Medicine, Nashville, Tenn., 1906, served during the World War, aged 54, died, April 19, in the Medical Arts Hospital, of pneumonia

John C Jacobs, Miami, Okla., Barnes Medical College, St. Louis, 1903, past president of the Ottawa County Medical Society, served during the World War, aged 67, died, April 2, of coronary thrombosis

John Donald MacDonald, Ingersoll, Ont., Canada, Western University Faculty of Medicine, London, 1906, aged 58, was drowned, April 26, when his car was washed over a bridge near Beachville by a flood

Joseph Alexander Bell, Sarnia, Ont., Canada, Western University Faculty of Medicine, London, 1897, formerly mayor, health officer of Sarnia, aged 67, was found dead in bed, April 12

Levi White Hunt, Toledo, Ohio, Ohio Medical University, Columbus, 1903, veteran of the Spanish-American War, aged 66, died, April 7, of heart block, infected teeth and diabetes mellitus

Frank T McClintic, Marlinton, W. Va., Medical College of Virginia, Richmond, 1887, formerly bank president, died, April 15, in the Pocahontas Memorial Hospital, of heart disease

George A Humpert, St. Louis, St. Louis Medical College, 1884, member of the Missouri State Medical Association, aged 75, died, April 16, of chronic myocarditis and arteriosclerosis

Robert Lowell Mason, Trenton, N. J., Howard University College of Medicine, Washington, D. C., 1932, aged 41, died, April 12, in the Mercer Hospital, of cardiac decompensation

Henry Hein, Wilber, Neb., John A. Creighton Medical College, Omaha 1903, president of the Saline County Medical Society, aged 59, died, April 24, of congestive heart disease

Edward Carroll Alvis, Benton, Ill., St. Louis College of Physicians and Surgeons, 1905, member of the Illinois State Medical Society, aged 66, died, April 30, of hypernephroma

John F McCarty, Oxett, Miss., Tulane University of Louisiana Medical Department, New Orleans, 1892, aged 71, died in April, in a hospital at Laurel, of pneumonia

Joseph G Gray, Franklin, Ky., University of Tennessee Medical Department, Nashville, 1899, member of the Kentucky State Medical Association, aged 60, died, April 13

Chalmers Nash Kendrick, Buffalo, Chicago Homeopathic Medical College, 1898, aged 64, died, April 18, in the Millard Fillmore Hospital, of arteriosclerosis and uremia

Clarence Dupree Jones, Hillsboro, N. C., Vanderbilt University School of Medicine, Nashville, Tenn., 1887, aged 70, died, April 3, of angina pectoris

Alphonse Denis Fouchy, La Mesa, Calif., Hahnemann Medical College, San Francisco, 1887, aged 79, died, April 7, of myocarditis and diabetes mellitus

Henry Covington Macy, Chicago, Bellevue Hospital Medical College, New York, 1897, aged 70, died, April 2, of chronic myocarditis and bronchopneumonia

Alvin Bernard Stone, The Dalles, Ore., University of Oregon Medical School, Portland, 1902, aged 59, died, March 29, in a hospital at Pendleton

Benjamin H. Bennett, Dallas, Texas, University of Tennessee Medical Department, Nashville, 1895, aged 74, died, April 9, in a local hospital

Lee Johnson, Gastonia, N. C., Jefferson Medical College of Philadelphia, 1911, aged 49, was found dead, April 8, of a self-inflicted bullet wound

Royal William Grubbs, Gary, Ind., Meharry Medical College, Nashville, Tenn., 1916, served during the World War, aged 51, died, March 14

Harry John Herman, Jerseyville, Ill., Northwestern University Medical School, Chicago, 1933, aged 34, died, April 15, of lobar pneumonia

J. A. Hector Forgues, Montreal, Que., Canada, Laval University Medical Faculty, Montreal, 1911, aged 51, died suddenly, March 25

Oliver Bagby, Vinita, Okla., University of Missouri School of Medicine, Columbia, 1881, formerly bank president, aged 78, died, April 20

William H. Coontz, Findlay, Ohio, Medical College of Ohio, Cincinnati, 1899, aged 70, died, April 3, of carcinoma of the prostate

Charles B. Watkins, Clinton, Miss., Louisville (Ky.) Medical College, 1906, aged 70, died, March 20, in a hospital at Jackson

Harry John Quinn, Mount Pleasant, Ont., Canada, University of Toronto Faculty of Medicine, 1920, aged 45, died, March 25

Thomas C. Rogers, Wellston, Ohio, Miami Medical College, Cincinnati, 1869, Civil War veteran, aged 87, died, March 19

Morley Cuthbert Salmon, Victoria, B. C., Canada, University of Toronto Faculty of Medicine, 1911, aged 51, died, March 29

George Chauncey Leach, Toronto, Ont., Canada, Queen's University Faculty of Medicine, Kingston, 1904, aged 60, died, April 19

Richard Leffers, Lakeland, Fla., University of Tennessee Medical Department, Nashville, 1909, aged 59, died suddenly, April 12

John Eldon Craig, Ottawa, Ont., Canada, McGill University Faculty of Medicine, Montreal, Que., 1899, died, April 7

John Roscoe Young, Mattoon, Ill., Eclectic Medical Institute, Cincinnati, 1888, aged 85, died, March 23, of uremia and nephritis

C. E. Leatherman, Louisville, Ky., Kentucky School of Medicine, Louisville, 1898, aged 73, died, April 15, of heart disease

Miles Jasper Wilhoit, Water Valley, Miss., Memphis (Tenn.) Hospital Medical College, 1913, aged 54, died in March

James Blainie Hall McClinton, Midland, Ont., Canada, Trinity Medical College, Toronto, 1888, aged 78, died, April 12

William J. Lankford, Chanute, Kan., Northwestern Medical College, St. Joseph, Mo., 1892, aged 85, died, in April

Marshall Bidwell Ketchum, Los Angeles, Eclectic Medical Institute, Cincinnati, 1882, aged 80, died, April 17

Edward Merriett Watkins, Sacramento, Ky., Louisville Medical College, 1882, aged 80, died, March 30

George Carl Lotz, New York, Bellevue Hospital Medical College, New York, 1896, aged 64, died, April 30

Henry Franklin Massie, Haverhill, Ohio, Miami Medical College, Cincinnati, 1896, aged 69, died in April

James N. Baxter, Berlin, Tenn., University of Nashville Medical Department, 1878, died in April

Correspondence

FORTY DAYS' CONSTIPATION

To the Editor—A few years ago while in charge of a large hospital in South China I saw a man whose bowels had not moved for forty days. The Chinese are very reliable in giving clinical histories and taking a great deal of notice of their excretory functions. I believe implicitly that the man's statement that his bowels had not moved for forty days was no exaggeration.

He was addicted to opium, which has a constipating effect. When he came to the hospital he was so weak that he was unable to walk and had to be carried. As a result of the toxic effect of this prolonged gastro-intestinal stasis his eyesight had become seriously impaired and there was a peculiar milky appearance of the cornea. Enemas were not effective and it was necessary to remove the fecal impactions manually. Following this procedure the patient was given daily cathartics for a time and his eyesight improved and his physical strength returned.

This is a rather extreme case of intestinal auto-intoxication and is cited in the hope that it may cause others who have come in contact with cases of prolonged obstipation to cite their experiences, as I have never seen an account of such prolonged and obdurate stasis.

WILLIAM K. McCANDLISS, M.D.

New Jersey State Hospital, Trenton, N. J.

REPRODUCTIVE PERFORMANCE IN MAN

To the Editor—In an editorial in *THE JOURNAL*, May 22, "Reproductive Performance in Man" is the statement "she would produce as an average 33 births."

My genealogy is so complete that I know practically all the births on both sides to 1697 and on my maternal side for hundreds of years more. I once tabulated, for each twenty-five year marriage, the number of births to a marriage. It was uniformly, if I now remember correctly, 34, until I went back of 1600, when it began to vary for lack of sufficient data. Families were no larger in the 1700s than today. Some had eight or ten children, many, as today, had none.

I have used these figures to combat the birth control idea. The average woman, with no prevention, will have an average of 34 births. This just covers the losses from deaths in infancy and keeps the population nearly uniform.

RAWLINS CADWALLADER, M.D., San Francisco

GANGRENE OF THE SKIN

To the Editor—I was much interested in the editorial in *THE JOURNAL*, May 29, on progressive postoperative bacterial synergistic gangrene of the skin caused by the synergistic action of the nonhemolytic micro-aerophilic streptococcus and *Staphylococcus aureus*. This condition has been frequently confused with the chronic undermining burrowing ulcers in which the hemolytic micro-aerophilic streptococcus is the sole causative organism.

A number of articles have appeared which have confused these two conditions and it is important to differentiate clearly between them. In both, zinc peroxide is now an established method of treatment after excision, as I stated in a paper that appeared in the *Surgical Clinics of North America* in June 1936.

In the gangrenous cases, wide excision is essential and recovery will occur after excision alone, but zinc peroxide prevents recurrence, hastens the healing and permits skin graft.

ing earlier than would otherwise be the case. In the undermining ulcer type, excision is sometimes not necessary because there is no gangrene, and frequently zinc peroxide can be brought into close apposition with the surface of the infection without extensive operation.

FRANK L. MELENEY, M.D., New York

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

BISMUTH COMPOUNDS IN THE TREATMENT OF SYPHILIS

To the Editor—I should like to ask your advice concerning the use of bismuth compounds in the treatment of syphilis. Stokes (in his 1934 edition, page 251) emphasizes the use of Lomholt's rule, which calls for a dosage of 0.5 mg of bismuth per kilogram of body weight per day. This would amount to 245 mg per week for an adult weighing 70 kg. Elsewhere in the same reference he advises a dose of from 2 to 2.3 Gm of bismuth metal per ten weekly injections or about 200 to 230 mg per week. Schwartz (*Ann Inst Pasteur* 45:386 [Sept] 1930) reports that until 1927 the dosage used at the Fournier clinic was 240 mg of sodium and potassium bismuth tartrate per week. Since 1927 the dosage has been 160 mg of oil-soluble bismuth per week. Naturally various factors other than weight such as age, kind of syphilis, preparation employed, and evidence of toxicity affect the dosage. The dosage recommended for the various preparations in New and Non-official Remedies is much less than these amounts, however. For example, bismocymol 100 mg per week, bismuth sodium tartrate 90 mg per week and oleo-bi-Roche 100 mg per week. 1. Do you think that Lomholt's rule is a reliable guide in estimating dosage? If so, are not the dosages recommended in New and Non-official Remedies too small? 2. Should the oil suspension preparations of bismuth be for the most part discarded as suggested by many recent authorities? 3. In the French clinics where bismuth is the only drug employed (as in the Fournier clinic) and where injections are given twice weekly for twelve weeks, what is the best period used? 4. What is the metallic bismuth content of 120 mg of bismuth salicylate? Please omit name.

M.D. California

ANSWER—1. Lomholt, working with an aqueous suspension of bismuth oxychloride, suggested a dosage of 5 mg of metallic bismuth per kilogram of body weight per day. This preparation is comparatively well absorbed and excreted. Naturally, this advice could not safely be used with a preparation such as bismuth salicylate, of which there is such a slow absorption and consequent excretion in the urine and feces. After all, what is desired with all bismuth preparations is the absorption from the injection site of sufficient bismuth to make a continuous therapeutic level in the blood stream, which will be measured in terms of bismuth excretion in the urine and feces, particularly the urine. If one is employing an aqueous solution, naturally this will mean injections two or three times a week to keep this bismuth level at the proper height. With a water or oil suspension of an insoluble preparation or with an oil soluble preparation it may be possible to achieve this with an injection but once a week, and if the preparation shows a comparatively continuous daily excretion of from 2 to 4 mg of metallic bismuth in the urine this is an excellent indicator of therapeutic effect of the preparation and is much more satisfactory than a hard and fast rule such as the one proposed by Lomholt, which might apply for certain preparations and which, on the other hand, would be inappropriate for certain other preparations. It is our belief that the dosages recommended for N. N. R. are worked out more on the idea of a therapeutic level in the blood stream. This can be attained with bismocymol, 100 mg injected once a week, with tri-weekly injections of bismuth sodium tartrate. Kurthy (*Biochem Ztschr* 150:173 1924) reports that in a patient who received treatment with fifteen injections of oleo-bi-Roche from November to January, excretion studies made ten days later showed amounts starting with 184 mg of bismuth, reaching a height of 547 mg January 29, and dropping to 138 by February 2.

2. We see no reason why oil suspension preparations of bismuth should be discontinued, except for the fact that they are more costly than other preparations.

3. In certain of the French clinics bismuth alone is employed, at least, in the Fournier clinic. Far better results can probably be achieved with continuous therapy with alternating courses of arsenicals and bismuth.

4. Injections of bismuth subsalicylate in oil are generally employed in doses of 1 or 2 cc of a 10 per cent suspension. There is 65 mg of metallic bismuth in 1 cc and 130 in 2 cc of the suspension.

USE OF MASSIVE DOSES OF VITAMIN D

To the Editor—What is the present status of treatment with massive doses of vitamin D? What is an excessive dosage? Have there been any pathologic studies on those who have been treated with massive doses of vitamin D? What conditions contraindicate the use of massive doses? Please omit name and address.

M.D. Arizona

ANSWER—Massive doses of vitamin D have been used with varying success for a number of clinical conditions such as parathyroid tetany, pollinosis and tuberculosis, but it is assumed that the inquiry refers to its use in treating arthritis. In their original publication Dreyer and Reed (*Arch Phys Therapy* 16:537 [Sept] 1935) reported only limited success and admitted that it cannot be considered a cure. Their experience extended over a period of three years and included 120 cases. Vrtiak and Lang (*THE JOURNAL*, April 4, 1936, p 1162), in a series of twenty-two cases for the duration of one year or less, took a rather conservative view, stating that other measures were of equal value, a position freely admitted by Dreyer and Reed. In recent addresses before a hospital staff, Vrtiak expressed a somewhat more enthusiastic view.

Livingston (*Arch Phys Therapy* 17:704 [Nov] 1936) has enthusiastically endorsed this method on the basis of treatment of twenty-two cases for a year or less. Farley (*Illinois M J*, to be published) also has taken an enthusiastic stand regarding this form of therapy. On the other hand, Wyatt, Hicks and Thompson (*Ann Int Med* 10:534 [Oct] 1936) have reported indifferent results in forty cases. The duration of treatment was not stated. Lautman, in an address before the Chicago Medical Society, Dec 16, 1936, stated that "vitamin D concentrates are helpful when indicated, although the claims made for their use in massive dosage have not as yet been established."

An excessive dose is a relative matter that can be determined only by trial. Some individuals are reported to have tolerated well for considerable periods daily doses as high as 30,000 international units per kilogram of body weight. Others are sensitive to doses as low as 5,000 units per kilogram daily for only a few days. However, these responses appear not to be true hypervitaminosis D but rather gastro-intestinal sensitivity to the solvent. This is not, however, a settled question. If any symptoms suggestive of overdosage appear, the only safe procedure is to discontinue the treatment. The symptoms have been described in several publications (Reed, C. I. Symptoms of Viosterol Overdosage in Human Subjects, *THE JOURNAL*, May 26, 1934, p 1745; Dreyer and Reed, already cited; Shelling, D. H. The Parathyroid Glands in Health and Disease, St. Louis: C. V. Mosby Company, 1935; Crimm, P. D., and Strayer, J. W. *Am J M Sc* 187:557 [April] 1934; Crimm, P. D., Strayer, J. W., Watson, H. L., and Heimann, G. *Am Rev Tuberc* 28:202 [Aug] 1933; Crimm, P. D., and Strayer, J. W. *J Lab & Clin Med* 19:966 [June] 1934).

Contraindications are any kidney disturbance, coronary disease and persistent intolerance to any dosage.

Pathologic studies in human subjects are few because few patients so treated have come to necropsy. Shelling and Jackson (*Bull Johns Hopkins Hosp* 55:314 [Nov] 1934), Thatcher (*Lancet* 1:20 [Jan 4] 1936) and Ravina (*Presse med* 44:1471 [Sept 19] 1936, abstr. *Internat M Digest* 24:359 [Dec] 1936) have made the most recent reports. Cowdry and Scott (*Arch Path* 22:1 [July] 1936) have reported in great detail the results of experimental studies in monkeys. It is understood that another extensive report on the pathology of vitamin D will appear in an early issue of the *Annals of Internal Medicine*.

Available information at present indicates that so long as no clinical symptoms of toxicity appear there are no permanent changes of pathologic nature in the tissues. However, much more work must be done to settle this question.

The public press late in March 1936 carried a story of the death of an aged physician in San Francisco who attempted self medication but miscalculated the dose. The immediate cause of death was unquestionably hypervitaminosis D, but the dose was far in excess of any recommended for arthritis.

It would appear, therefore, that the use of vitamin D must depend on the judgment of the physician as to whether the unpredictable but possible benefits offset dangers that are at present largely theoretical if all precautions are observed.

The position of the Council on Pharmacy and Chemistry on the use of very high potency vitamin preparations in arthritis appeared in a report in *THE JOURNAL*, May 16, 1936, page 1732. Elsewhere in this issue (p 132) is a report by the Council on two such preparations: Condol and Ertron.

ARSPHENAMINE JAUNDICE IN SYPHILIS OF THE
NERVOUS SYSTEM

To the Editor—May I ask your suggestions concerning continued treatment for a case of cerebrospinal syphilis? I first saw the patient, a man of 37, Oct 15, 1935, when he was suffering a severe hemolytic jaundice which appeared after he had received eight intravenous doses of 0.06 Gm of neoarsphenamine during the preceding two months. Continuous vigorous treatment over a period of four months relieved the jaundice with its marked generalized pruritus, the patient gaining weight and enjoying a great improvement in general health. Several months treatment with soluble bismuth intramuscularly was given. Antedating the treatment with neoarsphenamine the patient's blood Wassermann reaction was four plus but all subsequent blood Wassermann reactions (even after three months rest from all treatment) have been negative. Recently mental and nervous symptoms have become evident and a spinal fluid Wassermann reaction is four plus in 0.5, 0.25 and 0.125 cc dilutions. There is a spinal fluid cell count of 1. The globulin test is negative. The colloidal gold curve is not typical. I feel that the patient's condition urgently suggests trypanamide but in view of his extremely serious experience with neoarsphenamine I hesitate to administer any arsenical. I have decided to administer a bismuth compound intramuscularly continuously but doubt whether it is sufficient. Please omit name.

M D, New Mexico

ANSWER—Postarsphenamine jaundice is not hemolytic but obstructive and is due to diffuse (presumably toxic) hepatitis. It does not usually persist for a period of four months. When jaundice occurs in a syphilitic patient under treatment with the arsenical drugs, it must be remembered that it may be due to any one of many other causes than syphilis or treatment.

The correspondent does not state the character of the mental and nervous disturbances that have recently become evident and, although the spinal fluid Wassermann reaction is positive, the remaining conditions in the spinal fluid are not typical of dementia paralytica. If, however, the diagnosis of dementia paralytica is justified on physical and psychiatric grounds, the treatment urgently indicated at the outset is artificial fever with induced malaria, which should be given before any other form of treatment is attempted. When the malaria is completed, trypanamide may be used without fear of repetition of the jaundice, but of course with due caution as to visual reactions.

The mechanism of production of postarsphenamine jaundice is not clear, but it is certainly not a sensitization phenomenon, such as is postarsphenamine dermatitis. Most patients who have been jaundiced following some of the arsphenamines may, after recovery from the jaundice, be treated again even with the same arsphenamine preparation which apparently precipitated the reaction originally. While treatment jaundice does occur after trypanamide, it is much rarer than with the arsphenamines and a recurrence of the reaction is not likely.

If the diagnosis of dementia paralytica in this patient is correct, prolonged bismuth treatment is completely inadequate.

FISH POISONING OR ERYSIPELOID

To the Editor—Is there such a disease as fish poisoning? I live in a town in which there is a fishing industry consisting of catching cutting and packing fish. During our fishing season many patients give the following history: I have been cutting fish and stuck a fish fin in my hand and for the last day or so it hurts so badly I can't work. Examination reveals an area of erythema varying in size from 2 to 4 cm in diameter, quite painful, and the joint nearest the injury is often swollen and painful. What would you suggest for treating these cases? Many here use white lead. I have been using potassium permanganate 1:1000 as a wet dressing. This seems to give better results. After it has been used a few days the erythematous area sheds off. The joint pain responds slowly to the use of salicylates.

C S CREDLE M D, Colerain N C

ANSWER—The disorder in these fish handlers is most probably erysipelas, also known as erythema serpens or erythema migrans. It occurs in persons whose occupations bring them in contact with animal carcasses or their products—pelts, bone, manure. In this country it is most common along the Eastern coast, most of the reported cases occurring in fishermen from the vicinity of the Chesapeake Bay coast. Gilchrist found that bites from crabs most often preceded the disorder. Rosenbach, who gave the disease its name, recovered an organism of the order of cladothrix from the lesions and also succeeded in reproducing the malady by inoculation experiments. At the present time the belief is increasing that this is the same organism that produces swine erysipelas.

The disease commences about two days after trauma in handling fish, crabs or animal products, with a livid red, sharply defined, edematous spot on the fingers or hand. The lesion spreads at the edges and clears in the center, to become circumscribed. Several lesions may form simultaneously or in succession with the production of scalloped figures. Itching, burning and pain are the usual subjective symptoms. General symptoms are usually lacking. The disease runs its course in from two

to four weeks without sequelae. The reports do not state whether there is permanent immunity. This is the mild form of the disease. In addition to this, more severe and serious forms include the production of lymphangitis with fever, malaise and headache, a chronic form with arthritic symptoms, and one with signs of sepsis, endocarditis and arthritis.

Local applications of warm antiseptic wet dressings have been employed with benefit. Potassium permanganate, resorcinol and ichthammol can be used in this manner. The latter in a 40 per cent strength in petrolatum is highly recommended. Gilchrist applied a 25 per cent salicylic acid plaster. Specific horse serum prepared for use against swine erysipelas has given prompt improvement. The injections may be made intramuscularly or around the lesions. Ultraviolet irradiation may be useful.

The disease in fishermen represents an industrial problem which is partially met by the recent use of specific serums. In veterinarians who accidentally inoculate themselves with the organisms and who may thus acquire the serious forms of the disease, it represents more than a mild hazard.

ATROPHIC ARTHRITIS

To the Editor—A white man aged 41 has nonvenereal atrophic arthritis in his feet, knees and hand. He has had the condition for three and one-half years. He has been able to get about on crutches about one-fourth of the time. He does not suffer much pain after the first five or six days following an attack but has a weakness and a continuous soreness in the joints and is unable to walk or use his limbs. He had his tonsils removed in July 1934. Most of his teeth have been taken out, the remainder have been roentgenographed twice and have been pronounced perfectly sound by every technician and dentist. I have been unable to detect any other symptoms. He was in the Army and Navy Hospital at Hot Springs Ark., four and one-half months where practically the same diagnosis was made that I have given. Previous treatment was with sodium salicylate by mouth and intravenously. cinchophen, all preparations of a sodium salicylate base and nonspecific protein therapy, chaulmoogra oil, lactogen, typhoid vaccine intramuscularly and intravenously, hydropobia serum intramuscularly, and many other preparations of the same nature. If you know of any preparations or method of treatment that you can recommend please notify me at once for the benefit of the patient. Please omit name.

M D Illinois

ANSWER—It is assumed that all areas of focal infection have been examined and that there is no infection in the sinuses or prostate. The patient's weight is not mentioned. The majority of patients with atrophic arthritis lose weight. If the patient is not still overweight, a rather high vitamin, high caloric, anticonstipation diet would seem advisable. The use of physical therapy is not mentioned. It was undoubtedly given while the patient was in the hospital, but it is important for most patients with atrophic arthritis to continue some form of physical therapy daily over long periods. This can best be done by a program of home physical therapy carried out daily by means of the efforts of the patient and his family, supplemented by professional physical therapy two or three times a week, or oftener if necessary. If possible, some form of occupational therapy should be instituted under the supervision of the attending physician to prevent or correct deformities and to strengthen affected muscles. It is stated that the patient is on crutches about one-fourth of the time, and it is assumed that he is bedfast the rest of the time. This would suggest that deformities already exist and that orthopedic corrections may be necessary. At any rate, orthopedic consultation is indicated to prevent impending deformities. It is the common habit for bedfast patients with arthritis to lie in bed with pillows under their knees. This fosters flexion deformities and the habit should be prevented. Even if the patient is bedfast, certain daily exercises in bed should be instituted. Recently a summary of methods of treatment to correct and prevent deformities appeared. Hench, P S, and Meyerding, H W. The Results of Failure or Neglect in the Care of Chronic Infectious (Atrophic) Arthritis. Characteristic Deformities and Their Prevention, *M Clin North America* 18:549 (Sept.) 1934.

Many medicines have been given. Unfortunately, medicines seem of little value in this disease except as analgesics. Since foreign protein and nonspecific vaccines and serums have already been given without relief, a trial of one of several vaccines made from so-called arthrotropic streptococci is suggested. The vaccine should be given for at least three to six months. However, there is no one vaccine available that is consistently helpful. Other methods in current favor which seem helpful to some patients include x-ray therapy. Injections of gold or sulfur, the use of concentrated viosterol and other methods are now being used but their exact value has not been determined. For a current opinion of the value of these and other procedures in atrophic arthritis the correspondent is referred to an exhaustive review on the subject by Hench, P S, Bauer, Walter

Fletcher, A. A., Ghrist, David, Hall, Francis, and White, T. P. The Problem of Rheumatism and Arthritis. Review of American and English Literature for 1935 (Third Rheumatism Review), *Ann Int Med* 10 754 (Dec) 1936

EXFOLIATIVE DERMATITIS AND PSORIASIS

To the Editor—What is the cause and treatment of persistent redness, scaling and itching of the whole body of a woman aged 88 who has suffered from psoriasis and who had apparently shown complete disappearance of the psoriasis patches several months ago? She is now using a hydrous wool fat and olive oil mixture containing 1 per cent phenol and 0.5 per cent menthol with partial alleviation of the symptoms. She is receiving treatment with 2 mg daily of arginin for her heart which had shown signs of failure several months previously evidenced by a pulse of 100 and edema of the extremities. She also takes A, B and D vitamins daily. Owing to her prolonged confinement in bed there is a marked atrophy in the muscles of the legs and thighs so that it is impossible for her to stand without support. She is bedridden most of the time. Her appetite is very good. The heart rate is 84 per minute. Is the condition a form of muscular atrophy? Too frequent massaging of the muscles causes fatigue. She received large amounts of amino-acetic acid until a month ago when it was discontinued because no improvement was shown in the condition of the muscles. What is the diagnosis and treatment? Please omit name. M. D. Connecticut

Answer—The patient apparently has generalized exfoliative dermatitis, secondary to psoriasis. Goeckerman and O'Leary (*The Journal*, Dec 17, 1932, p. 2102) reviewed twenty-two such cases, giving them the title of erythroderma psoriaticum, a term used to designate the generalization of psoriasis vulgaris to a point at which the usual clinical characteristics have disappeared and have been replaced by those of exfoliative dermatitis. This article should be read, because it gives factual data and pertinent discussions by several dermatologists. In short, the condition occurred in about 1 per cent of all cases of psoriasis observed by the authors, in people of various nationalities, in old and young, some with arthritis, and they were of varying durations. The use of arsenic internally and irritating drugs locally seemed to precipitate most of the cases, in others no etiologic factors were found. Associated cardiac, renal or other diseases were present in some of the patients, but there seemed to be no important etiologic relationships between them. In differentiating the conditions from other forms of exfoliative dermatitis, histologic study of a biopsy section is of value. In an occasional case recovery was spontaneous, but in most cases when there was no treatment the tendency was for them to persist, sometimes for years. Goeckerman and O'Leary achieved their best results with the use of their coal tar and ultraviolet ray regimen. At night an ointment of 3 per cent crude coal tar is applied to the skin. In the morning it is wiped off and the entire body is then exposed to ultraviolet radiation. The treatment is administered as often as is feasible daily if possible. With this regimen some cases cleared up and the patients remained well for considerable periods, others recurred after a short time.

EPISIOTOMY

To the Editor—Will you please answer the question as to the best method to perform an episiotomy. I am not unmindful that some recent teachers and authors advocate a mediolateral incision either right or left or both and if these are correct when is it proper to do the right and when is it proper to do the left? Is it not a fact that some famous obstetricians advocate the median incision down to the sphincter ani? Any information along this line will be greatly appreciated.

E. R. GOONLOE, M.D., Paducah, Ky.

Answer—Opinions differ as to the best method of performing an episiotomy. Lateral episiotomy has practically been abandoned in favor of the median or the mediolateral. Bilateral episiotomy of the latter type is seldom if ever necessary.

The indications for any episiotomy are of two main types: 1. Fetal (a) where there are definite signs of fetal distress, (b) where a rigid perineum may endanger the fetus by causing an unduly prolonged second stage. These indications apply only when the perineum is interfering with the progress of labor. 2. Maternal (a) where tears are probable, as in most primiparas, (b) where the last part of the second stage of an otherwise natural labor may be facilitated, (c) where operative delivery from below is indicated, such as in breech extraction, version or forceps, and the perineal structures are not sufficiently relaxed to permit delivery without damage to the soft tissues.

There are certain advantages and disadvantages to both the median and the mediolateral episiotomy. They are both simpler to repair than the common, irregular tears, but the median is easier than the mediolateral. Both have the disadvantage of possible extension upward into the vaginal wall and downward

or backward into the environmental structures. The median is more apt to extend into the sphincter ani and rectum, and the mediolateral into the ischioanal fossa. The main question to decide is the amount of room required for delivery of the fetus without risking a serious extension of the incision. A wide perineum favors a median episiotomy while a short one indicates a mediolateral episiotomy. It should be clearly understood that a median episiotomy is not applicable to all cases in which an episiotomy is indicated. The mediolateral form may be employed in any or all cases in which an episiotomy is necessary, and it makes no difference whether the incision is made on the right or the left side.

The occasional operator should accustom himself to the performance and repair of only one type, as he can thus acquire better judgment as to the depth of the incision and the technique of repair.

HIVES AFTER DYE TEST FOR GALLSTONES

To the Editor—I underwent an operation for left inguinal hernia Oct. 26, 1936 and was given spinal anesthesia because I wished to avoid coughing and sneezing after the operation. For the past eight years I am now 46 I have suffered from hay fever (fall type ragweed) and occasional flare ups of an old ethmoid sinusitis. Therefore I postponed the operation to avoid the sneezing. That was fine as I never sneezed once. However having had several attacks of epigastric pain and vomiting following overindulgence in rich (fatty) food requiring morphine I decided to have a cholecystogram just prior to my departure from the hospital. Accordingly I took a dose of shadocol after dinner (1 30 p.m.) and at 5 o'clock I developed hives and after a light supper I took another dose of shadocol (two dose technique). Then I was given three doses of epinephrine 3 5 and 5 minims (0.18, 0.3 and 0.3 cc) at 6 45 p.m., 8 and 9 45 p.m. At 10 15 I went into shock, which lasted four hours, and was given caffeine with sodium benzoate and later pantopon (a mixture of opium and alkaloids) hypodermically. The next morning roentgenograms were taken and the results were not conclusive for gallstones. What I want to know is: What gave me shock shadocol or epinephrine? The people who make shadocol said it never did that to anyone so far as they knew. I know that epinephrine can cause shock but I received only 13 minims (0.8 cc) in all. I also know I am allergic (viz. hay fever and hives from shadocol). Another fact that might help is that for two years my basal metabolism has been low and I take 1 grain (0.065 Gm.) of thyroid daily to keep it around normal. Would the spinal anesthesia cause the backache which I have had since leaving the hospital? At present I am engaged in active general practice and work all day but am bothered with a backache which seems to have started after the operation. Please omit name.

M. D. Pennsylvania

Answer—Following the intravenous injection of dye for gallbladder visualization the occurrence of hives is not infrequent, but we do not know of any instance of shock.

Epinephrine produces an immediate rise in blood pressure followed by a fall, which is frequently lower than the original level. The symptoms complained of developed within thirty minutes after the last injection of epinephrine, and since individuals may react to a different degree under different conditions this was probably responsible.

Backache after an operation is a common complaint. It varies with the hardness of the table, the position of the patient, the presence and extent of vertebral arthritis, the amount of individual curvature and the degree of muscular relaxation obtained by the anesthetic, all of which affect the flattening of the lumbar curves with a tendency to strain with subsequent soreness and often long persisting backache.

One of the best preventives is the use on the operating table of a thick but soft mattress, preferably with an air cushion.

DEATH RATES FROM ARTERIOSCLEROSIS AND HEART DISEASE

To the Editor—What do statistics show if any are available, regarding the increase in death rate and morbidity as a result of arteriosclerosis, high blood pressure and apoplexy during the past ten years? Please omit name.

M. D. Texas

Answer—In a study by Rollo H. Britton, senior statistician of the United States Public Health Service (*Pub Health Rep* 51 947 [July 17] 1936) the upward trend in the mortality rate for heart disease was shown to be increasing at the rate of 35 per cent a year over a seven year period, the study being based on two periods from 1920 to 1926 and from 1927 to 1933. No available data are known to me which adequately cover the changes in morbidity from heart disease during the period under discussion.

There are two facts which make the interpretation of statistics concerning morbidity and mortality as a result of arteriosclerosis, high blood pressure and apoplexy difficult. First, the greater precision in diagnosis obtaining at present is reflected in all mortality statistics by an apparent increase in certain forms of heart disease, some of which are frequent complications

of the entities asked about. For example, coronary occlusion is a common diagnosis today, whereas twenty years ago it was very rare. Some authors believe that this change in nomenclature is the major factor in the apparent increase mentioned, but the consensus is that the increase is real. Second, the decrease in morbidity and mortality in nearly all the infectious diseases (except pneumonia and influenza) which has resulted in such a striking increase in life expectancy in the past few decades results in a larger number of the population reaching the age at which degenerative disease is to be expected.

This raises the question as to whether the increase in heart disease is a relative or absolute increase and this is a difficult question to answer. Some students of the problem believe that the apparent higher incidence of hypertension and angina pectoris among city dwellers as opposed to the rural population and especially among business and professional men indicates that environment plays a part in the etiology. Opposed to this is the high incidence of hypertension among Negroes.

UNCERTAIN CAUSE OF DEATH

To the Editor—Please help to clear up the etiology in this case. A woman, aged 64, 5 feet 6 inches (168 cm.) in height, married, whose father, mother, brother and sister died over 60 of apoplexy or Bright's disease has a good previous history except for syphilis twenty years ago (treated since then with arsphenamine and mercury with a negative Wassermann reaction since) arthritic pains in the left shoulder and knee never confining off and on for five years, frequent intense headaches for twenty-five years, salicylates and barbiturates being used and some carious teeth. The patient has had regular dental care but six months ago the left molar was broken in extraction and the roots were left in situ on the dentist's assurance that the gum would heal over it (and it did). Her last sickness was preceded by two attacks of sternal pains of considerable intensity followed after one week by complaints of great weakness and pain in the left shoulder and left knee. Onset was sudden. Chills, pains a temperature between 103 and 104 F., constipation and aberration a tense abdomen, scanty, 4 plus albuminous urine and a deepening stupor. The Wassermann reaction was negative. The lungs were normal. X-ray examination showed the heart somewhat enlarged. Death occurred at the end of eight days. Here was a toxic condition. How was it brought about? What role could the carious tooth, the arthritis, the past syphilis play? Please omit name. M D, Louisiana.

ANSWER—The chills and fever indicate that the fatal illness was an infection or was associated with infection. The tense abdomen suggests peritonitis. The infection may have been primary or secondary to some existing focus, as in a joint or the throat. The enlargement of the heart may have been due to valvular or myocardial lesions, if due to myocardial lesions, the possibility of syphilis being at the bottom cannot be excluded. The question arises whether the "two attacks of sternal pains of considerable intensity" were manifestations of angina pectoris.

USE OF EDELMANN-GALTON WHISTLE

To the Editor—I am wondering if you can tell me exactly how to use the Edelmann-Galton whistle 2106 which I now have in my possession together with other equipment which I bought from the estate of a recently deceased doctor. Please omit name. M D, Maryland.

ANSWER—Each Edelmann-Galton whistle is supposed to be supplied with a table showing which pitches are produced when the whistle is set at certain points. If the correspondent will write to T. H. Edelmann of Munich, giving the number of the whistle, we believe that a complete table will be furnished. It would be advisable to request the manufacturer also to send a brochure, if one is available, giving detailed instructions regarding the use of the whistle.

The distal portion of the whistle is known as the pipe length (pfeifenlange), and the proximal portion to which the rubber tubing and bulb are attached is known as the aperture width (maulweite). When the table for the particular whistle is at hand, it will be noted when the pipe length is set at a certain point by turning the attachment, and the width of the aperture is set at a certain point, which tone is produced. The great difficulty with these whistles is that at the highest pitches they require an enormous pressure of air in order to produce a definite tone and not a mere blowing sound. But even at the lower pitches it is often difficult for patients to distinguish between the hearing of a tone and the mere blowing sound of the air. It is necessary to avoid contact with the sharp edges of the apertures in order that the pitch may not be altered and the quality changed.

In testing the patient, hold the whistle parallel with the ear at a distance of 8 or 10 inches, and then with even pressure compress the bulb and test the patient first with the highest tones, gradually descending until the point is reached at which the tone and not the blowing sound is distinguished. This will give the high tone limit for that particular individual.

SLOWNESS AND STUTTERING IN CHILDREN

To the Editor—I have a granddaughter 12 years of age a strong healthy active, energetic child who has never had any serious illness. She has always stuttered. We sent her to Professor Muijskens of the University of Michigan a year ago who said she was hardly old enough to profit much by special training but that he thought she would be in a year or two. So we expect to send her to one of his summer classes next year. For the last two or three years, or perhaps longer she has gotten into a habit of being slow dilatory and procrastinating. She is late at meals and eats slowly. I have seen her stay an hour at the dinner table. She is slow on going to bed. If the hour for retiring is 8:30 she may not get into bed until 8:45 or 9. She dresses in the morning as slowly as she undresses at night and will get down to breakfast from ten to thirty minutes late. What would you do with such a child especially as regards the latter state? Where can I find any reading matter on the subject? To whom can I write for information about her? Any help you can suggest will be gratefully received. M D Michigan.

ANSWER—To know what to do with such a child involves determining, if possible, the causes for slowness. If physical factors such as endocrinologic disturbance can be ruled out the problem should be regarded as one of habit training. Some children who stutter are sluggish in motor activities, apparently on the basis of rather poor general muscular coordination. This should be evaluated for this child. Usually such slowness occurs in children on whom no systematic demands for conformity to routine are made. A child will not remain at the table for an hour if food is not permitted to remain on the table for an hour. If there are consequences resulting from dilatory habits about getting up and going to bed, such as some reasonable deprivation of something desired or agreeable, the child will soon enough learn that it pays to stick to the required routine.

Usually the parents' methods of dealing with the child are at fault.

See "For Stutterers" by Smiley Blanton and Margaret Gray Blanton, D. Appleton-Century Company, New York, 1936. Write to the Children's Center, 3743 Brush Street, Detroit, or to the Institute for Psychoanalysis, 43 East Ohio Street, Chicago.

TRAUMA AND CARDIAC INJURY

To the Editor—A man aged 62 without cardiovascular symptoms and apparently in good health slips and falls striking the cardiac area of the anterior part of the chest on a heavy iron ball. He is able to get up and be about for the following twenty-four hours but marked cardiac decompensation develops during the next twenty-four hours. Is such a trauma a valid cause for cardiac failure? If the patient is employed would this be a compensation injury? Can you cite literature which covers such indirect trauma to the heart? M D New York.

ANSWER—Yes, it is reasonable to assume here that the trauma was responsible for the cardiac injury. Myocardial contusion or possible rupture of muscle or valve might have resulted from this injury whether or not there was any underlying heart disease, although of course underlying heart disease if it existed would have favored heart damage from the blow. Physical examination before and after the injury and electrocardiograms taken after the injury would be of great value in the analysis of the case. Contusion of the heart muscle or other trauma may give rise to electrocardiographic changes that may resemble myocardial infarction. For the literature, consult the chapter on Trauma and the Heart by Drs. Paul D. White and R. Earle Glendy in the new book on Trauma and Disease, edited by Dr. Leopold Brahdly.

PARALYSIS AFTER ANTITOXIN

To the Editor—There is a child now in high school who has a paralyzed arm which followed use of diphtheria toxin antitoxin given for active immunization about eight years ago. Paralysis appeared a few weeks after the giving of the preparation and its use is blamed for the paralyzed arm. Is there any evidence or literature on the use of toxin antitoxin or any of the toxoid preparations causing paralysis? I realize that it may well be due to other causes in any certain case but I am especially interested in knowing if there are any authentic or probable cases in which the toxin antitoxin or toxoid could have caused a paralysis. Please omit name. M D Wisconsin.

ANSWER—The paralysis in this case is most likely unrelated to the injection of diphtheria toxin-antitoxin. Usually, diphtheria toxin causes a slowly appearing general paresis beginning with palatal paralysis, and sometimes by loss of function of the muscles of the eye, and lasts from two to six months. The development of paralysis following diphtheria toxin antitoxin and diphtheria toxoid is rare. Papadato (*Arch de med d enf* 37:37 [Jan] 1934) reports the case of a girl aged 8 years who the day following a single inoculation of diphtheria toxin-antitoxin developed acute optic neuritis, mild paresis of the right facial nerve, and muscular twitchings about the mouth.

all of which completely subsided in two months. A second case is reported by Schirppa (*Prat pediat* 12 531, 1934) in a boy aged 6 years who immediately after the second injection of diphtheria toxoid developed paralysis of the soft palate with accompanying regurgitation of food and nasal voice, fever, hypotonia of the muscles of the lower extremities, mild ataxia and absent, and diminished patellar reflexes. Perfect recovery occurred in one month. No cases of permanent paralysis have been described.

RECURRENT DISLOCATION OF SHOULDER

To the Editor—I have a patient who has a recurrent dislocation of her shoulder. She has been advised to have an operation by an orthopedic surgeon to correct the condition. He states that he has had practically no failures from this type of operation. Could you refer me to a source where I can obtain accurate and impartial information with regard to this operation whether the failures are as negligible as indicated by this orthopedic surgeon and whether there is much scarring following the operation? The patient is a young woman and she would strenuously object to a prominent scar.

M D Iowa

ANSWER—Operation for recurrent dislocation of the shoulder has reached a high stage of efficiency, especially since the event of the Nicoli operation. In this operation the tendon of the long head of the biceps transects the upper end of the humerus, acting somewhat on the order of the ligamentum teres of the hip. There is a scar from $2\frac{1}{2}$ to 3 inches long over the antero-lateral aspect of the shoulder joint. This is unavoidable, but it can be placed in such a position as to minimize its prominence.

Satisfactory results were obtained in approximately 90 to 95 per cent of the cases in which the operation was performed.

NECESSITY FOR EFFECTIVE FLUE IN BUTANE GAS STOVES

To the Editor—The public school building at this place has recently been equipped with heating stoves which burn butane gas. There is no provision made for the removal from the room, of the products of combustion. Some children complain about an uncomfortable feeling in the head. Many have colds. I am not an engineering expert but I do know that this form of heating a room is not conducive to health. If you can support my contention with the trustees that some provision should be made for the removal of the products of combustion (carbon dioxide and probably some carbon monoxide) from the room, you will confer a favor on me and I am sure a blessing to the occupants of the room if you will write me a letter explaining the conditions. I will show your letter to the trustees. This butane gas is said to produce a more intense heat than does ordinary natural gas.

M D Texas

ANSWER—In the light of the limited factual information concerning the installation and the operating conditions of the heating stoves referred to, only a generalized comment can be made. The recommendations of authorities with regard to flue connections are that any gas appliance (burning butane or other gases) used for domestic purposes having a demand in excess of 50,000 British thermal units per hour should be connected to an effective flue. Several appliances installed in the same room and having an aggregate demand at normal rating as great as 30 British thermal units per hour per cubic foot of room content should be connected to an effective flue.

SENSITIVITY TO PODOPHYLLUM?

To the Editor—I have recently seen a case in which rather severe ulcerative gingivitis occurred following the administration of some capsules containing unknown drugs. No other cause could be made out for this condition. The blood pictures were normal. Smears and cultures were essentially negative. A dentist who saw the patient states that he has seen several cases of this kind, one of the patients happening to be his wife. He had the capsules used by his wife analyzed and found that they contained podophyllum. They were prescribed by the same physician in all these cases. Have you any record of a sensitivity to this drug?

S B FORBES M D Tampa Fla

ANSWER—There seems to be no record of cases of gingivitis due to podophyllum even in complete and exhaustive compendiums of drugs and their ill effects. In the complete bibliographic file of E. William Abramowitz, the only case recorded of ill effects due to podophyllum is one of keratitis and dermatitis produced by dust of the root of podophyllum, reported by Hutchinson in the *Medical Times and Gazette* 2 516, 1872. M. Peshkin has reported that podophyllum may cause asthma.

As podophyllum and the other resinous cathartics are practically unknown as causes of dermatitis, stomatitis or gingivitis, it seems more likely that some other cause produced the cases of gingivitis in question. This other cause may well have been some other medicament contained in the suspected capsules. A list of drugs likely to cause mucous membrane lesions may be found in Prinz and Greenbaum's "Diseases of the Mouth

and Their Treatment" (Philadelphia, Lea & Febiger, 1935) and in the chapter on Drug Eruptions, by Ferdinand Zinsser in Josef Jadassohn's *Handbuch der Haut- und Geschlechtskrankheiten*, volume 14, No. 1.

PNEUMONIA IN AGED

To the Editor—A woman aged 88 was in apparent good health until yesterday noon when she was suddenly seized with a chill fever and began to expectorate prune juice sputum. I was called in the evening and made a diagnosis of lobar pneumonia of the left upper lobe. The temperature was 102.2 F by mouth, the pulse 74 and respiration rate 18. There were diminished resonance and diminished breath sounds over the left upper lobe with crepitant rales present. Tonight her temperature was 101, pulse 74 and respiration rate 18. The left upper lobe was completely consolidated and egophony was present. Can you explain the reason for the normal respiration and normal heart action? This is the first time I have seen such a paradox in lobar pneumonia. Please omit name.

M D, Iowa

ANSWER—It is highly probable that the absolutely identical pulse and respiration rates were merely fortuitous. Such identical observations are uncommon in normal persons.

It is possible, but unlikely, that the pulse rate might be fixed by an abnormal cardiac rhythm. An auricular flutter or a complete auriculoventricular dissociation might produce such a fixation of the heart rate, but a rate of 74 would be unusual in either of these conditions. There is nothing, however, to produce such a fixation in the respiratory rate.

Pneumonia in the aged shows many bizarre features. It is not infrequently afebrile, less often it is associated with a pulse rate that does not exceed normal limits, and still less often the respiratory rate is relatively low. An absence of the usual leukocytosis is another departure from normal. These aberrations are thought to be due to the inability of the patient to respond in the usual manner to stimuli. They are usually looked on as bad prognostic signs but not necessarily hopeless ones.

Lobar pneumonia at 88 is of rather infrequent occurrence and there is not too much evidence concerning it.

PARESTHESIA OF FACE

To the Editor—A man aged 52 has for the past year and a half been troubled with a paresthesia of the left side of the face described as a numbness and leathery feel to the skin. It first started on the left upper lip as a tingling often making the motion of brushing off a fly, it spread to the cheek, the nose and the forehead. Now it is beginning in the left part of the lower lip. There is no pain. Neurologically there is no abnormality other than loss of taste on the left half of the tongue. Pain pressure and temperature perceptions are intact. There is no motor involvement. The teeth are all vital with no evidence of infection. The tonsils have been removed. The left antrum is cloudy. Is there any hope for relief or prevention of progress of the condition? Please omit name.

M D, Wisconsin

ANSWER—The lesion, a spreading one is causing dysfunction of the second and third branches of the trigeminal nerve on the left side or of the gasserian ganglion. The possibility of infection is suggested by the condition of the left antrum and this should receive attention. In a man of 52 however, with progressive disease of this type, pressure from tumor or aneurysm must be strongly considered. The lack of pain is against a primary tumor of the gasserian ganglion, but tumors of neighboring structures or aneurysm of the internal carotid artery would give the symptoms described. The involvement of taste, supplied by the lingual nerve, occasionally occurs in lesions as high as the ganglion or its primary roots, although most of the taste fibers pass to the brain along with the facial nerve. Neurosyphilis should be ruled out by an examination of the spinal fluid. Even if the fluid is negative for syphilis, valuable information might be obtained with regard to abnormal pressure or increased total protein content. If operation is to be considered, the advice of a neurosurgeon is to be recommended.

GROUP SKIN TESTS FOR ALLERGY

To the Editor—I should like to have an allergist's opinion on the comparative practical accuracy of the diagnostic use of group proteins for skin tests. The method permits covering a larger field so much more quickly and inexpensively that I should like to employ it if it is accurate.

M D Massachusetts

ANSWER—Most allergists agree that the use of group skin tests is to be avoided. The objectionable feature in this method is the dilution of the individual antigen in the mixture. This is of special importance in the intracutaneous type of testing. If a positive reaction is obtained from group tests, it then becomes necessary to test for the individual allergens contained in that group.

Council on Medical Education and Hospitals

ABSTRACT OF MINUTES OF MEETINGS HELD BY COUNCIL ON MEDICAL EDUCATION AND HOSPITALS, ATLANTIC CITY, JUNE 6 AND 9

The following action was taken with regard to the Schools of Medicine of the Universities of North Dakota and South Dakota

It was voted that the same recognition be extended to the classes entering this fall that has been given to the students who were regularly enrolled during the past academic year

The School of Medicine of West Virginia University was restored to the Council's approved list as a School of the Basic Medical Sciences, such approval applying to the courses in anatomy, physiology, biochemistry, bacteriology, pharmacology and pathology

It was voted to place Meharry Medical College on probation

It was voted to restore the University of Georgia School of Medicine to the Council's approved list of medical schools

It was voted that the Council again express appreciation of the services rendered by Dr Herman G Weiskotten and Rev Alphonse M Schwitalla in connection with the medical school survey and invite their further cooperation in the preparation of a final report

WILLIAM D CUTTER, M.D., Secretary

Medical Examinations and Licensure

COMING EXAMINATIONS

STATE AND TERRITORIAL BOARDS

ALASKA Juneau Sept 13 Sec Dr W W Council Box 561 Juneau
ARKANSAS *Eclectic* Little Rock Dec 21 Sec Dr Clarence H Young, 1415 Main St Little Rock
CALIFORNIA Los Angeles July 19 22 Sec Dr Charles B Pinkham 420 State Office Bldg Sacramento
CONNECTICUT *Medical (Homeopathic)* Derby July 12 Sec Dr Joseph H Evans 1488 Chapel St New Haven *Medical (Regular)* Hartford July 13 14 *Endorsement* Hartford, July 27 Sec Dr Thomas P Murdock 147 W Main St Meriden
DELAWARE Dover July 13 15 Sec Medical Council of Delaware Dr Joseph S McDaniel Dover
DISTRICT OF COLUMBIA Washington July 12 13 Sec Commission on Licensure Dr George C Ruhland 203 District Bldg Washington
HAWAII Honolulu July 12 15 Sec Dr James A Morgan 48 Alexander Young Bldg Honolulu
IDAHO Boise Oct 5 Commissioner of Law Enforcement Hon J L Balderston 205 State House Boise
ILLINOIS Chicago, Oct 19 21 Superintendent of Registration Department of Registration and Education Mr Homer J Byrd Springfield
IOWA Basic Science Des Moines July 13 Sec Prof Edward A Benbrook Iowa State College Ames
MASSACHUSETTS Boston July 13 15 Sec Board of Registration in Medicine Dr Stephen Rushmore 413 F State House Boston
MONTANA Helena Oct 5 6 Sec Dr S A Cooney 205 Power Block Helena
NEVADA *Reciprocity* Carson City August 2 Sec Dr John E Worden Carson City
NEW HAMPSHIRE Concord Sept 9 Sec Board of Registration in Medicine Dr Fred E Clow State House Concord
NEW MEXICO Santa Fe Oct. 11 12 Sec Dr Le Grand Ward Sena Plaza Santa Fe
OREGON *Basic Science* Corvallis July 17 Sec State Board of Higher Education Mr Charles D Byrne University of Oregon Eugene
PUERTO RICO San Juan Sept 7 Sec Dr O Costa Mandry Box 536 San Juan
SOUTH DAKOTA Rapid City July 20 21 Director of Medical Licensure Dr B A Dyar State Board of Health Pierre
WASHINGTON Seattle July 12 14 Dir Department of Licenses Mr Harry C Huse Olympia
WEST VIRGINIA Fairmont July 12 Sec Public Health Council Dr Arthur E McClue State Capitol Charleston

NATIONAL BOARD OF MEDICAL EXAMINERS SPECIAL BOARDS

Examinations of the National Board of Medical Examiners and Special Boards were published in THE JOURNAL, July 3 page 72

Tennessee March Examination

Dr H W Qualls, secretary, Tennessee State Board of Medical Examiners, reports the written examination held at Memphis, March 24-25, 1937 The examination covered 8 subjects and included 80 questions An average of 75 per cent was required to pass Thirty-one candidates were examined, 30 of whom passed and one failed The following schools were represented

School	PASSED	Year Grad	Per Cent
University of Tennessee College of Medicine	79 3 79 9 79 9 80 1, 80 3 80 4 80 8 80 8	(1937)	78
81 81 3 81 6 82 82 82 1 82 1 82 5 83 1, 83 1			
83 6 83 6 84 3 84 5 85 85 1 85 8, 87 4, 89 3			

School	FAILED	Year Grad	Per Cent
Friedrich Wilhelms Universitat Medizinische Fakultat Berlin		(1910)	25 1

Thirteen physicians were licensed by endorsement from January 11 through May 24 The following schools were represented

School	LICENSED BY ENDORSEMENT	Year Endorsement Grad	Per Cent
College of Medical Evangelists	(1931) California	(1932) New Mexico	
Yale University School of Medicine		(1931) Connecticut	
Emory University School of Medicine	(1932)	(1935) Georgia	
Northwestern University Medical School	(1933)	(1936) Illinois	
State University of Iowa College of Medicine		(1923) Iowa	
Tulane University of Louisiana School of Medicine		(1933) N B M Ex.	
Johns Hopkins University School of Medicine		(1921) Maine	
University of Pennsylvania School of Medicine		(1913) Iowa	
University of Vermont College of Medicine		(1932) N B M Ex.	
McGill University Faculty of Medicine		(1933) Ohio	

* Verification of graduation in process

South Dakota January Report

Dr B A Dyar, director, Medical Licensure, reports the written examination held by the South Dakota State Board of Health and Medical Examiners at Pierre, Jan 19 20, 1937 The examination covered 13 subjects and included 101 questions An average of 75 per cent was required to pass Five candidates were examined, four of whom passed and one failed. Two physicians were licensed by reciprocity The following schools were represented

School	PASSED	Year Grad	Per Cent
Rush Medical College		(1935)	87 3
University of Nebraska College of Medicine		(1925)	81 8
Long Island College of Medicine		(1931)	77 8
University of Tennessee College of Medicine		(1935)	
School	FAILED	Year Grad	Per Cent
Middlesex College of Medicine and Surgery		(1936)	69 7
School	LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
Northwestern University Medical School		(1932)	N Dakota
State University of Iowa College of Medicine		(1929)	Iowa

New Mexico April Examination

Dr Le Grand Ward, secretary, New Mexico Board of Medical Examiners reports the written examination held at Santa Fe, April 12-13, 1937 The examination covered 10 subjects and included 100 questions An average of 70 per cent was required to pass One candidate was examined and passed The following school was represented

School	PASSED	Year Grad	Per Cent
Memphis Hospital Medical College		(1913)	70

Fifteen physicians were licensed by endorsement from January 30 through May 6 The following schools were represented

School	LICENSED BY ENDORSEMENT	Year Endorsement Grad	Per Cent
College of Medical Evangelists		(1936) N B M Ex.	
University of Georgia School of Medicine		(1935) Georgia	
Loyola University School of Medicine	(1917)	(1921) Illinois	
Rush Medical College		(1930) Illinois	
University of Illinois College of Medicine		(1934) California	
Tulane University of Louisiana School of Medicine		(1934) Louisiana	
University of Maryland School of Medicine and College of Physicians and Surgeons		(1928) Alabama	
University of Nebraska College of Medicine		(1934) Nebraska	
Bellevue Hospital Medical College		(1899) Ohio	
Ohio Medical University		(1902) Oklahoma	
University of Oklahoma School of Medicine		(1934) Texas	
Jefferson Medical College of Philadelphia		(1932) Texas	
Baylor University College of Medicine		(1932) Texas	
University of Texas School of Medicine		(1919) Texas	

Book Notices

Who Gave the World Syphilis? The Haitian Myth By Richmond C Holcomb MD FACS With Introduction by C S Butler AB MD LL.D Rear Admiral Medical Corps U S Navy Cloth Price \$3 Pp 189 New York Froben Press 1937

Admiral C S Butler has for years, certainly since he was Captain Butler been preaching in all seasons that syphilis was not of American origin It is not too much to say that he is an evangelist who can see only obstinacy and a pretty high degree of stupidity in all those who hold so absurd a view as that syphilis did not exist in Europe before the return of Columbus on his first American voyage

Captain Holcomb belongs to Admiral Butler's school The temperance of his attitude on the subject is shown by his labeling the book at the very outset with the title 'The Haitian Myth' His cold scientific consideration of the subject begins with a poem A Vision of the Search for Truth As poetry is usually assumed to be an expression of the emotions, this beginning might be interpreted as evidence of a fairly emotional consideration of his subject, and the interpretation would turn out to be correct

The whole book is devoted to a consideration of the documentary evidence in the case, especially a devastating examination of the historical evidence, meaning by historical that from written history The work gives a hostile summary of the criticisms to be made against the early documentary evidence for the American origin of syphilis, but it is the sort of summary of the evidence that gets the reader nowhere Some men think the early documentary evidence for the American origin of syphilis is very strong, Captain Holcomb and Admiral Butler seem to think that those who come to that conclusion from an examination of the evidence are proper subjects for an *inquere de lunatico* It is like interpretations of Hamlet's soliloquy different interpreters read into it different meanings—usually what they like, you pay your money and you take your choice The subject of the origin of syphilis will never be conclusively settled in that way If it is ever settled it will be on examination of bones Syphilis leaves indubitable evidence in bones There is unquestionable evidence in pre-Columbian bones in this country Virchow in 1896 said that there were no known syphilitic bones of pre-Columbian age in the museums of Europe Elliott Smith in 1930, as the result of an examination of about 30,000 bodies of ancient Egyptians and Nubians, stated that no traces of syphilitic injuries to bones or teeth have been found among them Herbert U Williams who has thoroughly studied the subject, stated in 1932 that he has not been able to find any unquestionable syphilis in European bones of pre-Columbian age but that there is almost an embarrassment of riches of syphilis in pre-Columbian American bones This is stubborn evidence from impressive authorities Much more of the same sort could be produced If somebody would produce a single bone of unmistakable pre-Columbian age and of unmistakable European origin, in the opinion of unprejudiced authorities, such as those listed, it would settle the question Let the proponents of the Haitian Myth tackle that problem Captain Holcomb does not even take it up in his book

Consulti medici Di Giambattista Morgagni Pubblicati da minute inedite a cura di Enrico Benassi Classici italiani della medicina II Boards Price 120 lire Pp 380 Bologna L. Cappelli 1935

Morgagni's fame rests on his *De sedibus morborum* (1761) which, as Virchow said, entitles him to be called the father of pathologic anatomy Morgagni, who died in 1771, left a large number of manuscript notes to his pupil Michele Girardi Though Girardi lived until 1797, he never edited or published these papers Through the duke of Parma the manuscripts were acquired from Girardi's heirs and deposited in the Palatine library, where the twelve volumes have long been carefully guarded as precious almost sacred treasures They now appear, published in attractive quarto form, under the auspices of the city of Forlì, Morgagni's birthplace, ably edited by Enrico Benassi They are reminiscent of the *De sedibus*, being the notes on a hundred cases selected by Morgagni from files that date back to the days of his youth Diseases of nearly

every description are discussed—of the stomach, bowel, heart, bone, pelvic organs and nervous system Aneurysms are taken up, menstrual troubles and psychic disturbances Clinical facts are concisely stated, diagnoses are skilfully worked out, advice is given to the patient or to the physician who referred the patient Benassi, whose task of deciphering and editing has been one of difficulty, has analyzed these papers in a critical manner His comments on Morgagni as revealed by these consulti are well worth reading The master here writes in Italian with a style that, as Benassi says, is charming as to form, precise as to its use of terms, harmonious in its proportion All this, combined with his logical reasoning, makes the treatment of the subject almost perfect, as the editor enthusiastically terms it That errors in diagnosis are evident to the reader of today, who interprets with the aid of auscultation, bacteriology, instruments and laboratory methods and with the wealth of medical knowledge acquired since 1771, need excite no surprise Yet one marvels at the scientific method employed and at the accuracy of the results obtained An interesting feature of the volume is its revelation of Morgagni not alone as the scientist but as the practitioner and consultant, careful not to offend or unjustly to criticize his colleague, simple yet explicit in giving advice to both patient and family doctor As the editor points out, Morgagni, while using more drugs than physicians do today, and some of them astonishing in their character, was really ahead of his time in his moderate and simple treatment He stressed diet, fresh air and climate and was comparatively conservative in his use of mercury, bleedings and drastic purgatives The work is an important contribution from the standpoint of medical history The Italians are to be thanked for permitting others to share their pardonable pride in the accomplishments of one whose handwritten notes of any kind have an interest not only for Italy but for the entire medical world; for Morgagni was of world stature

The Colon as a Health Regulator—From a Surgeon's Point of View The Effects and Treatment of its Developmental Abnormalities By Sir Henry M W Gray KBE CB CMG Consultant in Special Military Surgery (Orthopaedic) Home Service Montreal Cloth Price \$2.50 Pp 100 with 31 illustrations Toronto Macmillan Company of Canada Limited 1936

Here is a theory that we have all heard before, namely, that one can make over a half crazy, constitutionally inadequate and sickly person either by dividing adhesions around the colon when they can be found or else by making a large bunch of traumatic adhesions when congenital ones happen to be absent Sir Henry Gray's poor opinion of the critical faculties of the medical profession is to be found rather frankly expressed in his statement to the effect that 'less privileged members of the profession may be tempted to cast the book aside as being another fantastic result of a gospel preached by Sir William Arbuthnot Lane, which was at first ridiculed by many theorists whose chief stimulus to a thoughtless opposition was supplied apparently by jealousy of his personal success' Apparently Sir Henry was spared somehow from contact with the procession of miserable human wrecks which, fifteen or twenty years ago, went about from clinic to clinic hoping against hope that some one could put them back again to where they were before some surgeon had attempted to duplicate on them the results claimed by Sir Arbuthnot Some of these poor people had to be operated on again and again in an effort to straighten out the mess that had been made by the misguided meddling with the colon One of the saddest features about so much of this operating was that in most cases the patient was a poor nervous wreck to begin with, some one on whom no surgeon of good judgment would ever have wanted to operate One cannot help wondering every so often how it comes about that some men can claim such marvelous results from an operation or a type of treatment which in the hands of others brings either disaster or lack of any improvement Perhaps some of these optimists are like a certain choleric and forceful clinician who, whenever a woman returned to his office, after having taken his treatment would fix her with a stern and glittering eye and say 'You're better, now don't you deny it' Needless to say it was a rare person who dared talk back, and as a result the clinician walked in the happy feeling that he cured all his patients

The Dispensatory of the United States of America By Horatio C. Wood Jr. M.D. Ph.M. Professor of Pharmacology and Therapeutics in the University of Pennsylvania. Charles H. LaWall Ph.M., D.Sc. Ph.D. Professor of Pharmacy in the Philadelphia College of Pharmacy and Science. Heber W. Youngken Ph.M. Ph.D. Professor of Botany Pharmacognosy and Materia Medica in the Massachusetts College of Pharmacy. Arthur Osol Ph.G. M.S. Ph.D. Associate Professor in Physical Chemistry and Director of the Chemical Laboratory in the Philadelphia College of Pharmacy and Science. Ivor Griffith Ph.M. Professor of Theory and Practice of Pharmacy in the Philadelphia College of Pharmacy and Science. and Louis Gershenfeld Ph.D. B.Sc. Ph.M. Professor of Bacteriology and Hygiene in the Philadelphia College of Pharmacy and Science. Centennial (22d) edition thoroughly revised largely rewritten and based upon the eleventh revision of the United States Pharmacopoeia National Formulary Sixth Edition and the British Pharmacopoeia 1932. Cloth Price \$15 Pp 1894 Philadelphia & London J. B. Lippincott Company 1937

A centennial edition of any book is noteworthy. Surely a book has proved its value when its age mounts to the hundred year mark and it has passed through twenty-one editions. For this, the twenty-second edition, congratulations are extended to the editors and contributing editors who have amassed the informative material in more than 1,800 large pages. The book is divided into three parts. The first part contains the discussion of drugs in the new U. S. Pharmacopoeia, the National Formulary and the British Pharmacopoeia. The second part records a large number of chemicals and unofficial drugs, many of the latter being taken from New and Nonofficial Remedies. Included in this part is a summary of a number of diagnostic tests and an excellent article on hydrogen ion concentration. The third part contains the general tests and standards of the U. S. Pharmacopoeia, as well as a collection of reagents used in urine and blood chemistry. The vast amount of information will be most valuable to pharmacists, but the book is a compendium of information that physicians, biologists, pharmacologists and many others should not overlook.

Le chirurgien devant l'état puerpéral Grossesse accouchement suites de couches. Par Marcel Metzger professeur agrégé à la Faculté de médecine de Paris. Préface du Professeur Hartmann. Paper. Price 52 francs. Pp 323 with 40 illustrations. Paris. Masson & Cie 1936

The author attempts to acquaint surgeons with the knowledge they should have concerning the care of women during pregnancy, labor and the puerperium. Some of the subjects dealt with in the eighteen chapters are the physiology and anatomy of the puerperal state, the diagnosis of pregnancy, extra-uterine gestation, abortion, obstetric injuries, complications during pregnancy, puerperal infections, anesthesia for women in labor, obstetric operations with which surgeons should be familiar, and operations on the new-born. The necessity for such a book is debatable, because all the subjects in it are discussed in detail in all standard textbooks of obstetrics. However, this volume may be of value to general surgeons who have no special interest in obstetric cases but who nevertheless must act as consultants in such cases because of the absence of specialists in obstetrics in their locality. The book is well written and demonstrates that the author, who is an obstetrician, fully understands the attitude of general surgeons regarding puerperal women.

A System of Clinical Medicine Dealing with the Diagnosis Prognosis and Treatment of Disease for Students and Practitioners By Thomas Dixon Savill M.D. Edited by Agnes Savill M.D. and E. C. Warner M.D. F.R.C.P. Tenth edition. Cloth Price \$9 Pp 1114 with 180 illustrations. Baltimore. William Wood & Company 1936

Any book that can go through ten editions must have many things in it which have proved helpful to students and practitioners of medicine. It is interesting to note that in 1912 Miss Savill was able to revise the book with only three collaborators, while in 1936 she had to accept the help of seventeen. All of this goes to show how, with the tremendous advance in knowledge, the day has passed when one man can write well or authoritatively on more than a few phases of medicine. In the plan and arrangement of this book, disease has been approached largely from the standpoint of symptomatology, the idea being to help the student to trace from effect (symptoms) to cause. As a result, the book is in many ways a cross between a treatise on diagnosis and a system of medicine. This, of course, makes it particularly attractive to the intern or practicing physician who finds himself puzzled about a patient who has, let us say, diarrhea. It is helpful then to turn

to one chapter where all the various possibilities are mentioned and discussed. Obviously even in a book of a thousand pages it is impossible to give an adequate description of any one disease and its treatment, and hence it would be easy for any consultant, highly skilled in a particular field, to point to deficiencies and inadequacies in the particular chapter which covers his chosen subject. In the present volume one will rather marvel at the amount of information crammed into the book and offered in a readable form. It probably was a good idea to print in finer type the details about the rarer diseases, the undergraduate student is less likely then to bog down in a morass of detail about diseases like bilharziosis or Oroya fever, which he may not see in a lifetime. Another excellent practice is the printing in boldface of certain words that help the reader to find his way quickly to the essential points for which he is searching. It may not suit an editor who loves artistic printing, but it delights students, and the book was supposedly written for them and not for the Grolier Club. In this volume a remarkable variety of fonts are used to bring out and call attention to the many subdivisions of each subject. The book has a full index, such as is much needed in a reference book of this type.

History of Modern Morals By Max Hodana. Translated by Stella Browne. Cloth Price 12s 6d Pp 338. London. William Heinemann, Ltd 1937

The volume is divided into nine chapters, a preface and an epilogue. The chapter concerning the secret of generation is a brief analysis of our present knowledge of genetics. Unfortunately the author accepts much printed material by Steinach, Voronoff, Benjamin and others which is in no sense of the word established. The second chapter is a history of the general attitude toward homosexuality, based largely on the writings of Hirschfeld. Here again the author reveals inability to distinguish between what is mere medical gossip and what is scientifically established. His next chapter concerns the battle against venereal disease followed by chapters on a sex consultation center, a history of birth control, the fight for recognized abortion, sex education, the analysis of the sex tabu and the patriarchate in dissolution. The book is a strange mixture of narrative writings, essays and a certain amount of dependable factual data. In his final chapter the author tries to relate the attitude of the world to present governmental fascism and communistic policies. He believes that the Russian form of collectivism will lead to the sexual science of the future in which the keynote will be separation of sexual activity from reproduction. In his epilogue the author recognizes that he may have misinterpreted or made errors of fact and he asks that corrections be sent to him care of his publisher.

The Avitaminoses The Chemical Clinical and Pathological Aspects of the Vitamin Deficiency Diseases By Walter H. Eddy Ph.D. Professor of Physiological Chemistry Teachers College Columbia University and Gilbert Daildorf M.D. Pathologist to the Grasslands and Northern Westchester Hospitals Westchester County New York. Cloth Price \$4.50 Pp 338 with 32 illustrations. Baltimore. Williams & Williams Company 1937

This book affords up to the minute information about the chemical nature of the vitamins and the pathologic aspects of the vitamin deficiency diseases. The authors are described on the title page as a physiologic chemist who is director of the Bureau of Foods and Sanitation of *Good Housekeeping Magazine* and a physician who is also a pathologist.

The chapters on vitamin C are particularly well done, especially the section on subclinical scurvy. The chapters on pellagra, however, appear to be somewhat biased and incomplete. The authors emphasize reports on the histologic similarity in the skin lesions of pellagrins and of animals on experimental diets and apparently minimize references to dietary factors other than the vitamin G complex or recent non nutritional concepts of the etiology of pellagra. The chapters on the morbid effects of certain complicated dietary experiments and on vitamins in relation to blood regeneration are so sketchy that they might well have been omitted. The three chapters at the end of the volume describe briefly the methods used in the assay of food products for vitamins, and various clinical tests that have been introduced within recent years. It is interesting to note that the vitamin E unit of Pacini and Lind is described, although it is well known that this unit has no

generally established recognition in scientific circles. The descriptions of the pathologic changes occurring in tissues in vitamin deficiency diseases are at times uncritical, some of the descriptions of the pathologic changes sound like a catalogue of reported observations rather than a critical presentation of the progressive changes in the tissues in vitamin deficiencies.

Each chapter contains a brief bibliography, useful but incomplete and in some places with minor typographic errors. For example, H J Gerstenberger is listed on page 120 as H J Gerstenberg, and A J Carlson is listed on page 84 as A J Carlsson.

Quelques vérités premières (ou soi disant telles) sur les maladies du foie. Par Noel Fliessinger, professeur à la Faculté de médecine de Paris. Collection publiée sous la direction de MM L Ombredanne et N Fliessinger. Paper. Price 24 francs. Pp 81. Paris: Masson & Co. 1936.

This is an interesting and unusual book in that it consists entirely of aphorisms with regard to the diagnosis and treatment of diseases of the liver. In many ways the idea looks good, the statements are short and pithy, and students and busy practitioners can absorb information quickly. The maker of aphorisms delights, of course, in such statements as "a cirrhotic does better when his arms and face get fat, or a reddened state of the buccal mucosa at the beginning is a bad sign indicating the coming of hepatic insufficiency." There is always the danger, of course, that such a statement is more striking than true. Under treatment, Fliessinger makes such useful and true statements as "a milk diet is a bad one because it constipates, it should be used only as a last resort. Sugar is the best food for the liver. One must not operate on patients with signs of severe hepatic insufficiency and marked tendency to bleeding. Anesthesia with chloroform or ether is particularly undesirable. The hepatic patient is never entirely cured by any operation." Unfortunately, the author does not seem ever to have heard of liver function tests. He takes no delight in duodenal intubation and the study of A and B biles. He advocates a rather odd way of giving the dye for cholecystography—in small doses over several days. Perhaps the best aphorism in the book is from Chauffard, who says that "a physician may sin through ignorance but he should never sin through negligence."

The Chemistry of Natural Products Related to Phenanthrene. By L F Fieser. Associate Professor of Chemistry, Harvard University. With appendix. Second edition. Cloth. Price \$7. Pp 456. New York: Reinhold Publishing Corporation. 1937.

This excellent treatise, the first edition of which appeared only a year ago, has been revised with the addition of a ninety page appendix to include the new literature up to Jan 1, 1937. Minor changes have also been made in the original text. As pointed out in the review of the first edition (*THE JOURNAL*, Aug 26 1936) the author has handled a difficult subject with remarkable facility, the result is a concise and lucid dissertation on the naturally occurring sterols and related substances. Those who desire to keep abreast of the rapid and extremely important developments in the chemistry of the estrogens, androgens, cardiac glucosides, bile acids, carcinogenic substances and the like will find this book indispensable. It contains in readily available form material not elsewhere accessible in one volume.

Inhalation Anesthesia. A Fundamental Guide. By Arthur E Guedel. MD. Associate Clinical Professor of Surgery (Anesthesia), University of Southern California School of Medicine. Cloth. Price \$2.50. Pp 172. New York: Macmillan Company. 1937.

This valuable book, which deals specifically with inhalation anesthesia, informs one of the mechanism of this method of anesthesia, the stages of anesthesia, signs of anesthesia, depth of anesthesia required for control of surgical reflexes, depth of anesthesia necessary for various surgical procedures, potency of the various anesthetic agents, the mechanism of various anesthetic requirements, the preparation of the patient and the selection of the anesthetic agent, and of the accidents due to changes in blood pressure during anesthesia, ventricular fibrillation, central respiratory failure, accidents due to peripheral respiratory interference, nitrous oxide in obstetrics, breath holding, pharyngeal spasm, laryngeal spasm, tongue swallowing, aspiration of debris, respiratory interference by mucus, aspiration of

pus from the pharynx, aspiration in lung surgery, aspiration of blood, aspiration of sponges, packs, teeth and suction tips, miscellaneous accidents, massive atelectasis, tracheal collapse, convulsions under anesthesia, status lymphaticus, embolism, idiopathic paroxysmal tachycardia, liquid ether into the lungs, the vapor of heated ether, injuries to the eyes, postoperative hyperthermia, cerebral asphyxia, cyanosis, anesthetic explosions, the explosibility of various anesthetic agents, and the sources and prevention of ignition of anesthetic gases and vapors, with illustrative cases. In the back of the book there is a list of selected references, followed by an index. The book should be owned by every person administering general anesthetics and should be read and reread. It will serve better than any other available publication as a textbook for students and as a reference book for anesthetists specializing in anesthesia.

Medical Greek and Latin at a Glance. By Walter R Agard. B Litt. Professor of Greek, University of Wisconsin. With an introduction by C H Bufling. MD. Professor of Pathology, University of Wisconsin. Second edition. Cloth. Price \$1.50. Pp 87. New York: Paul B Hoeber Inc. 1937.

A familiarity with this little work will fortify a reader against any surprises as medical terminology expands with the development of medicine. The method of putting the elements of words together is presented. Prefixes, suffixes and the combining forms of medical terms are introduced and translated. A first reading will tempt one to regard the word lists with closer attention and to undertake the bits of memorizing essential to the acquirement of a vocabulary. It is a fascinating process that can be a matter of improving odd moments and is aided by the form of the book, the reading matter of which is in typewriter type on the right hand pages, with space for notes on the left. The Greek letters are especially easy to recognize. A list of books is suggested for the light they throw on the influence of the Greeks and the Romans on the development of medicine.

Die Veranlagung zu Krampfanfällen. Von Dr Friedrich Mauz. a o. Professor für Psychiatrie und Neurologie in Marburg. Boards. Price 2.80 marks. Pp 68. Leipzig: Georg Thieme. 1937.

This little book attempts to examine the relative roles of heredity and external environment on the production of convulsions especially epilepsy. The first portion is devoted to examination of the bodily constitution of patients and their relatives. The second portion is clinical and examines the different forms of the disease and the external factors that influence the constitutional structure. Final conclusions are not provided. The factual data included in this monograph are not convincing, but those who are especially interested in this subject may wish to consult it.

Life and Death. The Autobiography of a Surgeon. By Andrea Majocchi. Translated by Wallace Brockway. Cloth. Price \$2.75. Pp 300. With one illustration. New York: Knight Publications. 1937.

The surgeon who contributes here his reminiscences is a friend of D Annunzio and of Mussolini. He is a leader among the surgeons of Italy and quite obviously possessed of the poetry and romance usually associated with the Latin temperament. His father was a country practitioner who died of an infection sustained during his surgical work. On his death bed his father said he would rather have his children be peasants than doctors. Nevertheless when the boy after being reared came to choose a vocation he gravitated naturally into medicine. He describes brilliantly his service as assistant in the maternity center in Milan and then the course by which he became a general surgeon. In 1909 early in his career, he made a brief visit to the United States and was immensely pleased by the work he saw at the Mount Sinai Hospital in New York. He deprecates the routine of the Mayo Clinic and of all systematic medicine. Indeed, his book is a constant plea for individualism and for the physician as an artist rather than as a technician. No doubt many of the public will be impressed by the chapter devoted to incidents in surgical practice because the author has an unusual ability to dramatize the most commonplace medical affairs. His book is vital and moving, the section devoted to descriptions of medical assemblages and congresses are satirical and humorous. For the casual medical reader the book may be especially recommended as one that will hold his interest to the end.

Marriage and Periodic Abstinence The Natural Method of Scientific Family Regulation By J G H Holt MD Gynaecologist and Sexologist at Bilthoven The Hague and Haarlem (Holland) Cloth Price \$3 8s 6d 1p 174 New York Toronto & London Longmans Green & Co 1937

Here is another book dealing with the safe period as a system of birth control. It emanates from Holland. The author has collected the available periodical literature and other observations made throughout the world on this subject. He discusses the various methods of calculating the safe period, recognizing the danger of the influence of suggestion on the average layman. He feels that the method can be practiced safely only when the system is controlled by an expert for from six to twelve months before undertaking the practice regularly. While his book will be of interest to the physician, the average lay reader will find it more confusing than any other of the volumes thus far available on this subject.

A Manual of Radiological Diagnosis for Students and General Practitioners By Ivan C C Tchaperoff MA MD DMRE Assistant Radiologist and Radium Registrar St Thomas's Hospital London. With a foreword by Philip H Mitchner MD MS FRCS Surgeon to St Thomas's Hospital. Cloth Price \$6 Pp 256 with 286 illustrations Baltimore William Wood & Company 1937

This is a valuable little manual with discussion of clinical material arranged on an anatomic basis. There is a brief chapter devoted to a summary of x-ray physics, technique and radiographic difficulties. The amount and wealth of clinical material presented is surprising for such a small volume and speaks for the careful organization and singular clarity of the book. The reproductions of the roentgenograms are excellent and the normal and pathologic details are carefully pointed out. Occasionally a small line drawing appears further to illustrate a point. The subject matter is almost wholly in outline form, permitting rapid gleaning of the essential diagnostic and significant features without a host of technicalities. Although more than half the book is devoted to bones and joints, other systems are not neglected and differential diagnosis is emphasized.

Your Everyday Speech By William Norwood Briggance Ph D Cloth Price \$2 50 Pp 230 with 15 illustrations New York & London Whittlesey House McGraw Hill Book Company Inc 1937

Much of the material in this book has appeared previously in the *Woman's Home Companion*, the *Ladies Home Journal* and the *Southern Speech Bulletin*. The author has been a leader in his field for many years. He discusses a number of forms of American speech and the various dialects that exist in different parts of the country and speech standards. He analyzes the reasons why many people mispronounce and make certain sounds off key. One section of the book is devoted to speech defects. Especially useful are the chapters on pronunciation. The book will certainly be found helpful by all interested in this subject.

Atlas der Augenkrankheiten Sammlung typischer Krankheitsbilder mit kurzen diagnostischen und therapeutischen Hinweisen Von Dr Rudolf Thiel ord Professor an der Universität Frankfurt a M Cloth Price 24 marks Pp 197 with 420 illustrations Leipzig Georg Thieme 1937

In the preface to this excellent volume the author states that the work is designed to enable students and practitioners to have available at all times in a handy form lifelike pictures of the most frequent lesions of the eye, drawings or the most common operative procedures, short notes on differential diagnosis, and a statement as to the treatment of the condition. It strives in no way to replace the standard textbooks. The author has increased the value of the work by its unique arrangement. On the page opposite each illustration is a short remark as to treatment and the like, with space allowed so that the reader may make additions for future reference. In this way the text may be kept up to date. The volume is divided into eleven chapters, on diseases of the lid, the lacrimal apparatus, the orbit, the conjunctiva, the cornea, the sclera, the iris, the lens, the vitreous, the optic nerve and retina and the choroid. The drawings of the various operative procedures on the lid are simple but clear, and the originator of each operative procedure is named. Excellent black and white and also colored photographs illustrate the conditions of the lid. The anatomy of the lacrimal apparatus is well depicted, drawings of manipulative

and operative techniques are shown, together with photographs both in black and white and in color of the various disease pictures. To illustrate conjunctival infections there are colored photographs of the etiologic organism and of pathologic specimens. The various types of cataract are well illustrated in the chapter on the lens. The colored plates of conditions of the fundus are the best found in any textbook. Choroidal disease is depicted in an admirable manner. The text is brief and to the point, without involved descriptive sentences. An adequate index is appended. The book is a worthy and useful atlas of the eye.

Feeding Diet and the General Care of Children A Book for Mothers and Trained Nurses By Albert J Bell A B MD Associate Professor of Pediatrics in the Medical College of the University of Cincinnati Third edition Cloth Price \$2 Pp 316 with 7 illustrations New York G P Putnam's Sons 1936

Books on the feeding and care of children are myriad, and the mother is confronted with the problem of which of the numerous texts to follow. This one, written to meet the needs of mothers as well as of trained nurses for maternal or infant care, will probably fulfil this function as well as any other. The material has been revised, and additional chapters on behavior in early childhood and on dentistry have been added. The information is conveniently arranged and is easily followed. Occasional errors have crept into the text, such as the statement that "an umbilical hernia is, in most cases, outgrown" or that "an inguinal hernia may be relieved by hot applications over the affected part."

Scalpel and Sword By Sir James Elliott Cloth Price \$2 50 Pp 215 Sydney Australia Angus & Robertson Limited 1936

This autobiographic sketch tells the story of a New Zealand surgeon who was trained in Edinburgh University and later served on the staff of a field hospital during the war in South Africa. In the Great War he was senior medical officer of a hospital ship. His story includes a beautiful description of the scenery of New Zealand, which is his home, and some fine discussion of the folklore and religious beliefs of the Maoris. The style is attractive and the descriptive accounts are enlivened with numerous excellent anecdotes. The sixteenth chapter is entitled "Among the Americans." The author came to this country in the group with Hunter and Royle. In his description of his American tour he amuses himself with the American dialect and American customs but no more than we amuse ourselves with those of New Zealand and England.

The Fundamentals of Personal Hygiene including Their Practical Application to Healthful Living By Walter W Krueger Ph B Instructor in the Grand Rapids Junior College Second edition Cloth Price \$1 75 Pp 204 with 60 illustrations Philadelphia & London W B Saunders Company 1936

This book was primarily prepared for elementary students, to present to them the principles of personal hygiene and to serve as a guide to healthful living. Originally the book was prepared so that it would be especially suited to the needs of girls, in the second edition the necessary changes have been made to meet the needs of boys as well. Other alterations have been made to keep the subject matter abreast of the field of hygiene. In the book are discussed, in a clear, authoritative fashion, matters relating to personal hygiene, such as posture, exercises, clothing, care of the skin, nutrition, sunlight, mental health, recreation and sex hygiene with a short chapter on health fads, fancies and follies. The bibliography and questions for class discussion add to the usefulness of the work as a textbook.

Physical Therapeutic Methods in Otolaryngology By Abraham R Hollender MD FACS Associate in Laryngology Rhinology and Otolaryngology University of Illinois College of Medicine Cloth Price \$3 Pp 442 with 189 illustrations St Louis C V Mosby Company 1937

In the first part of this book the principles underlying the use of physical agents and their effects are discussed and much valuable information of a theoretical and practical character is given. The second part relates to the special use of physical agents in the field of otolaryngology. Some of the material is not relevant to the subject. Some of the claims made for the methods employed are open to question. Almost any accepted treatment for acute rhinitis, for instance, is likely to give good results, because the course of this illness is usually

short and self limited. There are some statements to which exception may be taken. For example, not every one will agree, as stated on page 271, that "boils in the external auditory canal are usually associated with some metabolic disease, especially diabetes." Apart from these minor exceptions there is much that is valuable and applicable. Physical therapeutic methods are being properly assessed and are of increasing aid to the practitioner. The interested specialist may read this work with much profit.

Original Papers of Richard Bright on Renal Disease. Edited by A. Arnold Osman D.S.C. F.R.C.P. Cloth. Price \$7.25. Pp. 172, with illustrations. New York & London: Oxford University Press, 1937.

In this volume are reprinted four articles by Richard Bright, printed in 1827, 1833 and 1836. In the appendix there are reproductions of histologic sections of three cases of Bright's disease originally described by Dr. Bright. The book is beautifully printed in the best tradition of the Oxford Press, handsomely illustrated with colored plates and halftones. It should be of interest to every one interested in the history of internal medicine or in its practice.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Workmen's Compensation Acts. Rupture of Duodenal Ulcer Attributed to Strain.—The claimant attempted to lift a pump to place it on some planks so that he could better clean it. Both his hands and the pump were greasy, and it started to slip. In order to prevent its falling, he twisted himself in an abnormal position and felt something "give away" inside him. He became nauseated and was unable to walk for a few minutes. Finally he told a fellow workman that he was ill and would have to go home. Before he could reach his home, however, he felt so much worse that he asked to be taken to a hospital. Shortly thereafter an operation was performed on him which disclosed a rupture of a duodenal ulcer. Thereafter he filed a claim with the industrial commission and the matter was referred to the medical advisory board. One member of the board gave the claimant an external physical examination and examined the several roentgenograms which had been taken of him, studied the hospital records of the case and consulted with the physician who had operated. The member of the board who made this examination reported that the claimant had a "pathological process" before the accident and that the condition which developed would have developed whether the claimant had been at rest or was lifting. The medical advisory board on the basis of this report concluded that the condition suffered by the claimant was not due or influenced by any accidental injury. Whereupon the commission denied compensation and the claimant appealed to the Supreme Court of Arizona.

There is no question, said the court, that shortly or immediately after the claimant suffered strain in lifting the pump he became nauseated and vomited blood that he was immediately taken to the hospital and given an exploratory abdominal operation, and that the physician who operated reported that there had been some kind of extravasation of blood into the tissues "between the duodenum and the perineum." To the ordinary layman, observed the court, this would certainly indicate that there was some causal connection between the strain and the abdominal condition. But, the court said, the cause of the physical condition of the claimant was, to a great extent at least, a matter of opinion and not positive knowledge, and expert medical opinion on the subject was certainly competent evidence that the commission had the right to consider. The only medical testimony offered was that of one member of the medical advisory board who had examined the claimant and the medical records of the case and had discussed them with the operating surgeon. The conclusion of the medical advisory board was unanimous that the condition disclosed as the result of the operation was not produced by the strain which preceded

it. The industrial commission had the right to accept the opinion of the board and the court felt disinclined to reverse the finding of the commission.—*Wiggins v. Pratt-Gilbert Hard ware Co.* (412), 62 P. (2d) 124.

Roentgenograms Admissibility in Evidence.—Before a roentgenogram may be admitted in evidence, said the Supreme Court of Idaho, it must be shown by competent evidence that the roentgenogram was taken by the method and in the manner generally recognized in roentgenography. It is a mere use of idle and meaningless language to say that a witness who identifies a roentgenogram must be able to state that it is a correct representation of the object it purports to picture, for obviously it purports only to show shadows of objects not otherwise visible to the eye. A witness cannot truthfully say that a roentgenogram is "a true and correct representation of the object it purports to show" unless it is conceded that he bases his statement on the scientific fact that the roentgenogram does as accurately picture the object's shadow as does the photograph picture an object's external surface. Roentgenograms properly interpreted to the jury are very valuable evidence in a case, because of the manner in which they enable the jury to visualize an injury or condition under investigation.

The science of roentgenography is too well founded and generally recognized, continued the court, to render it any longer necessary for a witness to testify to the reliability and trustworthiness of roentgenograms as such before admitting them in evidence. It must first appear that the roentgenogram was taken of the thing or object under consideration, and that it was made by the usual method or process. The position of the body at the time roentgenographed should be shown. Ordinarily, roentgenograms are of no use and should not be presented to the jury unless they are interpreted and explained to the jury by a competent witness. Persons who follow the profession of making roentgenograms are usually qualified to interpret them, in the opinion of the court. So also are the average physicians, although being a physician does not in itself qualify a witness as a competent interpreter of a roentgenogram.—*Call v. City of Burley (Idaho)* 62 P. (2d) 101.

Assault and Battery. Physician's Liability for Operating on Minor Without Consent of Parent.—The appellee, a boy, aged 14 years, sustained a fracture of his leg a few inches above the ankle, in an automobile accident. He was taken to the appellant's hospital about 15 miles from the scene of the accident. The appellant was called to the hospital and amputated the "foot." Thereafter, the appellee, by his father and guardian, instituted this action against the appellant to recover damages. The petition set out two causes of action, one for assault and battery, alleging that the operation was performed without the consent of the boy's parents, and the other for malpractice. The jury found for the boy on the first cause of action and the physician appealed to the Supreme Court of Oklahoma.

The physician testified that he was called to the hospital about midnight and found that the boy's right leg was crushed and mangled that the muscles, blood vessels and nerves were torn and some of the nerves severed, and that the foot had no circulation. He considered an immediate amputation necessary, he testified, to preserve the life and health of the boy. In this testimony he was corroborated by the testimony of two nurses and an assistant who was not a physician. No roentgenograms were made. Three reputable surgeons approved, by way of expert testimony, the procedure adopted by the appellant physician. The operation was admittedly performed without obtaining the consent of the parents of the boy, but the physician testified that he told the boy that an amputation was necessary and that the boy said to go ahead and do whatever was right. The boy denied even discussing an amputation. He testified that an assistant at the hospital, a physician, told him that he would have to put him to sleep to set the leg and that the next thing he knew was about 9 o'clock the next morning when he awoke and discovered for the first time that his foot had been amputated. He did not see the appellant, he testified the night of the accident and did not see him until the second day after he was taken to the hospital. After the accident he said his leg was not swollen but gave him considerable pain. Very little bleeding occurred and the boy testified that, on the way

to the hospital, he was able to "wiggle his toes" Other lay witnesses testified to the fact that the fractured bone was sticking out of the boy's leg about an inch, that the wound bled only a few drops, and that the leg was not swollen and was not turning black A reputable surgeon, testifying in answer to a hypothetical question embodying the facts disclosed by the lay witnesses, stated that he would not have amputated the foot

The appellant physician contended that the trial court erred in instructing the jury that as the amputation was immediately done without express consent and that, since the appellant sought to justify the amputation on the ground of an emergency or implied consent, the burden was on him to prove the existence of an emergency by a preponderance of the evidence The appellant admitted, the court said, that he performed the operation, or committed the assault, but sought to excuse himself or justify the procedure on the ground that there was an emergency This being the case, the burden was on him to prove by a preponderance of evidence that an emergency existed The instructions given by the trial court were therefore correct The appellant further contended that the evidence of the lay witnesses was incompetent and that the testimony of the expert witness for the boy, based on the lay testimony, was likewise inadmissible But, said the court, a lay witness may testify to an objective fact, he certainly has a right to use his senses the same as an expert witness He can see a broken bone, he can tell whether it sticks through the skin or whether it doesn't, he can see whether there is any discoloration or whether there is any bleeding Most certainly, the boy was competent to testify that he could wiggle his toes There was no error in admitting this testimony Furthermore, the court said, it was proper for the expert witness to base his testimony on the testimony of the lay witnesses The conflicting testimony presented a question of fact for the jury and, the jury having decided the issues for the boy, the Supreme Court felt disinclined to interfere with the verdict The judgment of the trial court was therefore affirmed—*Rogers v Sells (Ola)*, 61 P (2d) 1018

Workmen's Compensation Acts Pulmonary Abscess in Relation to Trauma, Credibility of Expert Testimony—The claimant was struck on the chest by a crate of lettuce in the course of his employment with the Western Vegetable Distributors Shortly thereafter he complained of pain in his side He did not consult a physician until nineteen days later Dr Hughes, the physician consulted, sent him to a hospital and diagnosed his condition as a ruptured blood vessel in the lung with blocking of a bronchial tube by a clot of blood, resulting in a pulmonary abscess Some time later, he was examined by another physician, Dr Holmes On the basis of this examination, the history of the case, and roentgenograms, Dr Holmes believed that the claimant's condition was due to a pneumonia with possible small abscess formation Eventually the claimant instituted proceedings under the workmen's compensation act of Arizona From an order of the industrial commission denying compensation, the claimant appealed to the Supreme Court of Arizona

Dr Hughes testified that, based on the history of the case, the blow on the chest was the original cause of the claimant's pulmonary condition Dr Holmes, however, testified that it was improbable that the claimant's pulmonary condition was due to the blow He pointed out that a pneumonia following a severe contusion to the chest is possible but quite rare, that a pneumonia due to trauma would be expected to supervene within three or four days or at most a week from the time of the accident, that any injury to the chest not sufficient to cause the workman to stop working would be most improbable as a cause of pneumonia two weeks later, and that abscess formation following an injury to the chest is rare The claimant contended that the commission should have accepted the positive testimony of the one physician that the injury caused the pulmonary abscess, rather than the testimony of the other physician that it was extremely probable that the injury did not cause the abscess There might be some merit to this contention, said the Supreme Court, if the point at issue was one which was subject to positive knowledge But where the question is necessarily one of opinion, a trier of fact is not required

to give more weight to an opinion that is expressed more positively than another When two expert witnesses reach opposite conclusions, a trier of fact, in deciding which witness is more probably correct in his conclusion, may consider the experience of each witness and their interest or bias, conscious or unconscious, in the result to be reached

The court could not agree with the claimant's further contention that the industrial commission was not a fair and impartial tribunal because, on its past record, it had invariably accepted the testimony of its own medical adviser and its medical rating board as against that of medical witnesses appearing for claimants The commission, said the court, presumably chooses its medical adviser because it has confidence in his integrity and ability His salary is fixed and he has no pecuniary interest in the outcome of the case The members of the commission's medical rating board, the final medical authority whose opinion in doubtful cases the commission is apt to accept even in preference to that of its own chosen adviser, are selected by the president of the state medical association and their compensation is fixed and paid by the commission regardless of the nature of their recommendations Any tendency of the commission to accept the opinions of its own experts rather than those of a claimant's experts, though the witnesses be of equal standing in their profession, may be explained on the theory that the commission believes that a claimant's witness is more apt to be mistaken in his judgment than a witness who has no financial interest in the nature of the award, has not been chosen because of a previously expressed opinion in the case and whose testimony will be used in all cases which he examines, regardless of whether it favors a claimant or not

Accordingly, the Supreme Court affirmed the award of the commission denying compensation—*Ison v Western Vegetable Distributors (Ariz)*, 59 P (2d) 649

Workmen's Compensation Acts Compensability of Loss of Vision in Previously Injured Eye—While he was working as a pressman for the defendant company, a piece of steel entered the claimant's right eye The state industrial board awarded him compensation for 100 per cent permanent loss of use of that eye On appeal, the Court of Appeals of New York, in affirming the award, held that the complete loss of use of the claimant's eye was the natural and unavoidable result of the injury and that he was entitled to compensation for 100 per cent permanent loss of use of that eye even though there was evidence that he was industrially blind in that eye prior to the accident as the result of a previous injury—*Pyshtack v Henry Forge & Tool, Inc (N Y)*, 4 N E (2d) 729

Compensation of Physicians Liability of Client for Fees of Medical Expert Employed by Attorney—A physician employed by an attorney to act as a medical expert to assist him in contesting a will on the alleged ground of mental incapacity on the part of the testator may hold the attorney's client for the reasonable value of his services, in the absence of a showing that the physician had notice of an agreement between the attorney and his client limiting the attorney's authority or that the physician agreed to look solely to the attorney for his compensation—*Herfurth v Horne (Ky)*, 98 S W (2d) 21

Society Proceedings

COMING MEETINGS

Idaho State Medical Association Boise Aug 30 Sept 3 Dr Harold W Stone 105 North Eighth St Boise Secretary
Montana Medical Association of Great Falls July 13 14 Dr Thomas L Hawkins 50 North Main St Helena Secretary
National Medical Association St Louis Aug 15 20 Dr John T Givens 1108 Church St Norfolk Va General Secretary
Pacific Northwest Medical Association Great Falls Mont July 8 10 Dr C W Countrymen 407 Riverside Ave Spokane Wash Secretary
Rocky Mountain Medical Conference Denver July 19 21 Mr Harvey T Sethmar 1612 Tremont Place Denver Secretary
Utah State Medical Association Salt Lake City Sept 2-4 Dr F M McHugh 17 Exchange Place Salt Lake City Secretary
Washington State Medical Association Seattle July 19 22 Dr Vernon W Spickard 1103 Fourth Ave Seattle Secretary

Current Medical Literature

AMERICAN

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Alabama Medical Association Journal, Montgomery G 349 372 (May) 1937

- Bronchoscopic Management of Pulmonary Abscess P P Vinson Richmond Va.—p 349
- Consideration of Functional Disorders in Relation to Diseases of Gall bladder J W Boggess Jr Guntersville—p 350
- Fractional Doses for Infants and Children Proposing a Formula for Determining Doses of Potent Drugs During Infancy R E Cloud, Birmingham—p 353
- Diseases of the New Born A C Gipson Gadsden—p 355
- Truamatism and Parkinsonismus W Marshall University and V F Marshall Appleton Wis.—p 358

American Journal of Medical Sciences, Philadelphia 193 581 736 (May) 1937

- Diabetes as Disturbance of Endocrine Regulation B A Houssay, Buenos Aires Argentina—p 581
- Observations on Protamine Zinc Insulin R Richardson Philadelphia—p 606
- One Hour Two-Dose Glucose Tolerance Test in Diagnosis of Diabetes Mellitus S E Gould, S S Altsbuler and H S Mellen Eloise, Mich.—p 611
- Blood Ketone Curve After Fat Tolerance Test S S Kauvar, New York—p 617
- Toxicity and Effect of Congo Red on Blood Coagulation Isabel Taliaferro and H B Haag Richmond Va.—p 620
- Dietary Deficiency as Cause of Macrocytic Anemia J Groen and I Snapper Amsterdam Holland—p 633
- Secretion of Hippuric Acid in Pernicious Anemia P J Fouts O M Helmer and L G Zerfas Indianapolis—p 647
- Leukopenic Index with Reference to Normal White Blood Cell Variations M Zeller Chicago—p 652
- Chemical Peculiarity of Pellagra Blood Second Report C H Campbell with technical assistance of S R Shaver Oklahoma City—p 658
- Paradrine (β 4 Hydroxyphenylisopropylamine) Clinical Investigation of Sympathomimetic Drug W O Abbott and C M Henry Philadelphia—p 661
- Observations on Coramine J H Cowan Jersey City N J—p 673
- *Variability of Vital Capacity of Lungs in Youth J H Arnett and R H De Orsay Philadelphia—p 684
- Clinical Use of Desoxycholate and Desoxycholate Citrate Agars—New Culture Mediums—for Isolation of Intestinal Pathogens M Paulson Baltimore—p 688
- Pylephlebitis of Extraperitoneal Origin Report of Case with Review of Literature H J Bakst and J Jeghers Boston—p 690
- *Primary Tuberculous Appendicitis and Appendicitis Complicating Pulmonary Tuberculosis E T Thieme Ann Arbor Mich.—p 700

Variability of Vital Capacity of Lungs—Arnett and De Orsay base their study on yearly vital capacity readings in 100 men and 100 women of college age. At least three, and frequently more, readings were made in each case. Students in whom there existed any suspicion of disease which might affect the vital capacity were omitted from consideration. Nineteen of the men and thirty-two of the women exhibited standard deviations of less than 20 cc from the best straight line. This group could be further subdivided into ten men and fourteen women who exhibited no vital capacity change whatever, four men and four women who exhibited a uniform gain, and five men and fourteen women with small irregular variations. Apparently the cases tend to follow a normal distribution. In pneumonia the fall in vital capacity usually amounts to from 1,000 to 3,000 cc. The greatest standard deviation exhibited by any student in the present study was 235 cc. The vital capacity might therefore be used with propriety in any of these 200 students as an aid in the diagnosis of pneumonia. On the other hand, in the early stages of pulmonary tuberculosis, in which physical signs may still be indefinite and the vital capacity loss as low as 250 cc, the test would be helpful only in those students whose vital capacities were known to vary but little, here it would be proper to exclude from consideration any whose standard deviation

from the best straight line exceeded 83 cc. This would mean the exclusion of thirty-two of the men and twelve of the women of the present study. When disease is suspected and the vital capacity is found to be lower than on previous occasions, the authors have learned to scan the previous vital capacity determinations in the patient's record to see whether variations comparable in magnitude have occurred in the past. If so, little or no weight is attached to the finding, even though the figure may be well below the individual's average. If, on the other hand, a similar vital capacity fall is observed in an individual whose determinations have remained comparatively constant, it is taken seriously. Used in this way, it is believed that in university health services and in offices of physicians who have an opportunity to examine their patients at intervals, particularly if their patients come to them for an annual health examination, the test will be found of value.

Primary Tuberculous Appendicitis—Thieme has encountered seven cases of so called primary tuberculous appendicitis, in two of which tuberculosis elsewhere was found later. The history and physical observations in these seven cases were essentially the same as in pyogenic appendicitis and the diagnosis was not made preoperatively. The prognosis was uniformly good. Twenty cases of pulmonary tuberculosis in which operations for appendicitis has been performed were reviewed. The lesion was acute in thirteen and recurrent in seven. Of the twenty patients, six had tuberculous appendicitis, five of them were doing poorly preoperatively from their pulmonary standpoint. Of the six, five are dead and the sixth is critically ill. The extremely poor prognosis of tuberculous appendicitis in advanced, uncontrolled pulmonary disease is evident. The fourteen cases of pyogenic appendicitis occurred in patients who were doing well from the standpoint of their pulmonary tuberculosis. Their subsequent course has been such as to lead the author to believe that their appendicitis was unrelated to their tuberculosis and did not affect the course of that disease.

American J Obstetrics and Gynecology, St Louis 33 729 908 (May) 1937 Partial Index

- Certain Pharmacologic Actions of Newer Barbituric Acid Compounds C M Gruber Philadelphia—p 729
- *Analgesia with Barbituric Acid Derivatives and Its Relationship to Suden Death in Labor T L Montgomery Philadelphia—p 745
- Use of Parathyroid Extract in Control of Early Nausea and Vomiting of Pregnancy Preliminary Report W Sussman Philadelphia—p 761
- Chemical Test for Pregnancy Applied to Determination of Estrin in Urine of Normal and Toxicemic Patients in Last Trimester of Pregnancy J E Savage and H B Wylie Baltimore—p 771
- Extrapertoneal (Latzko) Cesarean Section Report of Cases and Suggested Modifications in Technique A H Aldridge New York—p 788
- Endocrine Basis of Toxemia of Pregnancy J J Vorzimer A M Fishberg E G Langrock and E M Rappaport New York—p 801
- Relationship Between Infected Urine and Etiology of Pyelitis in Pregnancy C M McLane and H F Traut New York—p 828
- *Contraction Ring Dystocia Analysis of Thirty Six Cases with Observations on Use of Adrenalin in Twenty Cases C H McKenzie Minneapolis—p 835
- Trichomonas Vaginalis Vaginitis Incidence Diagnosis and Treatment with Silver Picrate R von L Buxton Cleveland and H A Shlansky Philadelphia—p 842
- P Carbamino Phenyl Arsonic Acid in Treatment of Trichomonas Vaginalis Vaginitis C Drabkin St Louis—p 846
- Evaluation of Practical Use of Aschheim Zondek Pregnancy Test J W Mull and H D Underwood Cleveland—p 850
- Modification of Visser's Bowman Pregnancy Test Report on 513 Observations H C Frech Jr Augusta Ga—p 854
- Analysis of Twelve Cases of Spontaneous Rupture of Pregnant Uterus A D Seley New York—p 857
- Autotransfusion with Blood from Large Myomatous Uteri A J Wallingford Albany N Y—p 869
- Diabetes Insipidus and Pregnancy S D Soule St Louis—p 878

Analgesia with Barbituric Acid Derivatives in Labor—Montgomery asserts that doubt has arisen from various sources as to the effect which deep analgesia and anesthesia have on the intelligent and safe conduct of labor. The Committee on Public Health Relations of the New York Academy of Medicine state that the use of anesthesia during labor and delivery has grown steadily in extent since its introduction in the last century and is a problem of the most pressing importance. This has come about to a large extent through pressure from the lay public. The women of large urban centers have become steadily more insistent in their demands for shorter and less painful parturition, and the obstetrician may disregard these demands only at great risk to his own practice.

The committee is of the opinion that "frequent and injudicious employment of deep analgesia and anesthesia has increased very materially the rate of operative intervention and has on this account been a major factor in preventing a reduction in the high maternal mortality rate in this country." In the light of relentless scrutiny, it appears uncertain that deep analgesia with the barbiturates is completely safe or fully reliable. It is questionable whether the widespread acceptance of this method is a step forward in obstetric practice.

Contraction Ring Dystocia—McKenzie states that in 14,080 deliveries on the obstetric service of the Louisville City Hospital between Jan 1, 1926, and Sept 30, 1935, there were thirty-six cases in which the contraction ring was palpated. Since Jan 1, 1931, twenty cases have been treated by hypodermic injection of epinephrine, sixteen cases prior to that time were treated by other methods. The use of epinephrine to relax a contraction ring has led to a decrease in the maternal mortality rate. Although the fetal mortality is still high, fewer craniotomies were necessary on living babies and more babies were discharged alive and well. Although epinephrine may relax the muscles in a retraction ring, the cause of dystocia is not removed and the case is still formidable. In dystocia due to contraction ring, epinephrine relaxes the ring and thus removes the cause. The case may terminate by spontaneous or operative delivery, depending on the condition of the patient and the judgment and skill of the obstetrician.

American Journal of Ophthalmology, St Louis

20 457 564 (May) 1937

- Study of Communication and Direction of Flow Between Cerebrospinal Fluid and Optic Disks in the Rat J Q Griffith Jr W A Jeffers A G Fewell and W E Fry Philadelphia—p 457
Lectures on Glaucoma I Certain Aspects of Glaucoma R E Wright Madras India—p 462
Avoidance of Dynamic Accommodation Through the Use of Brightness Contrast Threshold M Luckiesh and F K Moss Cleveland—p 469
Etiology of Squint A Bielschowsky Hannover N H—p 478
Chronic Tuberculous Uveitis Clinical and Anatomic Observations in Fellow Eyes H D Lamb St Louis—p 490
Use of Concentrated Epinephrine Preparations in Glaucoma Iritis and Related Conditions Clinical Study M Wiener and B Y Alvis St Louis—p 497
Adrenalin Chloride 1:100 in Ophthalmology O Barkan and S Maisler San Francisco—p 504
The Spermic Bases of Ocular Tissues A C Krause Chicago—p 508
Paracentesis and Atropine in Treatment of Optic and Retinal Atrophies Preliminary Report M L Folk Chicago—p 511

American Journal of Physiology, Baltimore

119 1220 (May) 1937 Partial Index

- Epinephrine and Blood Sugar Level C J Coletti Jr New York—p 1
Variations in Alveolar Carbon Dioxide in Man During Hunger R J Main Chicago—p 7
Experimental Index of Erythropoietic Function in Rabbits P L Kurtz Indianapolis—p 24
*Establishment of Diurnal Temperature Cycle N Kleitman S Titelman and H Hoffmann Chicago—p 45
Factors Which Determine Rate and Depth of Breathing R Gesell and C Moyer Ann Arbor Mich—p 55
Study of Hemolysis in Vivo by Application of Benzidine Microcolorimetric Method to Determination of Free Hemoglobin in Plasma D Melnick and G R Cowgill New Haven Conn—p 70
Effect of Baths at Different Temperatures on Oxygen Exchange and on Circulation H C Bazett J C Scott M E Mayfield and M D Blithe Philadelphia—p 93
Effects of Epinephrine on Urine Excretion in Dogs L A Toth Rochester N Y—p 140
Divided Dosage of Insulin F Bischoff and Lillian M Jemtegaard Santa Barbara Calif—p 149
Direct Observation of Intra Uterine Respiratory Movements of Fetus and Role of Carbon Dioxide and Oxygen in Their Regulation F F Snyder and M Rosenfeld Baltimore—p 153
Nussbaum's Experiment on Renal Secretion R T Kempton Philadelphia—p 175
Effect of Heat on Blood and Lymph Flow from Gastrointestinal Tract J M Beazell C R Schmidt and A C Ivy Chicago—p 197
Relation Between Systemic and Pulmonary Blood Pressures in Fetus W F Hamilton R A Woodbury and E B Woods Augusta Ga—p 205

Establishment of Diurnal Temperature Cycle—In attempting to elucidate the mechanism responsible for the development and persistence of the diurnal cycle Kleitman and his associates found that it runs parallel with the diurnal body temperature curve and diurnal variations in steadiness and performance of muscular and mental tasks. The present report deals with the time of establishment of the diurnal cycle, as

judged by the appearance of a definite diurnal body temperature curve, in the human subject. In a general way the group average of the diurnal temperature range increases with age but during the second year of life there appears rather abruptly a marked increase in the magnitude of that temperature range, which is now almost doubled in value and definitely exceeds that of older children and adults.

Am J Syphilis, Gonorrhea and Ven Dis, St Louis

21 241 356 (May) 1937

- *Use of Antigonococcus Serum Gonococcus Vaccine and Filtrate in Treatment of Gonococcal Infections Experimental Study C S Keefer and W W Spink Boston—p 241
Syphilitic Epilepsy W L Bruetsch and M A Bahr Indianapolis—p 255
Serum Cholesterol in Syphilis F Feraru and F M Offenkrantz New York—p 267
Studies in Cardiovascular Syphilis II Incidence of Syphilitic Aortitis Study of 1000 Syphilitic Individuals K D Cochems and J E Kemp Chicago—p 282
Spinal Fluid Reaction in General Paresis as Modified by Combination of Therapeutic Malaria and Tryparsamide L Maletz and H C Solomon Boston—p 287
*Incidence of Syphilis in the Negro as Indicated by Serologic Tests G D Holloway W H Grant and M J Bent Nashville Tenn—p 303
*Postarsphenamine Jaundice L J Soffer New York—p 309

Antigonococcus Serum, Gonococcus Vaccine and Filtrate in Gonococcal Infections—Keefer and Spink found that the addition of antigenococcus serum to blood in vitro will increase the bacteriolytic titer of the blood serum. When antigenococcus serum is injected intravenously the titer can be increased, and this is true of individuals with and without bacteremia. In this way it is possible to sterilize the blood of some patients provided they do not have endocarditis. An increase in the bacteriolytic titer of the blood was observed in one patient following the intravenous injection of vaccine, but it was not possible to demonstrate a similar response in another when the vaccine was given intradermally or subcutaneously. The authors were unable to demonstrate an increase in antibodies following the injection of Corbus-Ferry filtrate. In two patients with local gonococcal infections they were unable to sterilize the lesions with antigenococcus serum. This may have been due in part to the presence of large amounts of mucus and fibrin which protect the organism from the antibodies. Antigonococcus serum should be used in cases of gonococcal bacteremia, especially when there is no evidence of endocarditis. When vaccines are used, it would appear that intravenous injection would be better than intradermal or subcutaneous inoculation. They were unable to show that serum was capable of sterilizing the synovial fluid when it was injected directly into the knee joint, and they had a similar experience in a case of gonococcal ophthalmia. An increase in the antibodies of the blood by injecting gonococcus filtrate intradermally could not be demonstrated.

Incidence of Syphilis in the Negro—From September 1926 to August 1933, blood from 13,728 patients from the hospital wards and the outpatient clinics was tested in the laboratory of Holloway and his colleagues. They found that of this number 3,534, or 27.4 per cent, gave a positive reaction to one or more of the tests (Wassermann, Eagle and Hinton) used. If the one plus cases are considered doubtful, the total percentage of positive cases would be 22.1, 70 per cent of this positive group stated that they were without knowledge of the fact that they were syphilitic. Likewise only 13 per cent of those with positive reactions had received antisyphilitic treatment before their blood was submitted to the laboratory. The patients were divided into two groups: the patients from the clinics and hospital wards and the healthy, more intelligent student group (836) from several Negro colleges. The incidence of syphilis in the select student group was 5.9 per cent. The incidence was less than 2 per cent among the women of one college.

Postarsphenamine Jaundice—According to Soffer, of a total of 18,250 patients who received antisyphilitic treatment in the Johns Hopkins Hospital from 1919 to 1934, 158 developed jaundice, an incidence of 0.87 per cent. Arsphenamine causes jaundice one and one-half times as frequently as neoarsphenamine, while tryparsamide shows the lowest incidence of treatment icterus. The percentage incidence of postarsphenamine jaundice is almost three times as great among the white

as among the Negro patients. There is considerable evidence in the literature to indicate that arsenical therapy or accidental chronic arsenical poisoning may produce a progressive disease of the liver even in the absence of a preceding acute icteric episode. Long continued use of arsenical compounds may produce progressive damage to the liver. This hazard is further increased if, during the course of treatment with arsenicals enough liver damage is incurred to produce icterus. Patients who have had an attack of catarrhal jaundice may demonstrate evidence of impaired hepatic function for many years after the jaundice has subsided. The same may be true of patients who at some time or other developed postarsenical icterus.

Annals of Medical History, New York

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- George Huntington and His Relationship to Earlier Descriptions of Chronic Hereditary Chorea R N De Jong Ann Arbor Mich—p 201
John Lenke and Childbed Fever E M Jameson Saranac Lake N Y—p 211
Strange History of the Vesicle in Scabies D W Montgomery San Francisco—p 219
The Plague of 1603 in England C F Mullett Columbia Mo—p 230
Moon Madness W H Stahl New York—p 248
The Doctor on the Stage Medicine and Medical Men in Seventeenth Century English Drama H Silvette University Va—p 264

Annals of Surgery, Philadelphia

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- Wider Horizons for the Surgeon H B Stone Baltimore—p 641
*Surgical Treatment of Facial Spasm C C Coleman Richmond Va—p 647
Direct Roentgen Radiation of Brain Tumors During Operation E Sachs S Moore and L T Furlow St Louis—p 658
Treatment of Brain Trauma E D Newell and J M Higginbotham, Chattanooga Tenn—p 662
Aneurysm in Cervical Portion of Internal Carotid Artery Analytic Study of Cases Recorded in the Literature Between Aug 1 1925 and July 31 1936 Report of Two New Cases A M Shipley N Winslow and W W Walker Baltimore—p 673
Further Observations on Thyroid Diseases in Nonendemic Area Analysis of 662 Surgical Cases and Sixteen Nonsurgical Deaths U Maes F F Boyce and Elizabeth M McFetridge New Orleans—p 700
Analysis of 300 Consecutive Thyroidectomies E Drennen Birmingham Ala—p 717
Total Thyroidectomy for Heart Disease W H Parsons and W K Purks Vicksburg Miss—p 722
Factors of Significance in Prognosis of Cancer of Stomach D C Balfour Rochester Minn—p 733
Chronic Obstruction and Dilatation of Duodenum J L McGehee and W D Anderson Memphis Tenn—p 741
Technic of Closing Perforated Ulcer of Duodenum W D Gatch and J E Owen Indianapolis—p 750
Surgical Aspects of Acute Cholecystitis G J Heuer New York—p 758
Strictures of the Common and Hepatic Ducts F H Lahey Boston—p 765
*Surgical Treatment of Chronic Biliary Typhoid Carriers F A Collier Ann Arbor Mich and F C Forsbeck Lansing Mich—p 791
Acute Perforated Appendicitis with Peritonitis Report of 252 Consecutive Cases R D McClure and W A Altmeier Detroit—p 800
The Appendix Problem Perennial Cause of Preventable Mortality E P Hogan Birmingham Ala—p 815
Epigastric Symptoms in Acute Lung and Heart Diseases K H Aynes worth Waco Texas—p 845
Regional Ileitis J deJ Pemberton and P W Brown Rochester Minn—p 855
Enteritis of Obstructed Loop Following Entero-Anastomosis for Intestinal Obstruction W L Estes Jr Bethlehem, Pa—p 871
Controllable Cecostomy W P Nicolson Jr Atlanta Ga—p 878

Surgical Treatment of Facial Spasm—Coleman has had under observation recently five patients with facial spasm. There were three patients with clonic unilateral spasm and two in whom the spasm was bilateral and predominantly of the tonic type. The patients with unilateral spasm sought relief chiefly because of the embarrassment resulting from contraction of the facial muscles, particularly those about the eye. Reading was difficult and the patients were continuously disturbed by the facial grimaces. Many kinds of therapy had been tried without relief. The contractions persisted with variations but with increasing intensity and annoyance. Two of the patients had severe disabling bilateral tonic contractions of the entire facial musculature. Medical treatment and psychotherapy are of no benefit to facial spasm. The condition can be relieved only by paralysis of the nerve by section, or by injection of the nerve with alcohol. With recovery from the paralysis the spasm usually returns, but the patient is

grateful for a period of relief which may last from six to twelve months. The paralysis necessary to the permanent cure of facial spasm should be relieved by anastomosing the facial with the hypoglossal or spinal accessory nerve.

Surgical Treatment of Chronic Biliary Typhoid Carriers—Coller and Forsbeck performed cholecystectomy on eighteen chronic biliary typhoid carriers with cure in 88.9 per cent. No deaths occurred. Eligibility for cholecystectomy was based on the carrier being a gallbladder carrier and a good surgical risk. Cure was considered effected when twelve consecutive specimens of negative feces and at least one (usually two) negative bile specimen were obtained. Most cases become feces negative in from a few days to two or three weeks after operation. Hope for eventual cure may be maintained for many months, however. Mortality and cure percentages are comparable only if (1) typhoid and paratyphoid carriers are considered separately, (2) carriers operated on primarily for cure of the carrier state and primarily for clinical symptoms are considered separately, (3) the time elapsed since typhoid is taken into consideration and (4) the criteria for release are identical or at least similar. Cholecystectomy may logically be recommended as a matter of personal precaution to a chronic carrier without clinical symptoms who is a good risk. Each cure removes one more of a limited number of infection foci and thus contributes to the ultimate eradication of typhoid.

Archives of Internal Medicine, Chicago

59 759 930 (May) 1937

- Clinical Use of Extract of Adrenal Cortex Report on Thirty Four Cases of Addison's Disease Studied Between 1930 and 1937 with Review of Literature C H Greene New York—p 759
*Influence of Gastric Acidity and Degree of Anemia on Iron Retention Adelaide P Barer and W M Fowler Iowa City—p 785
Generalized Xanthoma Tuberosum with Xanthomatous Changes in Fresh Scars of Intercurrent Zoster Adenocarcinoma of Ampulla of Vater at Necropsy F D Weidman and L N Boston Philadelphia—p 793
Nitrogen and Sulfur Metabolism in Bright's Disease VIII Effect of Ingestion of Urea on Nitrogen Excretion and Sulfur Partition in Nephrosis Glomerulonephritis and Cirrhosis of Liver G P Grahfield and B Prescott Boston—p 823
Roentgenographic Study of Orthostatic Albuminuria by Means of Injections of Diodrast D A Rytand San Francisco—p 837
Renal Lesion in Orthostatic Albuminuria D A Rytand San Francisco—p 848
*Absorption of Fat from Ileum in Human Beings H Doubilet and Miriam Reiner New York—p 857
Simmonds Disease (Anterior Hypophyseal Insufficiency) Report of Two Cases with Autopsy Mae Gallavan and A T Steegmann Cleveland—p 865
Review of 440 Cases of Pellagra V P Sydenstricker and E S Armstrong Augusta Ga—p 883
Diseases of the Heart Review of Some Contributions Made During 1936 A Graybiel with editorial assistance of P D White Boston—p 892

Influence of Gastric Acidity on Iron Retention—In their experiments, Barer and Fowler observed that patients with achlorhydria retain less iron from a normal dietary intake of iron than do patients with free hydrochloric acid in the gastric contents. This diminished retention of iron may play a part in the etiology in certain cases of idiopathic hypochromic anemia, although it is not believed to be the only etiologic factor. With a large intake of iron (500 mg daily) the retention of iron is not influenced by the gastric acidity, and the administration of hydrochloric acid, even in large amounts, does not increase the retention of iron. The latter was true both with normal and with large amounts of iron and indicates that the administration of hydrochloric acid is not necessary for an adequate retention of iron. Nonanemic subjects retained as much iron as did patients with anemia from a normal intake of iron as well as when large amounts of iron were administered. Of five patients on a low intake of iron, from 381 to 667 mg daily, in negative balance, the four who were placed on a diet with a normal content of iron subsequently showed a positive balance. This indicates that an intake of 67 mg a day is not sufficient for the needs of these patients.

Absorption of Fat from Ileum—Doubilet and Reiner encountered a patient who had accidentally acquired a temporary Thury fistula of the middle portion of the ileum during treatment for strangulated femoral hernia. Observations on the absorption of fat from the middle of the ileum in this patient showed the following facts. In a human being the ileum secretes a fluid which contains about 2 per cent of lipids. The

presence of bile acids increases the volume of the secretion, while its lipid concentration remains unchanged. Olive oil and oleic acid are absorbed from the ileum even in the absence of bile acids. Bile acids in small amounts have apparently no effect on the rate of absorption of fats from the ileum. Large amounts of deoxycholic acid increase the volume of the excretion and so tend to reduce the rate of absorption of fat.

Archives of Otolaryngology, Chicago

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- Prenatal and Postnatal Development and Form of Crypts of Human Palatine Tonsil W L Minear, L B Arey and J T Milton Chicago —p 487
- Tonsillectomy as Cure for Peritonsillar Abscess Case Reports F W Merica, Lakewood Ohio —p 520
- Further Experiences with Suppuration of Petrous Pyramid M C Myerson New York, and H W Rubin Brooklyn —p 525
- Mediastinitis Clinical Study with Practical Anatomic Considerations of Neck and Mediastinum A C Furstenberg and L Iglesias Ann Arbor Mich —p 539
- Effect of Short Wave Current on Temperature of Paranasal Sinuses H Rosenwasser and W Bierman New York —p 555
- Structural Alterations in Petrous Portion of Temporal Bone in Osteitis Deformans B J Anson and J C Wilson Chicago —p 560

Archives of Surgery, Chicago

34 761 976 (May) 1937

- *Eight Years' Experience with the Adrenal Gland L R Broster, London England —p 761
- Xanthosarcoma of Cheek Succeeding Xanthosarcoma of Forearm Multiple Tumors versus Metastasis F D Weidman Philadelphia —p 792
- Inhibition of Bladder M M Parker and D K Rose St Louis —p 828
- *Effect of Anesthetics on Lymphatic Absorption from Peritoneal Cavity in Peritonitis Experimental Study H A Mengle, Philadelphia —p 839
- Encephalography with Anesthetic Gases R B Aird, San Francisco —p 853
- Congenital Atresia of Pelvic Colon Report of Case W F Bowers and M M Cook Minneapolis —p 868
- Operation Room Infections Control of Air Borne Pathogenic Organisms with Particular Reference to Use of Special Bactericidal Radiant Energy Preliminary Report D Hart Durham N C —p 874
- Repair of Facial Defects with Especial Reference to Source of Skin Grafts J W Mahan New York —p 897
- Effect of Partial Gastrectomy on Gastric Acidity F C Hill, F T O'Brien and C M Wilhelmj Omaha —p 909
- Spontaneous Rupture of Normal Spleen I C Zuckerman and M Jacobi Brooklyn —p 917
- *Pruritus Ani Histologic Picture in Forty Three Cases C C Tucker and C A Hellwig Wichita Kan —p 929
- Reflex Dystrophy of Extremities G de Tikats Chicago —p 939
- Sixty Second Report of Progress in Orthopedic Surgery J G Kuhns E F Cave S M Roberts J S Barr, R J Joplin, Boston, J A Freiberg Cincinnati J E Milgram New York and R I Sterling Edinburgh Scotland —p 957

The Adrenal Gland—Broster discusses a series of twenty-three cases of virilism in which unilateral adrenalectomy was performed without a fatality. A specific differential staining reaction has been found in the cells of the adrenal cortex, which is absent in controls. It is also present in the tumor cells in cases of virilism due to neoplasm. This stain has been verified and its presence shown in the opposite adrenal at necropsy by others. This stain is present in the fetus of both sexes, and virilism can be explained by its abnormal persistence in the female. In some of the patients an increased amount of cholesterol was observed in the blood. The author cannot say what the significance of this stain is. It is associated with definite changes in the growth and development of the body tissues which have reverted to normal after unilateral adrenalectomy. In some cases it has been associated with alterations in the psychologic outlook of the patient which have reverted to normal after operation. The same changes have been observed in arrhenoblastoma of the ovary. From an examination of more than sixty cases of virilism of varying degree it is concluded that heredity plays a part. A family history of hirsutism was present in 25 per cent, and in these it was twice as common on the distal side. There is slight evidence that it is associated with the events which occur at birth. It occurred in two cases of twin births and in one case of premature birth, and in one case it appeared in the 4 year old daughter within three months of its onset in the mother. It appeared in several persons whose mothers suffered from exophthalmic goiter and in one whose mother suffered from diabetes. Women with virilism are comparatively infertile. If they conceive, they are

apt to miscarry. On the other side, one patient on whom unilateral adrenalectomy had been performed and who suffered from amenorrhea has since married and produced a son.

Effect of Anesthetics on Lymphatic Absorption in Peritonitis—Since many patients with spreading peritonitis complicating acute perforative appendicitis are operated on, either inadvertently or designedly, during the early stages of the disease, Mengle wished to ascertain, if possible, what effect was exerted by the anesthetic on the rate of lymphatic absorption. His experiments were performed in normal animals, animals with local peritonitis, animals with spreading peritonitis of a duration of twenty-four hours and animals with spreading peritonitis of a duration of forty-eight hours. The results show that in normal animals and those with either local or spreading peritonitis the greatest stimulation to lymphatic absorption (and so to toxic absorption) is produced by the anesthetics which most stimulated the activity of the diaphragm. It is believed, therefore, that local infiltration or regional block anesthesia with 1 per cent procaine hydrochloride or low spinal anesthesia with procaine hydrochloride is the method of choice for operations in the presence of peritonitis.

Pruritus Ani—There is nothing in Tucker and Hellwig's observations that would suggest a bacterial or parasitic cause of pruritus ani. Certain bacteria or fungi may complicate pruritus, but in the early stages in their cases no histologic evidence of bacterial or parasitic infection was present. The results of their microscopic examinations were not in harmony with the theory that pruritus is an allergic disease, and the neurogenic theory of pruritus also seems unwarranted. They disagree with those who believe that inflammatory lesions of the anal canal and hemorrhoids are responsible for pruritus. There was no difference between the pathologic picture of the anal canals of persons with pruritus and of persons without pruritus. The four stages which they have seen in pruritus—exudative inflammation, epidermoid proliferation, atrophy of the epidermis and sebaceous glands and epithelial defects—can be produced in the skin of rabbits and mice by certain chemical substances which, in various pathologic conditions, are present in the human feces. Besides other hydrocarbons, skatole may be the responsible agent. Stoerber and Wacker were able, by the injection of skatole into the rabbit, to produce the same cutaneous changes which have been described in pruritus. While skatole is absent in the stool of healthy children and also in the stool of most adults, Herter found excessive amounts in the feces of patients suffering from mental depression and anemia and especially from chronic intestinal disorders. These conditions are, according to Montague, often associated with pruritus. In healthy children, on the other hand, true pruritus is unknown.

Delaware State Medical Journal, Wilmington

9 103 118 (May) 1937

- Acute Appendicitis Study of Cases at the Beebe Hospital (1920-1936) E L Stambaugh, Lewes —p 103
- Signs and Symptoms of Diabetes E Podolsky, Brooklyn —p 110

Illinois Medical Journal, Chicago

71 365 456 (May) 1937

- Surgical Treatment of Peptic Ulcer and Its Complications H K Gray, Rochester, Minn —p 411
- Cancer M Cutler, Chicago —p 413
- Gillies Operation for Correction of Depressed Fracture Deformities of Zygomatic Malar Bones P W Greeley, Winnetka —p 419
- Huge Retrovesical Myxoma E Jonas, Chicago —p 420
- Use of Physical Therapy in General Office Practice Report of 134 Cases H P Miller Rock Island —p 422
- *Raw Apple Dietary in Treatment of Diarrhea Complicating Melena Neonatorum W J Corcoran Chicago —p 426
- Lawrence Moon Biedl Syndrome J B Gillespie Urbana —p 429
- Further Studies with Zinc Ionization in Treatment of Trachoma S M Edison Chicago —p 431
- Cesarean Section W C Scrivner, East St Louis —p 436
- Prenatal Syphilis a Preventable Disease S J Zakon Chicago —p 438
- Pharyngeal Diverticula A E McEvers Los Angeles —p 441
- Ray of Abdomen in Lead Colic Report of Case W J Pickett, A R Nachman and R O Levitt Chicago —p 442
- Modern Management of Varicose Veins L M Zimmerman, Chicago —p 444
- Hypotension or Low Arterial Pressure D M Roberts Alton —p 445

Raw Apple Dietary in Treatment of Diarrhea Melena Neonatorum—Corcoran treated a case of melena neonatorum complicated by diarrhea with raw apple feeding to control.

diarrhea. This dietary was used on the third day of life. The sequence of symptoms and clinical course in this case closely followed repetitious descriptions of symptomatic melena vera. There were no prodromal symptoms preceding hemorrhage. An insignificant change in the number of erythrocytes following the first blood count is sufficient reason for assuming that hemorrhage in this patient was not adversely affected by the method of feeding. On the other hand, there is insufficient reason for assuming that the period of hemorrhage was shortened since hemorrhage, in those cases of melena which recover, may be expected to stop spontaneously, usually between the second and fifth days. That diarrhea was a more alarming factor than hemorrhage became evident after the second red blood cell count, but there was encouragement as well as surprise in the pure culture of bacillus coli. It is difficult to account for the loss of only 100 Gm in body weight during seventy-two hours of apple feeding unless one assumes that, besides the absorbent and detoxifying properties generally attributed to it, apple pulp possesses the additional property of promoting retention of fluids. The infant received only 47.5 calories during the first twenty-four hours, 67.5 calories in the second twenty-four hours, and with the addition of 5 per cent lactose, 229.5 calories during the third day. And yet, despite the fact that diarrhea was severe, there was negligible loss of weight and no appreciable decrease of tissue turgor.

Journal of Lab and Clinical Medicine, St. Louis

22 767-876 (May) 1937

- *Further Studies on Mechanism of Diuresis with Especial Reference to Action of Some Newer Diuretics. G. Herrmann, G. M. Decherd Jr. with assistance of P. S. Erhard, C. C. Pearson, R. C. Douglas, Elsie Roberts and Others. Galveston, Texas.—p. 767.
- Study of Serum Cholesterol in Patients with Peptic Ulcer. F. M. Offenkrantz and F. Feraru. New York.—p. 780.
- Sedimentation Rate in Experimental Anemia (Rabbit). R. O. Gregg. Syracuse, N. Y.—p. 786.
- Some Sympathetic Factors in Thermotherapy. D. P. Alagia and V. L. Flannery. Baltimore.—p. 796.
- Chlorine Ion Determinations on Ventricular Fluids Supplemented with Few Cisternal and Spinal Fluids in Comparison with Corresponding Blood Serum. H. Christensen. Copenhagen, Denmark.—p. 803.
- Outbreak of Food Poisoning Probably Due to Staphylococcus Aureus. P. E. Bransfield. New Haven, Conn.—p. 805.
- Follicular Lymphoblastoma. Brief Review of Literature. H. M. Ewing. Montclair, N. J., and M. J. Fein. Brooklyn.—p. 807.
- Significance of Afferent Basal Metabolic Tracings. Clinical Note. H. B. Cates. Los Angeles.—p. 815.
- *Study of Relation of Rickets to Anemia. K. B. McDonough and D. R. Borgen. Madison, Wis.—p. 819.
- Value of Blood Xanthoprotein Reaction in Diagnosis and Prognosis. W. B. Steen. Chicago.—p. 825.
- Fractional Transfusion. W. J. MacNeal and Margaret E. (Straub). Neil. New York.—p. 842.
- New and Simplified Blood Culture Technique. J. M. Feder. Anderson, S. C.—p. 846.
- Continuous Registration at Rectal Temperature During Treatments in Hyperthermia. W. Stenstrom, I. Vigness and C. E. Nurnberger. Minneapolis.—p. 848.
- Stain for Urinary Casts. Jeanette Allen Behre. Chicago and W. Muhlbarg. Cincinnati.—p. 853.
- Determination of Calcium in Capillary Blood. T. M. Van Bergen and R. M. Hill. Denver.—p. 857.
- Effect of Added Heparin on Calcium Determinations in Blood Plasma. T. M. Bergen and R. M. Hill. Denver.—p. 862.
- Extraction of Cholesterol from Blood. H. J. Rose and Cecilia Riegel. Philadelphia.—p. 867.
- Method for Determining the Heart Rate of Small Animals. M. Kmazuk. Rahway, N. J.—p. 868.

Studies on Mechanism of Diuresis—Herrmann and Decherd compared the diuretic effect of mercupurin, mersalyl and mercurin suppositories. Their data concern results in seventy subjects with edema who have been observed under standard conditions of a preliminary rest in bed of from three to five days, on a constant intake of 1,600 cc of fluid and a low protein salt poor diet. Only five suffered primarily from the effects of cirrhosis of the liver, the others presented evidences of organic heart disease of one type or another with congestive failure in various stages and of varying degrees. To these seventy patients, 200 injections of mercupurin were given intravenously and alternately, for comparison, 115 injections of mersalyl were given in 2 cc doses of each, and sixty-four mercurin suppositories were administered. Taking all the results as they came, the conditions of course varying, now in favor of one drug and now in favor of the other, it seemed that mercupurin was favored. The average responses for the first, second

and third days following administration of mercupurin showed increases of 430, 92 and 91 per cent respectively, while for mersalyl the averages during the same period showed 293, 92 and 42 per cent. A secondary rise after the first day was occasionally noted following mercupurin. Both mercurial diuretics accomplish a maximal effect within the first day, the two drop about equally during the second day, but there was often persistence of the effects during the third day after mercupurin, while the mersalyl diuretic effect dropped considerably on the third day. The mercurin suppositories showed a 264 per cent increase for the first day, 66 per cent during the second and 25 per cent during the third day, a threefold augmentation of urinary output when the enema was used to prepare the intestine. The diuretic effects did not persist as actively as after intravenous use. Preliminary oral administration of xanthines and of acid salts likewise distinctly augmented the diuresis that resulted from mercurin suppositories.

Relation of Rickets to Anemia—McDonough and Borgen observed thirty infants and children, ranging in age from 6 months to 3 years, who were admitted to the State of Wisconsin General Hospital with a diagnosis of active rickets. Of those suffering from mild to severe acute rickets, sixteen, or 53 per cent, had normal hemoglobin readings and red blood cell counts. Fourteen, or 47 per cent, had readings of 60 per cent hemoglobin or lower. Eight of the cases showing low hemoglobin readings were complicated by dietary deficiencies or infections. Eleven cases in the entire group were complicated by dietary deficiencies, infections or anomalies such as cleft palate. Eight of the eleven complicated cases showed anemia, whereas only six of the nineteen uncomplicated cases showed a reduction in hemoglobin. In an attempt to throw some light on the relationship of anemia to rickets, severe rickets was produced in the chick and a comparison of the hemoglobin content of the blood of the rachitic with that of the normal chick was made. No significant difference in the hemoglobin content of the blood of normal and rachitic chicks could be demonstrated. Analyses of the livers of normal and rachitic chicks revealed no significant difference in the total and available iron content. In the rachitic chick, the abnormal calcium and phosphorus metabolism had no effect on the absorption and storage of iron so far as could be demonstrated. From the clinical evidence and the experimental results with the chick, it may be concluded that anemia is not a symptom of rickets but is probably secondary, in the infant, to complicating factors such as nutritional deficiency or infections.

Journal of Nervous and Mental Disease, New York

85 505-636 (May) 1937

- Dorsal Trigeminal Tract and Center Median Nucleus of Luys. J. W. Papez and W. Rundles. Ithaca, N. Y.—p. 505.
- Institutional Management of Syphilis. S. R. Dean. Taunton, Mass.—p. 520.
- Effect of Stimulation of Cortex Cerebri on Effector Mechanisms Which Mediate Movements of Iris and Membrana Tympani. J. G. Byrne. New York.—p. 528.
- Charcot-Marie-Tooth Disease with Primary Optic Atrophy. Report of Two Cases Occurring in Brothers. D. E. Schneider and M. M. Abeles. New York.—p. 541.
- Spontaneous Eidetic Imagery in Case of Chronic Epidemic Encephalitis. H. B. Lang and P. Polatin. Brentwood, L. I., with assistance of Sylvia Hotchkiss.—p. 548.
- Paramyeloma Multiplex and Neurosyphilis. S. M. Weingrow. New York.—p. 557.

Journal of Nutrition, Philadelphia

13 453-564 (May 10) 1937

- Some Quantitative Studies on Refection in the Rat. Eunice Kelly and Helen T. Parsons. Madison, Wis.—p. 453.
- Comparison of Heated Casein with Extracted Casein in Basal Diet for Determination of Vitamin A. E. N. Todhunter. Pullman, Wash.—p. 469.
- Alleviation of Vitamin B Deficiency in the Rat by Certain Natural Fats and Synthetic Esters. W. D. Salmon and J. G. Goodman. Auburn, Ala.—p. 477.
- Relation of Ingested Carbohydrate to Type and Amount of Blood and Urine Sugar and to Incidence of Cataract in Rats. Helen S. Mitchell, Oreana A. Merriam and Gladys M. Cook. Amherst, Mass.—p. 501.
- Anathyrogenic Action of Crystalline Vitamin B₁. B. Sure and Kathryn S. Buchanan. Fayetteville, Ark.—p. 513.
- Influence of Hyperthyroidism on Vitamin A Reserves of Albino Rat. B. Sure and Kathryn S. Buchanan. Fayetteville, Ark.—p. 521.
- Vitamin G₁ Content of Some Foods. H. Levine and R. E. Remington. Charleston, S. C.—p. 525.

Journal of Pharmacology & Exper Therap, Baltimore

60 196 (May) 1937

- Atropine and Syntropan Comparative Study K Fromherz, Basle Switzerland—p 1
- Relationship Between Age and Action of Atropine and Morphine H A Schlossmann Cambridge Mass—p 14
- Circulatory Failure Associated with Guanidine Intoxication A S Minot and Margaret Keller Nashville Tenn—p 32
- Effect of Continuous Venoclysis in Dogs with Guanidine Intoxication A S Minot and Margaret Keller Nashville Tenn—p 45
- Pharmacology of Phenylisopropylamine (Benzedrine) L E Detrick R Millikan F S Modern and C H Thienes Los Angeles—p 56
- Actions of Erythrina Americana a Possible Curare Substitute A J Lehman San Francisco—p 69
- Alleged Antidiuretic Action of Pigmentary Hormones of Pituitary Gland A M Fraser, Montreal—p 82
- Diuretic Action of Oxytocic Hormone of Pituitary Gland and Its Effect on Assay of Pituitary Extracts A M Fraser Montreal—p 89

Journal of Urology, Baltimore

37 605 736 (May) 1937

- *On Amicrobic Pyuria H Wildbolz Berne Switzerland—p 605
- Pelvic Single Kidneys A R Stevens New York—p 610
- Retroperitoneal Perirenal Lipomas E A Ockuly and F M Douglass Toledo Ohio—p 619
- Hydronephrosis Clinical Study of Structural Involution That Follows Surgical Release of Obstruction J C Sargent Milwaukee—p 631
- Recurative Power of Kidney Report of Three Cases J T Geisinger Richmond, Va—p 639
- *Racial Incidence of Urolithiasis M K Cary Richmond Va—p 651
- Nephrolithiasis and Cystine Excretion in Cystinuria P D Melvin and J C Andrews Philadelphia—p 655
- Renal Tuberculosis Tuberculous Renal Infarct F Lieberthal Chicago—p 666
- Nonpapillary Squamous Cell Epithelioma of Renal Pelvis J B Priestley Des Moines Iowa—p 674
- Irradiation of Malignant Renal Neoplasms with Especial Reference to Effects of Irradiation on Acquired Single Kidney A D Munger Lincoln Neb—p 680
- Perinephric Abscess with Bronchial Fistula R M Nesbit and C H Keene Ann Arbor Mich—p 695
- Extravesical Ureteral Opening into Seminal Vesicle M McKirdie and H J Polkev Iowa City—p 706
- Ethyl Aminobenzoate Bladder Analgesic G A Humphreys New York—p 715
- Normal Cystometrogram M Muschat J Carp and C W Charny Philadelphia—p 718
- New Suprapubic Drain L R Thompson San Pedro Calif and B W Wright Los Angeles—p 721
- Effect of Female Sex Hormone on Male J B Hamilton J E Heslin and J Gilbert Albany N Y—p 725
- Technic of Vasectomy for Sterilization J E Strode Honolulu Hawaii—p 733

Amicrobic Pyuria—Wildbolz points out that amicrobic pyuria is easily curable by medication but is often mistaken for tuberculosis of the urinary tract. As a result of such mistakes, nephrectomy has been performed unnecessarily on a number of individuals. Soderlund and Runeberg showed that there are two kinds of amicrobic, nontuberculous pyuria: a terminal stage of a urinary infection primarily caused by *Bacterium coli*, staphylococci, streptococci and the like and a primary amicrobic pyuria. The origin of the first form of sterile pyuria may be understood by comparison with similar processes elsewhere. The pathogenesis of primary amicrobic pyuria is not yet clear. No bacteria have been found in the purulent sediment by microscope or culture. This primary amicrobic pyuria usually sets in acutely with marked symptoms of the bladder, urgency, tenesmus and painful micturition. There is no fever and no constitutional disturbance. The urine is purulent and generally contains red blood cells. Sometimes there is sufficient blood in the urine to be noticed by the patient as terminal hematuria. Cystoscopy shows the bladder mucosa reddened in patches with ecchymoses and mucus in the form of stripes or round white necrotic membranes. There is pus in the urine from one or both kidneys on ureteral catheterization. In spite of this renal pyuria a marked decrease in kidney function has not ensued. This amicrobic pyuria is observed only in young men, very rarely in women. Only Schaffhauser has succeeded, in a few cases of typical amicrobic pyuria, in growing a nonhemolytic streptococcus on Rosenow's bouillon; cultures were positive on this medium alone. The clinical course, the anatomic observations and the first positive inoculations on animals make it probable that the so-called amicrobic pyuria is caused by an infecting agent as yet unknown. Therapeutic experience seems to confirm this view. Amicrobic pyuria has been cured promptly by one or two 0.15 Gm intravenous injections of arsphenamine preparations, even when the patient

has suffered from pyuria for months and years which has resisted all other therapeutic efforts. The author sometimes uses these injections as a quick means of differential diagnosis in cases in which microscopic and cystoscopic studies do not reveal at once whether he is dealing with a tuberculous or a so-called amicrobic pyuria. He has observed twenty-one patients with amicrobic pyuria. Six were cured in a short time by bladder washes, and in fifteen arsphenamine therapy effected a prompt cure.

Racial Incidence of Urolithiasis—Cary shows that figures of other investigators do not agree with the comparatively frequent cases of urolithiasis occurring in St. Philip's Hospital for Negroes, a unit of the Medical College of Virginia, in Richmond. His figures along with those from other institutions in the same region for five years (from 1931 to 1935) indicate that cases of urolithiasis are from three and one-half to five times as frequent among white persons as among Negroes. Although a mixed blood may increase the number of cases among Negroes and thus decrease the difference between the races, neither the admissions nor the population ratios rise to the extent expected from the reference in the literature to the "rarity" of Negro incidence of urolithiasis.

Michigan State Medical Society Journal, Lansing

36 279 356 (May) 1937

- Practical Hints on Treatment of Disseminate Neurodermatitis F Wise New York—p 279
- Apparatus for Psychophysical Testing of Automobile Drivers L S Selling and A Canty Detroit—p 283
- Urea Its Use in Infections L M Bogart Flint—p 285
- Infantile Amaurotic Family Idiocy (Tay Sachs Disease) of Non-Jewish Parentage M Cooperstock Marquette—p 287
- Five Year Survey of Antiluetic Therapy in Ypsilanti State Hospital W A Scott, Ypsilanti—p 289
- Role of Streptococcus in Etiology of Pemphigus Lupus Erythematosus and Erythema Group of Hematogenous Dermatoses L W Shaffer Detroit—p 292
- Rheumatism in Childhood Its Recognition and Treatment H B Rothbart Detroit—p 298

Missouri State Medical Assn Journal, St Louis

34 147 184 (May) 1937

- Destructive Lesions of Genitalia H E Carlson Kansas City—p 147
- Standardization in Treatment of Gonorrhea in the Male R Deskin St Louis—p 149
- Clinical Use of Digitalis Variables Encountered S Luton St Louis—p 154
- Recurrent Lymph Hyperplasia in Chronic Atrophic Arthritis D E Kauffman St Louis—p 157
- A Review of Obesity and Its Treatment S Weber St Louis—p 158
- Imperforate Hymen with Hematocolpos J D Musick and J N Wakeman Springfield—p 164

New England Journal of Medicine, Boston

216 821 870 (May 13) 1937

- Treatment of Bright's Disease and Related Renal Infections L B Ellis Boston—p 821
- Further Report on Osteomyelitis at Massachusetts General Hospital R H Miller and M N Smith Petersen Boston—p 827
- *Neurologic Complications Following Administration of Vaccines and Serums Report of Case of Peripheral Paralysis Following Injection of Typhoid Vaccine L J Robinson Palmer Mass—p 831
- Supracondylar Fractures of Elbow Report on Six Cases J D Adams Boston—p 837

Neurologic Complications After Vaccines and Serums—Robinson discusses the occurrence of a case of flaccid peripheral nerve paralysis following the prophylactic administration of typhoid-paratyphoid A and B vaccine. Its recognition led to a consideration of similar neurologic complications which are occasionally encountered in the administration of serum antitoxins and vaccines. A careful elimination was made of other possible causes for this paralysis, which occurred four days after the second injection of the vaccine. At this time there occurred left foot drop, followed later by atrophy and reaction of degeneration. Physical therapy was administered and three and a half months after the onset recovery was practically complete and improvement was still progressing. The differential diagnosis demands distinction from peripheral paralyzes caused by anterior poliomyelitis, lead poisoning, diabetes, alcoholism and avitaminosis. In commenting on possible etiologic mechanisms, a consideration has been given to triphenolic compound so frequently used as a preservative in serums and vaccines. In this connection there is presented the

evidence which incriminates triorthocresyl phosphate as the cause of peripheral neurologic involvement in apiol and jamaica ginger poisoning. The similarity in both symptomatology and pathologic manifestations in these cases, in cases following serums and vaccines and in a reported case following experimental phenol poisoning in a monkey is pointed out.

New Jersey Medical Society Journal, Trenton

31 311 366 (May) 1937

Comparative Roentgen Study of Oral Cholecystography N J Furst and L J Gelber Newark—p 315

*The Prognosis in Regional Ileitis B B Crohn New York—p 320
Treatment of Gout and Its Complications G N J Sommer Jr, Trenton—p 323

Intrapartum Care in Relation to Maternal Welfare Maternal Welfare Article Number Fifteen P T Williams Philadelphia—p 330

Prognosis in Regional Ileitis—Crohn states that in the acute type of ileitis the prognosis is altered by the severity and the rapidity of the course of the disease. Palliative attempts at drainage, appendectomy or skilful neglect seem useless. Many surgeons have attempted to relieve or cure the disease by anastomosing proximal healthy ileum to healthy colon, thus short-circuiting the lesion and rerouting the intestinal content over normal mucosa. It appears that palliation is not only futile but in addition increases the risk of subsequent operation. That short-circuiting frequently fails, there is no doubt, that it may also at times suffice to cure must remain an open question for the time. Seventeen cases of ileitis in which no direct operative intervention had been practiced are now under observation (from one to three years). Three patients died of peritonitis and exhaustion. In another patient not operated on the ileum had to be resected after two years because of a rapidly downhill course with fever, diarrhea, mass formation and obstruction. Four of these patients without operation are seemingly doing well, gaining slightly in weight and showing an occasional slight tendency to diarrhea but no real abdominal distress and no loss of efficiency. The author believes that in these patients fistulas will eventually form, or obstruction may take place, though it may take years. And yet, scientific precision and clear thinking require one to maintain the premise that a complete restoration ad integrum is within the possibilities of nature. Another four patients are obviously not improving, the symptoms of mild bouts of diarrhea and cramps continue, associated with fluctuating slight loss or slight gain of weight. The remaining patients are lost to the present follow up. In short, in the best of hands the prognosis is excellent when a radical resection is performed. Palliative short-circuiting procedures as well as skilful neglect and so-called conservative medical treatment, are still on trial, and the prognosis is still to be determined.

New York State Journal of Medicine, New York

37 929 1004 (May 15) 1937

*Prevention of Congenital Syphilis G F Hogan Brooklyn—p 929
Cerebral Apoplexy Two Recoveries Following Surgical Intervention A Kaplan New York—p 934

Gangrenous Cystitis T M Townsend New York and J Frumkin Schenectady—p 939

Prematurity as a Public Health Problem M Gleich Bronx—p 947
Nutritional Reviews II Caloric Requirements H Pollack and H Dolger New York—p 949

Electrosurgical Tonsillectomy Control of Pain and Hemorrhage L J G Silvers New York—p 952

Prevention of Congenital Syphilis—Hogan points out that the consensus is that congenital syphilis can be prevented with adequate treatment before the fifth month of pregnancy in the vast majority of cases. This has been proved beyond all question of doubt. No physician should withhold anti-syphilitic treatment from a syphilitic pregnant woman, even if asymptomatic, for should the child develop manifestations of the disease it would be difficult to accept such a grave responsibility. Every family physician and antepartum clinician should never neglect to take a careful history and physical examination, including a Wassermann test, on all pregnant women before the fifth month of gestation. Every syphilitic woman in the child bearing period should be considered as having potential possibilities of transmitting the disease to her offspring and the required therapy should be instituted at the first sign of pregnancy, regardless of the Wassermann reaction, previous treatments and symptoms.

Oklahoma State Medical Assn Journal, McAlester

30 153 188 (May) 1937

Organized Medicine Will Prevail S A McKeel Ada—p 153

Time Marches On! H F Vandever Enid—p 157

Some Remarks on Prostatic Resection E H Fite Muskogee—p 159

Medicine versus State Medicine L J Moorman Oklahoma City—p 162

Treatment of Gonorrhea in the Male D W Branham Oklahoma City—p 168

Pennsylvania Medical Journal, Harrisburg

40 597 704 (May) 1937

*Infections of Fingers and Palm S L Koch Chicago—p 597

Management of Biliary Diseases and Their Surgical Complications W W Babcock Philadelphia—p 604

Sudden and Unexpected Death of Cerebral Origin in Children C R Barr and A Silverstein Philadelphia—p 609

Diagnosis and Treatment of Tumors of the Cardiac End of Stomach H A Kipp Pittsburgh—p 615

Urologic Conditions in Children R L Anderson and J J Lee Pittsburgh—p 623

Carcinoma of the Larynx Influence of Early Diagnosis on Treatment and End Results L H Clerf Philadelphia—p 626

Primary Carcinoma of the Liver Case Report of Child Aged 3 T W McCreary Monaca—p 630

Carcinoma of the Colon G W Grier Pittsburgh—p 631

Infections of Fingers and Palm—Koch points out that accurate diagnosis of infections of the fingers and palm involves first of all a diagnosis as to the exact location and extent of the infection. Infections of the hair follicle, paronychia, subcuticular infections, felon collar-button abscess, subfascial infections, joint infections due to small penetrating wounds and spreading lymphangitis are all distinct and definite entities whose differences depend primarily on the anatomic conformation of the part of the hand involved. Failure to keep in mind exact and essential anatomic facts leads to mistaken diagnoses and, as an inevitable corollary, to failure in surgical treatment. In preparing the field of operation there is nothing more effective than soap and water to cleanse the skin and to get rid of desquamating epithelium and coagulated wound secretion. A general anesthetic is always to be preferred to a local or freezing procedure. The great advantage of a bloodless field, easily obtained with the help of a blood pressure apparatus, should always be kept in mind. The use of drainage material which favors and does not prevent escape of wound secretion and which can be removed with a minimum of discomfort to the patient deserves consideration. When the drain is removed at the end of from twenty-four or forty-eight hours it should not be replaced. There is no more certain way of adding further infection to the open wound than by the repeated insertion of drains. If the original incision is adequate and correctly placed reinsertion of a drain should not be necessary. After operation for infection a large dressing to enclose the entire hand and forearm should be applied if the infection is more than a paronychia, and the entire upper extremity should be dressed if there is evidence of rapid extension. Except for the occasional addition of small amounts of the sterile solution, the dressing is left undisturbed for twenty-four hours. The importance of conserving function should be kept in mind from the outset of treatment.

Southern Surgeon, Atlanta, Ga

G 97 182 (April) 1937

Late Results of Radium Treatment for Uterine Hemorrhage of Benign Origin G R Holden Jacksonville Fla—p 97

Choriocarcinoma G G Oswalt and I M Wise Mobile Ala—p 104

Acute Intestinal Obstruction Comparative Analysis of Three Series Totalling 715 Cases F F Boyce and Elizabeth M McFetridge New Orleans—p 109

Cholelithus Cyst Report of Case J W Bodley Memphis Tenn—p 126

Clinical Study of 2288 Cases of Appendicitis at the Anderson County Hospital 1923-1934 Inclusive J R Young Anderson S C—p 131

Common Surgical Conditions of Chest Case Reports R O Lyday Greensboro N C—p 138

Hydronephrotic Kidney Containing Four Liters of Urine G T Tyler Jr Greenville S C—p 144

Fibroma of Ovary M L Stadium New Orleans—p 146

Multiple Stage Thyroidectomy with Preoperative Iodine Therapy W H Prioleau Charleston S C—p 154

Benign Tumors of the Breast C E Newell Chattanooga, Tenn—p 156

Direct Surgical Attack on Duodenal Ulcer F W Rankin and A E Grimes Lexington Ky—p 164

Surgery, St Louis

1 655 824 (May) 1937

- Simple Ulcer of Ascending Colon and Its Complications D Wilkie, Edinburgh, Scotland—p 655
- Convulsions Associated with General Anesthesia J C Lundy, Rochester Minn—p 666
- Significance of Temporary Elevation of Blood Pressure Following Splenectomy with Particular Reference to Role of Spleen as Regulator of Circulation E Holman, San Francisco—p 688
- Effect of Splenectomy on Number of Erythrocytes and Leukocytes in Peripheral Blood of Rats and Rabbits Under Ether and Sodium Amytal Anesthesia G M Higgins and W C Corwin, Rochester, Minn—p 703
- Benign Tumors of Stomach V C Hunt Los Angeles—p 711
- Some Observations on Cancer of Gastro-Intestinal Tract J S Horsley, Richmond Va—p 722
- Treatment of Nonunion of Fractures with Bone Grafts Fixed by Metal Screws J A Key St Louis—p 730
- Hip Joint Fusion K Speed Chicago—p 740
- Treatment of Fracture of Upper Jaw V P Blair J B Brown and L T Byars St Louis—p 748
- Chronic Subdural Hematoma Condition That Follows Everyday Accidents W M Craig Rochester Minn—p 761
- *Sterilization of Air in Operating Room by Bactericidal Radiant Energy D Hart Durham N C—p 770
- Papain and Peritoneal Adhesions R H E Elliott and F L Meleney, New York—p 785
- Branchiogenic Cysts in Infancy W C Beck Chicago—p 792

Sterilization of Air in Operating Room—Hart points out that the air in any closed space, as in an operating room occupied by human beings, is highly contaminated with pathogenic bacteria. The usual operating room mask is inadequate. A protection was devised for the operating room personnel consisting of a hood of starched cloth over the head, face and neck with goggles of plain glass to protect the eyes. It was necessary to maintain suction beneath the goggles to prevent fogging. The gown and gloves apparently give sufficient protection to the skin that is covered. The author found that bactericidal radiant energy (supplied by an ultraviolet radiation apparatus) is almost 100 per cent efficient in killing the organisms floating in the air in the operative field at a distance of 5 feet from the source of radiation, while it is 80 per cent efficient at distances of from 8 to 10 feet. This radiation will not blister a blond at 5 feet within eighty minutes, in a series of more than 200 operations, no patient has been burned, and there has been no demonstrable damage to the tissue exposed in the wound. With adequate protection, no member of the operating room personnel has received a burn. By the use of this radiant energy, operating room infections have been greatly reduced, the postoperative temperature in supposedly clean cases has been lower and of shorter duration, there has been better healing, and the patient has had less postoperative discomfort. It is the author's opinion that, without bactericidal radiant energy to sterilize the air, every wound is highly contaminated with pathogenic bacteria.

Tennessee State Medical Assn Journal, Nashville

30 153 190 (May) 1937

- Medical Services and the Public C G Heyd New York—p 153
- Extra Uterine Pregnancy of Long Duration Report of Case of Sixteen Months Duration P E Parker Johnson City—p 163
- Bilateral Cystic Teratomas of Ovaries Report of Case with Slides C E Newell Chattanooga—p 166
- Quinine Amblyopia Associated with Retinitis Pigmentosa Two Cases E C Ellett Memphis—p 174

Western J Surg, Obst & Gynecology, Portland, Ore

45 181 238 (April) 1937

- Internal Derangement of Temporomandibular Joint T F Mullen San Francisco—p 181
- Abdominal Pain of Renal Origin A H Peacock Seattle—p 187
- Technical Considerations in Treatment of Acute Perforated Peptic Ulcer H P Totten Los Angeles—p 194
- Repair of Vesicovaginal Fistulas C U Collins Peoria Ill—p 200
- Vesicovaginal Fistula T W Adams Portland Ore—p 205
- *Fetal Postural Mechanism Preliminary Report L Rudolph Chicago—p 213

Fetal Postural Mechanism—Rudolph compares the position of the fetus in the case reported with the position of the fetus of the lower animals (rodentia to monkey). Throughout pregnancy and within about three hours of the delivery the presenting part was not in contact with the bony pelvis, the inclined planes or the pelvic floor. The roentgenograms demonstrated the rotation of the fetus on its longitudinal axis from an anterior to a posterior occupant position and from a posterior

to an anterior vertex position with the fetus in utero. The roentgenograms throughout pregnancy and labor, to within about four hours preceding delivery, demonstrated that the angle between the longitudinal fetal axis and the pelvic inlet was approximately 60 degrees. The fetal head was noted constantly during pregnancy and part of the labor to be in a state of partial flexion, the flexion not being dependent on the resistance of the pelvic cavity. In spite of the position of the uterus, there was a normal delivery. The mechanism of labor in this case is ascribed to a phylogenetic process. Hypothetically, if the patient is considered in a pronograde position, one can correlate the mechanism of labor to that of the lower animals, bearing in mind that the change in the various movements is dependent on its phylogenetic function. From the x-ray study of the fetal posture during pregnancy and labor and the behavior of the uterus evidenced by the normal spontaneous delivery of the fetus, the author is led to the conclusion that the fetus has a definite fetal postural mechanism to account for its maintenance of a specific attitude.

45 239 300 (May) 1937

- Surgical Principles Involved in Treatment of Open Injuries M L Mason Chicago—p 239
- Suprarenal Cortical Syndrome Report of Case with Hirsutism and Virilism E B Potter Seattle—p 249
- Supervoltage Roentgen Rays in Treatment of Deep Seated Malignancies W E Costlow Los Angeles—p 255
- Presacral Nerve Resection for Relief of Bladder Dysfunction and Pain J G Cheatham Portland Ore—p 260
- Acute Pancreatic Necrosis C E Hagyard Seattle—p 267
- Significance of Pathologic Changes in the Uterine Cervix J L Dubis Cleveland—p 274
- *Trichomonas Infestation of the Bladder P H Nitschke Portland Ore—p 278
- Resection of Carcinomatous Rectosigmoid with Bowel Continuity Reestablished Preliminary Report H R Arnold San Francisco—p 282

Trichomonas Infestation of the Bladder—During the last two years Nitschke has examined by means of the cystoscope thirteen patients with trichomonas vaginitis who were referred to him because of urinary symptoms. The usual symptoms were frequency, burning on urination, dull pain above the symphysis pubis, pyuria and, in one instance, hematuria. A distinction should be made between changes of the bladder observed when *Trichomonas vaginalis* is found in the urine and those when the parasite is absent. Therefore he considers each group separately. In his series of fifteen bladder observations, no typical change was noted. The cases in which *Trichomonas vaginalis* was present in the urine showed a wide variation in the cystoscopic picture. In two instances there was reddening of the entire bladder mucosa. In the nine instances in which the parasite was absent from the urine, the cystoscopic picture of the bladder did not materially differ from that usually seen in ordinary bacterial cystitis. They varied from a slight amount of edema in the region of the neck of the bladder with some blurring of the vessel outlines of the trigon to a moderate amount of edema of the neck with some swelling of the mucous membrane and increased redness of the lower half. The author believes that the infection invades the bladder through the urethra. Cystoscopically, changes have been observed involving the entire bladder mucosa, which seemed of a superficial nature. These observations would lead one to suspect the urethra as the avenue of infection rather than any deeply placed lymphatic or vascular channel. *Trichomonas vaginalis* has been found to occur in the urine associated with such bacteria as streptococci, staphylococci and *Bacillus coli*. The cystitis often associated with trichomonas vaginitis may be due to any one of a number of organisms or to a mixed infection.

Wisconsin Medical Journal, Madison

36 329 412 (May) 1937

- Spinal Cord Injuries from Neurosurgical Standpoint D Cleveland Milwaukee—p 343
- The Schilling Count in Appendicitis J A Schindler W B Goetz Jr and Eula Peden Monroe—p 347
- Practical Considerations in Treatment of Colonic Carcinoma C F Dixon Rochester Minn—p 355
- Diagnosis and Treatment of Arterial Disorders of Extremities M Hardgrove Milwaukee—p 358
- Obtaining Blood for Serology W F Lorenz Madison—p 364
- Diagnosis of Primary Syphilis W D Stovall Madison—p 369
- Treatment of Pulmonary Abscess Review of Thirty One Cases at the Wisconsin General Hospital P A Midelfart and J W Gale Madison—p 373

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Disease in Childhood, London

12 71 132 (April) 1937

- Familial Progressive Diffuse Cerebral Sclerosis of Infants Dorothy S Fussell and K H Tallerman—p 71
*Plasma Phosphatase and Phosphorus During Healing of Fractures in Children Olive D Peden—p 87
*Iron Deficiency Anemia of Late Infancy H W Fullerton—p 91
Delinquency in Relation to Broken Home R G Gordon—p 111

Plasma Phosphatase and Phosphorus in Fractures—Peden investigated whether a greater rise in the plasma phosphatase content after an injury to bone could be demonstrated in children, in whom the bone-forming mechanism is much more active than in adults. The ages of the patients ranged from 5 to 12 years. The phosphatase content of the plasma and the inorganic phosphorus and the calcium content of the serum were determined in sixty-two cases. The method adopted for the estimation of phosphatase was that of Jenner and Kay. The plasma phosphatase appeared to increase within the first few days and thereafter to decrease. The serum phosphorus reached a maximum at the end of the first week. The serum calcium was not significantly altered. The change in plasma phosphatase was most marked in cases of fracture of the femur.

Iron Deficiency Anemia of Late Infancy—Fullerton discusses the etiology of the iron deficiency anemia of late infancy (from 9 months to 2 years) under four headings: the type of milk feeding, the effect of maternal iron deficiency, the birth weight and the influence of infections. Although reliable data are insufficient for definite conclusions to be drawn, the greater degree of anemia present in artificially fed infants is probably due to a low retention of iron. This theory does not explain the fact that in Mackay's series the artificially fed infants showed lower hemoglobin levels than the breast-fed infants at all ages from birth to 13 months. In the absence of increased loss of iron from the body, iron deficiency does not occur in infants of average birth weight in the early months. Only from the fifth month onward is there a consistent difference in the hemoglobin levels of breast-fed and artificially fed infants. The results obtained in sixty-five infants within twenty-four hours of birth and in forty-seven infants on the eighth day support the conclusion that maternal anemia does not influence the hemoglobin level of the infant at birth. From the average hemoglobin levels of 222 infants from 9 to 23 months of age it is seen that the lower the birth weight the lower the hemoglobin level in late infancy. The smaller the infant at birth, the lower the absolute iron content of circulating hemoglobin. Consequently, less iron is conserved after post-natal hemolysis, to be utilized in the new formation of hemoglobin that accompanies growth. The common infective illnesses of infancy produce a rapid fall in the hemoglobin level and may inhibit regeneration of the blood for a considerable time after the disappearance of clinical evidence of infection.

Brain, London

60 1 148 (March) 1937

- Conditioned Responses to Light in Monkeys After Removal of Occipital Lobes D G Marquis and E R Hilgard—p 1
*Musicogenic Epilepsy M Critchley—p 13
Shivering: Clinical Study of Influence of Sensation R Jung J Doupe and E A Carmichael—p 28
Sympathetic Ganglionic Responses in Man B Bolton D J Williams and E A Carmichael—p 39
Origin and Mechanism of Paroxysmal Neuralgic Pain and Surgical Treatment of Central Pain C H Frazier F H Lewy and S N Rowe—p 44
Compression of Spinal Cord in the Neighborhood of Foramen Magnum with a Note on Surgical Approach C P Symonds S P Meadows and J Taylor—p 52
Multiple Meningeal and Perineural Tumors with Analogous Changes in Glia and Ependyma (Neurofibroblastomatosis) Report of Two Cases C Worster Drought W E C Dickson and W H McMenemey—p 85
Bergers's Rhythm in Organic Lesions of the Brain F Lemere—p 118
Cortical Projection of Pulvinar in the Macaque Monkey W E Le Gros Clark and D W C Northfield—p 126

Musicogenic Epilepsy—Critchley describes the occurrence of epileptiform attacks in factual association with the hearing of music. He cites four personally observed cases and seven

cases seen by colleagues. Cases of this phenomena are too rare to permit dogmatic conclusions as to the clinical features which may be regarded as characteristic. From such evidence as is available, however, it appears that the association between stimulus and attack is a close one, only rarely does a seizure occur without the precipitating factor of music. On the other hand, music may be heard without an epileptic attack necessarily following. There is reason to believe that in some cases only certain types of music may be followed by unconsciousness. An attack does not usually follow promptly the onset of the music, and the stimulus may need to be maintained for many minutes before producing a fit. The character of the epileptic phenomena proper varies from transient "absences," or obfuscations of consciousness, to complete major attacks with convulsive movements and vesical incontinence.

British Journal of Anaesthesia, Manchester

14 93 140 (April) 1937

- Current Anesthetic Methods at the Mayo Clinic at Toronto and at Winnipeg Notes D C Aikenhead J S Lundy and H J Shields collected by H W Featherstone—p 95
*Investigation into Risks of Fire or Explosion in Operating Theaters J H Coste and C A Chaplin—p 115
Analgesia for Labor Pains Duration of Labor Pains Hilda Barry—p 132

Explosions in Operating Theaters—Coste and Chaplin declare that ethyl chloride yields a vapor which forms an explosive mixture with air and its use is dangerous in proximity to flames or apparatus likely to yield a spark or hot wires. Ether or mixtures of ether with chloroform, or alcohol and chloroform vapor and oxygen, or nitrous oxide obtained in and delivered from ether saturators of the usual type are likely to be explosive, either alone or when they become diluted with air, and present dangers when in proximity to flames or apparatus that may yield a spark. The danger of explosion or burning with open mask ether anesthesia is small, owing to the rapid descent of ether vapor through air. Explosions due to dangerous concentrations of ether vapor in the air of an operating room, even after the accidental breaking of a bottle of ether, are most unlikely if the possible source of ignition is a foot or more above the floor level and not directly under the liquid ether spread on the mask or other surface.

British Journal of Radiology, London

10 365 436 (May) 1937

- Attempt at Precision Measurements of Gamma Rays W V Mayneord and J E Roberts—p 365
Intervertebral Disk Changes A C Mooney—p 389
Experimental Realization of the Roentgen C E Eddy—p 408
Comparison of X-Ray Intensities by Means of Time Measurements H L Brose and E H Molesworth—p 427
Note on a Problem in Gamma Ray Therapy W H Love—p 430

British Journal of Tuberculosis, London

31 49 116 (April) 1937

- Therapeutic Possibilities of Artificial Pleural Effusions G Maurer—p 58
Treatment of Tuberculosis by Heavy Metals Excluding Gold but with Particular Reference to Use of Cadmium F Heaf—p 66
Air Embolism and Spontaneous Pneumothorax Complicating Artificial Pneumothorax J A Myers Ida Levine and Elizabeth A Leggett—p 77
*The Heart in Pulmonary Tuberculosis A Hope Gosse and A Wingfield—p 92

The Heart in Pulmonary Tuberculosis—From a study of the physiologic data Gosse and Wingfield conclude that there is no one factor affecting the cardiac function in pulmonary tuberculosis which can be effectively initiated experimentally, and attention must therefore be paid to the actual observations in patients suffering from the disease. From a review of the literature no conclusive results have been obtained. The cases reported are divided into two groups. The first consists of forty-seven cases in which no collapse therapy had been undertaken and in which no major pulmonary complication was detected. In the second group of fifteen are found cases in which some form of collapse therapy had been employed. Of the forty-seven cases, twenty-three showed no deviation from normal, while twenty-four are thought to show some electrocardiographic abnormality. The majority of the patients (74 per cent) were less than 35 years of age. Of the twenty-four cases in which the electrocardiogram deviated from the normal, right and left axis deviation was observed in five cases each, a low

potential in only lead 1 was present in ten cases, in lead 3 in two cases, in leads 1 and 3 in one case, and in one case an inverted T wave was recorded in leads 2 and 3. Of the cases showing normal electrocardiograms, cardiac displacement was present in seven, while in sixteen the heart was normally placed. A systolic blood pressure below 110 mm of mercury was recorded in eight cases, only two of which showed a cardiac displacement, while two others were regarded as having very active disease. As a result of their investigations the statement that a low blood pressure is a significant feature of pulmonary tuberculosis is not acceptable to the authors. In no case was the transverse diameter of the heart greater than 6 inches (15 cm) in a teleroentgenogram, and the cardiothoracic index was in each case less than 50 per cent. They have not been able to gain any assistance from detailed examination of the cardiovascular system which would help them in the prognosis or the treatment of pulmonary tuberculosis. Among four cases treated by artificial pneumothorax, right pneumothorax was present in three, showing, respectively, left axis deviation, right axis deviation and a low potential in lead 1. The fourth case with a left-sided artificial pneumothorax showed a low potential in lead 3 and a low systolic blood pressure. Phrenic avulsion was carried out in four cases, two showed a systolic blood pressure below 110 mm of mercury. The two cases showing low potentials in lead 3 also showed, roentgenographically, displacement of the heart to the right. Seven patients were examined electrocardiographically in only one case did the character of the record change materially, and in this case right axis deviation disappeared and a low potential in lead 1 was recorded subsequently. A systolic blood pressure of 96 was recorded in one case. In two further cases right and left axis deviation, respectively, were recorded and remained unchanged after operation.

British Medical Journal, London

1 795 846 (April 17) 1937

- *Results of High Atropine Dosage in Chronic Epidemic Encephalitis with Comments A J Hall—p 795
- Surgical Intervention in Obstetric Practice Indications For and Against Louise McIlroy—p 800
- Unusual Case of Hermaphroditism H Chapple—p 802
- Dermatitis Artefacta Note on Unusual Case E W P Thomas—p 804
- Immunization Against Diphtheria with Alum Precipitated Toxoid Efficiency Duration and Grade of Immunity G Chesney—p 807
- Treatment of Hay Fever by Intranasal Zinc Ionization Preliminary Report of 243 Cases L D Bailey and C Shields—p 808

Atropine Dosage in Chronic Epidemic Encephalitis—Hall followed the treatment recommended by Kleemann in some of his fifty-eight cases of chronic epidemic encephalitis. Kleemann begins with 0.5 mg of atropine daily in the form of 0.5 per cent solution of atropine sulfate given in two doses. This is increased by 0.5 mg daily, spread over three doses and given so long as any objective or subjective improvement is produced (maximal dose). When this point is reached reduction should be gradual in order that the optimal dose on which improvement is maintained may be fixed. After an initial small dose was tolerated, the author made a greater daily increase without ill effects in some cases. Indeed, to patients who have previously been for some time on tincture of belladonna one may give 5 or even 10 mg of atropine on the first day and increase the dose by 2.5 mg daily not only without ill effects but in suitable cases with rapid benefit. Earlier observers emphasized the necessity of keeping the patient in bed while one is estimating the optimal dose. In the author's experience, unless the patient is already bedridden, complete rest is neither necessary nor desirable after the first day or two of treatment. Even those bedridden at the onset are encouraged to get up as soon as they show signs of improvement. Close daily observation of the patient is essential so long as the dose is being increased. In Kleemann's cases the usual optimal dose was from 3 to 7 mg of atropine daily. In Hall's series the average optimal dose was about 18.5 mg daily. The greatest benefit is seen in cases in which the disability arises chiefly from muscular stiffness and excessive flow of saliva. Improvement may also occur in tremor, in the frequency of oculogyric attacks and in various spasmodic symptoms. In these, however, it is less in amount and more variable. Patients in whom psychotic disability is predominant and parkinsonism is either absent or

only slight do not usually show much benefit from this form of treatment. When the psychotic disability is largely secondary to the physical disability, removal of the latter by large doses of atropine may be accompanied by definite improvement in the former. Under no circumstances does the parkinsonian syndrome disappear completely, and unless the treatment is maintained and reinforced by suitable environment, the term being used in the widest sense, there is usually a rapid return to the pre-existing condition.

1 847 900 (April 24) 1937

- Hematemesis and Melena L J Witts—p 847
- *Some Observations on the Dick Test F L Ker—p 852
- *Further Observations on Treatment of Tetanus B B Yodh—p 855
- Treatment of Meningitis with Meningococcus Antitoxin J A Brocklebank—p 857
- Examination of Tuberculosis Home Contacts Note G G Kayne—p 858
- Severe Rectal Injuries Caused by Enema Given Through a Rigid Nozzle W W Galbraith—p 859

Observations on the Dick Test—Ker finds that different Dick toxins can be satisfactorily matched only if the technique is carefully standardized, frequent readings are made and a considerable number of patients—probably fifty—are available. A properly stabilized dilution of Dick toxin when 6 weeks old apparently gives virtually as good reactions as when freshly made up. Dick control fluid should be heated for at least four hours. Pseudoreactors are rare but are encountered from time to time.

Treatment of Tetanus—Yodh investigated a series of 438 cases of tetanus, with special reference to the use of antitoxin. The combined method of administration of the antitoxin, intrathecal through the cisterna magna, intravenously and intramuscularly, was used in this as in a previous series. The total mortality for all consecutive patients except the fifteen that were discharged by request was 50.6 per cent, and after the patients that died within twenty-four hours of admission were excluded, 29.4 per cent. This compares somewhat unfavorably with the previous figures but may be explained by the fact that several brands of serums had to be used in these cases, while only one brand was used in the previously reported cases. The routine administration of paraldehyde by rectum is recommended in all cases as the most suitable sedative for hospital patients. The rapidity of the development of symptoms appears to be the important factor in prognosis. With a short incubation period, if the period of onset has been three days or more, there are many chances of recovery. The deep, penetrating injuries are more often followed by tetanus and have a high mortality. In 115 cases no injury or source of entry could be discovered. Either apparently trivial or unnoticed injuries may carry the infection, or the organisms present in the lumen of the intestine may become pathogenic. Fifty-six of the 115 patients showing no evidence of injury died.

East African Medical Journal, Nairobi

14 132 (April) 1937

- Variations in Blood Pressure and Their Clinical Significance Part I J R Gregory—p 3

Guy's Hospital Reports, London

87 145 272 (April) 1937

- Report on After Histories of 120 Healthy Men Examined with Fractional Test Meal J A Ryle and T I Bennett—p 145
- *Experiments on Neutralization of Hydrochloric Acid by Magnesium Trisilicate W N Mann—p 151
- Mega Esophagus and Its Neuropathology Clinical and Anatomicopathologic Research E Etzel—p 158
- Regional Ileitis (Crohn's Disease) J C Colbeck A F Hurst and G A M Lintott—p 175
- Regional Colitis with an Account of Case Associated with Bacillus A.1 aticus and Cured by Partial Colectomy A F Hurst and F A Knott—p 187
- Effect of Methenamine on Biliary Infection with Especial Reference to Hurst Regimen A P L Tsu—p 199
- *Paroxysmal Tachycardia in Infants M Campbell—p 205
- Dissociation with Interference of the Heart Observations of Five New Cases A Schott—p 215
- Mesenteric Thrombosis with Recovery H J B Atkins—p 224
- Results of Dental Root Resection W E Herbert—p 263

Experiments on Neutralization of Hydrochloric Acid by Magnesium Trisilicate—Mann performed nine consecutive one hour test meals, both with and without the concurrent administration of magnesium trisilicate, on a patient with an

uncomplicated gastric ulcer The test meals showed that magnesium trisilicate is efficient in neutralizing the acid of the gastric contents Experiments are described that were designed to elucidate the relative importance of the phenomena of chemical reaction and of adsorption in the neutralization of hydrochloric acid by magnesium trisilicate These experiments showed that under certain conditions the amounts of acid "neutralized" by the two processes are in the approximate ratio of 7 to 2

Paroxysmal Tachycardia in Infants—In Campbell's series of 100 patients with paroxysmal tachycardia, four had a heart rate of 248, 240, 234 and 230, and the two that he cites had a rate of 300 and 274 The ages of the last two patients were 1 and 20 months In one the rhythm was characterized by auricular tachycardia or auricular flutter and in the other by ventricular tachycardia At present, after five and seven years, the hearts are normal and the outlook is as good as that for other children of their age, in spite of the serious heart attacks There is no evidence that they have, or have had, any structural heart disease and little, if any, that they had suffered from any infection which might have produced toxic myocarditis The author concludes that paroxysmal auricular flutter is much more frequent in infants than in adults, being more common than all the varieties of simple paroxysmal tachycardia combined and that paroxysmal tachycardia (of any variety) in infants is more likely to be associated with a diseased than with a healthy heart

Journal of Hygiene, London

27 153 344 (April) 1937

- *Reinfection as Cause of Complications and Relapses in Scarlet Fever Wards V D Allison and W A Brown—p 153
Contributions to Mathematical Theory of Epidemics IV Analysis of Experimental Epidemics of Virus Disease Mouse Ectromelia W O Kermack and A G McKendrick—p 172
Studies in Declining Birth Rate Midlands and London W J Martin—p 188
Some Aspects of Open Air Education J V A Simpson—p 225
Histamine in Cotton Dust and in Blood of Cotton Workers E Haworth and A D MacDonald—p 234
Nutritive Value of Raw and Pasteurized Milk for Calves G S Wilson, F C Minett and H F Carling—p 243
Measurements of Temperature and Humidity Between Clothes and Body F Marsh and P A Buxton—p 254
Vaccination of Guinea Pigs and Human Beings Against Leptospiral Infections J Smith—p 261
New Type of Antigenic Variation Occurring in Flexner Group of Dysentery Bacilli J Takita—p 271
Modified Tellurite Medium for Detection and Isolation of Corynebacterium Diphtheriae in Routine Diagnostic Work J C Kerrin and H W Gaze—p 280
*Genetics of Leukemia in Man S N Ardashnikov—p 286
Variation in Vitamin B₁ Activity of Raw Wheat Germ Note A Z Baker and M D Wright—p 303
Occurrence of Dysentery-like Organisms in Urinary Tract of Man in Mauritius J L Webb—p 307
Adsorption of Vi Bacteriophages by Typhoid Bacilli and Paratyphoid C Strains R T Scholtens—p 315
Serologic Types of Hemolytic Streptococci in Epidemic Scarlatina C A Green—p 318
Agglutinins of Typhoid Carriers A Pijper and C G Crocker—p 332
Comparison of Mesencephalon and Hippocampus as Sites of Election for Negri Bodies in Rabies E S Horgan and R M McKinnon—p 340

Reinfection as Cause of Complications and Relapses in Scarlet Fever Wards—Allison and Brown observed patients with scarlet fever nursed in multiple bed wards as well as patients nursed in cubicles or single bedrooms They define the term reinfection as the secondary infection of a patient with scarlet fever during hospitalization with *Streptococcus pyogenes* belonging to a serologically different type from that producing the primary infection Of forty-seven patients with scarlet fever nursed in a multiple bed ward whose noses and throats were swabbed twice weekly during their period of isolation, thirty-three (70.2 per cent) became reinfected with a serologic type of *Streptococcus pyogenes* different from that causing the primary disease In fifteen of the thirty-three patients reinfected, the reinfection gave rise to no clinical signs, while in the remaining eighteen it was accompanied by clinical signs or complications Patients nursed in cubicles or in a ward confined to infections with a single serologic type did not show reinfection, their convalescence was progressive, and

there were no late complications The majority of complications occurring during the third week of hospitalization and subsequently in multiple bed wards devoted to scarlet fever are due to reinfection Most reinfections occur during the third week of hospitalization, at a time when patients are as a rule convalescent from their primary infection The most frequent mode of transmission of reinfection appears to be direct contact of patient with patient Ten instances of "relapse" in scarlet fever are cited in all of them the patients were nursed in multiple bed wards In each instance the "relapse" coincided with the isolation of a fresh serologic type of *Streptococcus pyogenes* from the throat and must therefore be regarded as a second attack of scarlet fever Patients with scarlet fever should be nursed in cubicles if possible Otherwise they should be nursed by the bed isolation method in multiple bed wards

The Genetics of Leukemia in Man—Ardashnikov undertook an investigation of thirty-three pedigrees, twenty-seven based on information supplied by patients and the others based on information supplied by the nearest relatives The cases discussed were collected systematically From an analysis of the familial cases a few new facts appear which argue against a contagious origin of leukemia The strongest objection to a hypothesis favoring common environmental influences (including infection) as causes of leukemia is the fact that there has been no recorded case of the disease in both husband and wife Thus, the familial cases described in his study together with the familial cases described in the literature—cases which cannot be explained as due to common environmental influences—favor the hypothesis that hereditary factors exert an influence in the etiology of leukemia The most probable explanation is a conditionally dominant autosomal type of inheritance, especially in the lymphatic form of leukemia, with great variation in the phenotype due to other genes or to external influences The existence of different forms of leukemia in the same family indicates the presence of some communality of etiologic factors in chronic myeloid and lymphatic leukemia

Journal of Laryngology and Otology, London

52 295 374 (May) 1937

- Clinical Observations on Bone Conduction W J McNally T C Erickson R Scott Moncreiff and D L Reeves—p 295
Vascular Adenoma of Bronchus A M Zamora and N Schuster—p 337

Journal of Mental Science, London

83 1136 (Jan) 1937

- The Seventeenth Maudsley Lecture The Biology of Social Life W Langdon Brown—p 1
Psychosis or Malingering? F Dillon and K R Masani—p 15
Therapeutic Narcosis with Soneryl J S Horsley—p 25
Excretion of Sodium Barbitone in Patients Suffering from Mental Illness E H Kitching and A Dignam—p 40
Some Observations on Endocrines in Emotional Psychoses J L Clegg—p 52
Irritability as Symptom in Manic Depressives W Mayer Gross—p 61
Attempted Suicide An Investigation F Hopkins—p 71

Journal of Physiology, London

89 239 330 (April 9) 1937

- Electrical Responses of Light Adapted Frogs Eyes to Monochromatic Stimuli R Granit and C M Wrede—p 239
Quantitative Estimation of Histamine in Blood C F Code—p 257
Absorption of Amino Acids and Their Distribution in Body Fluids C Bolton and G P Wright—p 269
*Vitamin B₁ and Fatty Livers E W McHenry—p 287
Chemical Agent in Sympathetic Control of Retraction of Nictitating Membrane of the Cat J Secker—p 296
Insensitivity of Cervix Uteri to Oxytocin W H Newton—p 309
Action of Certain Enzyme Poisons on the Frog's Auricle A S Dale—p 316

Vitamin B₁ and Fatty Livers—McHenry finds that the oral administration of vitamin B₁ to young rats maintained on a low choline diet causes an increase in liver fat A similar effect is produced in experiments in controlled feeding in which the appetite-stimulating effect of vitamin B₁ is avoided Young rats on a low choline diet without vitamin B₁ exhibit increased liver fat until their stores of vitamin B₁ are presumably exhausted Subsequently the liver fat diminishes It can be

kept at a high level by the administration of vitamin B₁. The amount of fat in the liver is increased by increasing the amount of fat in the diet, provided the diet is low in choline, but the liver fat, at all the levels of fat intake investigated, is increased by the ingestion of vitamin B₁. This is also the case when a fat-free, high carbohydrate diet is employed.

Journal of Tropical Medicine and Hygiene, London

40 77 88 (April 1) 1937

Self Inoculation of Leprosy Second Communication S Lagoudaky—p 77

40 89 100 (April 15) 1937

Evipan Anesthesia in Tropics F Widlake and T Clunie—p 89

*Fatality After Atabrine Plasmochin Treatment of Malaria G M Decherd Jr—p 90

40 101 112 (May 1) 1937

Abstraction by Culex Fatigans of Microfilaria Bancrofti from Man F W O Connor and H A Beatty—p 101

Effect of Fish Culture on Fasciola Infection and Schistosomiasis F G Cawston—p 103

Fatality After Atabrine-Plasmochin—Decherd calls attention to the fact that when plasmochin and atabrine are given together the risk of toxic effects is clearly increased. In his case, 0.7 Gm of atabrine, given at the rate of 0.1 Gm three times a day, with 0.01 Gm of plasmochin a day for two days, was followed immediately by acute toxic hepatitis, which led to cholemia and death. It is, of course, difficult to say which drug caused the hepatic damage in this case, but it is certain that the combination was toxic. Permission for necropsy was refused.

Lancet, London

1 969 1032 (April 24) 1937

Prevention of Pulmonary Tuberculosis Among Adults in England in the Past and in the Future P M D Hart—p 969

*Scurvy and Carditis S Taylor—p 973

Tuberculous Glands of Neck in Children Results of Surgical Treatment L Barrington Ward—p 980

Thorotrast as Contrast Medium Case Report C Elman and Elizabeth Haworth—p 981

Acute Dacryo-Adenitis B Rogol—p 982

Oral Administration of Stovarsol in Cases of Neurosyphilis Certified as Insane R Pakenham Walsh and A T Rennie—p 982

Scurvy and Carditis—Taylor found that in guinea-pigs, in the absence of extraneous infection, scurvy leads to valvulitis and myocarditis with acute and subacute inflammatory foci. Gram-positive cocci or bacilli were present in half the diseased hearts, but many of the severest lesions showed no organisms. Scurvy with intradermal hemolytic streptococcus infection leads to cardiac lesions differing in no essential way, either in incidence or in microscopic appearance, from those seen in scorbutic guinea-pigs not so infected. Two thirds of the hearts showed organisms, and they were more numerous than in the scorbutic hearts—but one group of organisms was definitely not streptococci. The two animals that were scorbutic for the last seven of their eleven weeks showed enlarged hearts and congested livers. Intradermal hemolytic streptococcus infection in nonscorbutic guinea-pigs did not result in the characteristic cardiac lesions seen in scorbutic animals. Subacute scurvy with intradermal hemolytic streptococcus infection led to cardiac lesions similar to those seen in acutely scorbutic infected animals, but the hearts of these were large and the livers and lungs showed much venous congestion. The livers also showed fatty changes. Chronic congestive cardiac failure appears to have been produced. The one guinea-pig that spent the last five weeks of its life on an adequate diet showed no venous congestion, and, although there was no antemortem debility, its mitral valve contained organisms. A full antiscorbutic diet, started immediately after intradermal hemolytic streptococcus infection, did not cure the cardiac lesions. The full diet appeared to free the valves from organisms and to prevent the development of congestive failure. Scurvy with intradermal infection due to *Streptococcus viridans* resulted in cardiac lesions which did not differ from those seen in scorbutic guinea-pigs with or without extraneous hemolytic streptococcus infection. Two hearts showed organisms morphologically identical with those injected, but the second also showed diplococci with polar staining. Once again, subacute scurvy was associated with passive venous congestion.

Medical Journal of Australia, Sydney

1 491 526 (April 3) 1937

National Health and Medical Research H R Dew—p 491

Metropolitan and Rural Incidence and Distribution of Acute Rheumatism and Rheumatic Heart Disease in New South Wales K Maddox—p 499

Search for *Trichinella Spiralis* in Cadavers in Australia A J Bearup—p 504

Clinical Diphtheria and Cultural Type of Causal Organisms Brief Report on Fifty Cases T S Gregory—p 506

Medicine and the Social Order E P Dark—p 507

1 527 568 (April 10) 1937

National Health Insurance L A Dey—p 527

*Signs and Symptoms of *Taenia Saginata* Infestation H B Penfold—p 531

Comparison of Punctate Basophilia and Ratio of Large to Small Lymphocytes in Diagnosis and Prevention of Lead Poisoning D O Shields—p 535

Signs and Symptoms of *Taenia Saginata* Infestation.

—Penfold discusses the signs and symptoms of 100 consecutive patients who together harbored a total of 219 specimens of *Taenia saginata*. Only two patients did not notice segments in their stools. These two cases in no way indicate that patients may harbor mature worms without detached segments being expelled in the feces. Seven patients during the course of their infestation did not notice segments on their underclothing and were not aware of segments crawling through the anus when defecation was not taking place. The ninety-three patients who complained of detached segments crawling through the anus gave varied accounts of the frequency of this occurrence. Only two of the 100 patients vomited segments, one after a general anesthetic and the other during the course of pneumonia. Abdominal symptoms were almost always referable to the epigastrium. Occasionally pain was complained of in the hypochondria, in the lumbar region or in the lower part of the abdomen. The types of pain varied greatly. The nature of the digestive disturbances other than pain was also variable. Among the complaints were sinking, hungry feeling, distention, vague discomfort, heavy feeling, gnawing sensation, empty feeling, appreciation of worm movements, flatulence, water brash and nausea. At least four patients had the typical duodenal ulcer sequence of pain, food, comfort, pain. Giddiness was complained of by thirty-seven patients. The majority of these noticed it when they were hungry through being late for meals. Others noticed that giddiness was induced by stooping, running, much standing or walking, or on first getting up in the morning. Of the seven patients whose appetite was increased, only two ate noticeably larger meals when infested. No evidence was found to suggest that the patient's weight was reduced directly by *Taenia saginata* infestation. Neither constipation nor diarrhea was a significant symptom. Apart from the anal irritation experienced while segments were actively crawling through the anus, pruritus was complained of by only two patients, in neither was it very troublesome. Lassitude was distinctly noticeable in four cases. Nasal pruritus and salivation did not occur in any case. Headache appeared to be caused by the infestation in only one case. Vague aches were complained of by several but may not have been caused by the parasites. None of the patients, after expulsion of the adult parasite, had any signs or symptoms suggestive of cysticercosis. Twenty consecutive cases of *Taenia saginata* infestation were examined hematologically, sixteen showed a relative lymphocytosis varying from 33 to 59 per cent. Only two of the twenty patients had an eosinophilia. The eosinophil cells represented 13 per cent of the white cells in one case and only 6 per cent in the second.

Tropical Diseases Bulletin, London

34 275 366 (April) 1937

Chagas Disease Critical Review W Yorke—p 275

Chinese Medical Journal, Peiping

51 295 444 (March) 1937

Myasthenia Gravis Report of Case Y K Hsu and Y L Cheng—p 295

Vitamin C Content of Food Articles Available for Young Infants C Sung and F T Chu—p 315

Female Sex Hormones L Fraenkel—p 325

Studies on Certain Problems of Clonorchis Sinensis II Investigation in the Chief Endemic Center of China, the Canton Area. H F Hsu and C Y Chow—p 341

Archives des Maladies du Cœur, Paris

30 183 264 (April) 1937

- *Septal Infarct with Protracted Fever C Laubry and P Soulie — p 183
Propagation of Contracting Wave into Ventricle of Frog R Lutembacher — p 191
New Aspects of Auricular Pathology Partial Fibrillation and Flutter Olyntho de Castro — p 207

Septal Infarct with Protracted Fever—Laubry and Soulie report a variety of septic infarct with coronary thrombosis and protracted hyperpyretic state which brought about profound changes in the ventricular walls. The condition is characterized by three clinical aspects: 1 The temperature has been around 104 F for more than six months, which is unusual in coronary inflammations, especially when no infection, not even a focal infection, could be demonstrated. The authors hold that the progressive parietal atrophy is due to the transformation and absorption of large quantities of albumin, however, this cannot be held responsible for such a high and prolonged hyperpyrexia. 2 There is total absence of pain, which theoretically should be caused by the changes in the ventricular wall. The intense ischemia which produced advanced myocardial atrophy, the profound vascular lesions and the pericoronary sympathetic alterations are factors which made the absence of pain possible. 3 While generally an infarct of the lower septum is accompanied by characteristic changes in the electrocardiogram, this case showed no changes in the ventricular complex in spite of the massive alteration of the ventricular wall. Furthermore, in this case the circular necrotic area affected merely part of the wall without causing perforation. If the observed changes assume the histologic aspect of a parietal aneurysm, it is the result of two distinct lesions: a violent necrotic process and a nutritional deficiency. There were no pericardial or symphyseal reactions.

Presse Medicale, Paris

45 697 712 (May 8) 1937

- Endogenous Sensitization and Its Pathologic Implication A Gosset R Jabi and Mme S Delauney — p 697
*Lipidose Research in Neuropathology II Cerebroside Lipidoses L Van Bogaert — p 698
Practical and Economic Advantage of Systematic Pulmonary Examinations Prophylactic Antituberculous Measure P Braun — p 701

Lipidose Research in Neuropathology—Van Bogaert emphasizes the complexity existing in the relations between neuropathology and the various lipidoses. Yet, today it is possible to classify the diseases of lipid-metabolic origin into three principal groups. Characteristic of these groups is the presence of deposits of complex lipoids and of fatty substances in different parts of the organism. Each group is further characterized by the quantitative predominance of a particular lipid in the deposit. The first group is that of cerebroside lipidoses (Gaucher's type), distinguished by a substance known as kersan. In its cerebral form it manifests itself as the pseudobulbar type of Gaucher's disease of infants. It is marked by swelling of the cells and a poorly staining granular substance. The neurofibrils are dislocated and the dendrites swollen. The second group, that of phosphatide lipidoses of the Niemann-Pick type, which is much less limited than the preceding group, is distinguished by the presence of phosphatides of the lecithine and sphingomyelin groups. This group is known for its cerebral manifestations, and a large number of amaurotic idiocies may belong to it. The third group, observed by Schuller-Christian, is that of cholesterol lipidoses in which there is generalized and typical xanthomatosis of the skin and tendons. It is distinguished by the presence of cholesterol and its esters.

Revue de Chirurgie, Paris

56 161 236 (March) 1937

- *Experimental Venous Obliterations and Resections Contributions to Study of Venous Collateral Circulation R Fontaine and S Pereira — p 161
Hernia Through the Semilunar Spigelian Line G Bachy — p 201
Surgical Form of Tuberculosis of Penis J Brunati — p 213

Experimental Venous Obliterations and Resections—Fontaine and Pereira have conducted a number of experiments on dogs blocking the venous backflow and observing the resulting edema. They practiced either resection of veins or chemical thrombolysis with from 20 to 30 per cent of sodium

salicylate or 100 per cent of sodium iodide, or finished the resection with a chemical obliteration. They noticed no difference between the surgical and the chemical intervention. After each operation they made a minute record of all the changes in volume and made phlebograms at stated intervals after injecting a solution of thorium dioxide into a tarsal vein. The first series of observations revealed that resection and obliteration of the superficial femoral vein has no particular circulatory consequences. The same operation performed on the entire femoral and saphenous veins results in temporary blockage of circulation manifested by a short-lived edema. The latter is prolonged by ligating all cutaneous and large muscular veins of the thigh. Simple ligation of the femoral vein at its junction with the inferior vena cava originated an edema lasting twenty-four hours, but the traumatization of the femoral vein resulted in an edema of several days. In all cases the phlebograms explained the ease with which the circulation was reestablished by the abundant collaterals of the subcutaneous and muscular networks and their anastomoses with the abdominal wall and by the newly developing venous network in the internal aspect of the thigh. This takes place even if the entire femoral vein is suppressed. But when all veins are ligated at the proximal end of the thigh, moist gangrene of the limb supervenes with an enormous edema, to which the animal succumbs. Lastly, experiments were made on the lymphatics which were visualized by an injection of thorium dioxide. The left ilio-lumbar vessels were resected and an injection of 5 cc of a 30 per cent sodium salicylate solution was given in the two lymphatic vessels of the tarsus. The edema thus provoked lasted eight or nine days. When, however, all the veins were sclerosed from their origin down to the knee and the lymphatics resected, the animal died after forty-eight hours from a strong edema of the extremity. But the animal survived sclerosing of the veins and sclerosing and ligation of the lymphatics, the edema of the limb lasted twenty-five days. These experiments afford ample proof for the venospastic role in the pathogenesis of phlebotic edema in man.

Schweizerische medizinische Wochenschrift, Basel

67 429 464 (May 15) 1937 Partial Index

- Insulin in Treatment of Spontaneous Hypoglycemia G Bickel — p 430
Treatment of Anemias in Children with a Combination of Cevitamic Acid and Iron E Glanzmann — p 436
*Roentgen Irradiation of Acute Subacute and Chronic Phlebitis and Thrombophlebitis C Henschen and F Becker — p 438
Therapy of Alimentary Intoxications M Loeper and M Perrault — p 442
Expectorating Action of Ipecacuanha Root L Rosenthaler and T Gordonoff — p 450
*Quinine as Prophylactic Against Influenza O Spitta — p 452
Intoxication with Potassium Permanganate and Its Treatment C Strzyzowski — p 457

Roentgen Treatment of Phlebitis and Thrombophlebitis—Henschen and Becker review the literature and then state that their own observations on roentgen irradiation of phlebitis and thrombophlebitis were made in a small number of cases. However, the favorable results obtained in these cases induced them to continue the roentgen therapy on a larger material. The case histories indicate that from four to twelve irradiations effected disappearance of the phlebotic symptoms. Following a discussion of the diagnosis of the different causes of phlebitis and of various methods of treatment that have been recommended for phlebotic conditions, the authors discuss the mode of action of roentgen therapy. Among the general actions they mention increase in the bactericidal action of the blood, and stimulation of the formation of antibodies and of the reticulo-endothelial system. Local actions are, among others, production of local alkalosis, dilation of the capillaries, increase in the lymphatic circulation, and reduction of edema and pain. Moreover, the inflammation is lessened, certain bacteria are destroyed, phagocytosis is stimulated and the humoral and cellular actions are changed. One of the greatest advantages of roentgen irradiation is that it shortens the course of the phlebitis. Not only chronic and subacute, but also acute venous infections respond to roentgen therapy. It can be employed in the superficial, deep or mixed phlebotics of the legs and arms, but also in phlebitis of the pelvis, of the penis, of the mesentery and of the facial and cervical veins. Regarding the technic of irradiation the authors say that, the more severe the inflammation the weaker should be the irradiation.

tion As a rule the dose should be between 100 and 200 roentgens The doses should be increased or decreased according to the location and type of infection and the age and general condition of the patient

Quinine as Prophylactic Against Influenza—After pointing out that the use of quinine as a prophylactic against influenza was recommended already during the epidemic of 1889 and 1890, Spitta reviews the later literature and then discusses the dosage He recommends the use of quinine hydrochloride or quinine sulfate in quantities from 0.05 to 0.1 Gm a day He thinks that in most cases 0.05 Gm is sufficient but that at the peak of an influenza epidemic two such doses should be taken every day This amount of 0.1 Gm he recommends also for persons who are especially exposed, such as physicians and nurses

Archivio Italiano di Urologia, Bologna

14 97 186 (March) 1937

*Descending Pyelography in Renal Contusions G Di Maio—p 97
Urinary Surgery Author's Experience F Putzu—p 120
Uretero Intestinal Anastomosis by Kirwin Technic P Gagliardi—p 153
Ureteritis with Cystic Folliculi Case F Bianchi—p 179

Descending Pyelography in Renal Contusions—Di Maio says that in clinically grave renal contusions with or without hematuria an immediate operation is indicated without performing descending pyelography Cases in which the perirenal hematoma rapidly increases in volume as well as those in which there is a tendency to the development of syncope or lowering of the arterial pressure require also immediate operation without descending pyelography The latter is indicated when the condition of the patient is good for several days after the contusion In these cases it can show anatomic lesions or functional disturbances of the kidney caused by trauma or existing before it Emergency lumbotomy is indicated in cases in which the local symptoms and general condition of the patient rapidly get worse, one or two days after the trauma, during which the patients seemed to be in good general condition Descending pyelography in some cases fails to show the intensity of the anatomic renal lesions Ascending pyelography and examination of the urine obtained by ureteral catheterization are of diagnostic value for the anatomic condition and function of the kidney after trauma

Haematologica Archivio, Pavia

18 253 376 (No 3) 1937

*Treatment of Agranulocytosis and of Neutropenic Syndromes L Beltrametti—p 253
Influence of Transfusion on Blood Coagulation L Cotti—p 297
Uneven Distribution of Leukocytes Experiments I R Bachromeiff—p 317
*Anemia in Leukemia L Beltrametti G Rettanni and A Bascapè—p 337
Chronic Erythremia Nosographic Classification B Nelli and O Benarolo—p 371

Treatment of Neutropenic Syndromes—Beltrametti says that the etiology and pathogenesis of agranulocytosis are unknown Consequently there are neither etiologic nor pathogenic treatments The most rational and useful treatments resorted to are transfusion, roentgen irradiations of the bones for direct stimulation of the bone marrow, administration of nucleic acid preparations and liver therapy All the treatments have a common mechanism of action by stimulating especially the granuloblastic tissue of the bone marrow The nucleotides contained in the blood and in liver extracts stimulate the myeloid tissues when transfusion or liver therapy is administered The roentgen irradiations result in destruction of the myeloid zones with consequent output of nucleotides, which stimulate granulopoiesis The treatment gives the best effects when it is administered early in the evolution of the disease, before the bone has suffered grave structural and functional lesions The author reports a case in which complete recovery followed repeated blood transfusion and the removal of carious teeth, which were causing focal infection

Anemia in Leukemia—Beltrametti and his collaborators studied the hemoglobin metabolism in twelve cases of myeloid and lymphatic leukemia with the purpose of finding out the pathogenesis of anemia (either hemolytic or due to defective regeneration of the erythrocytes by the bone marrow) in

leukemia They also followed the behavior of the erythrocytometric curves before and after treatment The latter consisted in roentgen irradiations of the spleen, the liver and the bones and blood transfusion Before the treatment there were hypoglobulia, hemoglobin values low in some cases and high in others, normal bilirubinemia and slightly increased reticulocytosis The average diameter of the erythrocytes was almost normal, but there was an increase in the numbers of erythrocytes with either larger or smaller volume than normal The metabolism of hemoglobin was increased in all cases After the treatment the blood crisis improved (there was an increase of the erythrocytes and decrease of the leukocytes), the metabolism of hemoglobin became normal or greatly diminished and the erythrocytometric curve decreased in amplitude and the volumetric variations were reduced The authors conclude that anemia in myeloid and lymphatic leukemia is due to hemolysis which originates in hyperfunction of the hemocathesis of the spleen According to the authors, roentgen irradiation controls hemocathesis with consequent control also of hemolysis and of anemia

Bol y Trab de la Soc de Cir, Buenos Aires

21 93 126 (April 28) 1937

Left Inguinal Hernia with Ceco-Appendicular Contents J M Jorge F Morechio and S Nudelman—p 100
*New Antalgic Operation Suppressing Abdominal Pain by Resecting Lumbar Sympathetic and Splanchnic Nerves J Diez—p 110

New Antalgic Operation—Diez describes a new operation which suppresses abdominal pain by resecting the lumbar sympathetic and splanchnic nerves The operation is done under local anesthesia by infiltration of a 5 per cent solution of procaine hydrochloride The patient lies in the lateral position with flexed legs and a pillow under the side opposite to that on which the operation is performed A 2 cm incision is made from the twelfth rib and the muscles of the vertebral canals to a point above and behind the anterosuperior iliac spine The operation consists in retroperitoneal approach and resection of 2 or 3 cm of the major and minor splanchnic nerves and of the lumbar sympathetic The latter is resected from the point at which it issues from the diaphragm to the third lumbar ramus communicans As a rule the operation is bloodless The operative wound is closed in four planes without drainage The operation must be bilateral, otherwise pain recurs The second operation is done ten days later by the same technic The sensitivity of all the abdominal viscera, except that of the pelvic ones, as well as that of the anterolateral parietal peritoneum, is suppressed The operation is indicated in incurable abdominal diseases, especially cancer, which lack a causal treatment It can be done even in cachectic patients The general and nutritional condition of the patients does not improve, but their sufferings are greatly relieved without danger from the treatment

Prensa Médica Argentina, Buenos Aires

24 945 996 (May 12) 1937

Experimental Tuberculosis in Goats J Gonzalez—p 945
Acute Mastoiditis Recovery of Patient by Medical Treatment Without Operation Y Franchini—p 980
Trauma of Pancreas A A Covaro—p 983
*Asymptomatic Neurosyphilis J L Carrera B Reinecke and M Seoane—p 985

Asymptomatic Neurosyphilis—Carrera and his collaborators studied the cerebrospinal fluid of syphilitic patients to ascertain the frequency of asymptomatic neurosyphilis The group included patients suffering from acquired and congenital syphilis in different stages of the disease, those who had and those who had not received antisyphilitic treatment Patients showing clear signs of neurosyphilis were excluded According to the authors asymptomatic neurosyphilis is rare, especially in congenital syphilis, in syphilis of long duration and in patients who have received treatment In the rare cases showing positive results for the tests of the cerebrospinal fluid for syphilis, the common antisyphilitic treatments cause normalization of the fluid with consequent negative results of the tests The administration of arsphenamine does not increase the probability of asymptomatic neurosyphilis developing More intense treatments, such as induced malaria, are indicated only if the common treatments, given for one or two years, fail to bring the results of the tests of the cerebrospinal fluid from

the pathologic to the normal figures. The only abnormality of the cerebrospinal fluid of three patients in the authors' group was to give positive results to the Wassermann reaction. The authors believe that the fact may be due to the presence of reagins in the body humors rather than to involvement of the nervous system by syphilis.

Deutsche medizinische Wochenschrift, Leipzig

63 769 812 (May 14) 1937 Partial Index

*Are Children Larger and Does Pregnancy Last Longer Than Formerly? F A Wahl—p 769

Observations on Peristalsis of Appendix H Kilk—p 772

Malaria Fatalities in Seamen E G Nauck—p 774

Latent and Manifest Anemia in Uniovular Twins E Bauer—p 776

Structure of Biologic Tissue and Its Conduction Capacity for Long and Short High Frequency Waves B Rajewsky and H Osken—p 780

Does Pregnancy Last Longer Than Formerly?—Wahl says that measurements on more than 6,000 new-born infants, all of whom were of premature birth, revealed the length-weight quotient averages 515 cm 3,400 Gm. A comparison of these values with those formerly determined and accepted indicates that mature infants are longer as well as heavier than was formerly assumed. Regarding the duration of pregnancy, the author says that former studies in 4,000 cases, which have been corroborated by more recent studies in 5,000 cases, indicated that, counting from the last menstruation, pregnancy lasts from 284 to 285 days, that is, from four to five days longer than was formerly assumed. He suggests that the comparatively greater length and weight of the new-born infant is due to the fact that gestation lasts longer than formerly. He also discusses the length of pregnancy with regard to the date of conception, pointing out that, on the basis of his own observations and of the results obtained by Knaus, Ogino and others with regard to the term of ovulation, the average duration of pregnancy (counted from conception) is from 273 to 274 days. After directing attention to similar phenomena, such as the increase in the average height and in the life expectancy, the author cites several particularly social-economic environmental factors to which these changes may possibly be ascribed.

Kinderärztliche Praxis, Leipzig

8 189 232 (May) 1937 Partial Index

Combination of Scarlet Fever and Diphtheria F J Lotz—p 189

*Bismuth Therapy of Tonsillitides During Childhood A Köhler—p 194

Epidemic Hepatitis P Selander—p 202

Bismuth Therapy of Tonsillitis During Childhood—Köhler states that a report by Vas de Mello on the effects of bismuth in the treatment of tonsillitis induced him to resort to this treatment for children with tonsillitis whose temperature rose above 38.5 C (101.3 F). The bismuth is administered by intramuscular injection in quantities of from 0.1 to 0.2 Gm. As a rule only one injection is necessary. Observations on sixty-one cases convinced the author that bismuth therapy effects a reduction in the period of fever. If the cases in which bismuth therapy was used were compared with cases in which it was not, the shortening of the period of fever in the former was the more noticeable the earlier the bismuth therapy was begun. It is advisable to administer the bismuth on the first or second day of acute tonsillitis. The author suggests that, even if the duration of the tonsillitis is not shortened, the bismuth therapy may prevent involvement of the middle ear.

Klinische Wochenschrift, Berlin

16 657 696 (May 8) 1937 Partial Index

*Therapeutic Action of Rhodium Compounds in Experimental Syphilis and Frambesia F Jahnel—p 657

Epinephrine Content of Peripheral Human Blood During Athletic Activities F Meythaler and K Wossido—p 658

Detoxication and Cumulation as Factors in Dosage K Fromherz—p 662

*Copper for Reduction of Insulin Requirements H Schnetz—p 664

Corticotrophic Hormone of Hypophysis in Normal and Pathologic Pregnancies E Fauvet and L Munzner—p 675

Reticulocytic Reaction in Rats Following Injection of Gastric Juice L Crosetti G Bajardi and M Margulius—p 677

Rhodium Compounds in Experimental Syphilis and Frambesia—Jahnel studied the action of simple rhodium compounds (sodium rhodium chloride and rhodium chloride) on spirochetes and on the symptoms of experimental syphilis and

frambesia in rabbits. The two rhodium preparations were administered chiefly by intramuscular injection. In experimenting with sodium rhodium chloride, the author found that, when 0.05 Gm per kilogram of rabbit was injected intramuscularly, the spirochetes disappeared from the syphilomas within twenty-four hours and the syphilomas healed rapidly without relapse. Smaller doses (from 0.01 to 0.02 Gm per kilogram) likewise exerted a therapeutic action, in that the spirochetes disappeared within twenty-four to forty-eight hours. In some of the animals relapses occurred after the small doses (0.01 and 0.02 Gm), but in others the same doses effected rapid cure without relapses. In one animal even 0.005 Gm per kilogram exerted a noticeable action on the spirochetes, but in another animal this dose was practically without effect. Frambesia reacted in the same manner as syphilis to 0.02 Gm per kilogram. The author also investigated the toxicity. He found that in case of intramuscular injection the therapeutic index is at least 1:2.5, in some of the animals it is between 1:6.25 and 1:12.5, and in extreme cases it was found to be 1:30. In case of intravenous injection 0.005 Gm per kilogram exerted a strong action on the spirochetes, these had disappeared within twenty-four hours. However, the tolerance for the preparation is considerably lower in intravenous than in intramuscular injection. Rhodium chloride is extremely toxic and exerts only a slight therapeutic effect in intravenous injection. To be sure, in the intramuscular mode of administration this preparation exerts a considerable therapeutic effect. The author says that for human subjects the use of rhodium salts is as yet inadvisable, because extensive clinical experiments will be required first. Aside from the fact that the two rhodium salts may cause local irritation in intramuscular injection, it will have to be determined whether other undesirable effects may develop. Moreover, other rhodium compounds should be studied for possible antisyphilitic action.

Copper for Reduction of Insulin Requirements—After calling attention to previously reported animal experiments on the action of copper on the carbohydrate metabolism, Schnetz describes his observations on human subjects. He administered copper sulfate in the form of pills, each having a copper content of 25 mg. Numerous preliminary experiments had revealed that from four to eight times this dose (from four to eight pills) is well tolerated as the daily dose. The author describes observations on normal subjects and on diabetic patients. He found that the normal blood sugar content is not noticeably influenced by the administration of copper, but that hyperglycemia, produced by epinephrine or by a dextrose tolerance test, is greatly inhibited by the action of copper. In diabetic patients it was observed that, when copper medication, in daily doses of from 10 to 20 mg, was continued for several weeks or months, there was a considerable improvement in the diabetic metabolism, which became manifest in (1) a reduction in the diabetic hyperglycemia and glycosuria, (2) a noticeable improvement in the general condition and (3) a considerable reduction in the insulin requirements, occasionally even with an increased carbohydrate intake. In patients with severe diabetes, the copper medication permitted a reduction of from 20 to 55 units of insulin in the daily dose, in patients in whom the diabetes was of moderate severity, up to 45 units of insulin could be saved each day, and in patients with the milder forms of diabetes the insulin therapy could be entirely replaced by medication with copper. However, whenever the treatment with copper was interrupted, the diabetic condition became once more exacerbated. Other advantages of the copper therapy were the more pleasant oral medication in the place of the repeated insulin injections and the lower costs.

Wiener klinische Wochenschrift, Vienna

50 587 618 (May 7) 1937 Partial Index

Therapy of Duodenal Ulcer J Dohrer—p 590

Diagnostic and Therapeutic Significance of Arteriography R Demel and M Sgalitzer—p 595

*Cholesterol Metabolism in Multiple Sclerosis Charlotte Frisch—p 596

Biochemistry of Carcinoma B Lustig—p 598

Elimination of Prolan in Urine of Patients with Hypertrophy of Prostate O Wallis—p 599

Cholesterol Metabolism in Multiple Sclerosis—After pointing out that some authors regard multiple sclerosis as an infectious disease in which the causal agent is in the central

nervous system, Frisch suggests that the disorder in the central nervous system may be the manifestation of fermentative processes and their defense reactions. This would not even impair the theory of an infectious origin, in fact, it would suggest the possibility that the causal agent might be in a region other than the central nervous system. The substances which have a lytic effect particularly on the medullary sheaths of the central nervous system ought to be lipases. To be sure, these would not be demonstrable *in vivo*, but if lipase is present in the central nervous system, cholesterol esterases capable of intercepting and binding these lipases might be formed. In this case there would be an increased cholesterol content in the serum of patients with multiple sclerosis. The total and the free cholesterol were determined for twelve patients with multiple sclerosis, three patients with amyotrophic lateral sclerosis, one patient with neural myatrophy and two patients with chronic poliomyelitis. Then cholesterol tolerance tests were made. For the patients with multiple sclerosis, the cholesterol values were extremely high. However, the ratio of free to esterified cholesterol was normal. The suggestion that the increase in cholesterol may be due to the decomposition of the medullary sheaths is refuted by the observation that in cases of the other disorders (amyotrophic lateral sclerosis, chronic poliomyelitis and so on) the cholesterol values were normal. It is further pointed out that since the cholesterol metabolism is closely related to the adrenal cortex and the adrenals take part in vitamin metabolism, it is possible that multiple sclerosis belongs to the group of vitamin deficiencies. On the basis of this theory, the patients with multiple sclerosis were treated with vitamin C. It was found that after four weeks of this treatment the cholesterol content had become reduced. The author admits that the short period of observation permits no definite conclusions, and she still leans toward the hypothesis that the increase in cholesterol is the manifestation of a defense reaction against lipolytic ferments. However, this theory requires further proof.

Polska Gazeta Lekarska, Lwów

16 389 408 (May 23) 1937

- Histamine and Its Importance in Medical Hydrology W Koskowski —p 389
 Szczawa (Health Resort) F Kmietowicz —p 390
 Influence of Salts and Mineral Water on Morszyn on Intestinal Motility P Kubikowski —p 394
 Influence of Waters from Amelia' Resort at Iwoniz on Smooth Muscles of Isolated Organs J Papierkowski —p 398
 *Action of Carbonic Acid Baths E Ehrenpreis —p 399
 Health Resort of Morszyn on the Threshold of Its 400 Years Since Discovery W Nowicki —p 403
 One Hundredth Year of Development of Niemrow Health Resort A Karczynski —p 405

Action of Carbonic Acid Baths—Ehrenpreis says that the hydrostatic pressure of carbonic acid baths exercises the same influence as that of ordinary baths and that the action of the baths depends on the temperature of the water. The baths not only regulate but also sustain the uniformity of temperature of the body. But there is a difference in the case of carbonic acid baths, which have a distinct influence on the organism of the patient through the specific action of carbonic acid. Many times he has observed objective and subjective improvement in patients with heart disease who went to a gaseous mineral water health resort for five or six weeks just to change their environment. A remarkable fact is that during their stay at the resort, usually by the end of the second week, the patients became worse and were generally weaker but noted great improvement during the third week. This temporary general debility at the end of the second week is called by German physicians "brunnenrausch." This debility is caused by gaseous air inhalations to which the patient's organism is not adapted. This observation proves that we are still in the dark as to the action of carbonic acid baths, although we know that carbonic acid acts especially on the skin by penetrating in different ways into the organism, and on the heart. The indications and contraindications of carbonic acid baths in cardiac patients should be thoroughly investigated and their dosage as to temperature, intensity, time of application and frequency should be established by further study.

Maandschrift voor Kindergeneeskunde, Leyden

6 299 342 (May) 1937

- Difficulties in Determination of Sex of Children Anomalies in Development of Sex Organs R J Harrenstein —p 299
 Plastic Bronchitis Cured by Bronchoscopic Treatment Case E S Frank —p 313
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Intraperitoneal Blood Transfusion—Following a review of the literature in which they point out that intraperitoneal blood transfusion is used especially in America, Koenen and Vonk describe their own experiences with this method in forty-seven children. A tabular report lists the different conditions in which the method was employed and the results. The most favorable results were obtained in atrophies and in senous gastro-enteritides. In discussing the technic, the authors say that a donor of the same blood group should be selected. They regard as the best site for the injection the point between the lateral and middle third of the Monro-Richter line, that is, the line from the umbilicus to the left anterior superior iliac spine. The injection is made at an angle of 45 degrees, the needle pointing in the direction of the symphysis. The second transfusion, which should not be made before eight days has elapsed, is made below the umbilicus, in the median line. The authors cite other points mentioned in the literature as suitable for the intraperitoneal blood transfusion. They recommend this method of transfusion in the treatment of young children.

Alcohol and Nicotine Poisoning in Nurslings—Wyckherld Bisdorn describes the symptoms of alcohol poisoning in a breast-fed infant of 8 days, whose mother had consumed a whole bottle (750 Gm) of port. When examined, the child was in deep sleep, from which it could not be awakened, and it refused to nurse. It did not react to pain irritation, the tendon reflexes were somewhat increased, the abdominal and cremasteric reflexes were weakly positive, the pupils reacted only slightly to light. The child perspired profusely, the breathing was deep, slow and snoring, the pulse was weak and frequent. At first it was suspected that a narcotic was the cause of the intoxication, but finally the mother admitted the drinking of the port. To verify the diagnosis, blood tests were made and alcohol was detected in the blood of mother and child. The treatment of the nursing was symptomatic, recovery followed. The second case is one of nicotine poisoning in a breast-fed infant of 6 weeks, whose mother smoked twenty cigarettes a day. The symptoms were restlessness, insomnia, spastic vomiting, diarrhea, rapid pulse and circulatory disturbances. Examination of the mother's milk revealed nicotine. When mother's milk was discontinued, symptoms of abstinence appeared. Treatment was symptomatic and the child recovered.

Ugeskrift for Læger, Copenhagen

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Roentgen Treatment of Exophthalmic Goiter—Raagaard says that in sixty-eight certain cases of exophthalmic goiter (thirty-six mild cases, twenty-six moderately grave, six grave) in which mostly ambulant roentgen treatment was given from 1922 to 1933 and which were observed for from three to eleven and a half years after treatment ended, after-examination shows recovery in 70.6 per cent, almost complete recovery in 7.4 per cent, improvement in 10.3 per cent and no change in 7.4 per cent, one patient died from the exophthalmic goiter, two from other causes. There was recovery in 62.5 per cent of the thirty-two grave and moderately grave cases, almost full recovery in 9.4 per cent, improvement in 6.2 per cent and no change in 15.6 per cent, the death from exophthalmic goiter was in this group. Of the total sixty-eight patients, 85.3 per cent were fully capable of work and 5.3 partly capable. There was recurrence in six cases, or 8.8 per cent. The goiter completely disappeared in 6.4 per cent of the cases and completely or partly disappeared in 7.8 per cent. The length of time before recovery was usually from one to two years. The average duration of treatment was eleven and nine-tenths months, an average of seven and three-tenths treatments was given. No patient was rejected as unfit for roentgen treatment.

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FACTORS INFLUENCING MORBIDITY IN THYROID SURGERY

CHAIRMAN'S ADDRESS

R S DINSMORE, M D

CLEVELAND

In considering the morbidity associated with thyroid surgery, one is impressed by the fact that a great deal more emphasis has been placed on preoperative and postoperative care and the mortality rates than on morbidity. The mortality rate is now almost the same in all thyroid clinics. The highest aim of thyroid surgery should be to return these patients to their normal lives as normal persons without residual symptoms. Obviously, certain pathologic conditions may have become permanent but, fortunately, these are in the minority. There is no operation that may change the physical and mental condition more strikingly than a thyroidectomy in a patient with hyperthyroidism. It is important that the factors of morbidity should be recognized prior to, during and after the operation not only to facilitate the actual handling of the patient but to aid in giving a definite prognosis. The complications in thyroid surgery may be numerous, they may not result in a fatality, but they may result in a morbid state. Fortunately, practically all the emergencies and complications of thyroid surgery can be prevented. It is within the scope of this paper to discuss only the more common factors of morbidity.

EXOPHTHALMOS

Perhaps the most frequent question asked the surgeon by the patient with exophthalmic goiter is "What will happen to my eyes?" As a general rule, if the patient is operated on early in the course of the disease, the eyes return to normal. It should be remembered, however, that many patients have a widening of the palpebral fissures and may have normal measurements with Hertle's exophthalmometer. This, of course, comes on earlier than the exophthalmos and promptly disappears after the thyroid has been removed. If the exophthalmos is of long duration and has reached a fixed position, the prognosis is quite different, as many of these patients will still have prominence of the eyes. Fortunately they gain weight, the face becomes fuller, and the exophthalmos becomes less noticeable, although the measurements may remain the same as prior to the operation. The appearance of many patients has been markedly improved by a Wheeler tarsorrhaphy.

One of the worst catastrophes that patients with exophthalmos may have is an actual protrusion of the

eye with its loss. In some cases it may be necessary to close the eyelids over the eyes to keep them in their sockets during an acute hyperthyroidism. In the severe cases in which there is a wide corneal exposure, the eyes must always be covered with a hypersaturated petrolatum gauze pad. If the exophthalmos is rapidly progressing with an accompanying severe reaction of the conjunctiva and the cornea, an emergency thyroidectomy is justified. This, of course, is a rare incident. In one instance I performed a thyroidectomy on a patient who was not properly prepared for the operation solely to save the eyes. The anteroposterior measurements were 33 mm in each eye, and the fissures had a measurement of 18 mm.

The cause of exophthalmos is still unknown and the degree of exophthalmos is not in any way an indication of the severity of the disease. After the operation, the edema of the orbit rapidly disappears because levator spasm is relieved.

One of the most distressing types of exophthalmos is the type that occurs in a small group of patients who had slight or no exophthalmos before the operation, but, with the appearance of transient hypothyroidism, the eyes became prominent. If these patients are seen early, the progress may be checked immediately by the use of thyroid extract in liberal doses. The basal metabolic rate should be determined frequently and under no circumstances should these patients again be subjected to thyroid surgery or should it be assumed without good evidence that the disease is recurring. Occasionally the progressive exophthalmos is interpreted as a recurrent hyperthyroidism. A Naffziger operation may be necessary to allow for the venous engorgement and the edema that occur about the eye. However, if the exophthalmos reaches a stationary point and frequent measurements show this to be true, the operation should be deferred. Occasional cases are seen in which the exophthalmos is unequal. So-called unilateral cases are extremely rare and in almost every instance there is a difference in the degree of exophthalmos in the two eyes rather than a purely unilateral condition. It should not be forgotten that exophthalmos may occur in several other diseases, occasionally hypertension, retrobulbar arteriovenous aneurysm and tumors, and cases have been reported in which the eyes were affected in osteitis deformans, acromegaly and leontiasis ossea.

CARDIAC MANIFESTATIONS

The morbidity associated with the heart in hyperthyroidism is dependent on (1) the age of the patient, (2) the presence of organic heart disease, (3) the duration of the disease or (4) an associated hypertension and arteriosclerosis.

Postoperatively, a moderate tachycardia in any patient is usually without significance. The most fre-

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quent and therefore the most important arrhythmia is auricular fibrillation. These patients should be watched carefully and treated. It has been our policy, if the rhythm has not been restored to normal at the end of ten days after operation, to discontinue the digitalis and give a course of quinidine. The contraindications to its use are (1) a marked enlargement of the heart, (2) a history of long standing fibrillation, that is, for one or two years, with accompanying mitral stenosis, or (3) hypersensitiveness of the patient to quinidine. The drug is not given preoperatively. If the patients with paroxysmal fibrillation as well as continuous fibrillation are included, approximately 85 per cent leave the hospital with a normal rhythm.

In elderly patients the early treatment and recognition of the condition are important, because I have seen a long series of postoperative complications in which the auricular fibrillation marked the onset. Develop in patients who had no other symptom except the auricular fibrillation. Fortunately, myocardial failure does not develop in most of these cases, but edema of the lungs may sometimes occur, which may be superimposed on a chronic bronchitis, the patches of bronchopneumonia develop and a definite mortality rate invariably follows in a given number of these cases.

The preoperative use of digitalis is a valuable adjunct in the handling of patients with hyperthyroidism if there is the slightest evidence of congestive heart failure or auricular fibrillation. No bad effects have resulted and I feel that the incidence of postoperative auricular fibrillation can be lowered by its use. Chronic auricular fibrillation will continue in many cases even though digitalis is used in large doses and it may be necessary to operate while the fibrillation is still present. In these cases, however, the pulse curve after rest in bed gradually goes down and the deficit is much lessened.

MENTAL MANIFESTATIONS

The major mental manifestations of hyperthyroidism fall into three groups: (1) the psychosis of hyperthyroidism, (2) the toxic delirium of the acute crises and (3) the delirium and mental confusion that are occasionally seen postoperatively.

The surgeon doing thyroid work is occasionally confronted with a patient who has a true major psychosis and hyperthyroidism. While it is true that isolated reports have appeared in the literature in which patients who have had a manic depressive attack, schizophrenia or psychasthenia have been cured by a thyroidectomy, these are exceptional cases and I feel that in nearly every instance the patients have their psychosis and hyperthyroidism, and the psychosis has not resulted from the hyperthyroidism. The surgeon is often called on to see these patients in institutions and he should give an extremely guarded prognosis, stating that the physical condition of the patient will be markedly improved by thyroidectomy but that no promise for improvement in the mental symptoms can be given.

Occasionally an unexpected major psychosis will develop after a thyroidectomy. Again this is a very rare complication, but when it occurs it may be serious. It should be emphasized, however, that this complication probably occurs no more frequently after thyroidectomy than after any other major surgical procedure and that a psychiatrist will elicit a history of personality changes and previous episodes of the same character. In discussing this problem with the patient's family it is important at the onset to caution them about the possibilities in such a case and to give a

psychiatric prognosis rather than one based on the fact that it is merely a postoperative thyroid state. Karnosh¹ has made a very pertinent statement regarding this group of patients, emphasizing that "frequently hyperthyroidism is merely another episode in the unstable life of many a neurotic constitution and is simply additional evidence of basic psychobiologic inadequacy and personality maladjustment. In scrutinizing the records of such cases, cause and effect often seem to be hopelessly intermingled."

The second type of mental manifestation is the toxic delirium of acute hyperthyroidism. Before compound solution of iodine was used, this was a frequent occurrence in patients with hyperthyroidism, but it is now rather uncommon, although such patients are still seen occasionally. Usually they are brought to the hospital in an ambulance. Delirium sometimes accompanies the height of the reaction in patients who have a marked tachycardia, high temperature, nausea and vomiting, diarrhea, marked restlessness and mental agitation. If the delirium lasts more than forty-eight hours, the prognosis in many instances is bad in spite of the use of compound solution of iodine, dextrose, saline solution intravenously, and blood transfusion. The intracellular change has apparently gone beyond the stage of therapeutic repair or reversal. Fortunately, the majority of these patients can be controlled with iodine therapy alone, especially if iodine has never been taken or has not been used recently. Owing to the fact that these patients have nausea and vomiting and diarrhea, iodine cannot be given by mouth or by rectum. It can be given intravenously, however, but it should not be forgotten that it is easily and quickly absorbed when painted on the skin.

The third group of patients are those in whom the postoperative delirium and mental confusion follow thyroidectomy. In my own experience, liver failure has been the most common cause. This delirium usually occurs on the second or third day and it is always noted that the icteric index is rising. It is most apt to occur in persons beyond middle life. Jaundice may be an accompanying symptom and the blood urea remains low. It is significant also that in this group of cases the blood amino acids are normal. These patients recover promptly following the use of dextrose intravenously, which replaces the diminished glycogen reserve of the liver. High carbohydrate, high caloric feedings given through a nasal tube may be effective in treating this type of delirium.

Drugs, especially in elderly persons, may be the cause of the postoperative confusion of delirium. Barbiturate rates and the prolonged use of bromides may produce these symptoms.

Another cause of postoperative delirium may be low renal function and rapid rise of the blood urea to a uremic level. A true thyroid crisis after the operation is extremely rare. The delirium in these instances must be treated with large quantities of saline solution, dextrose solution, blood transfusions, and the continued use of iodine.

Disorientation following thyroidectomy may be caused by acute hypothyroidism. This is an infrequent and transient condition, which may manifest itself on the second or third day following thyroidectomy. It is characterized by drowsiness and a peculiar glistening of the skin and nervousness, and occasionally these patients complain of numbness and tingling of the

¹ Karnosh, L. J. and Williams, G. H. Jr. Psychoses of Hyperthyroidism and Hypothyroidism. *West J. Surg.* 42: 509-529 (Sept.) 1934.

extremities without evidence of tetany. Usually nervousness and the mental confusion are mild, but disorientation may develop. Strikingly enough, these patients improve quickly with one large dose, from 6 to 10 grains (0.4 to 0.65 Gm.), of thyroid. This, of course, should be followed by small doses of thyroid daily for a few days.

IODINE

It is now almost fourteen years since iodine was first used in a routine manner in the preparation for operation of patients with hyperthyroidism. Surgeons are so familiar with its use that only a few remarks will be made about it. In spite of repeated cautions and advice, however, the surgeon still sees many patients with hyperthyroidism who have had iodine over long periods and in whom he has missed the opportunity of operating at the time of the maximum clinical improvement. They are often troublesome patients to prepare for operation. I have had the least trouble when these patients have been sent to the hospital and carried on the same dosage of iodine which they had been taking. Whenever an attempt has been made to discontinue or change this, difficulty has ensued. They derive some benefit from mild sedatives and complete rest in bed for a few days. Oftentimes the pulse rate will drop 18 or 20 points with this alone. If there is evidence of congestive heart failure, a course of digitalis also is begun.

The surgeon must always answer the question as to whether or not patients should have iodine after leaving the hospital. Probably each patient should be individualized and, if the gland was found at operation to be extremely friable and hyperplastic, small doses of iodine should be taken for thirty days after the patient has left the hospital. In most cases it is unnecessary as these patients have had the maximum amount of improvement which they will receive from iodine.

The other indication for iodine from the surgical standpoint is in mild recurrent hyperthyroidism. Haines and his co-workers² have emphasized the importance of using small doses of iodine in these cases. The question arises as to whether or not the symptoms caused by many of the so-called recurrent goiters are not the result of a residual hyperthyroidism. Occasionally a patient is seen who gains weight after the operation, feels quite different, and has a complete loss of tremor and nervousness although he still has a persistent afebrile tachycardia. In such cases the addition of small doses of iodine for two or three months will often obviate the necessity of a second operation.

Although the clinical use of iodine is probably a medical problem, the surgeon who is handling patients with thyroid disease is repeatedly called on to state whether or not iodine should be used in a given case. It should be borne in mind that the clear-cut indications for the use of iodine are

1 Small doses during pregnancy, especially to women who have enlargement of the thyroid.

2 As a prophylactic measure in doses of 10 mg. a week for school children.

3 To the adolescent boys and girls who have simple goiters.

4 As a preoperative medication in all patients with hyperthyroidism, regardless of the type of gland.

5 In cases of residual or recurrent hyperthyroidism.

6 As a therapeutic test in borderline cases.

In my own experience it is of questionable value in cases of acute thyroiditis. In a few instances some relief from pain has followed its administration.

2 Haines, S. F. The Use of Iodine in Recurrent Exophthalmic Goiter, *Tr. Am. As. for the Study of Goiter* 185-191, 1934.

In this regard, the question of the value of blood iodine studies arises. Although the procedure may have distinct diagnostic value, its application is limited. Certainly there is no indication for its use in the presence of frank hyperthyroidism. It may, however, be of some value in making a differential diagnosis when it is difficult to determine the basal metabolic rate, such as in hypertension with a high basal metabolic rate, certain psychoses, hyperthyroidism in young children, and encephalitis. In spite of the simplification of the technic, it is still a rather difficult laboratory procedure. In many of the borderline cases it has been pointed out that the chief value comes in finding a normal blood iodine. Also, there are patients who have clear-cut hyperthyroidism with normal blood iodine. Lahey³ has reported similar observations.

TECHNIC OF THYROIDECTOMY

While it is impossible to discuss technical details, it must be borne in mind that many satisfactory techniques for thyroid surgery have been described. After all, a satisfactory technic is the one that can be carried out in a reasonable length of time under some form of light anesthesia or analgesia, augmented by local anesthesia, which protects and preserves the recurrent laryngeal nerves and the parathyroid bodies, one in which a proper amount of thyroid tissue is removed, one that gives a good cosmetic result, and, above all, one that cures the patient. It must not be forgotten, however, that a definite morbidity rate may be directly attributable to the operation. In my own hands, the protection of the recurrent laryngeal nerves is best carried out by first dissecting the lateral borders of the thyroid gland and placing three pilot clamps, one on the superior thyroid vessels, one on the inferior pole, and one on the lateral thyroid vein. The clamp at the superior pole is always applied from within outward, care being taken to have the pole of the gland separated from the laryngeal box. The clamp at the inferior pole is placed in such a position that a small amount of thyroid tissue is caught with the clamp to insure a high ligation of the inferior thyroid artery, and so that the clamp will stand erect in the wound after it has been applied. The third clamp is placed on the lateral thyroid vein. After these three points are divided, the gland can be dislocated forward and dissection carried from the midline. Such a method allows one to place the clamps in a horizontal direction rather than directly toward the tracheo-esophageal groove, the result being a pyramidal piece of thyroid tissue which completely covers this groove. An important technical point for the protection of the parathyroid bodies is to leave intact all the capsule of the thyroid. This, along with high ligation of the inferior thyroid artery, will result in a very low incidence of parathyroid injury.

Still the most difficult technical problem in thyroid surgery is to know exactly how much thyroid tissue to remove and have a perfectly normal individual afterward. Often patients are seen at the end of a year stating that they feel perfectly well and that their subjective symptoms have all disappeared. However, on closer questioning, it is found that they tire easily, often have to sleep long hours and even after doing so are still tired, and have a dryness of the skin and a tendency to gain weight. Thyroid surgery should not

3 Perlman, H. J., Lahey, F. H., and Cattell, R. B. Blood Iodine Studies in Relation to Thyroid Disease. Basic Concept of Relation of Iodine to Thyroid Gland. Iodine Tolerance Test. *New England J. Med.* 214: 45-52 (Jan. 9) 1936.

only aim ultimately for the relief of the subjective symptoms but should leave no objective or physical signs of either hypothyroidism or residual hyperthyroidism. It should not convert one pathologic state into another.

One of the technical problems in thyroid surgery that should be emphasized is the difficulty of removing a thyroid in recurrent hyperthyroidism. Again it is important that the dissection should first be on the lateral borders of the gland. Often the carotid sheath is adherent to these markedly hyperplastic adherent glands. If it is first dissected free, many of the technical difficulties may be obviated. Fortunately, many of these glands have a rather dense capsule and by sharp knife dissection these lobes can be dislocated forward and the same principle of the protection of the tracheo-esophageal groove carried out as described previously. Many of the primary landmarks are lost and it is extremely important that this area be protected for its entire length.

POSTOPERATIVE COMPLICATIONS

Certain complications that may arise after a thyroidectomy may be the direct cause of morbidity. Even with meticulous care and careful hemostasis, hemorrhage may follow the operation. If the hematoma forms rapidly, it may cause symptoms of suffocation and the pressure must be relieved at once. However, these hematomas should be evacuated carefully and if possible with a full operating team. Such a hemorrhage may mark the onset of a long series of complications such as nerve injury, tracheitis and infection. In the haste to evacuate the clot, several vessels may be torn, whereas in nearly every instance the bleeding is from only one vessel. An extravasation of blood has destroyed the normal landmarks and the recurrent laryngeal nerves may easily be injured during the procedure. The simplest method of handling these cases is to place the fingers beneath the posterior aspect of the gland, dislocate it forward, and after gently sponging and releasing the pressure, the bleeding point usually can be seen clearly. If one is unfortunate enough to have a ligature slip off the superior thyroid artery, it may retract well up into the neck. In such instances it is almost impossible to see the bleeding point. Pressing the carotid artery against the vertebral column, carefully sponging until the wound is practically dry and then slowly releasing the pressure will enable one to see the point of hemorrhage.

There is another type of hemorrhage that may occur either at the operation or postoperatively and may be difficult to recognize early. This type of hemorrhage practically always occurs in an intrathoracic goiter. This is the so-called mediastinal extravasation. Usually there is no bulging in the neck and no increased bleeding from the rubber tissue drain, which is always inserted for twenty-four hours. Clinically these patients become very pale, a weak thready pulse develops, there is a slight increase in mediastinal dullness, and there are slightly distant heart sounds. This extravasation may occur either in the posterior or the anterior mediastinum and cause severe cardiac embarrassment and compression of the great vessels in the superior mediastinum. The prognosis in these cases is universally bad. Fortunately in nearly all cases of intrathoracic goiter the cavity from which the thyroid is removed is quickly obliterated by the lungs and pleura. However, there is a type of long standing intrathoracic goiter in which the cavity is a partially fixed one and

is not obliterated by the time hemostasis is completed. It is this type of case in which such an extravasation may occur. For this reason a secondary closure is often done.

The appearance of stridor after a thyroidectomy is always a disconcerting symptom and may indicate that a recurrent laryngeal nerve has been injured or that there is edema of the larynx or glottis. The latter two conditions usually cause a slowly developing stridor. If any stridor does not disappear quickly or if the patient shows any cyanosis, tracheotomy should be performed without delay. Often these patients will very quickly become extremely restless, a stage of exhaustion is reached, and the internal respiration becomes so damaged that tracheotomy may be done too late. These patients always have a peculiar type of nervousness and restlessness and it is striking to see them sleep for long hours after a tracheotomy. It is important to do the tracheotomy with a transverse incision between the tracheal rings and remove the tube as soon as possible, often in from twelve to eighteen hours. A true collapse of the trachea is extremely rare and the so-called saber sheath trachea occasionally seen during operation is most likely due to a spasm of the vocal cords, as postoperative laryngoscopic examination will usually show a paresis of one cord. During an operation, however, I have seen stridor develop which was quickly followed by cyanosis and the formation of a so-called saber sheath trachea. As soon as an opening is made into the trachea it quickly resumes its normal shape, and often it is possible to close the trachea at the completion of the operation. Laryngeal examination will show that both cords may be functioning normally.

Oxygen therapy has been a distinct adjunct in the postoperative management of elderly, severely ill and bad risk patients with hyperthyroidism. These patients are placed in the tent immediately after the operation and are kept there for from twenty-four to forty-eight hours. The temperature can be lowered, respirations are easier, cyanosis, if present, clears up quickly, and the amount of postoperative mucus apparently is diminished. Although there is no absolute evidence to show that the incidence of postoperative pneumonia is less, I feel that there is a definite decrease in the mortality rate in any type of postoperative pneumonia with the use of an oxygen tent. It is always impressive to have these patients ask that the tent be kept in place, stating that it is easier for them to breathe and sleep and that they are more comfortable in the tent than after it is removed.

The management of the patient with a pulmonary complication needs no comment except to state that in spite of all effort at prevention there is a small group, usually elderly persons, in whom considerable mucus develops in the trachea and bronchi. These patients apparently do not have sufficient strength to cough up the mucus, and therefore more and more accumulates in the tracheobronchial tree. In spite of an oxygen tent, shock position and all supporting measures, the temperature rises, cyanosis develops, generalized rales are heard and bronchopneumonia appears imminent. Following a tracheotomy an enormous amount of mucopurulent material may be aspirated from the trachea and bronchi, and dramatic improvement may follow such a procedure.

The development of acute tetany postoperatively is a terrifying experience to the patient and often almost as disconcerting to the surgeon. However, it should

be borne in mind that the severity of the attack may not in any way indicate that chronic tetany will develop. Treatment depends entirely on the administration of calcium in a quickly available form. The most effective of all the calcium compounds is calcium chloride, of which 10 cc of a 10 per cent solution is given, care being used lest a slough develop. For this reason, if the attack is not severe, the calcium can be given slowly in saline solution. My experience has been that no other calcium compound gives the prompt relief that the calcium chloride does. It should be pointed out that parathyroid extract is not necessary in these cases. At the time the calcium is given it is usually advantageous to give morphine, and the intravenous administration of dextrose solution will have a beneficial effect. Ordinarily a teaspoonful of calcium lactate powder given three times a day after this is sufficient for the care of these patients in the hospital, the dose being about 175 grains (11 Gm) a day. The use of phosphates in any form is to be strictly avoided, as it is distinctly harmful in the presence of tetany. Catharsis is contraindicated. It has been noted that the attacks of tetany may appear when the serum calcium is at the same level as when the patient is free from symptoms. Under such circumstances the attacks are usually caused by an increase in the blood phosphates, and the indication in these cases is the administration of lactose, which reduces the blood phosphate content. From three to six teaspoonfuls a day is usually sufficient. Frequent estimations of the blood calcium and phosphorus must be made for the intelligent treatment in these cases. Fortunately the complication is a rare one, and even though the initial attacks in the hospital may be severe they are possibly caused by the edema or temporary cessation of the function of the parathyroid as a result of the operative procedure, and a pessimistic prognosis need not be made.

RECURRENT HYPERTHYROIDISM

The incidence of recurrent hyperthyroidism is usually somewhere between 2 and 3 per cent and within recent years I have been impressed by the fact that the incidence of hypothyroidism is far greater than the incidence of residual or recurrent hyperthyroidism. For that reason, in attempting to secure a result in which neither of these clinical syndromes is present I have as a general rule removed a little less tissue in the purely hyperplastic glands. This is particularly true in children with exophthalmic goiters. Haines² has made an important contribution, pointing out that it is possible to control a certain percentage of recurrent cases with small doses of iodine over relatively long periods of time. The symptoms on the whole are much more mild than in the primary instance. However, if the patient returns with increasing nervousness and a persistent afebrile tachycardia for which there is no etiologic factor, a secondary operation will in all likelihood have to be performed. In many of these cases it may be difficult to palpate an enlargement, but this does not in any way preclude the indication for operation. Generally speaking, more thyroid tissue is found than one had anticipated from the physical examination of the neck. However, extreme care should be used in the exploration and, even though a large nodule is found deep in the neck on one side, the opposite side should always be thoroughly exposed, the tendency being in such an instance to feel that one nodule is the cause of the recurrence and to overlook a similar one on the opposite side. Many of these nodules have

occurred at the upper pole and for that reason in the primary operation I have preferred to leave a little thyroid tissue at the inferior pole and to dissect the upper pole perfectly clean. Scott⁴ has recently emphasized the importance of the projections, which may have occurred posteriorly, and they should be searched for carefully. Likewise, the remnants of the inferior thyroid pole should be looked at, as occasionally an intrathoracic projection may be present. Oftentimes one finds only what one considers rather small nodules that would not appear to have caused the recurrence, curiously enough, on gross section they appear completely involuted and fibrosed, yet the patient will go on to a complete clinical cure.

COMMENT

In a general way the foregoing discussion represents the more common factors contributing to the morbidity in thyroid surgery. Emphasis has been placed on some infrequent complications, but they are extremely important should they develop. It has been stated that the function of thyroid surgery is not to convert one pathologic state to another, nor is it enough to have the patient merely improved, the completed end result should always be to have the patient free from any symptoms that may be attributed to the thyroid gland.

2020 East Ninety-Third Street

THE STONELESS GALLBLADDER

AN ANALYSIS OF ONE HUNDRED CASES TREATED
BY CHOLECYSTECTOMY

CARL A. KUNATH, M.D.

IOWA CITY

During the past few years a number of articles have appeared in the literature in regard to the noncalculous gallbladder and the less satisfactory results following cholecystectomy in this type of case.¹ Since the advent of cholecystography, the diagnosis of chronic cholecystitis has become much more common and there has come about a gradual acceptance of a broader symptomatology in gallbladder disease. These newer symptoms are supposed to be associated with disturbances in the function of the gallbladder and include gaseous indigestion, inability to digest fatty or greasy foods, belching, distention, vomiting and flatulence. It is largely through the acceptance of this "dyspepsia syndrome" in gallbladder disease that the problem of the stoneless gallbladder has arisen.

The present study is based on a follow up of 100 consecutive cases of cholecystectomy carried out on stoneless gallbladders in this clinic during the eight year period between March 1, 1927, and March 1, 1935. These are all uncomplicated cases in which no operative procedures other than cholecystectomy were carried out on the biliary tract. All cases of acute cholecystitis were discarded. Cases in which only a cholecystostomy had been done and cases in which the common duct had been opened were discarded. The follow-up study was carried out chiefly by a questionnaire letter, although a fair number of the patients were available for study in the outpatient clinic.

⁴ Scott A. C. Jr. The Surgery of Recurrent Exophthalmic Goiter. *Texas State J. Med.* 32: 649-652 (Feb.) 1937.

From the Surgical Service of the University Hospitals, State University of Iowa College of Medicine.

¹ Dwyer M. F. and Dowling G. A. Results in Cholecystectomy with Special Reference to the Symptomatology and Diagnosis of Cholecystitis. *J. A. M. A.* 95: 722-725 (Feb. 27) 1932. Mackey², Graham and Mackey³, Palmer⁴, Judd⁵, Andrews⁶, Weir and Snell⁷.

For purposes of comparison, a similar follow-up study was made of 100 consecutive cases of chronic cholecystitis with cholelithiasis that came to operation. The cases in this group also represent those in which only a simple cholecystectomy was done. The statistical data of these two groups are shown in table 1.

The age incidence in the two groups was almost identical, it averaged 42.3 years in the noncalculous group and 41.9 years in the calculous group. The theory that the noncalculous cases represent the earlier cases in respect to duration of symptoms was not borne out, the average duration of symptoms before admission to the hospital being practically the same in the two groups.

Females outnumbered males in each group but there were more males in the noncalculous group than in the group with stones. This may or may not be of significance.

When one turns to the symptomatology, it is naturally found that the symptoms are more pronounced in the group with calculi. Of interest, however, is the fact that 56 per cent of the noncalculous cases gave a history of biliary colic. These patients all had a very severe colicky type of pain in the epigastrium or beneath the right costal margin, radiating to the right side of the back or scapula and requiring hypodermics for relief. It would appear, therefore, that one must look for other causes than calculi in the production of the type of pain usually referred to as biliary colic. This has also been observed in the series of cases reported by Mackey,² Palmer,³ Muller⁴ and Smithies.⁵ It is also of interest to note that the percentage of patients who gave a history of jaundice was the same in the two groups of cases.

Cholecystography was carried out in fifty-five cases in each group, which makes the figures convenient for comparison. Although the visualization of stones must be considered a more or less incidental finding in the cholecystograms, it was possible to make a diagnosis of cholelithiasis in 40 per cent of the calculous cases in which the test was made.

In regard to the microscopic aspect of the removed gallbladder, it is noted that nearly one fourth of the cases in the noncalculous group were reported as normal. The foregoing pathologic classification was used in order to conform as closely as possible to that used in other series of cases in the literature.⁶

In respect to the postoperative courses of the two groups, one sees that 17 per cent of the noncalculous group had stormy courses as compared with only 7 per cent of the group with stones. Wound infections were more frequent, and of the eight severe wound infections in the noncalculous group there were four complicated by evisceration.

There were six postoperative deaths in the stoneless group—a postoperative mortality of 6 per cent as compared with 1 per cent in the calculous group. One gained the definite impression in reading over the records that the morbidity as well as the mortality was much higher in the stoneless cases. There was a greater tendency to postoperative distention, nausea and vomiting, and more sedation was necessary.

An estimation of the end results was obtained in 83 per cent of the noncalculous and in 83 per cent of the calculous cases. According to the patient's own statement, only 26.1 per cent of the patients without stones could be classified as "cured." Cures or improvement were obtained in 69.6 per cent of this group as compared to 84.3 per cent in the cases presenting cholelithiasis. Such results are in keeping with those reported from other clinics.⁷

The question naturally arises as to whether there are any factors which might help one to anticipate these poor results and in this way enable one to prognosticate as to the relative benefits of cholecystectomy in a given case.

TABLE 1—Comparison of Follow-Up Study on Calculous and Noncalculous Series

Data	Noncalculous	Calculous
Number of cases reviewed	100	100
Average age	42.3 years	41.9 years
Sex		
Male	24	14
Female	76	86
Average duration of symptoms before admission	6.37 years	6.5 years
Symptoms		
Typical biliary colic	56%	84%
Dyspepsia syndrome	70%	75%
Vomiting	71%	80%
Jaundice	38%	38%
Cholecystographic evidence	55%	30%
Gallbladder not visualized	18 (32.7%)	33 (60%)
Gallbladder only faintly visualized	12 (21.9%)	9 (16.4%)
Good visualization	9 (16.4%)	9 (16.4%)
Impaired function	3 (5.5%)	1 (1.8%)
Gallbladder shadow distorted	3 (5.5%)	3 (5.5%)
Normally functioning gallbladder	13 (23.6%)	3 (5.5%)
Stones noted in cholecystograms	7 in 3 (5.4%)	0 (0%)
Operative procedure		
Technically simple	98%	90%
Technically difficult	2%	10%
Associated appendectomy	62%	67%
Hepatitis noted	4	0
Pancreatitis noted	2	2
Microscopic changes in gallbladder		
Normal gallbladder	25	1
Strawberry gallbladder	9	0
Minimal changes present	55	13
Moderate changes present	19	43
Marked changes present	1	33
Postoperative courses		
Satisfactory	83%	80.5%
Wound infections of significance	8%	7%
Eviscerations	4%	0
Postoperative mortality	6%	1%
Average postoperative days in hospital	17.6 days	16.7 days
End results		
Number available for study	83	83
Cured	22 (26.1%)	43 (51.8%)
Improved	37 (43.9%)	27 (32.5%)
Unimproved	19 (22.4%)	11 (13.3%)
Dead	7 (8.4%)	2 (2.4%)
Incisional hernia reported	4 (4.7%)	10 (12%)

Pathologic Changes—In regard to the pathologic changes in the gallbladder, I find that, in a general way, the percentage of good results rises steadily as the pathologic processes in the gallbladder becomes more advanced (table 2).

The chief exception to this rule is the group presenting cholesterosis, or so-called strawberry gallbladders, in which the percentage of cures is even lower than in the group presenting normal gallbladders. Mackey and Stanton⁸ both feel that the "strawberry gallbladder" is neither pathologic nor symptom producing. On the other hand, Lahey⁹ believes that it is productive of symptoms which are relieved by cholecystectomy. Our group is small (nine cases), but the results would seem to favor the former view.

2 Mackey W A Cholecystitis Without Stone Investigation of 264 Operated Cases from Clinical Radiological and Pathological Aspects An Attempt to Determine Factors of Service in Estimating Prognosis Brit. J. Surg. 22 274-295 (Oct.) 1934
3 Palmer W L Gallbladder Disease Remarks on Symptoms Diagnosis and Treatment Internat. Clin. 1 111-123 (March) 1935
4 Muller G F The Noncalculous Gallbladder J. A. M. A. 89 786 (Sept. 3) 1927
5 Smithies Frank Pericholecystic Adhesions Their Importance and Clinical Recognition J. A. M. A. 71 1804-1808 (Nov. 30) 1918
6 Judd E S Clinical versus Pathological Cholecystitis Collected Papers of the Mayo Clinic 17 152 1925 Mackey²

7 Whipple A O Surgical Criteria for Cholecystectomy, Am. J. Surg. 40 129-131 1926 Mackey² Graham and Mackey¹¹ Judd⁶ Stanton⁸ Sanders¹³
8 Stanton E M The Stoneless Gallbladder A Study of Operative Cases Am. J. Surg. 18 246-250 (Nov.) 1932
9 Lahey F H Cholecystitis the Cholesterol Gallbladder and Silent Gallstones Boston M. & S. J. 196 677-681 (April 28) 1927

Perhaps the most significant figure in table 2 is the relatively high percentage of cures in the group of patients with normal or nearly normal gallbladders. It is this figure which discourages the surgeon from placing too much prognostic value on the pathologic report. Pathologists must admit, as Maynard¹⁰ has, that many patients do get relief from their symptoms after removal of gallbladders showing very little pathologic change. Although the pathologist can help in respect to anatomic deviations from the normal, he has no way of estimating what constitutes a normal gallbladder from a physiologic or functional point of view. It appears that in many of these cases one is dealing with a condition of abnormal mechanism or disturbed function without anatomic change. For this reason the histologic changes in the gallbladder wall are not always an accurate index of the symptoms that the organ has produced or of the benefit that may result from cholecystectomy.

Cholecystography—During recent years both the surgeon and the internist have been placing an increasing amount of reliance in cholecystography as a means of diagnosing gallbladder disease. In this clinic we have felt that the test is accurate in well over 90 per cent of the cases and only very rarely do we advise cholecystectomy in the face of a normal cholecystogram. Table 3 shows the end results in our series of cases in respect to the cholecystographic evidence that was available.

Of significance is the fact that, of the cases in which there were normal cholecystograms, there were cures or improvement in 75 per cent. These figures are difficult to explain. Graham and Mackey¹¹ encountered the same discrepancy in their series, the percentage of cures or improvement being the same in the group of patients with normal cholecystograms and in the group with nonvisualizing gallbladders (60 per cent). No attempt is made to explain this matter other than to mention that perhaps incidental appendectomy is responsible for the cures obtained in the group with normal cholecystograms.

The problem becomes even more confusing when the cholecystographic evidence is compared with the changes in the gallbladder revealed by microscopic examination (table 4).

Of the fifty-one cases in which the gallbladder was not visualized there were three normal and fourteen nearly normal gallbladders. One is obliged to conclude, along with Mackey² and Palmer,³ that the cholecystogram is simply another contributing factor in the diagnosis of gallbladder disease and that it cannot be relied on entirely either in diagnosis or in estimating prognosis after cholecystectomy. During the past few years there have appeared in the literature articles dealing with faults in the present cholecystographic technic. In this clinic it has been learned that the existence of diabetes mellitus may occasionally bring about false positive reactions if the usual technic is used. We have also come to realize that duodenal ulcer or spastic conditions of the gastro-intestinal tract may cause false positive reactions.

Clinical Symptoms—Burden,¹² Sanders,¹³ Judd,⁶ Palmer,³ Graham and Mackey¹¹ and Mackey² have all

expressed the opinion that, in estimating the probable benefits to be derived from cholecystectomy, the symptoms are much more reliable than either the cholecystographic evidence or the pathologic report. The feeling seems to be that definite biliary colic is the indication *par excellence* for cholecystectomy as well as the symptom most likely to be relieved by this procedure. Many hold the opinion that if colic has occurred a satisfactory outcome from cholecystectomy may be practically guaranteed. It is the vague dyspeptic symptoms that tend to persist after cholecystectomy, and the patient operated on for these symptoms alone is quite likely to obtain no relief from the procedure.

TABLE 2—End Results of Cholecystectomy in Respect to Pathologic Changes Present in the Gallbladder

Pathologic Report	Cured per Cent	Improved per Cent	Unimproved per Cent	Postoperative Deaths per Cent
Nonecalculous cases				
Normal	24.0	36.0	32.0	8.0
Minimal	24.4	42.2	22.2	11.2
Strawberry	16.7	66.6	16.7	
Moderate	37.5	62.5		
Marked	100.0			
Calculous cases				
Minimal	33.3	50.0	8.3	8.3
Moderate	52.6	26.3	21.1	
Marked	59.4	31.2	6.2	3.2

Table 5 shows the highest percentage of cures in the patients who had colic but no dyspepsia and the lowest in those having dyspepsia but no colic. The complaints of the vast majority of patients in the "improved" group were those of dyspepsia. In other words, it is the persistence of the dyspepsia syndrome which places the majority of these cases in the "improved" rather than in the "cured" category.

Of the patients who were followed in the stoneless group, forty-three complained of colic preoperatively. There was relief following operation in 86 per cent of these cases. There were fifty-two patients with dyspepsia prior to operation, and at the time of the

TABLE 3—End Results of Cholecystectomy with Respect to Cholecystographic Evidence

Cholecystogram	Cases	Cured per Cent	Im proved per Cent	Unim proved per Cent	Deaths per Cent
Gallbladder not visualized	45	49.0	33.3	13.3	4.4
Gallbladder faintly visualized	21	19.1	47.6	23.8	0.5
Gallbladder well visualized					
Im paired function	14	35.7	42.9	14.3	7.1
Gallbladder shadow distorted	2	50.0	50.0		
Normal gallbladder	12	41.7	33.3	16.7	8.3

follow up (from one and a half to nine and a half years later) thirty-five still had dyspepsia. In other words, dyspepsia was relieved in only about 33 per cent. Furthermore, of twenty-six patients whose histories did not include the dyspepsia syndrome preoperatively, ten now claim dyspeptic symptoms (38 per cent). It is difficult to escape the conclusion that the removal of the gallbladder was directly responsible for these postoperative digestive disturbances. It is observations such as these that have given rise to the view of Stanton,⁸ Palmer,³ and Mackey² that the so-called gallbladder dyspepsia is in reality quite independent of the gallbladder and due to causes not associated with the gallbladder.

Numerous explanations have been given to account for the poor results obtained by cholecystectomy in the

10 Maynard C. W. Cholecystectomy as Seen by the Surgical Pathologist. A Report of 223 Cases. *Am J Clin Path* 3: 339-345 (Sept.) 1933.

11 Graham E. A. and Mackey W. A. Consideration of the Stoneless Gallbladder. *J. A. M. A.* 103: 1497-1500 (Nov. 17) 1934.

12 Burden V. G. The Surgical Pathology of the Gallbladder. *Ann Surg* 85: 239-246 (Feb.) 1927.

13 Sanders R. L. The End Results in Five Hundred Cases of Cholecystectomy. *Ann Surg* 92: 376-386 (Sept.) 1930.

noncalculous gallbladder For the most part these explanations can be classified under three main headings (1) errors in diagnosis, (2) residual pathologic changes and (3) physiologic causes

ERRORS IN DIAGNOSIS

Possibly the most common lesion to be mistaken for cholecystic disease is duodenal ulcer Two patients in this series who were unrelieved following cholecystectomy were subsequently found to have duodenal ulcers that had been missed at the time of the original laparotomy One patient had an associated duodenal

per cent, Deaver and Bortz¹⁶ in 35 per cent Muller found pancreatitis present in 5 per cent Deaver and Bortz reported it in 12 per cent Weir and Snell¹⁷ estimate that about 20 per cent of all patients with cholecystitis have associated lesions such as pancreatitis, hepatitis and cholangitis

In the present series of cases hepatitis was noted only four times (table 1) The follow up revealed one patient cured, two improved and one dead Pancreatitis was also noted four times The follow up revealed two patients cured, one improved and one unimproved

On the whole, there is no convincing proof in the literature that the continuation of symptoms after cholecystectomy is due to these minimal changes seen in the liver and pancreas so commonly at the time of operation Martin¹⁸ believes that the mild form of hepatitis regularly found with cholecystitis has little or no clinical significance In the more advanced forms of pancreatic or hepatic involvement the relationship to postoperative symptoms is probably better justified It would appear that very few of our own failures in the treatment of noncalculous cholecystitis can be explained on the basis of residual pathologic changes Granting the occurrence of an occasional case of overlooked common duct stone, stricture or angulation of the common bile duct, reformed gallbladder or chronic pancreatitis of a sufficient degree to cause symptoms, it would appear that one must still look elsewhere to find the explanation for most of the poor results

PHYSIOLOGIC CAUSES

The unsatisfactory results after cholecystectomy in the stoneless gallbladder have led to increased interest in the physiology of the biliary tract As a result, a vast amount of experimental data has accumulated in regard to gallbladder function, and the spotlight has been focused on the sphincter of Oddi as an important mechanism in the symptomatology of biliary tract disease Whereas the teaching of the past has been that the gallbladder could be sacrificed without in any way impairing normal health, there is now, in the light of recent experiments, considerable evidence against such a view Eiss and Whaley¹⁹ list a number of both

TABLE 4—Comparison of Cholecystographic Evidence with Microscopic Condition Found in the Gallbladder

Cholecystogram	Microscopic Anatomy				
	Normal	Minimal	Strawberry	Moderate	Marked
Gallbladder not visualized	3	14	1	10	14
Gallbladder faintly visualized	4	5		7	4
Gallbladder well visualized, impaired function	7	3	1	0	
Gallbladder shadow distorted	1	3	0	0	1
Normal gallbladder	3	0	3	1	0

diverticulum Another patient returned one month after operation and was found to have a tuberculous process involving the eleventh and twelfth dorsal vertebrae Stanton⁸ emphasizes cardiac disease as a frequent cause of diagnostic error Other possible sources of error are gastric lesions, pancreatic lesions, diseases of the right kidney, syphilitic cirrhosis, chronic intestinal obstruction, hypertrophic arthritis of the spine, and intercostal neuralgia I have seen several patients with gonococcal peritonitis operated on for symptoms suggesting gallbladder disease and have found the telltale "violin string" adhesions between the liver and the anterior parietal peritoneum

Perhaps the most difficult problem from a diagnostic standpoint is the one presenting a neurosis or an irritable gastro-intestinal tract Time and again, when patients in this series have returned following operation because of persisting dyspepsia, we have by barium sulfate enema discovered a markedly spastic colon Time and again we have seen these dyspepsia symptoms disappear under a medical regimen of smooth, low residue foods and antispasmodics Indeed, the association of an irritable gastro-intestinal tract with the flatulent dyspepsias of so-called chronic cholecystitis is so frequent that I have wondered about the possible coexistence of a "spastic biliary tract" to account for the symptoms Eternal vigilance is necessary in these borderline cases if diagnostic errors are to be avoided

RESIDUAL PATHOLOGIC CHANGES

Every surgeon who is experienced with surgery of the biliary tract is familiar with the mild degrees of hepatitis, pancreatitis and cholangitis which are frequently present, and many authors have attempted to explain the poor results of cholecystectomy on the basis of this residual pathologic condition There is no general agreement, however, as to just how commonly these changes are found Olch¹⁴ found hepatitis almost constantly associated with chronic cholecystitis, Black¹⁵ reports hepatitis present in 46 per cent, Muller⁴ in 7

TABLE 5—End Results of Cholecystectomy in Respect to Preoperative Symptoms

Clinical Syndrome	No of Cases	Cured per Cent	Improved per Cent	Unimproved per Cent
Both colic and dyspepsia	81	40.7	43.2	16.1
Colic without dyspepsia	29	51.7	31.0	17.3
Dyspepsia without colic	31	29.0	45.2	25.8
Neither colic nor dyspepsia	18	44.4	33.3	22.3

anatomic and physiologic changes that occur in the biliary tract following cholecystectomy and state that this operation may actually inaugurate a new cycle of disturbed function by depriving the liver of a reservoir in which to store up bile Ivy and Bergh²⁰ have also postulated various physiologic disturbances to explain the symptoms following cholecystectomy Andrews²¹

14 Olch I Y Chronic Cholecystitis An Analysis of 100 Consecutive Cases Diagnosed with Cholecystography and Treated by Cholecystectomy in Which the End Results Were Investigated Am J M Sc 173 368 374 (March) 1927
15 Black J M A Review of 100 Consecutive Gallbladder Operations Brit M J 1 11 12 (Jan 5) 1935

16 Deaver J B and Bortz E L Gallbladder Disease A Review of Nine Hundred and Three Cases J A M A 88 619 623 (Feb 26) 1927
17 Weir J F and Snell A M Symptoms That Persist After Cholecystectomy Their Nature and Probable Significance J A M A 105 1093 1098 (Oct 5) 1935
18 Martin Walton Hepatitis and Its Relation to Cholecystitis Ann Surg 86 535 553 (April) 1927
19 Eiss Stanley and Whaley J H Changes in the Biliary System After Cholecystectomy The Causes of Recurrence of Gallbladder Symptoms Ann Surg 101 921 926 (March) 1935
20 Ivy A C and Bergh G S The Applied Physiology of the Extrabiliary Biliary Tract J A M A 103 1500 1503 (Nov 17) 1934
21 Andrews Edmund Must We Revise Our Indications for Cholecystectomy? Internat Clin 3 172 179 (Sept.) 1935

advances the theory that the dyspepsia symptoms seen so often in chronic cholecystitis are in reality the symptoms resulting from a gallbladder which has lost its function as a reservoir for bile. The syndrome may be brought about by closure of the cystic duct by inflammation or stone, or it may be brought about by cholecystectomy.

Although these physiologic considerations are to some extent theoretical and are based largely on animal experimentation, they are for the most part logical and give promise of going further in truly explaining the poor results than any of the other factors considered here.

There remains the problem of explaining the good results. How can one explain the 24 per cent of patients with normal gallbladders histologically who report that they have been cured by cholecystectomy? From a purely hypothetical standpoint, one might presume that these were cases in which the symptoms were due not to gallbladder disease but to a spastic or hypertrophic sphincter of Oddi. Removal of the gallbladder in such a case might result in a dilatation of the common bile duct and an increased intraductal pressure which might conceivably overcome this spasm and bring about a relief of the symptoms.

Others might attempt to explain the results in these cases by virtue of the incidental appendectomy which is performed in a large percentage of the cases. It is, of course, difficult to evaluate the role of incidental appendectomy in the production of cures, but from the figures at hand it appears that this procedure added little, if any, to the chances of a cure. Both Mackey² and Maynard¹⁰ have analyzed their cases with this factor in mind and have come to a similar conclusion.

Finally one must consider the psychogenic factors which are present in not a few of the cases and realize that the psychotherapeutic effect of a laparotomy may explain some of the peculiar results.

SUMMARY AND CONCLUSIONS

Another analysis of surgical cases of noncalculous "cholecystitis" has been added to the literature for the statistical value it may afford. Compared with a similar series of cases in which stones were present, one finds that the stoneless cases show a greater morbidity, a higher postoperative mortality and only about half as many cures.

The stoneless cases have been analyzed carefully from the standpoint of pathologic changes present in the gallbladder wall, and from the standpoint of cholecystographic evidence but little help is offered from either of these sources in regard to prognosis following cholecystectomy. In general, the end results tend to be better as the pathologic changes become more marked, but there are many queer aspects which are difficult to reconcile.

An analysis of the preoperative symptoms is probably of greater value than anything else in estimating the probable benefits to be obtained from cholecystectomy. We were able to cure colic in 86 per cent of the cases in which it was present. In regard to dyspepsia, we were able to bring about cures in only 33 per cent. Furthermore, of the patients who did not complain of dyspepsia prior to operation, 38 per cent now report that they have such symptoms. This would seem to be a strong argument in favor of the view that the dyspepsia syndrome is related not so much to disease of the gallbladder as to nonfunction of the gallbladder.

In attempting to explain the poor results following cholecystectomy, we were able to find a few definite

errors in diagnosis. These included duodenal ulcers, a duodenal diverticulum, a tuberculous spondylitis and a chronic gonococcic peritonitis. By far the majority of diagnostic errors were associated with cases of irritable intestine and spastic conditions of the gastro-intestinal tract.

Although a few poor results could possibly be ascribed to residual pathologic changes in the pancreas, liver or bile ducts, it was not possible to incriminate definitely any of these organs.

I believe that the greater majority of the unimproved cases must be explained on a basis of physiologic changes or altered function. There is probably a large group of cases in every series of stoneless gallbladders lying on the borderline between organic and functional disease, these are the cases in which diagnosis is difficult and in which cholecystectomy is apt to be disappointing.

The hope for improvement in the treatment of the stoneless gallbladder appears to depend on a better understanding of the physiology of the biliary tract. It is entirely likely that this improvement will be in the form of more intelligent medical management based on a sound knowledge of the common morbid physiologic changes that occur in the biliary tract. In the meantime cholecystectomy should be advised in such cases only after exhaustive study has been carried out, and the patient should not be promised too much. He should be warned that he may still have difficulty after the operation in digesting large heavy meals or fatty food and that dietary measures may be necessary.

THE STUTTER-TYPE CHILD

THE SPEECH INDEX OF NEUROTIC BEHAVIOR

JAMES SONNETT GREENE, MD

Medical Director National Hospital for Speech Disorders
NEW YORK

Last year at the National Hospital for Speech Disorders 2,203 patients were registered. Of this number 695, or about one third of the total registration, were children. These patients suffered from various anomalies of speech and voice, which were classified under the headings of dysphemia, dyslalia, dysphonia, aphasia and associative dysphasia.

In dealing with these disorders, I have found that a simplified analytic base is most useful. The tendency to become theoretically involved in extensive classifications and terms has been baffling to persons studying the subject. As in other branches of medicine, so in this, with the accumulation of knowledge and insight, unwieldy descriptive classifications have given way to simple dynamic groupings.

The best way to visualize the groupings of clinical material is shown in the accompanying table. The majority of the patients came under the first three groups: dysphemia—stuttering, dyslalia—functional and organic defects of articulation, and dysphonia—functional and organic defects of the voice.

The two terms stuttering and stammering are often used interchangeably but, according to derivation, stuttering stands for labored, difficult hesitant speech with resultant defective conversation. Stammering

Read before the Brooklyn Academy of Pediatrics of the Kings County Medical Society, Brooklyn, March 24, 1937.

The term stutter type was first used by the author in a paper read before the New York Neurological Society at the New York Academy of Medicine, Dec. 4, 1934. Treatment of the Stutter Type Personality in a Medical Social Clinic.

refers to defects of articulation and should never be confused with stuttering. In other words, stammering depends on defective performance while stuttering depends on emotional disturbances.

By far the most important group is that of dysphemia—stuttering—and the major part of this paper will therefore be devoted to the stutter-type child. However, before introducing the subject it may be well to orient it in the general field of speech pathology. I will begin with a few preliminary remarks about some of the most frequent defects of articulation, or dyslalia.

Although a child's articulate speech usually begins at the age of about 9 months, there is no need for the parents to worry if it is delayed until the age of 2 years, provided the delay is not due to impaired hearing. However, absence of speech at 2 or 2½ years should be considered abnormal.

Aside from impaired hearing, the absence of speech at 2 or 2½ years may be due to functional conditions

In this connection, another important point to remember is that one sound ear is quite adequate for learning and discriminating speech sounds. Further, it is important to differentiate between a condition of conduction deafness and one of perception deafness. In the former the middle ear is impaired, while in the latter the inner ear—that is, the cochlear branch of the eighth nerve—is affected, so that the ear is mechanically sound but neurologically unsound.

A considerable group of cases falls under the category of oral inaccuracies—lalling, infantile speech, agtrophasia (cluttering), substitutions and phonetic defects. In general, the cause in this group, aside from malformations of the organs of speech, is mainly environmental. The condition of infantile speech, or baby talk, is a striking example. The most evil outcome of talking baby talk to young children, and particularly of imitating their omissions and substitutions of consonants, because it sounds "so cute," is that such mutilated speech often becomes confirmed in the child as a habit and thus remains throughout his adult years, when it sounds far from cute to any one. Scarcely anything could be better designed to confirm defective speech in a child than hearing such speech constantly imitated.

An exaggerated form of oral inaccuracies to the point of partial or complete unintelligibility is termed idio glossia. It is, in fact, a fanciful individual language which some children develop. Several years ago three siblings, whose language, although intelligible to them, could not be understood by any one else, not even by their parents, were under treatment at the hospital. In some cases, as in this one, the personal and family histories are irrelevant. In other cases, however, a family history of neuropathy is present.

Lisping is still another form of dyslalia, the term is used to designate sound substitution in many instances. It is an infantile poor speech habit which has been allowed to become fixed. While the term lisping is frequently used to cover the entire field of letter substitution, it is chiefly used as a term for the substitution of the letter s.

The term sigmatism is also used to designate difficulties with the s sound, and many subdivisions have been made under this heading, such as interdentalis, lateralis, addentalis and nasalis, depending on various anomalies of the mouth.

Rhinolalia, nasal inarticulate speech, is speech of a nasal character due to disturbances in the vocal vibrations which pass from the oral to the nasal cavity, producing nasal out of non-nasal sounds. During normal breathing the soft palate hangs loosely, so that there is a communication between the nasal cavity and the oral cavity. When the mouth is closed, the soft palate, which is held somewhat tense, is swayed by the respiratory currents in a passive manner.

For all sounds except the nasals, m, n and ng, the velum, or soft palate, moves upward, almost entirely closing off the oral cavity from the nasal cavity. However, when there is palatal dysfunction, non nasal sounds become nasal, thus producing nasal inarticulate speech.

Nasality may be due to congenital conditions (cleft palate), to injuries following the removal of tonsils and adenoids, to inflammations (nose, pharynx or adjacent area), to tonsillitis, diphtheria, syphilis or tuberculosis, to tumor, to nervous conditions, to bulbar paralysis or to tic. Nasality causes the voice to become weak, flat or dull, and nonmelodious in quality.

Registrations and Analysis of 2,203 Patients in 1936

	Children	Adults
Dysphemia Stuttering	360	808
Dyslalia		
Delayed speech	72	
Hearing mutism	6	
Deafness (total)	8	
Deafness (partial)	10	5
Oral inaccuracies	126	30
Lisping	17	32
Agtrophasia		4
Idioglossia	32	
Dialectal speech		24
Rhinolalia (cleft palate etc.)	31	10
Dysphonia		
Aphonia		4
Hypophonia		6
Hyperphonia		2
Rhinophonia	10	40
Phonesthesia	1	27
Trachyphonia	2	12
Paraphonia (falsetto—mule)		15
Aphasia Motor and sensory		6
Asociative dysphasia		
Spastic paralysis	8	2
Chorea	8	
Cerebral hemorrhage		2
Pollomyelitis	2	
Parkinsonism		2
Bell's palsy		3
Mental hygiene Courses for parents of speech patients		465
Totals	693	1 510

or anatomic defects in the central nervous system. These include mental deficiency of various types, with or without gross neuropathology, congenital anomalies and diseases and injuries of various subcortical areas. Muscular incoordination of the vocal tract is part of the general incoordination.

As hearing is the means by which sounds are learned, articulation directed and inflection controlled, impairment of hearing is a most serious cause of impairment of speech. However, the mere coexistence of a defect in hearing and one in speech does not necessarily mean that defective hearing is always the cause of the defect in speech.

Some children whose hearing may be considered normal lack appreciation of certain combinations of tones to such a degree that they are not sure of the pronunciation of certain words. Often, for instance, they may not be able to hear sounds in high frequencies although they may hear sounds in low frequencies very well. Their speech may sound defective, and occasionally it may even predispose them to stuttering. The impairment in hearing may be slight, and yet a serious defect in speech may exist solely because of undesirable environmental factors, such as poor speech models, foreign language conflicts and emotional factors.

approaching twang characteristics, it causes a change in speech, making articulation difficult, besides bringing about tonal changes

The congenital condition of cleft palate, with its resultant cleft palate speech, is a pronounced cause of rhinolalia. A cleft of the palate may or may not be associated with a harelip. Both conditions are due to a failure of closure of the anteroposterior fissure between the two lateral halves of the roof of the mouth.

Dunning,¹ in discussing operative measures, says: "The cleft in the bone in the front of the mouth should be closed in the first few weeks, if the baby is doing well. The opening or split in the lip should be closed two or three weeks after the bone operation, if the baby is in good condition, and the palate should be repaired during the third or fourth year."

Obturator is contraindicated for children because they cannot be made to fit properly, on account of growth and anatomic changes. After operative measures, reeducational speech and voice treatment should be instituted, since the resonance, quality and articulation found in normal speech are more or less lacking in cleft palate speech.

The conditions grouped under the heading dysphonia consist of defects of voice due to organic or functional disorders of the vocal tract: trachyphonia, i.e., the common condition of hoarseness, which is often due to infiltration from diseased tonsils, adenoids or sinuses and which may appear in children as a diphtheritic sequel, functional disturbances, as exemplified by hysterical aphonia, and the many other conditions enumerated in the table. It is not my intention to elaborate on these conditions at the present time but rather to consider the important group that falls under the classification of dysphemia, or stuttering, and particularly the stutter-type child.

A misconception is still prevalent about the stutter-type child and his symptom, stuttering. Parents continually tell us that their child is quite well in every way, that he is bright at school, often being a class ahead for his age and that he has no particular physical complaint. Apparently the only thing wrong is that "he just cannot get the words out." He stutters, and they firmly believe that a few speech drills are all that is necessary to establish or reestablish the smooth flow of words. In most instances neither the parent nor the teacher is conscious of the fact that this is a special type of child. I mention this to emphasize the fact that when one is considering any form of human behavior, in health as well as in disease, the only intelligent and fruitful view is that of considering the organism or personality as a whole functioning unit. In accordance with this point of view, the symptom of stuttering should not be isolated but should rather be considered as an expression of the whole organism of a disintegrated individual.

I have designated the special type of personality with which I am dealing here the stutter type—a type whose condition consists of a definite correlation between the characteristic physical and the equally characteristic temperamental traits. However, it should be realized that individual variations are so numerous in the stutter type and that so many factors enter into the building up of his personality that only a careful study of his person as a whole demonstrates his status.

I shall deal first with the field of predisposition as a factor in the maldevelopment of the stutter-type child.

It has long been an acknowledged fact that a general predisposition toward emotional instability can be traced in the family of the stutter type. A study of over 1,000 patients who were treated in the National Hospital for Speech Disorders during the year 1935 showed that 40 per cent had stutterers in their immediate family. Over 50 per cent gave a definite history of emotional instability in the family.

A child of such a family does not necessarily inherit stuttering as such but belongs to the stutter type and inherits special neuropathic tendencies, a general instability of the nervous system which predisposes him to hesitating speech. This predisposition can often be readily observed, even by the noninitiated, by noticing the striking effects of a single speech effort in a stuttering child or adult. On examining the hands of such persons in the throes of spasmodic speech, one will often observe that the palms are drenched with perspiration. This abnormal functioning of the sweat glands is a visible index of the severe internal emotional turmoil that accompanies the speech act in the stutterer. Incidentally it serves as an excellent example of the unity which exists between the psyche and the soma, in sickness as in health.

Regarding the mechanism by which these manifestations occur, a frequent question and a most relevant one is: What special constitutional differences exist between the stutterer and the nonstutterer?

At present, among the different workers in the field there is an increasing unanimity that the one outstanding somatic finding is marked instability in the functioning of the vegetative nervous system, with special dysfunction of the vasomotor apparatus. It is a generally accepted view that most people in states of excitement demonstrate dominance of the sympathetic branch of the vegetative nervous system. Professor Seemann,² in a study of 260 stutterers, found an imbalance of the vegetative nervous system in 88 per cent of the subjects. Thirty-six per cent demonstrated sympathetic dominance, 18 per cent showed parasympathetic dominance, and 34 per cent showed evidences of increased tonus in segments of both branches of the vegetative nervous system, or amphotonia.

Another investigator³ found that of a hundred stutterers, 75 per cent showed extreme variations in their vegetative endocrine organization as follows: (1) atypical vasomotor functioning, 71 per cent, (2) atypical dextrose mobilization, 74 per cent. He further states that the frequent variations in the endocrine constitution among stutterers may be explained on the basis of an atypical vegetative organization. A striking indication of this lability is the marked dysfunction of the stutterer's vasomotor apparatus. As I have mentioned, his condition of hyperhidrosis is an outstanding symptom. However, one just as frequently finds dermatographia and acrocyanosis among his other anomalies. One may deduce from these facts and others that the most important finding, as far as the constitution of the stutterer is concerned, is a high degree of deviation in the functioning of the vegetative nervous system.

These deviations in the neurologic functioning of the stutter type are manifest in his disorganized muscular coordinations. These incoordinations may appear in any neuromuscular activity and in many psychomotor patterns, but the fundamental characteristic is a lack of

¹ Dunning, H. S. The Question of Cleft Lip and Cleft Palate. radio address, May 1936.

² Seemann, M. Somatic Findings in Stutterers. *Monatsschr. f. Ohrenh.* 68: 895 (Aug.) 1934.

³ Szondi, L. quoted by Seemann.

rhythm in performance. In other words, the stutter-type person lacks harmony, he is out of tune both neurologically and emotionally and unequal to the strenuous tempo of life.

The psychic or emotional manifestations that correlate with the previously mentioned physical ones, producing the psychosomatic unity which is called the stutter type, include primitive emotional reactions such as morbid fear and anxiety, setting off the tendency to many hesitating acts.

As a consequence of these underlying affects, stutter-type persons are highly sensitive to all stimuli, so that they belong to the quick reacting group, whose frequency of impulse is high, resulting in strong intensity of reaction. They are in a chronic state of tension, which tends to lower the threshold of their excitability. This accounts for the fact that they get excited so easily and are prone to anticipatory anxiety. This psychomotor unity is expressed in the symptom stuttering. In other words, the neurotic functioning converts the psychic conflict into a physical symptom.

A theory that has been attracting much attention in recent years is that of cerebral dominance, and many investigations have been made from this approach. The proponents of this theory advocate as the cause of stuttering the confusion in dominance in the functioning of the cerebral hemispheres. There is no general agreement regarding this theory. On the affirmative side, it is asserted that stutterers are more frequently left handed or ambidextrous than normal speakers. On the other hand, the negative side contends that left-handedness, if present, may have no specific meaning, as left-handedness is commonly found with psychoneurosis, behavior disorders, epilepsy, squint, high blood pressure and other conditions. The question is still unsettled. In spite of the emphatic statements that have been made by both sides, a scientific impartial appraisal of the various arguments leads one to conclude that stuttering may or may not be directly related to left-handedness or manual reversal.⁴

I will now take up the next and perhaps the most important determinant of stuttering, namely, the early conditionings in the family, a family which, as is already known, is so heavily laden with emotional tension. The aforementioned vegetative-endocrine deviations are only the foundation. They are insufficient to produce the stutter type without the essential superstructure of the early familial conditionings. As Richmond⁵ says, "by the time the child reaches school the main channels in which his emotional life will flow have been fairly well marked out. His early experiences set the pace for his later attitudes and fear may have become a dominant factor in his dealing with reality." These early conditionings, being very important, may be elaborated on at great length. Only two major influences, however, will be mentioned. The first consists of the various and sundry expressions of aggression on the part of either parent, more commonly the mother. These aggressions are almost always disguised as love, overprotection or oversolicitude. The result is infantilization of the child, in which it reacts with various forms of fretfulness or protest, stuttering speech being one of the expressions of protest. Overdemonstrative love is just as bad as too little love during the period of early childhood, the two frequently springing from the same source.

Cases of overt parental rejection of the child are much less common, although they are probably more frequent than is generally believed. Overt parental rejection was vividly illustrated in the case of a person recently admitted to the clinic. This young woman, until the age of 23, when her mother died, was never allowed any personal freedom whatever. She was allowed no male companionship and was frequently disciplined in public. In the privacy of the home, persecution took the form of lectures, nagging and even physical punishment. This parental domination had continued since early childhood. The result was that at the age of 30 the patient had the appearance and showed the general attitude of an adolescent girl, physically and emotionally. She looked and behaved like a child, retarded in her normal development by the neurotic influences within the home.

To another group belong the cases in which stuttering appears during the early critical adjustments at school, as distinguished from those previously mentioned, in which infantile stuttering has already appeared during the disciplinary crises in home training. Stability or continuity in the home is essential to the well being of the child, who at best feels insecure in a world of adults in which the only form of security is parental love. The lack of adjustment to the school environment is aggravated if changes in the home life bring with them a constant shift of school environment.

This mechanism was well illustrated by one of our patients, a girl of 12 years, who stated that she had been to ten schools since the age of 6 years and that her parents had moved fourteen times, as far as she could remember. At home she was frequently scolded when she did not finish her chores in time. Her mother constantly threatened to put her back in public school if her speech did not improve in a hurry. Her general appearance was tense and fearful, she looked like a little old woman.

From the two examples given, one can appreciate the dire results of a home environment charged with parental neuroticism. Not enough consideration has been given to the extensiveness of this condition and its influence on the individual child in restricting the normal development of his personality.

The first case, that of the young woman who was so excessively disciplined, well illustrates parental aggression. Such aggression is a pathologic substitution for the normal state of indulgence. This normal state involves giving on the part of the parents and is accepted by the child as his natural birthright—as indeed it is, for without it he would perish—and can be covered by one word, love.

After the child has experienced the satisfaction of the many indulgences, there then comes a phase involving training in giving up privileges in the interest of socialization. This can be termed the phase of deprivation. It means the child's gradual surrender of his unlimited infantile privileges, an imposition which he receives with great reluctance and loud protest. Even under the most favorable conditions this constitutes a critical period in the child's life. It is therefore easy to realize what emotional disturbances may occur during this trying period. Thus, a great many children attach strong emotional attitudes to difficult problems and situations, so that when confronted with similar or simulating conditions they show morbid anxiety or fear.

The consequence is an ever-growing neurotic fear in social situations, which makes adjustment increasingly

⁴ Bluemel, C. S. *Stammering and Allied Disorders*. New York: Macmillan Company, 1935.
⁵ Richmond, Winifred V. *Personality*. New York: Farrar & Rinehart Inc., 1937.

difficult. Hence, if the setting is neurotic, such a medium or background undoubtedly serves as the incubation stage for the future neurosis.

SUMMARY

An analysis of 2,203 patients in a year (1936) applying for treatment at the Medical-Social Clinic showed that about 50 per cent suffered from dysphemia (stuttering) and that the rest suffered from various forms of voice and articulatory conditions.

While, as far as the individual sufferer is concerned, the defects of articulation and phonation are equal in importance to stuttering, the complexity of the problem of stuttering speech makes it of far more importance from a therapeutic point of view.

In the approach to this complex problem, the stuttering child is classified in a special group. He is viewed as a nervously agitated organism demonstrating strong excitation and a tendency to quick interruption or inhibition and having a high emotional tone.⁶ Because of this peculiar functioning of the nervous system, the stutter-type child may demonstrate his hesitating performances not only in speech but in many other forms of psychomotor activity. However, as the neuromuscular coordinations involved in speaking are of a highly complex and delicately balanced nature and since speech is so necessary for normal social adjustment, the involvement of the speech faculty in the stutter-type syndrome makes stuttering in speech a far more serious problem than chronic hesitation in other muscular activities.

Because of the high emotional tone of the stutter-type child, stuttering speech, with its usual history of humiliation, failures and frustrations, eventually leads to the development of an anxiety state regarding speech and social maladjustment involving the total personality of the child.

Stuttering has been viewed at the National Hospital for Speech Disorders primarily as a physical symptom of psychic conflict, with the high emotional energy of the stutterer directed toward a fear which disintegrates his entire personality, and the treatment has been arranged in the form of a composite therapy of a medical, social, psychiatric and psychologic nature, directed toward the tranquilization, organization and adjustment of the personality.

As the stutter-type child's difficulty is one of social adjustment, his personality problems are worked out in a group medium, directed toward the integration and organization of his personality, so that he may make adequate adjustment to home, school and juvenile social environments.

Since the neurologic conditions inherent in the stutter-type child's neuropathic diathesis are aggravated by tensions arising from parental neuroticism and lack of harmony in the preschool home environment, a parent group has been formed for the mothers to facilitate the making of home adjustments. Under proper guidance, mothers receive an insight into child psychology and the importance of harmony in the home. This has resulted in the removal of many disturbing causal factors.

CONCLUSION

Having demonstrated the prime importance of preschool environmental influences, may I point out the urgent necessity for prophylaxis in the form of wholesome parent-child relations. Only recently, Dr Ber-

nard Sachs⁷ aptly epitomized the importance of early familial influences. "The influence of the home is paramount."

Parents must always remember that their own actions make a far deeper impression on the child than any sermons which they may choose to launch. Which means that in order to reach the child one must first reach the parent.

In doing this, the pediatrician has a most important role. His cooperation in establishing the proper parent-child relation is of the utmost importance to the speech pathologist, whose success in fostering robust straightforward development in the stutter-type child depends on a tranquil, harmonious home environment. By the application of a few simple principles of mental hygiene, previously mentioned, the pediatrician can play a most valuable part in effecting adjustments of far-reaching importance to the individual and to the community.

126 East Thirtieth Street

TREATMENT OF ULCERATIVE COLITIS
WITH ALUMINUM HYDROXIDE
AND KAOLIN

JAMES B. EYERLY, M.D.
AND
HERBERT C. BREUHAUS, M.D.
CHICAGO

One of the oldest remedies brought down to present-day medicine is kaolin (aluminum silicate). It is one of the chief products of the erosion of igneous rock and therefore is a common constituent of many soils and is classified as a silicious earth. Rich deposits of high grade kaolin are found in parts of the United States and also in the Orient, where it is mined chiefly for use in pottery and was used very effectively in the treatment of Asiatic cholera many centuries ago.

Both Walker¹ and Braafladt² were impressed by the great usefulness of this product in the treatment of the 1919 epidemic of cholera in China. In giving it both by mouth and by rectum it proved to be one of their most useful aids in bringing about a great decrease in mortality. Walker in discussing the rationale of kaolin concluded that its action was twofold. First, there is a mechanical action, because large numbers of bacilli are enclosed and carried off but are not killed. Second, by adsorption the kaolin takes up toxins. Braafladt also studied the action of kaolin in both normal and pathologic conditions. He concluded that it carries down large numbers of bacteria from fluid mediums if it is kept in motion. The latter consideration is important because kaolin, although it has some colloidal activity, has a tendency to settle out of a liquid medium and thus its large surface area for adsorptive purposes is lost. When kaolin settles out from suspension, a firm, tenacious, claylike mass results (bolus alba) which may lead to serious fecal impaction in the rectum. He also found that various pathologic bacterial toxins were neutralized. He emphasized the proteolytic action of these bacteria and observed that when kaolin is taken by mouth for a period of from ten to thirty days in doses of from 1 to 2 ounces (30 to 60 Gm.) a change in

7 Sachs Bernard. *Keeping Your Child Normal*. New York: Paul B. Hoeber Inc. 1936.

From Rush Medical College.
All the aluminum hydroxide and kaolin used in this study was prepared by the Loseff Laboratory, Chicago.

1 Walker R. R. *Lancet* 2: 273 (Aug. 6) 1921.

2 Braafladt L. H. *J. Infect. Dis.* 23: 434 (Nov.) 1923.

6 Pavlov I. P. *Lectures on Conditioned Reflexes*. New York: the Liveright Publishing Corporation. 1936.

flora to an aciduric type may be accomplished. B welchii was practically eliminated from the stools in these experiments. It is interesting to note that Dragstedt found kaolin as useful as a high lactose diet in preventing thyroparathyroidectomized dogs from going into tetany.

Kaolin is a common constituent of many soothing powders, chiefly by virtue of its inert, highly adsorptive property. Hektoen and Rappaport³ found it useful in cases of diphtheria, applying the dry powder to the nose and throat at intervals of two hours. They explained its action as a physical one in that practically all pathogenic bacteria were removed in from three to four days. In severe pharyngitis they obtained excellent results by having their patients swallow one-third teaspoonful four or five times per hour during the day.

Aluminum hydroxide is somewhat similar to kaolin but has greater colloidal activity. It settles out of suspension less readily and forms a light viscid gel. Under certain conditions it is capable of acting as either a weak acid or a weak base, this property alone has made it popular in the treatment of peptic ulcer. It also has a moderate astringent action and causes a mild dryness and puckering of the mucous membranes of the mouth when taken orally. Because of the increased colloidal and astringent action, its value as an addition to kaolin readily becomes apparent.

Neuman⁴ in 1914 was one of the first to report the use of aluminum hydroxide in bringing about a more rapid line of demarcation and healing in gangrene. He accredited this to its protective power and ability to neutralize acids as well as other toxic products. Zuverkalov and Salomkin⁵ found that hog cholera virus might be adsorbed by aluminum hydroxide from blood and urine at a p_H of five. By iso-electric precipitation of the protein, the virus could be precipitated but the supernatant fluid also contained the virus. They found the adsorption to be reversible in that the virus could be eluted with phosphate and aminoacetic acid (glycine). Complete adsorption could not be obtained when up to 2 per cent aluminum hydroxide was used.

Clifton⁶ reports that staphylococcus bacteriophage can readily be adsorbed by aluminum hydroxide. This too could be eluted by using a secondary ammonium phosphate solution.

Differences in the adsorption of diphtheria toxins by aluminum hydroxide are recognized. Schmidt⁷ used purified diphtheria vaccines of the same titer and noted that they were adsorbed in varying degrees by the same amount of aluminum hydroxide. Roughly, the adsorbability of the vaccine was related to the nitrogen content of the salt-free preparation, but different adsorbability was found in samples of similar nitrogen content.

Knowing that there was little doubt about the ability of aluminum hydroxide to adsorb toxins, we were interested in studying its neutralizing effect. When 110 minimum lethal doses of a stock diphtheria toxin was mixed with 5 cc. of a 3 per cent aluminum hydroxide suspension and shaken thoroughly and then injected into a guinea-pig, the animal was sick on the fourth day and recovered. Any larger amount of this toxin resulted in death of the animal within twenty-four hours. While this apparent protective action may have been due to

the slowing of absorption of toxin, it may also have resulted in part from segregation of the toxin by adsorption.

The varying ability of this chemical to adsorb diphtheria toxin may be just as applicable to toxins from other sources and its neutralizing capacity thus also vary. When one deals with a toxin in the alimentary tract the situation is entirely different from that in an enclosed body cavity and, even though the toxin is not neutralized, anything that would adsorb or prevent its absorption by the body until it is eliminated would be beneficial.

It is important that the kaolin and aluminum hydroxide be as chemically pure as possible. Any impurity changes colloidal activity and may lead to disappointing results. Small quantities of alkali cause kaolin suspensions to settle out into a firm mass. On the other hand, alkali affects the mixture of aluminum hydroxide and kaolin in an opposite manner and gives a greater bulk with a firmer gel.⁸

The normal flora of the colon is mildly aciduric and relatively few of the proteolytic or gram-positive organisms are seen. When proteolytic organisms preponderate and the normal intestinal action is disturbed, the reestablishment of an aciduric flora is often difficult. It seemed worth while to try aluminum hydroxide and kaolin for this purpose. Braafladt stated that by feeding kaolin alone he could remove the putrefactive organisms and produce an aciduric flora. Neither we nor Swalm⁹ were able to produce this change, though the latter was able to establish an acidophilus culture with a mixture of kaolin and aluminum hydroxide. In several feeding experiments on dogs and rats we were never able to reduce the gram-positive organisms below 20 per cent in rats and 50 per cent in dogs.

Swalm used a kaolin-alumina mixture in treating many gastro-intestinal disorders and found that 86 per cent were definitely improved by addition of this medication to the general therapy. He stressed its local action in the lumen of the stomach and intestine through its mildly astringent and adsorptive properties and believes it to be most useful in hypermotile states.

TOXICITY OF ALUMINUM

Aluminum in minute quantities is found normally in the tissues of animals. There is little evidence that any harm results in the amounts in which it is likely to be consumed. Without question some of the more soluble forms, such as alum or aluminum chloride, are quite toxic and even fatal when taken in large quantities. Underhill and Peterman,¹⁰ using biscuits made with alum baking powder, found that the metal was readily absorbed and excreted in the bile and urine. When given in large doses it is chiefly stored in the liver, spleen, brain and thyroid gland. The same authors injected aluminum chloride and sulfate into rabbits and rats, producing changes similar to lead poisoning.

Seibert and Wells¹¹ fed large amounts of the various forms of aluminum to rabbits and produced varying degrees of toxic changes in all animals. They concluded

The strongest evidence, however, that the feeding of aluminum compounds in any form, including that supposed to be so insoluble and inert as aluminum hydroxide, may be harmful

3 Hektoen Ludwig and Rappaport Benjamin The Use of Kaolin to Remove Bacteria from the Throat and Nose J A M A 64 1988 (June 12) 1918

4 Neuman J Deutsche med Wchnschr 40 1223 (June 11) 1914

5 Zuverkalov D and Salomkin P Arch wiss prakt Tierheilk. 69 70 1935

6 Clifton C E Proc Soc Exper Biol & Med 28 32 (Oct) 1930

7 Schmidt S Biochem Ztschr 278 257 262 1935

8 Rae J Pharm J 125 223 (Aug) 1930

9 Swalm W A M Rec 140 26 (July 4) 68 (July 18) 1934

10 Underhill F P, and Peterman F J Am J Physiol 80 1 (Sept) 1929

11 Seibert Florence B and Wells H G The Effect of Aluminum on Mammalian Blood and Tissues Arch Path S 230 (Aug) 1929

lies in the results obtained in the feeding experiments with large single doses of aluminum compounds. Quick responses such as decreases from two to three million in the number of erythrocytes and of as much as 20 per cent in the hemoglobin were noted in 7 day or two following the injection of large doses of aluminum in the form of metallic aluminum and the granular, insoluble aluminum hydroxide.

In spite of these results we feel, as others have shown,¹² that small doses of aluminum, especially of such an insoluble form as aluminum hydroxide and kaolin, will result in no harm. Relatively large doses of both these compounds when fed to dogs by stomach tube over a period of three months produced no untoward results. Aluminum hydroxide has been used for several years in the treatment of peptic ulcer without any evidence of toxicity. In Swalm's sixty-five cases treated with a kaolin-alumina mixture, no harmful results were noted.

To determine the effects of relatively large doses of kaolin and aluminum hydroxide when taken by mouth, two dogs were fed 2 ounces of these substances by stomach tube for six days each week over a period of three months. Dog 1 was a normal appearing male and weighed 26½ pounds at the beginning of the experiment. It was given 2 ounces of kaolin suspension between 10 and 11 each morning for six mornings a week over a period of three months. The diet consisted of a single feeding of scraps given about 12 noon. At no time was there any evidence of ill health, but occasionally a rather firm chalky stool was passed. After twelve weeks the animal had gained one-half pound and was in excellent condition. At this time the dog was killed and a thorough postmortem examination showed no changes worthy of note.

Dog 2 was a normal appearing adult male and weighed 25 pounds at the beginning of the experiment. It was given 2 ounces of a 3 per cent aluminum hydroxide suspension and managed in the same manner as dog 1. This dog also remained normal in behavior and appearance during the three months. It lost one-half pound but at all times passed normal stools. At autopsy no change in any tissues or organs was found except two small roundworms in the first part of the ileum.

Histologic examination of the liver, kidney, spleen, brain, heart, lungs, adrenals, stomach, small and large intestines and mesenteric lymph nodes of both these animals showed no changes worthy of note. These were stray dogs and had been in the laboratory only a few days before the experiments were begun. Such animals usually gain a few pounds when confined and put on a diet of scraps. The fact that they practically maintained their original weight is significant. Since no pathologic changes could be found, it seems quite probable that the administration of aluminum hydroxide and kaolin reduced the effectiveness of the digestive juices.

METHOD OF ADMINISTRATION

It has been customary to give kaolin or a mixture of kaolin and aluminum orally. Except for lesions in the upper gastro-intestinal tract, this method has certain limitations. Walker and Braafldt found that a combination of both oral and rectal administration was most effective. When the patient was sufficiently recovered, they gave kaolin only by mouth. Walker realized the possibility that kaolin might also take up the digestive juices and found that rennin would be adsorbed when it was filtered through a kaolin bed. Swalm also

considers this factor and advises that such a mixture should not be given by mouth over too long a period of time.

In ulcerative colitis there is a raw ulcerating mucous membrane, and thus to obtain the maximum benefit from kaolin and aluminum hydroxide we give it only by rectal retention. First, the colon is cleansed with a pint of warm water. In one hour this is followed by a retention enema consisting of a 3 to 5 ounce (60 to 150 Gm) mixture of kaolin and aluminum hydroxide in from 3 to 5 ounces (90 to 150 cc) of warm distilled water. The patient is instructed to retain this as long as there is no discomfort. Usually one retention a day is sufficient, but occasionally two are given. In this manner, larger doses of the mixture can be brought into direct contact with the inflamed mucous membrane without previous admixture with food and digestive juices.

REPORT OF CASES

CASE 1—A white woman aged 35, entered the hospital Aug 16 1934, complaining of intermittent diarrhea and blood in the stools for six years. There were from four to twenty stools in each twenty-four hour period. There was no abdominal pain but considerable tenesmus. The patient had lost 65 pounds (29.5 Kg). The past history was essentially negative except for the usual childhood diseases. The tonsils were removed at the age of 18 years.

The patient was anemic and emaciated. The abdominal muscles were relaxed, the descending colon was palpable, firm and sensitive. A soft systolic murmur was heard near the apex, otherwise there were no physical observations of note.

The laboratory examination revealed hemoglobin 57 per cent, red blood cells 3,600,000, white blood cells 9,700. The urine was normal. The stools were liquid and contained gross blood, clumps of leukocytes and considerable mucus. No parasites were found in either freshly examined or cultured specimens. A good growth of gram-positive diplococci was obtained in the blood agar culture.

An Ewald test meal showed 50 points of free hydrochloric acid and 75 points of total acidity.

The proctoscope was inserted without difficulty. The mucous membrane was edematous, dark red and covered with a dirty gray tenacious exudate which, when removed, uncovered a raw, bleeding surface. No distinct ulcers were seen.

A therapeutic test with carbarsone was given without benefit. Acriflavine 1 3,000 irrigations were used each day for some weeks without improvement. A 15 per cent bismuth subgallate suspension in mucilage of acacia as a retention enema was given for three weeks without change. An autogenous vaccine made from the stools was given for six weeks without benefit.

The patient was then given aluminum hydroxide and kaolin retentions once a day. Within two weeks a definite improvement was noted. The retentions were continued for six months, at which time she had gained 40 pounds (18 Kg). The retentions were discontinued and the patient is continuing to pass on an average two normal soft formed stools each day. Proctoscopic and fluoroscopic examinations reveal a normal appearing membrane and the presence of the normal haustral markings.

CASE 2—A white man, aged 21, entered the hospital June 3, 1935, because of a severe diarrhea during the previous four years. In that time as many as ten and no less than four liquid stools were passed daily. Approximately two years before entrance his physician prescribed a bland diet, opium and bed rest. Fresh stools were repeatedly examined and cultured but no amebae, ova or parasites were found. Vaccines made from cultures of the nasopharynx and stools were given every five days for four months. The predominant organism in the stool was a very highly hemolytic colon bacillus with this were two types of *Streptococcus viridans* one which formed short chains similar to diplococci, and a few hemolytic streptococci. Acetarsone was given without benefit.

During the last year previous to entrance the patient's weight had increased to normal. He was however, able only to be about in a wheel chair. Such effort as walking one block was followed by increased diarrhea.

¹² Einsel, I. H., Adams, W. L., and Myers, V. C. *Am J Digest Dis & Nutrition* 1: 513-516 (Sept.) 1934.

General physical examination was essentially normal. The laboratory examination revealed hemoglobin 78 per cent, red blood cells 4,100,000, white blood cells 11,200. The urine was normal. The stools gave a strongly positive occult blood reaction and contained numerous leukocytes and considerable mucus. The fresh specimens were again examined and cultures were taken but no parasites were found.

On proctoscopic examination the mucosa was friable, bled easily and had a beefy red appearance without frank ulceration. Many edematous areas from 3 to 5 mm in diameter and a moderate amount of stringy, blood-tinged mucus were seen.

A barium sulfate enema showed a moderately decreased lumen and an absence of haustral markings.

Aluminum hydroxide and kaolin retentions were taken once daily for one year. In that time the patient had resumed his previous activities, such as horseback riding and hiking, without disturbed bowel function. The rectal mucosa now appears normal and haustral markings are again present.

CASE 3—A white man, aged 28, who entered the hospital July 15, 1935, had always experienced good health until five years before, when he began having generalized abdominal cramping and diarrhea, passing from twelve to fifteen watery stools each twenty-four hours. Visible blood was present in most specimens. After various methods of treatment, including hydrotherapy, vaccine injections and colonic irrigations, the patient stated that there was some improvement in that the stools were reduced to from six to eight daily.

The patient had had the usual childhood diseases and pneumonia in early youth. The tonsils and adenoids had been removed. A rectal ulcer was treated surgically four years previous to his entering the hospital.

On physical examination the patient appeared anemic and somewhat emaciated. There was tenderness over the descending colon area. Otherwise there were no observations of note.

The laboratory examination revealed hemoglobin 50 per cent, red blood cells 3,900,000, white blood cells 11,000. The urine was normal. The stools were liquid and contained gross blood, microscopic examination revealed many large masses of leukocytes. No parasites were found in either fresh or cultured specimens. On culture on endo and blood agar plates a good growth of *B. coli*, *Streptococcus viridans* and a nonhemolytic *streptococcus* was found.

An Ewald test meal showed free hydrochloric acid 70 points, total acidity 85 points.

The proctoscope was inserted with difficulty owing to a markedly contracted rectum. The mucous membrane was edematous, was covered with a purulent exudate and bled readily wherever touched.

A barium sulfate enema revealed a marked constriction throughout the colon except in the cecal and ascending regions.

The usual diet was prescribed. A therapeutic test with carbarsone and emetine produced no change. A 15 per cent bismuth subgallate suspension in mucilage of acacia was used as a retention without success. Acriflavine 1 3,000 irrigations failed to improve the condition. Aluminum hydroxide and kaolin orally produced no change, but when given by retentions in the usual manner caused a marked improvement after three weeks. In eight weeks the patient gained 30 pounds (13.6 Kg.) and the only stool passed each day was the one expelled with the cleansing enema which preceded the aluminum hydroxide and kaolin retention. The proctoscopic examination revealed a mucous membrane slightly more injected than normal. The fluoroscopic examination showed the lumen of the colon to be of normal width.

CASE 4—A white man, aged 66, had been in poor health for some time before entering the hospital, Oct. 9, 1935, with complete urinary obstruction. An emergency cystotomy was performed. At that time the blood chemistry showed total nonprotein nitrogen 97.6, urea nitrogen 66.6, creatinine 3.9. He was given a transfusion of 460 cc. of whole blood, and twenty days later a suprapubic prostatectomy was performed. At that time the blood chemistry showed total nonprotein nitrogen 53.3, urea nitrogen 22.8, creatinine 1.7. The hemoglobin had increased from 60 per cent to 70 per cent, the red blood cells from 3,110,000 to 3,950,000, and his condition in general was greatly improved.

Three days after the prostatectomy he began to pass frequent liquid stools containing macroscopic blood, clumps of leukocytes and mucus. Methylene blue was injected into the bladder but none was recovered in the stools. On rectal examination there

was no opening through the rectal wall. Proctoscopic examination up to the rectosigmoid junction revealed a red edematous mucous membrane covered with much mucus. The mucous membrane bled readily wherever touched, no distinct ulcerations were seen. Several fresh specimens were examined and cultured on liver serum but no amebas were found. Culture on blood agar yielded an abundant growth of *Streptococcus viridans*.

The patient was given retentions of aluminum hydroxide and kaolin once a day. After five days the medication was discontinued. The stools were formed and microscopically negative.

CASE 5—A white woman, aged 34, entered the hospital May 28, 1936, complaining of diarrhea for three months, passing from four to six liquid stools containing gross blood each day. Abdominal cramping and rectal pain accompanied these movements. The weight loss was 12 pounds (5.4 Kg.).

The patient had a similar illness six years before, at which time she was a bed patient for three months. At that time treatment consisted of a nonirritating high caloric diet, sedatives and bismuth subgallate in mucilage of acacia. She then remained in good health until the present recurrence. The tonsils had been removed at an early age. There had been no other illness of note except the usual childhood diseases.

The patient appeared ill and anemic. The temperature was 101 F. There was tenderness over the region of the colon and muscle resistance in the lower left abdomen. General physical examination otherwise gave normal results.

The laboratory examination revealed hemoglobin 63 per cent, red blood cells 3,730,000, white blood cells 12,600. The urine was normal. The stools were liquid and contained gross blood, clumps of leukocytes and much mucus. Fresh specimens were repeatedly examined and cultures were taken but no parasites were found. Culture on blood agar yielded chiefly nonhemolytic *B. coli* and occasional colonies of *Streptococcus viridans*.

Proctoscopic examination revealed a narrow lumen and highly inflamed mucous membrane covered with mucus which, when removed with a cotton swab, left a raw bleeding surface.

A barium sulfate enema was accompanied by considerable pain and spasm. The diameter of the colon was decreased and the haustral markings were absent.

The patient's usual nonirritating, high caloric diet was continued. A therapeutic test for two weeks with emetine and vioform failed to improve the condition. Aluminum hydroxide and kaolin retentions were given in the usual manner. After eight weeks the temperature has remained normal. Gross blood is no longer present in the specimens. An average of two stools are passed each twenty-four hours. A gain in weight has resulted and a marked general improvement is seen in the patient.

CASE 6—A white woman, aged 29, entered the hospital Jan. 22, 1936, complaining of diarrhea for one year, passing from four to six liquid stools containing gross blood each day. She had considerable abdominal distress.

The past history was negative except for the usual childhood diseases and tonsillectomy during her youth.

Physical examination was essentially normal except that the patient appeared anemic.

The laboratory examination revealed hemoglobin 71 per cent, red blood cells 4,000,000, white blood cells 9,450. The urine was normal. The stools were liquid, they contained gross blood and leukocytes in clumps. Examination of fresh and cultured specimens revealed no parasites. On endo and blood agar plates an abundant growth of nonhemolytic *B. coli* was obtained.

An Ewald test meal showed 25 points of free hydrochloric acid and 55 points of total acidity.

The rectal mucous membrane was edematous and many shallow ulcers from 1 to 3 mm. in diameter were seen. When the tenacious gray exudate was removed, a raw bleeding surface remained.

A barium sulfate enema showed a decrease both in the diameter of the descending colon and in the haustral markings.

A therapeutic test with carbarsone produced no change. Aluminum hydroxide and kaolin were given. After eight weeks the temperature was normal and a slight tendency to constipation existed. One month later she had gained 12 pounds (5.4 Kg.) and was passing one normal stool daily. Retentions were discontinued. Two months later there was a recurrence of diarrhea. At that time the rectal mucosa was found to be considerably injected but no ulcers were seen. Retentions were

resumed for six weeks. At present the patient passes one or two formed stools without gross blood each day. The appetite is excellent, a gain in weight is resulting and the condition in general is greatly improved.

COMMENT

In a review of these cases it is noted that the therapy employed is not unlike the various methods generally found useful in treating ulcerative colitis.

The diet must be of high caloric, nonirritating type and contain all vitamins necessary for normal health. Opium in some form is frequently used in the early stages if pain and excessive diarrhea are present. A consistent program carried out intelligently is essential if such cases are to be cured.

CONCLUSIONS

Investigation by others and our clinical study support the belief that the treatment of ulcerative colitis by aluminum hydroxide and kaolin mixture is rational.

The adsorption of bacteria and their products reduces irritation and decreases the absorption of toxins.

The astringent action lessens absorption and the transudate from the inflamed surfaces is diminished.

It is not toxic.

There is no admixture with food and digestive juices.

A neutral reaction in the lumen of the bowel is preserved.

No bolus or impaction formation occurs with moderate care.

310 South Michigan Avenue—11107 South Longwood Drive

ANTEPARTUM CARE

ITS ADVANTAGES AND ITS SHORTCOMINGS

ABRAHAM B. TAMIS, M.D.

AND

JACOB CLAHR, M.D.

Assistant Attending Obstetricians, Morrisania City Hospital

NEW YORK

The continued high rate of preventable maternal and fetal deaths has challenged the medical profession both here and abroad. It is to the credit of organized medicine that the facts are being squarely faced. Every phase of maternal care from the time of conception to the puerperal state has been subjected to investigation. Contraceptive technic, abortion, antepartum care, management of the delivery, the postpartum period, the nursery, all are being carefully analyzed by the best trained specialists in this field. No doubt, definite benefits will be derived from these studies.

We have been particularly interested in the antepartum clinic since the inception of Morrisania City Hospital in 1929 and systematically collected and studied the clinic data in 1934. A brief description of the clinic is essential for a proper interpretation of our data. The outpatient department of Morrisania City Hospital (a municipal hospital) accepts only indigent patients irrespective of race, color or creed. The inpatient service accepts all emergency cases brought in by the public ambulance, and cases transferred from other municipal institutions. The antepartum clinic is under the immediate supervision of the obstetric attending staff assisted by clinic physicians. The intern staff takes little part in the management of the clinic, thus leaving the entire responsibility of the conduct of the

clinic to doctors well versed in the physiologic and pathologic aspects of pregnancy. This plan has proved to be of distinct advantage to the patient.

The history, physical examination, blood pressure and pelvic measurements are all taken by a physician. A laboratory technician is available for the immediate examination of the urine. A blood Wassermann and a Kahn test are done in each case. Every patient is seen by the dentist and necessary dental care arranged for. Consultations with other specialty clinics are encouraged. Roentgenograms of the abdomen and of the pelvis are taken for suspected malpositions, multiplicity, pelvic contractions or cephalopelvic disproportion.

Following the initial examination the patient is given a pamphlet entitled "The Parents' Book," distributed by the New York State Department of Health. It describes in a clear and concise manner matters of particular interest to expectant mothers and emphasizes the danger signals of pregnancy.

Patients requiring closer observation because of some abnormality are instructed to attend the clinic rather frequently. The normal antepartum patients report once monthly before the seventh month of gestation, every two to three weeks in the seventh and eighth months, and each week in the ninth month.

Between Feb. 1, 1934, and Jan. 31, 1935, 1,009 patients registered in the antepartum clinic of the Morrisania City Hospital. A record was kept of the time of registration, number and frequency of clinic visits, and of any and all abnormalities. Following the delivery, the charts of both mother and baby were reviewed. Notations were made concerning the type and duration of labor, condition of the baby, and the clinical course of the mother during the immediate puerperium. The facts thus obtained comprise the material for this report.

It is interesting to note that, despite the gratuitous nature of this service, not one patient applied for antepartum care before the sixth month of gestation. The majority, 781 (67 per cent), registered in the sixth and seventh months, 264 (26 per cent) applied in the eighth month, and ninety-four (7 per cent) in the ninth month.

If the recommendation of the Children's Bureau of the Department of Labor that the first visit to the clinic or physician be made at or before the fifth calendar month of gestation is accepted, technically speaking none of our antepartum cases received adequate antepartum care. While we appreciate the usefulness of this definition from a statistical standpoint, it has been our experience that where registration was delayed to the fifth month of gestation no additional hazards to mother and baby resulted when the patient registered in the sixth and seventh months of pregnancy, except in the presence of a syphilitic infection.

In order to evaluate our antepartum service, therefore, we qualified those patients who registered in the sixth and seventh months of pregnancy and revisited the clinic when requested as having received adequate antepartum care. With this as a yardstick, only 499 of the 1,009 registered women actually obtained adequate antepartum care.

Very few patients, indeed, had any idea of the significance of the antepartum examination. It is surprising how many of the late registrants were aware of having had toxemia in previous pregnancies. Most of our patients were under the impression that registration in the antepartum clinic was a prerequisite for later hospitalization. In applying for antepartum care, their

main object was to comply with this imaginary regulation. Usually this was done as close to term as possible.

A considerable amount of effort and money has been and is still being expended to educate the public to seek professional advice during the earliest months of gestation. Does antepartum care warrant the expenditure of so much effort? Is antepartum care being over-emphasized? We shall endeavor to answer these questions by considering what defects were found in the course of our examination and the influence these abnormalities had on the health of mother and baby.

In our study 247 abnormalities were detected in 1 009 antepartum cases, approximately one defect to every four patients. These are enumerated in table 1. Toxemia of pregnancy, breech presentations and contracted pelvis were the most common observations. Next in frequency were cardiac disease and syphilis. Among the "other defects" listed in the table are anemias, multiple pregnancy, monstrosities, pyelitis and extra-uterine masses.

post partum she suddenly experienced a convulsion. The other patient had a rise in blood pressure in the seventh month of pregnancy to 150/100 and a 3 plus albuminuria. She was immediately hospitalized but within a few hours went into a convulsion. The blood pressure rose to 200/110, the urine contained 4 plus albumin and granular casts, and the patient became edematous. Labor set in spontaneously with some external bleeding due to a partial separation of the placenta, and the woman was delivered of a stillbirth.

The evidence indicates, then, that good antepartum care will not prevent eclampsia in every instance. In Adair's report,¹ adequate antepartum care was received by 12 per cent of the women whose deaths could be traced directly to toxemia of pregnancy. These deaths are doubtless due to the severe underlying pathologic condition found in such fulminating cases.

On the other hand, no one can question the value of early recognition of toxemia and immediate hospitalization so that proper measures for combating the toxemia

TABLE 1—Antepartum Defects, Mode of Delivery, Maternal and Fetal Mortality

Type of Defect	Number of Cases	Full Term	Antepartum Care		Normal Spontaneous Delivery	Mode of Delivery				Maternal Mortality	Fetal Mortality	
			Adequate	Inadequate		Forceps	Breech Extraction	Version	Cesarean Section		Stillbirth	Neonatal
Toxemia of pregnancy												
Low reserve kidney	30	30	17	13	27	3				0	0	1
Nephritis	5	4	3	2	4	1				0	1 (premature)	0
Preeclampsia	10	9	3	7	8	2				0	0	0
Eclampsia	3	2	2	1	3					0	1 (premature)	0
Essential hypertension	4	3	2	2	4					0	0	0
Breech												
Spontaneous version	17	10	12	5	17					0	0	0
External version	31	31	23	8	31					0	1	1 (congenital defect)
Unconverted	20	19	11	9	15		5			0	3 (premature)	0
Contracted pelvis (T. C. = 10 cm. or less)	52	50	34	18	41	5		1	5	1 (peritonitis)	2 (forceps version 1)	1 (forceps)
Cardiac patients												
Class 1	7	6	4	3	4	2	1			0	1 (breech)	0
Class 2A	12	12	6	6	10	2				0	1 (mooster)	1
Class 2B	3	2	2	1	2	1				0	0	0
Syphilis	14	12	8	6	14					0	0	0
Diabetes mellitus	2	2	0	2	2					0	0	0
Other defects	37											
Total number	247											

TOXEMIA OF PREGNANCY

A total of fifty-two cases of late toxemia were seen in the clinic during the year investigated. Approximately one in every twenty registered patients showed some form of toxemia.

The most common type was the low reserve kidney. These patients were originally admitted with normal urines and blood pressures but, in the terminal month of gestation, developed a mild hypertension and slight albuminuria with or without edema. Labor was induced in four patients. The lack of antepartum care in this group apparently exerted no influence on the outcome for mother and baby, there being no maternal deaths and one neonatal death, which followed a forceps delivery.

Of the thirteen patients with eclampsism, only five had adequate antepartum care. Three patients developed convulsions. Of these, two had attended the clinic quite regularly. Both were white primiparas with normal blood pressures and normal urines on admission to the clinic. The first progressed normally up to the ninth month of gestation and then suddenly developed a hypertension of 180/130. Labor was induced successfully with castor oil and quinine and the patient was delivered spontaneously of a live baby. Nine hours

may be instituted. These measures in most cases will prevent further extension of the disease. Persistent headache, blurring of vision, severe epigastric distress, presence of edema, and inordinate gain in weight should immediately warn the obstetrician of impending danger. Stander's rule that all antepartum patients with a systolic pressure of 150 mm. or more of mercury be hospitalized is a very good rule. Even more significant, in our opinion, is a rise in the diastolic pressure to 100 mm. of mercury.

The need for an active social service staff is best exemplified in the care of toxemia patients. If the patient does not enter the hospital when requested, the next day the social service makes a home visit. In one case we enrolled the service of the police to see that the patient reached the hospital. This vigilance no doubt enabled more of our preeclamptic patients to receive early treatment, thus preventing in many instances the occurrence of convulsions.

BREECH PRESENTATIONS

While the blood pressure and urinalysis are regularly observed on each antepartum visit, the abdominal examination is too often neglected. The initial abdominal

1 Adair, F. L. Maternal, Fetal and Neonatal Morbidity and Mortality. *Am. J. Obst. & Gynec.* 29: 384 (March) 1935.

examination does not disclose all the information obtainable by this procedure, especially if performed prior to the seventh month. We reexamine all cases in the eighth month and again in the ninth month. By so doing, very few abnormalities of presentation, multiplicity, hydramnios, monstrosity, uterine fibroid, extra-uterine masses and cephalopelvic disproportion escape observation.

A problem of particular interest to us pertained to breech presentation. The diagnosis could be readily established by palpation and by x-ray examination. The malpresentation could be corrected in many instances provided it was detected before the presenting part became engaged or the fetus grew too large to make the turn. Statistics indicate that the vertex mechanism of delivery is fraught with far less danger to the infant than the breech mechanism. Our figures show a fetal mortality of 15 per cent in breech deliveries (twins and prematures excluded) as compared to a 2.6 per cent mortality in vertex presentation. Because of the more favorable outlook for the baby, we believe that attempts should be made in the antepartum period to convert every breech to a vertex presentation by means of external version.

Spontaneous version often occurs before the eighth month of gestation and sometimes even later. Therefore we reserve this manipulation to the eighth and ninth months of pregnancy. The maneuver of version is amply described in all the standard textbooks on obstetrics, and repetition here is superfluous. Version was successfully performed in thirty-one instances. On several occasions a recurrence of the malpresentation took place. However, we found that once an external version was performed it was always possible to repeat the procedure provided the recurrence was detected within a short period. Our patients returned each week until we were convinced that the vertex remained fixed at the lower pole. As shown in the table, all these patients were delivered spontaneously of living children except in one instance. In this case the fetal heart was not heard before birth. The cause of this fetal death was not determined.

Of the twenty babies that were delivered as breech presentations, fifteen were overlooked in the clinic and five could not be converted. This failure to convert was due to a tonic uterus, thick abdominal wall, oversized fetus, oligohydramnios, engagement of the breech, or lack of cooperation on the part of the patient. There were two fetal deaths in this group (prematures excluded).

CONTRACTED PELVIS

The classic monograph on the female pelvis by Caldwell and Moloy² was published shortly before the beginning of this study on antepartum care. From the very outset, therefore, we attempted to establish certain measurements by means of which the anatomic type of pelvis could be gaged without recourse to the x-rays. This proved to be no simple task, particularly because, as Caldwell, Moloy and Desopo showed in a later paper,³ many patients failed to exhibit a "pure" type of pelvis. Instead of a clear cut gynecoid, android or anthropoid pelvis, one was more apt to find various admixtures of the pelvic architecture, thus making it well-nigh impossible to make a correct anatomic diagnosis clinically.

Nevertheless certain very pertinent facts about the pelvis can be determined by palpation and mensuration. We agree with Schumann⁴ that all the external dimensions bear little or no relationship to the actual size of the pelvic inlet. We feel that the interspinous, intercrural, bitrochanteric and external conjugate measurements should be omitted from pelvic mensuration. More attention should be focused on ascertaining the height and inclination of the symphysis pubis, the subpubic angle, depth of the pelvis, the bischial dimension of the outlet, the diagonal conjugate, the contour of the sacrum and terminal coccyx, and the length of the sacrospinous ligament. The sum total of these observations will yield a fairly comprehensive idea of the pelvic capacity and its configuration.

The most significant measurement of the pelvis is the true conjugate. While the normal true conjugate (11 cm or more) does not predetermine an uncomplicated delivery, a narrow true conjugate (10 cm or less) promptly raises the question of permitting an unengaged or partially engaged vertex to withstand the stresses of vaginal delivery.

The usual method of estimating the true conjugate from the diagonal conjugate was often found to be erroneous because too little consideration was given to the inclination of the symphysis pubis. This was recently emphasized by Garnett and Jacobs.⁵ To obviate such errors we referred for x-ray examination all patients in whom the diagonal conjugate was under 12 cm, using the technic described by Weitzner.⁶ This method is easily performed, requires no expensive apparatus, and is accurate to within 0.2 cm.

For practical purposes we considered a pelvis as contracted when the true conjugate was found to be 10 cm or less. Fifty-two such contractions were found.

In this series one mother died of peritonitis following a repeat cesarean section and repair of an incisional hernia. The infective agent, *Staphylococcus aureus*, probably originated from the hernial repair. Three babies died as the result of instrumental trauma.

The outlook for mother and baby in the presence of a small pelvis depends on good obstetric judgment and technic. No matter what the antepartum care, the ultimate maternal and fetal mortality is determined by the conditions existing at labor.

CARDIAC DISEASE

Aside from all the dangers that may beset the normal woman in gestation and labor, the extra burden placed on the damaged heart makes the outlook for the cardiac patient always a doubtful one. This is particularly true when there have been previous episodes of decompensation or in the presence of auricular fibrillation, aortic stenosis with regurgitation, or class 2b or 3 mitral stenosis. Even with apparently good functional capacity in the earlier months of gestation, cardiac patients have been known to develop suddenly severe signs of heart failure. This happened in two of our cases, one of the patients dying at home a few weeks post partum.

Two per cent of our antepartum patients had organic heart disease. All were referred to the cardiac clinic for classification and from then on remained under the constant supervision of both clinics. More than half of these patients had adequate antepartum care. The

² Caldwell W E and Moloy H C. Anatomical Variations in the Female Pelvis and Their Effect in Labor with a Suggested Classification. *Am J Obst & Gynec* 26: 479 (Oct.) 1933.

³ Caldwell W E, Moloy H C and Desopo D A. Further Studies on the Pelvic Architecture. *Am J Obst & Gynec* 28: 482 (Oct.) 1934.

⁴ Schumann E A. The Size and Shape of the Pelvic Inlet as Determined by Direct Measurement. *Am J Obst & Gynec* 32: 932 (Nov.) 1936.

⁵ Garnett A Y P and Jacobs J B. Pelvic Inclination. *Am J Obst & Gynec* 31: 388 (March) 1936.

⁶ Weitzner S F. A Simple Roentgenographic Method for Accurately Determining the True Conjugate Diameter of the Pelvis. *Am J Obst & Gynec* 30: 126 (July) 1935.

social service played an important part among our cardiac patients by easing their household duties and by encouraging regular attendance at the clinic. Several patients were hospitalized on the slightest signs of congestive heart failure. One very strict rule observed in the clinic is that all class 2a cardiac patients must be hospitalized for one month prior to the expected date of delivery. The class 2b and 3 cardiac patients are immediately hospitalized. For the type of patient we treat, this additional rest has undoubtedly contributed to bringing our cardiac patients to labor in a more favorable state of body and mind.

Although we had no immediate mortality, Lamb⁷ has shown that in a large series of cases the mortality of cardiac patients having antepartum care was 2.2 per cent, whereas in those who did not have such care the mortality rose to 20 per cent. This is understandable

born of syphilitic mothers present evidences of infection in the first year.

Antepartum treatment of syphilitic mothers undoubtedly reduces the percentage of fetal deaths, premature labors and syphilitic infants in a striking manner. The good results are roughly proportional to the amount of treatment given and the time at which it is started, even a few treatments in the last weeks of pregnancy will materially alter the outcome.⁹

DIABETES MELLITUS

Among the remaining defects found in the antepartum clinic, diabetes mellitus deserves particular attention. Our results in two mild cases of this disease do not reflect the important influence proper medical supervision plays on the final outcome. In the experience of Ronsheim,¹⁰ 50 per cent of pregnancies

TABLE 2—Adequate and Inadequate Antepartum Care

	All Cases	Group A Clinic	Group B Nonclinic	Group C Adequate Antepartum Care	Group D Inadequate Antepartum Care
Total deliveries	1 944	1 009	932	499	1 445
Normal spontaneous delivery	1 804 (92%)	917	887	442 (88%)	1 369 (94%)
Operative delivery	140 (7%)	92	48	57 (12%)	85 (6%)
Breech extraction	7	6	1	2	5
Version	4	2	2	0	4
Cesarean section	8	5	3	3	5
Low forceps	93	65	28	41 (72%)	52 (60%)
Midforceps	27	13	14	8	19
High forceps	1	1	0	1	0
Primiparas	607 (31%)	354	253	204 (41%)	403 (28%)
Multiparas	1 337 (69%)	655	682	295 (59%)	1 042 (73%)
Full term	1,813 (93%)	954	859	479 (96%)	1 334 (93%)
Premature	131 (6%)	55	76	20 (4%)	111 (7%)
White	1 318 (68%)	895	420	454 (90%)	864 (60%)
Black	626 (32%)	111	515	45 (10%)	581 (40%)
Twins	17	12	5	7	10
Triplets	1	0	1	0	1
Total births	1 963	1 021	942	505	1 458
Discharged living	1 852 (94%)	973	879	475 (94%)	1 377 (94%)
Full term	1 779	937	842	464	1 315
Premature	73	36	37	11	62
Maternal deaths	5*	4	1	4	7
Stillbirths	51 (2.5%)	21	30	14 (2.8%)	37 (2.5%)
Full term	24	10	14	5	19
Premature	27	11	16	9	18
Neonatal deaths	60 (3%)	27	33	16 (3%)	44 (3%)
Full term	17	12	5	7	10
Premature	43	15	28	9	34
Puerperium febrile	149 (7.5%)	72	77	39 (7.75%)	110 (7.5%)

* 2.6 per thousand living births

It is reasonable to expect and warrants early registration of pregnant women with heart disease. So far as lowering the maternal mortality is concerned, it would be even better if these patients consulted their physician before conception. Prevention of conception in cardiac patients is more commensurate with continued good health than interruption of pregnancy.

SYPHILIS

The routine use of the blood Wassermann and Kahn tests brought to light fourteen cases of syphilis. Six patients registered too late to receive adequate antepartum care. All the patients, however, were placed on bismuth and arsenic therapy as soon as the diagnosis was established, no matter what the period of gestation. All patients carried to full term. There were no stillbirths and none of the babies exhibited stigmas of congenital syphilis. This does not preclude the future development of syphilitic lesions in these children, as Parmelee and Halpern⁸ have found that not all children

in diabetic women end in abortion, miscarriage or premature labor. In thirty-six cases in which there were 121 pregnancies he reports only seventy-four live births. When the gestation has gone to term, the babies are larger than usual, presumably because of the hyperglycemia. This increases the cephalopelvic disproportion and adds to the hazards of labor.

Before the use of insulin the maternal and fetal mortalities were quite high. With insulin therapy the maternal death rate has been appreciably reduced but fetal mortality still continues at a high level. When one considers the outlook for the average diabetic patient in pregnancy it is most fortunate that this disease conduces toward sterility and makes its initial appearance in the fifth and sixth decades of life, a period in which there is naturally a lessened fecundity.

The parturition of clinic patients receiving adequate antepartum care (group C) was compared to that of unregistered patients admitted to the delivery room in active labor together with those registered patients

7 Lamb A E Heart Disease in Pregnancy Am J M Sc 187 177 (Feb) 1934
8 Parmelee A H and Halpern L J The Diagnosis of Congenital Syphilis J A M A 105 563 (Aug 24) 1935

9 McKelvey J L and Turner T B Syphilis and Pregnancy J A M A 102 503 (Feb 17) 1934
10 Ronsheim Joshua Diabetes and Pregnancy Am J O & Gynec 25 710 (May) 1933

whose antepartum care was considered inadequate (group D). Groups C and D comprise all the patients delivered at Morrisania City Hospital during the year under study. These results are summarized in table 2.

On superficial examination it would seem that those with inadequate or no antepartum care fared better. There were more normal spontaneous deliveries, less maternal mortality, the same fetal mortality, and the

TABLE 3—Analysis of Maternal Deaths

Clinic	Adequate Antepartum Care	Color	Age	Parity	Comment
Yes	Yes	White	28	P1 G4	Epileptic overdue induction labor by rupture of membranes intrapartum infection low forceps retained placenta removed manually pelvic thrombophlebitis peritoneal abscess death
Yes	Yes	White	38	P2 G3	Contracted pelvis prevlous cesarean sections Inel sional hernia classic cesarean section and herni otomy Staphylococcus aureus peritonitis
Yes	Yes	White	20	P0 G1	Prophylactic low forceps puerperal septicemia death
Yes	Yes	White	22	P1 G2	Ruptured appendix un diagnosed premature labor spreading peritonitis death
No	No	White	38	P4 G5	Lobar pneumonia full term normal spontaneous delivery extension of pneumonia death

same morbidity. A more careful analysis will show that the lower operative incidence of 6 per cent in group D was due to the greater number of multiparas that the maternal deaths were in no way related to antepartum care (table 3).

Tyler, Watkins and Walker,¹¹ studying this problem (evaluation of antepartum care), balanced the adequate and inadequate antepartum care groups with reference to age, parity, color, race and economic status and were also unable to demonstrate statistically any benefits of antepartum care. Dr Tyler's¹² explanation of this unexpected observation was that "there are many things of value along educational lines which cannot be measured statistically, and the only danger in our conclusions apparently is that other people may get the idea that prenatal care is really of little proven value."

The main beneficiary of good antepartum care is the offspring. That explains in a large way why the trend of fetal mortality has been steadily downward since 1915, whereas the maternal mortality in the United States registration area has remained stationary.

The average maternal mortality rate in the United States, after excluding deaths due to abortions and ectopic gestations, is about 6 per thousand living births. That of Morrisania City Hospital from its inception in 1929 to 1934 inclusive is 5.3 (uncorrected). The causes of death are enumerated in table 4.

In theory, at least six of the fifteen deaths due to toxemia of pregnancy and two of the three deaths resulting from cardiac disease might not have occurred if more adequate antepartum care had been given. On the other hand, examination of table 4 also shows that in spite of adequate antepartum care six patients with toxemia of pregnancy and one with cardiac disease died. Have we the right therefore to claim that every

maternal death due to toxemia or cardiac disease is preventable if the patient had received proper antepartum supervision? Apparently not.

Deaths arising from hemorrhage and puerperal infections play a still greater role in the causation of maternal mortality. These deaths depend on the conduct of the delivery, however, and not on any negligence in antepartum observation.

Antepartum care has been stressed again and again as a major factor in the reduction of maternal mortality, yet our analysis definitely indicates that, outside of toxemia, there is little to recommend such emphasis. These claims distract attention from that phase of obstetric care where the blame should be placed, namely, the delivery itself. If any perceptible improvement in maternal mortality is to be accomplished, it can best result from the practice of sane obstetrics.

The most we should expect of antepartum care, so far as the mother is concerned, is that it will bring the woman to labor in a physical condition better able to withstand any necessary strain.

One other point is worth stressing here. The aroused public interest in maternal welfare has brought about an increased activity of quasimedical organizations in this problem. Social service workers and nurses are taking blood pressures, performing urinalyses and instructing obstetric patients in antepartum matters. It was recently suggested that antepartum care could very well be handled by a nurse after the initial examination by a competent physician, without in any way affecting the maternal and fetal outcome.¹¹ The advocates of this plan reach this conclusion because they are evaluating antepartum care in terms of maternal mortality. This is an unfortunate state of affairs because, if this belief becomes generally accepted, the true value of antepartum care will be lost to the public. Only 20 per cent of the defects found in the antepartum

TABLE 4—Maternal Deaths at Morrisania City Hospital, 1929-1934 Inclusive

Cause of Death	Number of Cases	Antepartum Care		
		Ade quate	Inade quate	Unknown
Toxic pregnancy				
Eclampsia	9	2	5	2
Nephritis	2	2		
Permelous vomiting of pregnancy	2		1	1
Acute yellow atrophy	1	1		
Essential hypertension	1	1		
Puerperal infection	7	6	1	
Hemorrhage				
Placenta praevia	1		1	
Premature separation of placenta	5	1	4	
Postpartum hemorrhage	2	1	1	
Pneumonia	7	1	5	1
Ruptured uterus	2	1	1	
Cardiac disease	3	1	2	
Shock	2	1		1
Embolism	3	1	2	
Appendicitis	1			1
Suicide	1		1	
Epilepsy	1		1	
Total	50	19	21	6

clinic may be determined by the blood pressure and urine examinations. It is hardly conceivable that the other 80 per cent of antepartum defects can be ascertained by a nurse without first having had a thorough medical training. In the field of preventive medicine the cooperation of lay and semimedical organizations is desirable, but their activities should be strictly limited to education of the public and the relief of economic distress. Diagnosis and therapeutics must always remain the function of the physician.

1882 Grand Concourse—15 Clarke Place East

¹¹ Tyler, Margaret, Watkins, J. H. and Walker, H. H. Report on the Evaluation of Prenatal Care published by the Institute of Human Relations, Yale University Medical School, 1934.

¹² Personal Communication to the authors, Nov. 18, 1935.

COMPOUND SOLUTION OF TANNIC ACID

BERNARD FANTUS, MD

AND

H A DYNIEWICZ, PHC

CHICAGO

E C Davidson's¹ discovery of the life-saving qualities of the tannic acid crust therapy in the treatment of extensive burns has inaugurated a new era in the prognosis and treatment of such cases. Prior to that day, burns involving more than one third of the body surface were invariably fatal. Now, thanks to

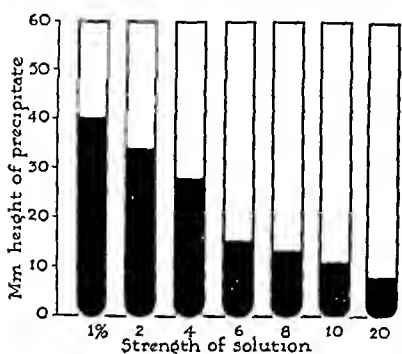


Fig 1—Precipitation of blood with varying percentages of tannic acid after thirty minutes' standing. The denser the precipitate the shorter the column.

Before being in a position to form a judgment on either of these questions, one must have a clear mental picture of the reason for the results secured by the crusting of burns.

To explain the nothing less than marvelous life-saving qualities of the tannic acid treatment of extensive burns, recourse must be had to the concept of "white bleeding," i. e., the loss of an excessive amount of serum from the circulating blood in the inflammatory edema and exudate, as suggested by Underhill² and by Blalock,³ who found that plasma may be lost after a burn to the extent of 60 per cent of that normally occurring in the body. In man, the amount of blood has been estimated as equal to 7 per cent of the body weight. Thus, a person weighing 50 Kg has 3.5 Kg or as many liters of blood in his body. A loss of more than half the quantity of blood is likely to be fatal. A loss of 2 liters is certainly fatal. If a person loses several liters of serous exudate from his body, as he may with an extensive burn, the result, as far as the production of collapse is concerned, would be very similar to that of a hemorrhage and sufficient to account for death in many cases. This loss of plasma results in marked blood concentration, even up to 9 million or above (Locke,⁴ McClure and Allen⁵ and Harkins⁶).

The alternate theory that the crust renders insoluble and unabsorbable the hypothetical "burn toxins" has

this treatment, lives are saved even when burns extend over more than one half of the body surface.

This outstanding success has led to two results, the one being an indiscriminate use of tannic acid in burns of all kinds and sizes, and the other to attempts at improvement of the original Davidson technic.

been combated by experiments of Robert Kapsinow,⁷ who showed that a burned area is incapable of absorption of even so highly toxic a substance as strychnine. More recently, however, Mason, Paxton and Shoemaker⁸ have shown that potassium iodide is absorbed as easily from burned as from normal tissues. Harkins, Wilson and Stewart⁹ have found a depressor substance in extract of burned skin. Rosenthal¹⁰ has shown that in the blood of animals that have sustained a burn there circulates a body that lowers blood pressure and produces contraction of the guinea-pig uterus, acting therefore like histamine, but which is not histamine and for which the term "histaminoid" is proposed. It is probable that, should absorption of such substance occur from the damaged tissue, it is lessened to a considerable degree by the coagulation of the burned tissue, and the unyielding crust must also lessen the absorption by mechanically diminishing the hyperemia.

Whichever theory is correct—and both may be—the importance of a tightly adherent, rather rigid crust has been demonstrated most especially by Davidson's observation that, when he applied on the second or third day moist dressings to a patient with an extensive burn who seemed to be doing well, the symptoms of collapse returned as soon as the crust had become thoroughly softened.

It is obvious, therefore, that the production of a crust, and a good firm crust, must be the aim of this treatment. Such a crust cannot be secured without sacrificing some possibly viable tissue. This objection to the use of the tannic acid treatment in burns of limited extent, so well brought out by Taylor,¹¹ is certainly of sufficient importance to condemn this treatment for burns that do not endanger life. For such, other more "physiologic" dressings are available. But, with a burn of so great an extent as to endanger life, the sacrifice of the life of some of the surface cells must be taken into the bargain to save the life of the patient.

The various suggestions for improvement of the tannic acid solution may possibly best be discussed seriatim under such headings as strength of solution, the vehicle, hydrogen ion concentration, preservation of solution and antiseptic action.

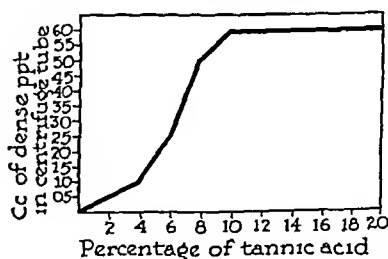


Fig 2—Amount of dense gelatin tannate precipitate produced by tannic acid solution of varying strengths.

the rapid change a tannic acid solution undergoes on standing, this solution has to be prepared extemporaneously. Of late, spraying a 5 per cent solution of tannic acid at short intervals, until a good crust is obtained, has been found more practical. It is only when the front as well as the back of the body is involved that

From the Laboratory of Pharmacology and Therapeutics of the University of Illinois College of Medicine. Assisted by a grant from the American Pharmaceutical Association.

1 Davidson E C. Tannic Acid in the Treatment of Burns. *Surg Gynec & Obst* 41: 202-221 (Aug.) 1925.

2 Underhill F P and Kapsinow Robert. The Alleged Toxin of Burned Skin. *J Lab & Clin Med* 16: 823-830 (May) 1931.

3 Blalock Alfred. Experimental Shock. VIII. The Importance of the Local Loss of Fluid in the Production of the Low Pressure After Burns. *Arch Surg* 22: 610-616 (April) 1931.

4 Locke E A. A Report of the Blood Examination in Ten Cases of Severe Burns of the Skin. *Boston M & S J* 147: 480-484 1902.

5 McClure R D and Allen C I. Davidson Tannic Acid Treatment of Burns. *Am J Surg* 28: 370-388 (May) 1933.

6 Harkins H N. Correlation of Clinical Treatment of Burns with Recent Experimental Studies. *Illinois M J* 70: 332-338 (Oct.) 1936.

7 Kapsinow Robert. Poor Absorption from Burns. *Burn Toxic Doubtful*. New Orleans M & S J 85: S97 (Feb.) 1933.

8 Mason E C, Paxton P and Shoemaker H A. A Comparison of the Rate of Absorption from Normal and Burned Tissues. *Ann Surg* 98: 850-853 (Jan.) 1936.

9 Harkins H N, Wilson W C and Stewart C P. Depressor Action of Extracts of Burned Skin. *Proc Soc Exper Biol & Med* 91: 914 (March) 1935.

10 Rosenthal S R. *Ann Surg* to be published.

11 Taylor Frederic. The Misuse of Tannic Acid. *J A M A* 106: 1144 (April 4) 1936.

the solution is employed in form of a compress applied to the back Pusitz¹² advises the use of a 10 per cent solution of tannic acid, and even a 20 per cent solution has been recommended, to obtain a more prompt crust formation (British Mine Department¹³)

A 25 per cent and even a 5 per cent solution of tannic acid has no germicidal effect and it might even be a means of infecting the surface with pathogenic bacteria. It has, on the other hand, been shown by Martin¹⁴ that 10 and 20 per cent tannic acid solutions completely destroy *B. coli*, *B. pyocyaneus*, *B. typhosus*, *Staphylococcus albus*, *Staphylococcus citreus* and *Streptococcus viridans* within twenty-four hours. Such solution also keeps somewhat better than a dilute solution, although it too will develop fungus growth in days or weeks, according to the method of keeping.

That the more concentrated solution produces a denser and therefore probably more efficient crust is shown by the following experiment

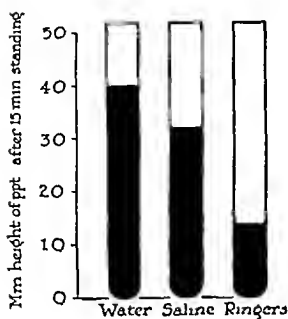


Fig 3—Precipitation of blood by 10 per cent tannic acid solution in water, in physiologic solution of sodium chloride and in Ringer's solution. Tannic acid in Ringer's solution produces the densest precipitate

EXPERIMENT 2—The same thing may also be shown by the curve of figure 2, which records the amount of dense gelatin tannate precipitate formed when 2 cc of tannic acid in various strengths (from 1 to 20 per cent) is added to 10 cc of 2 per cent solution of gelatin and the mixture is centrifugated for four hours

TABLE 1—Solutions Used in Experiment 1

Tannic Acid Solution	Height of Precipitate in Mm After Thirty Minutes Standing
1 per cent	40 mm
2 per cent	34 mm
4 per cent	23 mm
6 per cent	15 mm
8 per cent	13 mm
10 per cent	11 mm
20 per cent	8 mm

Figure 2 shows that complete dense precipitate of the gelatin does not occur until the 10 per cent solution is reached. In the lower strengths the supernatant fluid remains turbid, in spite of centrifugating, owing to the colloidal nature of the precipitate. Such flocculent precipitate would probably be worthless as far as crust formation is concerned.

It is concluded that 10 per cent of tannic acid is likely to be the most desirable strength of the solution.

THE VEHICLE

In view of the fact that the solution is intended to be applied to a raw surface, it seems logical that isotonicity might be desirable or, better, that the ions naturally existing in the tissue juices be present in the solution ("iso-tonia"). This suggests the use of physi-

ologic solution of sodium chloride or, still better, of Ringer's solution as the solvent.

EXPERIMENT 3—We added to 0.5 cc each of a 10 per cent suspension of defibrinated dog's blood in various test tubes 5 cc of the following solutions:

- 1 Ten per cent tannic acid in distilled water
- 2 Ten per cent tannic acid in physiologic solution of sodium chloride

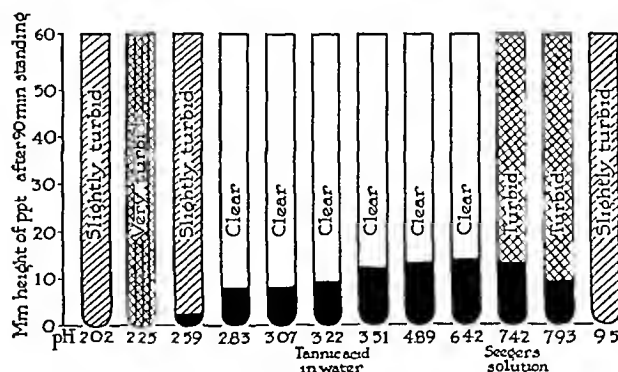


Fig 4—Precipitation of blood by 10 per cent tannic acid solution at different degrees of pH. The densest precipitate at the lowest pH concentration occurs at pH 2.22

- 3 Ten per cent tannic acid in Ringer's solution

The height of the column after fifteen minutes' standing shows that the tannic acid in physiologic solution of sodium chloride produces a denser precipitate than the tannic acid in pure water and that the precipitate in Ringer's solution is still denser (fig 3).

We therefore believe that Ringer's solution is the best solvent for the tannic acid.

HYDROGEN ION CONCENTRATION

The suggestion has been advanced by Seeger¹⁶ that the tannic acid solution should be adjusted to a pH of 7.4 by the addition of sodium carbonate so as to minimize the irritation and edema produced by the more acid solution. He quotes a leather chemist "Were these acids used to tan skins, in the tanning of leather, these would be ruined." Seeger believes that these disadvantages are overcome by neutralizing the solution to the same pH as the blood, namely 7.4, and he cites two cases in which he believes superior results have been secured by the use of the neutral solution. He also states that the membrane was more pliable than that produced by the solutions of low pH.

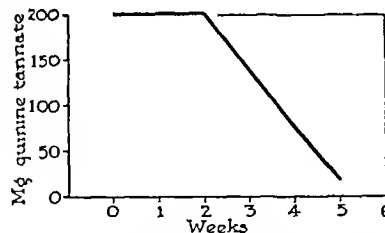


Fig 5—Keeping qualities of 10 per cent tannic acid solution as demonstrated by means of quinine tannate precipitation. After two weeks rapid deterioration occurs.

Seeger's suggestion does not seem to have found favor in practice, and it can be demonstrated in the test tube (experiment 4, fig 4) that the precipitate resulting from the neutralized solution is much more colloidal and softer than that produced by tannic acid solution in water.

EXPERIMENT 4—To 5 cc of a 10 per cent solution of tannic acid in water, adjusted to varying degrees of hydrogen ion concentration, we add 0.5 cc of a 10 per cent suspension of defibrinated dog's blood. In one test tube we prepare a mixture

¹² Pusitz M E. Treatment of Burns. J Kansas M Soc 36 148 (April) 1935

¹³ Antiseptic and Coagulant Treatment of Burns. Brit M J 2 786 (Oct 28) 1933

¹⁴ Martin J D and Fowler C D. The Germicidal Effects of Tannic Acid. Ann Surg 99 993 996 (June) 1934

¹⁵ Robert R. in Abderaldens Hand d biocem Arb Metod 1919 vol 9

¹⁶ Seeger S J. The Hydrogen Ion Concentration Value of Tannic Acid Solutions Used in the Treatment of Burns. Surg Gynec & Obst 55 455 (Oct) 1932

of the same proportions of dog's blood and tannic acid solution previously neutralized to pH 7.4 as recommended by Seeger. After agitation and permitting the precipitate to settle, it is found that the tannic acid precipitate in water (pH 3.22) is much denser and settles out of the solution very much more completely than does that from Seeger's solution. The latter forms a rather loose and bulky precipitate, some of which is so slow in settling to the bottom of the test tube that it requires many hours. It takes but fifteen to twenty minutes for the denser precipitate to settle.

It is obvious from experiment 4, results of which are shown in figure 4, that the density of the precipitate is influenced by

TABLE 2—Results of Culture Test of 10 per Cent Tannic Acid Solution in Antiseptics Dissolved in Ringer's Solution

Salicylic acid 1:500 (saturated solution)	++
Salicylic acid 1:1,000 1936	++
Salicylic acid 1:1,000 1934	++
Benzoic acid 1:500 (saturated solution)	+
Benzoic acid 1:1,000 1936	0
Benzoic acid 1:1,000 1934	0
Penzylparahydroxybenzoate (saturated solution)	+
Methylparahydroxybenzoate (saturated solution)	0
Chlorthymol (saturated solution)	0
Chrysoidin Y (saturated solution)	0

the hydrogen ion concentration of the solution. It will be seen from this graph that the densest complete precipitation occurs in the zone between pH 2.83 and 3.22. In the tubes of pH below 2.83 and above 6.42, not all of the tannic acid is precipitated, there being a turbid supernatant liquid, and, in the most acid and most alkaline tubes, there is a turbidity but no precipitation whatever.

It is concluded that, if density of precipitate is the criterion, the 10 per cent solution of tannic acid at its own pH of 3.22 will probably answer the purpose best.

PRESERVATION

While a 10 per cent solution of tannic acid has better keeping qualities than a more dilute solution, figure 5 shows, by means of quinine tannate precipitation, that after two weeks tannic acid deteriorates rapidly, so that it no longer removes quinine quantitatively from the solution.

Woodard and Cowland have shown that the hydrolysis of tannic acid into gallic acid and dextrose occurs extremely slowly in the absence of molds or of their enzymes. They also report that the addition of 1 part of cresol to 250¹⁷ or of 1 part thymol to 2,000 parts¹⁸ prevents this hydrolysis. They found acriflavine not successful in preservation. Experiments performed in our laboratory verify their result.

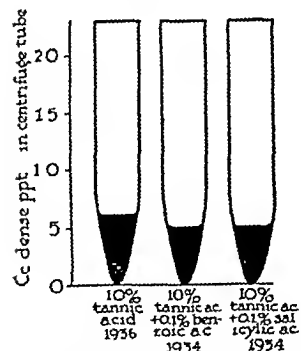


Fig. 6—Amount of gelatin tannate precipitate produced by 10 per cent tannic acid.

As the solution must be used in quantity and be applied to a very extensive raw surface, it is obvious that the least toxic efficient preservative is the best. Owing to the toxicity of mercury bichloride (1:2,000) and the volatility of cresol and thymol, which may force absorption of these bodies even under the possibly unfavorable conditions for absorption prevailing in the burn crust, we experimented chiefly with benzoic acid and salicylic acid and found that 1:1,000 benzoic acid or 1:1,000 salicylic acid preserved a 10 per cent solution of tannic acid for

a period of two and one-half years and that the solution at the end of this time is still capable of producing a satisfactory precipitate. By employing the "gelatin method" of experiment 2, it may be estimated that these solutions still contain 85 per cent of tannic acid (as shown in figure 6) after having been kept at room temperature for two and one-half years.

An objection to the use of salicylic acid might be raised on the strength of the observations of Hermann,¹⁹ who, on the basis of extensive experiments on bits of human skin obtained from cadavers, arrived at the conclusion that the addition of 0.1 per cent of salicylic acid markedly diminished the astringency of a 1 per cent solution of tannic acid because of the tendency of salicylic acid to cause swelling of tissue, which is much greater than that of water. We find that this is true of the quantity relations of the salicylic acid to tannic acid reported by Hermann. A 1 per cent tannic acid solution with 0.1 per cent of salicylic acid gives a bulkier and more flocculent and lighter precipitate than occurs when salicylic acid is absent. It is decidedly not true, however, with a 10 per cent tannic acid solution, as is shown by the results obtained with the technique of experiment 1 and presented in figure 7. The precipitate in the tubes up to 4 per cent is rather flocculent and not nearly as compact as seems desirable. Benzoic acid reacts exactly in the same manner as salicylic acid.

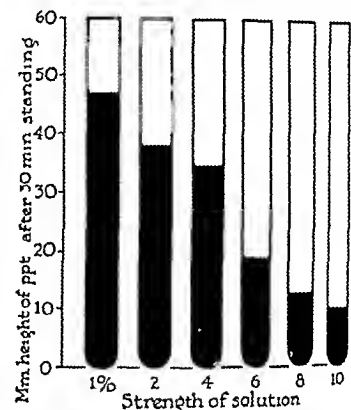


Fig. 7—Precipitation of blood by varying percentages of tannic acid solution containing 0.1 per cent salicylic acid after thirty minutes standing.

The conclusion is that benzoic acid as well as salicylic acid is successful as a preservative for the tannic acid solution.

ANTISEPTIC ACTION

In view of the general complaint that sepsis appears beneath the tannic acid crust in the course of several days, an attempt to make the crust bacteriostatic seems desirable so as to inhibit the growth of micro organisms either imprisoned beneath the crust or making their way under it by invasion from the loosening edges.

It therefore seemed worth while to see whether it would be possible to make the tannic acid crust bacteriostatic. Although mercury bichloride has been used for this purpose, it seems that, in view of the fact that the solution must be applied to very extensive raw surfaces, only nontoxic antiseptics are worth considering. We therefore selected the following agents for comparative study: salicylic acid, benzoic acid, methylparahydroxybenzoate, benzylparahydroxybenzoate, chlorthymol and chrysoidin Y. We dissolved 10 per cent tannic acid in a saturated solution of each of the six different agents, using Ringer's solution. A 10 per cent solution of tannic acid in Ringer's solution was used as a control.

Melted and cooled agar culture medium was inoculated with *Staphylococcus pyogenes-aureus* and then poured into a petri dish and permitted to solidify.

¹⁷ Woodard W. A. and Cowland A. N. cited in Tannic Acid Stable Solution. *Lancet* 2:767 (Sept. 30) 1933.

¹⁸ Woodard W. A. and Cowland A. N. The Stability of Aqueous Solutions of Gallotannic Acid. *Chemist & Druggist* July 29 1933 p. 142.

¹⁹ Hermann F. Ueber die Wirkung feuchter Umschlag. *Dtsch. Ztschr.* 50:277 (June) 1927.

Then 1 drop of the solution to be tested was dropped in the center of the culture plate and this was incubated for twenty-four hours. The results are reported as 0 when there was no halo of inhibition of growth and + or ++ according to the width of the area of inhibition of growth.

Bettman²⁰ has suggested applying immediately after the use of a 5 per cent solution of tannic acid a 10 per cent silver nitrate solution by means of cotton swabs. From twelve to twenty-four hours after the first treatment, any blebs that may have formed are treated as for the first application.

Having found salicylic acid 1:1,000 to be apparently quite as efficient as the 1:500 solution and that the latter tends to precipitate on standing, we next modified the experiment by superimposing a drop of 10 per cent silver nitrate on a drop of the salicylated tannic acid solution and we can show that the silver nitrate practically doubles the halo of inhibition produced by salicylic acid. This makes it appear that Bettman's suggestion is well taken and may be recommended as an improvement of the tannic acid treatment.

On the basis of these experiments we therefore recommend the formula given in table 3.

TABLE 3—Compound Solution of Tannic Acid

Potassium chloride	0.42 Gm
Calcium chloride	0.84 Gm
Salicylic acid	1.00 Gm
Sodium chloride	10.50 Gm
Tannic acid	100.00 Gm
Distilled water	to make 1,000 cc

Mix and permit to stand with occasional agitation until dissolved and filter if required to dispense a clear solution.

This solution is sufficiently stable to be kept on hand for use in the emergencies occasioned by extensive burns.

We also recommend that 10 per cent silver nitrate solution be applied to the tannic acid crust.

SUMMARY

A solution has been devised and its formula published that has advantages over the tannic acid solution in water for the following reasons:

1. It is endowed with good keeping qualities.
2. It produces a denser coagulum.
3. It has bacteriostatic action, which is absent in the plain tannic acid solution.

This solution is being used successfully for crust formation in the treatment of burns at the Cook County Hospital.

²⁰ Bettman A. G. The Tannic Acid Silver Nitrate Treatment of Burns: A Method of Minimizing Shock and Toxemia and Shortening Convalescence. *Northwest Med* 34:46 (Feb.) 1935.

The Three Fundamental Subjects—If I were setting out to make a doctor of a young man entering a medical school where he could do what he chose, I would say spend your four years in three places—the anatomical dissecting room, the dead-house and the clinic. In these three places (provided the anatomist is not prohibited from a consideration of function) you will hear spoken of or see illustrated at some time or other in your course all that is vital in our present-day medical knowledge. These places represent the workshops of the three fundamental subjects from which all others have branched off, and yet they have come to be perhaps the most neglected in some of our greater schools where the confused and somewhat restive student is passed through a mill which, in great part, has no apparent relation to his ultimate goal—Cushing, Harvey, *Consecratio Medici* and Other Papers, Boston, Little, Brown & Co., 1928.

Clinical Notes, Suggestions and New Instruments

TREATMENT OF INVOLUTIONAL MELANCHOLIA BY ESTROGEN

J. EDWARD SUCKLE, M.D., COATESVILLE, PA.

The pathologic physiology of the menopause has been placed on a valid basis by the work of endocrinologists in the past ten years. Fluhmann¹ noted that following the menopause the anterior hypophysis hypertrophies and there is an increase in the amount of gonadotropic hormone of the anterior hypophysis in the blood serum of many of these women. The ovarian follicular hormone, estrogen, on the other hand, decreases.² Meyer, Leonard, Hisaw and Martin³ showed that the administration of estrogen diminished the gonad stimulating potency of the anterior hypophyses of castrate male and female rats.

In the treatment of involutional melancholia, estrogen has heretofore been used by different investigators with varying success. Recently⁴ the use of prolonged and adequate doses of estrogen raised the percentage of clinical cures. A similar method in the case reported here resulted in cure, although during the first month of treatment the case appeared refractory to treatment.

REPORT OF CASE

A woman, aged 47, seen March 10, 1936, had been in good physical and mental health until April 1934, when the menses became scantier. The usual irritability that occurred during the premenstrual interval increased, and she became very depressed and worried but could not specify any particular cause for this change in mental state. Mental depression became so profound later in April that she attempted suicide by inhalation of illuminating gas. Failing this, she made a second attempt at self annihilation in June and another in the autumn of the same year. In the intervals her insight was good, but the fear of not being relieved of her depression drove her to seek her own destruction. Six days before the patient was seen by me she left her home for a walk at 7 p. m. and did not return until 2 p. m. the afternoon of the following day. A check up on her activities revealed that she had walked 30 miles and had not eaten during that time. It was advised that the patient be removed to a mental hospital, but up to this time the husband was very anxious that the home be preserved and his wife remain with him. He became so distressed with the apparent hopelessness of the situation, however, that it was only after serious consideration that medical direction was altered.

On mental examination the patient appeared anxious and depressed. She summarized her state of mind as confusion, faulty memory and extreme irritability occurring from four to five days before and during menstruation. During the catamenia auditory hallucinations and delusions of philandering by her husband would manifest themselves. She was in good rapport, affect was lowered, and mental content was fairly good.

The menses began at 11 years and were regular every thirty days, the flow lasting from five to seven days. Her first pregnancy was normal, and resulted in a son now living and well. Her second pregnancy, full term, resulted in twins who died soon after birth. She had had no miscarriages.

Physical symptoms complained of included loss of weight (from 142 to 131 pounds [64 to 59 Kg.]), headaches associated with visual scotomas and occasional gastric upsets.

Previous medical history was essentially negative except for pneumonia and diphtheria, a reaction to vaccination, and the childhood exanthemas, chickenpox and measles.

The family history was interesting in that her mother is a chronic complainer, fussing about trivialities and bringing her petty troubles to her daughter. A ruction in family affairs

¹ Fluhmann C. F. The Significance of Anterior Pituitary Hormone in the Blood of Gynecologic Patients. *Am J Obst & Gynec* 20:1 (July) 1930.

² Vazir Charles and Goldstein Leopold. *Clinical Endocrinology of the Female*. Philadelphia: W. B. Saunders Company, 1932.

³ Meyer R. K., Leonard S. I., Hisaw F. L. and Martin S. J. *Endocrinology* 16:6 (Nov. Dec.) 1932.

⁴ Werner A. A., Kohler L. H., Ault C. C. and Hector E. F. *Involutional Melancholia*. *Arch Neurol & Psychiat* 35:1076 (May) 1936.

resulted in the patient's father and mother not speaking but residing in the same house

On physical examination the patient was well developed and well nourished. She was lying quietly in bed and did not appear to be acutely ill. There was no pallor of the mucous membranes and no enlargement of the thyroid. The ears and eyes were normal. There were many carious teeth. The lungs were clear. The heart was normal in size, sounds were good, not marred by murmurs. The pulse was regular, and radial arteries were not sclerotic. The abdomen was normal. Pelvic examination revealed a uterus of normal size in midposition; there was tenderness in the right fornix but the adnexa of both sides were not palpable. The cervix showed nabothian cysts and several well healed lacerations. The extremities were normal and neurologic examination was negative.

Since the patient was kept home during the entire time of active treatment routine laboratory examinations were omitted.

March 10, progynon (Schering), 45 rat units twice a day by mouth, was started.

March 18 the patient became excited and agitated. She felt an uncontrollable nervousness.

March 20, 5,000 rat units of estradiol benzoate (progynon-B) was given intramuscularly. Progynon by mouth was continued. Phenobarbital, three-fourths grain (0.05 Gm) twice daily, was given for allaying temporary motor excitement.

March 23, the patient was again restless and kept her husband awake until 5 a.m. While her husband was dozing in a chair downstairs, the patient stealthily crept up to him and punched him quite hard. She gave no reason for this.

March 29, 5,000 rat units of estradiol benzoate was given intramuscularly.

April 5, the patient reported for the first time that she was feeling better and that the periods of nervousness were decreasing. Estradiol benzoate, 5,000 rat units was given intramuscularly.

The daily oral dose of progynon-B was increased to 200 rat units twice daily.

April 12, 500 rat units of estradiol benzoate was given intramuscularly. This corresponded to the premenstrual interval, which was usually marked by increased irritability and nervousness, which for the first time were absent.

April 19, 500 rat units of estradiol benzoate was given intramuscularly. The patient was now assisting in duties about the house.

April 26, 500 rat units of estradiol benzoate was given intramuscularly. The condition continued to be good.

May 3, 500 rat units of estradiol benzoate was given intramuscularly.

May 10, 500 rat units of estradiol benzoate was given intramuscularly. The patient was now taking progynon tablets 200 rat units twice a day.

Mental improvement continued and the patient showed increased interest in her surroundings. She assisted in her household duties and enjoyed her favorite diversion embroidery. But during this time rest in the afternoon was insisted on and the patient had the constant supervision and companionship of an affable woman. Oral endocrine therapy was continued until June 11, when all essential medication was stopped.

The effect of this treatment on the menses is interesting. The April menses appeared three days late, were scanty and were of four days' duration. The May menses appeared twenty-four days late and lasted nine days, being quite profuse.

It has now been almost eight months since the patient began treatment and five months since treatment was stopped and she has remained in good mental and physical health.

COMMENT

The case here reported showed the importance of estrogen therapy over a long time. Two months after treatment was begun Werner and his co-workers reported that 761 per cent of their patients with involutional melancholia, treated with estrogen for six months, showed improvement. The case reported here likewise shows the improvement and favorable change made in the mental picture after intensive therapy.

SUMMARY

In a case of involutional melancholia treated with estrogen prolonged and adequate dosage was designated as the cause of cure.

THE CLOTTING TIME OF BLOOD FOLLOWING ADMINISTRATION OF HISTIDINE

LEON BLOCH M.D. JAMES KOSSE M.D.

AND
HEINRICH NECHIELES M.D. PH.D.
CHICAGO

Markedly increased coagulability of the blood of man and dog following ingestion of protein was reported in 1927 by Mills and one of us¹. Unaware of the literature on this subject, Burger and Schrade² repeated our work and confirmed it, they also found that histidine shortens blood clotting time considerably and believe that this may explain beneficial effects of histidine therapy which they observed in bleeding peptic ulcer.³

Our experience has been that small amounts of protein have very little effect on clotting time, and, since the dose of histidine employed by the German workers was only 5 cc. of a 4 per cent solution of laevo-histidine monohydrochloride (Larostidin), we did not feel that the reported effect of histidine on clotting time was due to a generic effect of amino acids but to a specific hitherto unknown property of that compound. Therefore the clotting time was measured in a group of three normal persons, in two persons with duodenal ulcer and in two dogs. Histidine (Larostidin) was administered by intramuscular and intravenous injection and by mouth. Before administration of histidine, controls of clotting time were done. In order to follow normal diurnal variations, clotting times were measured without histidine in the starving subject. Blood was obtained by venipuncture with a dry paraffined syringe. The first and the last 0.5 cc. of blood in the syringe were discarded. Only such samples were used in which the needle drew blood at the first puncture of the superficial vein. Two dry paraffined test tubes received 2 cc. of blood each. A stopwatch was used for timing. The tubes were tilted gently every half minute and the appearance of the first clotting (adherence to the wall of the tube) and the complete clotting were noted. Each experiment lasted from two and one-half to three hours.

1. Clotting time was measured in three normal subjects after 5 cc. of histidine by mouth. No change of clotting time was noted after histidine. The greatest variation was found in a control in which no histidine was given.

2. Clotting time was measured in two female patients with duodenal ulcer after intramuscular injection of histidine. In the first patient no change in clotting time was noted, in the second clotting time was prolonged.

3. Clotting time was measured in two normal dogs. The first dog (male, 20.5 Kg.) received 5 cc. of histidine intravenously. No significant change of clotting time was observed. The second dog (female, 18 Kg.) received 25 cc. of histidine by stomach tube. A reduction of clotting time from eleven minutes to six minutes was noted thirty minutes after ingestion, but in this dog clotting time varied between thirteen and one half and nine minutes without histidine (starving).

CONCLUSIONS

In none of the human subjects or dogs did histidine by mouth or by intramuscular injection produce a marked change in clotting time. In those experiments in which a change in clotting time occurred controls without histidine evidenced equal changes. It was thought that intravenous injection of histidine might produce a shortened clotting time, but the same variation occurred in the starving animal. Therefore histidine apparently has no effect on blood clotting time and its therapeutic use in bleeding peptic ulcers cannot be justified by its effect on clotting time.

Twenty-Ninth Street and Ellis Avenue

From the Departments of Gastro-Intestinal Research and Medicine of Michael Reese Hospital.

1. Mills C. A. and Necheles Heinrich. *Proc Soc Exper Biol & Med* 25: 195 (Dec) 1927. *Chinese J Physiol* 2: 19 (Jan) 1928.
2. Necheles Heinrich and Mills C. A. *ibid* 2: 25 (Jan) 1928.
3. C. A. Necheles Heinrich and Chu Mao-keng. *ibid* 2: 219 (April) 1928.
4. Necheles Heinrich Mills C. A. and Chu Mao-keng. *Proc Soc Exper Biol & Med* 25: 541 (April) 1928.
5. Bürger M. and Schrade W. *Klin Wchnschr* 15: 530 (April) 1936.
6. Burger and Schrade. Bürger and Kohl cited in Burger and Schrade.²

Special Clinical Article

CONTROL OF SYPHILIS

CLINICAL LECTURE AT ATLANTIC CITY SESSION

THOMAS PARRAN, MD

Surgeon General United States Public Health Service

WASHINGTON, D C

"I look upon the subject of syphilis as the great question of the day. It was formerly a question of treatment but that day has passed. It is now a question of prevention, of eradication, of the protection of the well against the contamination of the sick. In other words, it is no longer a question for the therapist but one for the sanitarian, the philanthropist, the legislator, the statesman. It is one of public health and as such we are bound to meet it. The time has come when we can no longer shut our eyes to its evil and we must deal with it precisely as we deal with other evils that affect the health of the people.

It is our duty to enlighten the public upon all questions of public health.

"Now what I propose in regard to syphilis is simply to give to the existing boards of health the same power over syphilis that they now possess over cholera, smallpox and yellow fever. They now have the power of ferreting out these diseases and they should have the same power of searching out the abode of syphilis and of sending its victims to hospitals for treatment. For stamping out the disease in towns and cities their boards of health must have plenary powers of absolute character over syphilis, not more so, however, than they now possess over smallpox.

"Thus I say that I would simply include syphilis in the great family of contagious or communicable diseases and make it subject to the same laws and regulations that we already possess for their management.

"Shall it be said that we, the representatives of the medical profession of a great nation, will longer let the people remain in ignorance of the dangers that surround them? No, my friends, we must boldly proclaim the truth and scatter it broadcast over the length and breadth of the land. We must call to our aid the press, the pulpit, yea, the women of the country. We must call upon our state and county medical societies to do our bidding and to cooperate with us. We must keep the subject not only before the profession but we must keep it before the people."

There must be many in this audience who think this is too unorthodox, too radical a doctrine, that these measures would violate the traditional patient-physician relationships. To them let me say that these are not my own words. They are quoted directly from the presidential address of Dr J Marion Sims¹ before this association in 1876, sixty-one years ago.

Forty-one years was to pass before the profession and our governmental agencies heeded the eloquent plea of Dr Sims. Then it was an abortive wartime effort, since we apparently thought that the spirochete was demobilized with the army. Now sixty years after Marion Sims we have joined again in a campaign against syphilis. The disease is still our leading public health problem. We know the cause of syphilis. We know how it spreads. We know how the individual can avoid the risk of infection. With the darkfield we

can diagnose the disease promptly as soon as it is infectious. In the serodiagnostic tests we have an accurate method of recognizing the disease in all except the first few weeks and in its later less active stages. Of great importance in preventing spread we have the arsphenamines, which will speedily sterilize open lesions. When used in conjunction with compounds of bismuth or mercury, most cases can be arrested or cured.

More important than these scientific weapons is another more recent one—an aroused public sentiment.

What is the problem of syphilis in the United States?

Each year more than 500,000 new cases occur in which medical care is sought.

When syphilis is looked for at least one hidden case is found for each one previously recognized.

According to best estimates, 60,000 children are born each year with congenital syphilis.

The disease causes from 10 to 12 per cent of all deaths from heart disease. Each case of cardiovascular syphilis on the average cuts twenty-two years from the expected life span. Of every hundred patients with syphilis in the Cooperative Clinical Group studies, ten had obvious signs of cardiovascular involvement. At autopsy more than one half of the syphilitic patients show cardiovascular lesions.

Although less accurate data are available on the amount of neurosyphilis, it is known that, among the untreated and poorly treated, 30 per cent show spinal fluid changes, 19 per cent some clinical symptoms, and that 10 per cent of admissions to state insane hospitals are the result of dementia paralytica.

We know the distribution of syphilis in the population—approximately one fifth of cases occur in persons under 20 years of age. Between the sexes there is a ratio of two males to one female infected. The disease is more prevalent in cities than in rural areas and is six times as prevalent among Negroes as among white persons. There is considerable geographic variation in prevalence, ranging from as low as 100 new cases per hundred thousand of the population each year seeking treatment in settled rural areas to 2,900 in some cities and, for the country as a whole, 390.

We know what treatment will accomplish. From the standpoint of spread, treatment is prevention. From the standpoint of the average individual the Clinical Cooperative Group observations, arrived at by critical professional and statistical analysis, tell us with almost slide-rule exactness what to expect from specific amounts and types of treatment in early and latent syphilis. Relapse, arrest, serologic response, cure, cardiovascular and central nervous system involvement, outcome of pregnancy, each is charted so that all may read the results of ten years of work by five of our leading clinics on a total of patients now approaching the 70,000 mark.

We know where syphilis is treated. One half of all practicing physicians are constantly treating one or more cases, representing 59 per cent of the total. The remainder are being cared for in the 1,343 clinics, dispensaries and public institutions of the country.

We know the specific obstacles to the prosecution of a successful campaign against syphilis. Medical and public opinion is agreed as to the actions needed to remove such obstacles.

One half of known cases are not recognized or do not seek medical care during the first year of the disease when the chance of spread and the opportunity of cure are greatest. Cases must be found and treated early. Every suspicious initial lesion should mean a darkfield

Read in the General Scientific Meetings at the Eighty Eighth Annual Session of the American Medical Association Atlantic City N J June 8 1937

¹ Address of J Marion Sims Tr A M A 1876 p 91

examination, repeated if necessary. The diagnosis of primary syphilis is a laboratory procedure. Physicians must look for syphilis in their general practice. Every pregnant woman must have a serodiagnostic test in as routine a manner as a urinalysis. Every hospital admission, every case of doubtful diagnosis, every physical examination, every life insurance examination should include a serodiagnostic test. Medical examinations before marriage should be required by law and should include laboratory evidence of freedom from syphilis. One in five men and three in five women coming for treatment were unaware of their disease until it was recognized in the course of some other examination. In population groups with a high prevalence, such as Negroes, Mexicans and Puerto Ricans, whole communities should have a blood test family by family. The Wassermann dragnet must be cast widely to find cases.

ATTITUDE OF THE GENERAL PRACTITIONER

The average doctor treating syphilis looks on the patient as an interesting case. He can do something about it, just as he gives his diabetic patients insulin, so he can begin his courses of arsphenamine and bismuth compounds. But he does not consider the patient with early syphilis as he would a patient with smallpox. "Where did you get the disease?" "Whom may you have exposed?" The case of smallpox is reported. In my opinion Marion Sims was right in urging similar control of syphilis. Every case of early syphilis must be looked on not simply as a patient but as a starting point in finding other infectious individuals.

The physician who undertakes the treatment of a case of syphilis assumes two general responsibilities. First, to the patient. He must see the patient through to a cure, regardless of the patient's financial condition, or he must refer the patient to a public clinic. Second, he must either inquire diligently concerning the source of the infection and contacts, get them under treatment, and inform the health officer that he has done so, or he must permit the health department itself to do this essential public health job. The patient who continues treatment faithfully need not have his privacy invaded as much as a scarlet fever patient, for example. The syphilis patient who stops treatment while still potentially infectious, however, violates all privileges of privacy.

Syphilis is an epidemic disease. Evidence is piling up that it does not spread through the population like a fog over the bottoms. Syphilis is kept alive and spreads in the population by a series of small epidemics. These can be traced as in any other epidemiologic work. Sources of infection and contact cases can be located and brought under treatment. As yet the health facilities to do this job have not been created in any except the occasional community. In fact, most communities have not yet defined their job. The unknown can rarely be attacked with success.

Even for those patients who start treatment, only one in four receives as much as twenty doses of an arsphenamine with a concomitant preparation of heavy metal. Too many doctors still are satisfied to give one or two courses and let the patient go if the blood serologic test becomes negative. A negative serologic test of the blood is no index of arrest or of cure or of later noninfectiousness. The two great barriers to cure, however, are the ignorance of the patient concerning the amount and kind of treatment which he needs, and the cost of treatment. Of the patients who do start treatment 75 per cent stop short of one year's

care. This is less than the minimum to insure against spread and later serious complications for the patient himself.

At least one half of the syphilitic patients of the country cannot afford to pay for treatment even at the minimum prevailing rates in private practice. This is especially true if the patient must bear the cost of blood and spinal fluid tests and of other special examinations. The same yardstick used in determining eligibility for public relief—food and shelter—is not adequate to measure the inability of a syphilitic patient to pay for treatment. Yet all over the land there are clinics which will admit only those patients who are already on the relief rolls. State laboratories in a dozen states will not examine a blood specimen unless the doctor sending it certifies that the patient is indigent. Whole communities, including cities of considerable size, have no public or eleemosynary provision for treating indigent cases of syphilis.

I do not advocate the treatment of all patients with syphilis at public expense. This should not be necessary or desirable. It will not be if practicing physicians will look for syphilis and know how to diagnose and treat it, both as a disease and as a communicable infection. Additional public and voluntary funds, however, are needed to remove the economic barrier to care for those unable to pay for such services. The National Conference on Venereal Disease Control stated that the public clinic is the backbone of any community program for the control of syphilis and recommended that public clinics should accept three types of patients:

- 1 Any patient for diagnosis and emergency treatment if infectious
- 2 Any patient referred by a private physician either for treatment or for an examination, consultation and return to private care
- 3 All other patients who are unable to pay private physicians

The natural concern of physicians lest public clinics intrude on private practice by treating patients able to pay, in my experience, has only a slight foundation. No patient who can pay a physician is willing to subject himself to the inconvenience of a crowded public clinic. This is true even of a good clinic. Very few of our clinics as yet are good clinics. More often they are treatment mills with scant individualized attention to patients. In one city recently my representative reported that "they give more attention to the examination of the dairy cattle supplying milk to the city than they do to the syphilitic patient in their clinic." Bad as is the average public clinic, the National Conference agreed that it gives as good care as the average private physician.

Not only is the laboratory service in many of our states restricted in amount, but recent check tests show that many public and private laboratories alike are rendering an inefficient service. Some of them are labeling as syphilitic one person in ten who does not have the disease. Others use such an insensitive technique that they miss one half of those who are syphilitic. The whole laboratory service of the country needs a complete overhauling. Every laboratory presuming to make serologic tests should be willing to meet minimum state standards of performance.

The picture is not all black, however. Much progress has been made during the past year through the stimulus of Social Security funds in providing in many states some of the elements of a successful control program. Of more importance, we are witnessing for the first

time a cooperative effort between the whole medical profession and the health agencies, federal, state and local, in a joint attack on this public health problem. At the last annual conference of presidents and secretaries of state medical societies it was unanimously voted that each state society be asked to appoint a special committee to cooperate with the state health department in syphilis control. More than half of the state societies have appointed such committees and are working out programs.

PLAN FOR CONTROL OF SYPHILIS

In a country as diverse as this, no one stock plan of syphilis control is applicable. In each state and in each city the problem needs to be studied and a plan of action developed to meet particular local needs. Certain basic principles, however, have general application. These principles may be summarized briefly as follows:

- 1 There should be a trained public health staff to deal with syphilis in each state and city.
 - 2 Minimum state laws should require reporting of cases, follow up of delinquents, and the finding of sources of infection and contacts.
 - 3 Premarital medical certificates, including sero-diagnostic tests, should be a legal requirement.
 - 4 Diagnostic services should be freely available to every physician without charge and should meet minimum state standards of performance.
 - 5 Treatment facilities should be of good quality, with convenient hours and location. Wherever possible the clinic service should be a part of an existing hospital dispensary. Hospital beds should be provided for patients needing bed care.
 - 6 The states should distribute antisypilitic drugs to physicians for the treatment of all patients.
 - 7 Routine serodiagnostic tests need to be used much more widely. In particular, every pregnancy, every hospital admission, every complete physical examination should include this test.
 - 8 The informative program in modern diagnosis, treatment and control should be prosecuted vigorously among physicians and health officers, especially through the use of trained consultants.
 - 9 The public educational program must be persistent, intensive, and aimed especially at those individuals in the age groups in which syphilis is most frequently acquired.
- If these principles are applied to meet varying local conditions, no one can doubt that the shadow of syphilis will be lifted from the land.

CONCLUSION

Sixty-one years ago Marion Sims pointed the way. With the passage of the years his opinion has been shared by some of the most eminent clinicians of the day, among them Sir William Osler. Speaking before the Medical Society of London, Osler's oration² "The Campaign Against Syphilis" did much to allay medical opposition to the then pending venereal disease control law. In it he said "We are committed, then, to a campaign of education and an elaborate scheme of treatment. Two circumstances make it probable that these measures—a good beginning let us grant—will not suffice in themselves to reach the enemy."

"Realizing as fully as any one the strong arguments against notification [of the venereal diseases], the gravity of the situation outweighs with me all private considerations."

² Osler, Sir William. *Lancet* 1 787 1917.

"To be successful in this fight we must have control of the patients. The treatment must be compulsory."

Among the closing words of his address were these: "That the state has at last intervened is ground for hope. In the matter of health you may trust the people. Once get democracy to realize that it is diseased and it displays a Job-like regard for its skin."

Within the past year the sentiment of organized medicine has been expressed in an editorial in *THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION*³: "The conquest of syphilis is the next great objective in public health."

The history of medical progress shows instance after instance in which the combined forces of medicine and public health have conquered disease as far as public cooperation could be procured.

With the combined efforts of physicians, public health officials, educators and the public, syphilis can be conquered next.

The object of the Public Health Service in fighting syphilis is identical with the historic objective of the profession of which we are part. It is not to make industry more efficient, though we hope we shall. It is not to save Americans money, though success will save them very much. It is not to make any of us more comfortable and contented, though syphilis causes much discomfort and discontent. It is to make the lives of Americans more healthful and more secure.

Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT
HOWARD A. CARTER, Secretary

HIGH TENSION (MODELS CP-990 AND HCP-990) ACCEPTABLE

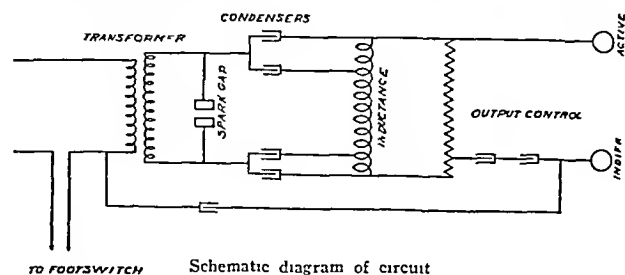
Manufacturer: High Tension Corporation, 118 West Twenty-Second Street, New York.

These electrosurgical units, designed for intermittent operation, are recommended for electrocoagulation, electrodeiccation and electrosurgery. The information made available to the Council indicates that when Model CP-990 is operated intermittently for one hour the resulting temperature rise of the transformer and the spark gap is within the limits of safety acceptable to the Council. The input power required does not exceed 230 watts.

This unit was used in a clinic acceptable to the Council and was found to be an effective instrument for the purpose for which it is intended. When Model CP-990 is built into a wooden cabinet it is known as Model HCP-990.



HCP 990 Electro Surgical Unit



TO FOOTSWITCH Schematic diagram of circuit

In view of the satisfactory performance of these units, the Council voted to include the High Tension Models CP 990 and HCP-990 in its list of accepted devices.

³ Control of Syphilis as the Next Public Health Objective, editorial, *J. A. M. A.* 106 1390 (April 18) 1936.

Council on Pharmacy and Chemistry

REPORTS OF THE COUNCIL

BECAUSE OF THE NUMEROUS INQUIRIES RECEIVED AND IN VIEW OF THE FACT THAT ELI LILLY AND COMPANY HAD NOT PRESENTED THE PRODUCT FOR THE COUNCIL'S CONSIDERATION THE COUNCIL DECIDED TO INVESTIGATE ENTORAL ON ITS OWN INITIATIVE. AN ASSOCIATE OF THE COUNCIL'S REFEREE COMPETENT IN THE FIELD OF BIOLOGIC PREPARATIONS WAS ASKED TO INVESTIGATE THE EVIDENCE FOR THIS MIXED BACTERIAL VACCINE WHICH IS BEING MARKETING AS AN AGENT FOR USE IN THE PREVENTION OF COLDS. AFTER CONSIDERING CAREFULLY THE REPORT OF THE REFEREE'S ASSOCIATE THE COUNCIL VOTED TO DECLARE ENTORAL UNACCEPTABLE FOR INCLUSION IN NEW AND NONOFFICIAL REMEDIES BECAUSE IT IS MARKETING WITH UNSUPPORTED UNWARRANTED THERAPEUTIC CLAIMS AND ADOPTED THE REPORT FOR PUBLICATION.

PAUL NICHOLAS LEECH Secretary

ENTORAL NOT ACCEPTABLE FOR N N R

I

"Entoral" is the name given by Eli Lilly and Company to a preparation of mixed bacterial vaccine for oral administration, recommended for the prevention of colds. According to the manufacturer's advertising, "Entoral" is put up in capsules, each containing pneumococci 25 billion, *H. influenzae* 5 billion, streptococci 15 billion, and *M. catarrhalis* 5 billion. The organisms are heat killed, are dried to a powder, and are said to contain a large amount of heterophile antigen.

"Entoral" is advocated as a prophylactic against colds in consequence of experiments made by Rockwell, Van Kirk and Powell¹. These authors believe that while colds are primarily due to a filtrable virus their severity is the result of secondary bacterial invasion. The scientific investigation which led them to the use of this method may be summarized as follows. Several observers have demonstrated that heterophile antigen occurs in various bacteria, and Powell² showed that rabbits would develop heterophile antibody if given feedings of heterophile antigen by mouth. (Heterophile antibody, often called "Forssman antibody," is a hemolysin for sheep red blood cells generated nonspecifically in rabbits by the injection of many animal tissues.) Bailey and Shorb³ produced heterophile antibody in rabbits by injection of several types of pneumococci and also reported that animals having a high titer of this antibody in the blood were resistant to pneumococcal infection, the serum, moreover, from such animals was able to confer passive immunity against pneumococcus. Although the number of these immunity experiments was small, they concluded that Forssman antibodies played a role in resistance to infection. Only a few animal experiments are reported. Recently Ross⁴ has shown that rats fed on pneumococci develop an active immunity against pneumococcal infection and also that their serum contains protective substances, this effect, however, is thought by Ross to be a specific one.

Believing, therefore, that an immunity to bacteria which are "sensitive" to heterophile antibody (i.e., presumably those which contain heterophile antigen) could be generated by feeding the antigen by mouth, Rockwell, Van Kirk and Powell¹ orally vaccinated 500 volunteers with an antigen containing in each dose 100 billion hemolytic streptococci and the same number of a type I pneumococcus, largely in the rough form. Volunteers took one dose each morning for the first week on an empty stomach and thereafter one dose a week for the remainder of the winter.

The results of the experiment on 500 volunteers with 536 controls were as follows. Thirty-eight patients who gave a history of continuous colds during the entire previous winter had only 108 colds per person during the treatment. Nine similarly severe cases in the control group had no comparable reduction. In the rest of the group of vaccinated individuals there was a reduction of 57 per cent in the number of colds as compared to the previous year, whereas in the control group a reduction of only 12 per cent took place. It was further shown, in a small group of individuals, that those developing a

very high titer of heterophile antibody were almost wholly immune to colds. This last observation has been recently expanded by Rockell and Van Kirk⁵. The clinical results are given in very brief tabular form.

In attempting to evaluate these results, one is struck by the fact that no mention is made as to the severity of infections occurring in the vaccinated group—that is, the duration of the colds and the frequency of complications. For this is the very feature that that one would expect to be chiefly affected according to the authors' own theory. All details of this kind are entirely omitted, and a simple record of the number of colds during the experimental period is given in tabular form and compared with the volunteers' average number for the preceding three years as obtained from the history. Further analysis of the authors' tables shows that this astonishing reduction in the number of colds occurred almost entirely in the group of nurses and medical students, whereas in the group of machine shop workers and life insurance company employees (presumably older and more stabilized in relation to their environment) the reduction was very much less significant.

It is also difficult to believe, either in the theory or from the evidence cited, that the presence of Forssman antibodies confers so great an immunity against infection, and it is on the presence of these antibodies that the authors' hypothesis rests. For instance, according to the work cited, the parenteral administration of ordinary "cold vaccines" should stimulate such antibody formation, and no parallel success has been obtained with their use in preventing colds.

CONCLUSION

After a consideration of the available evidence it would seem that the hypothesis on which "Entoral" is based is inadequately supported by experimental evidence and that the reports of its use contained in the literature are insufficiently documented. For these reasons the Council declared "Entoral" unacceptable for inclusion in New and Nonofficial Remedies.

II

Information was received in the Council's office that Entoral was apparently contaminated from a bacteriologic standpoint. A bacteriologist has therefore examined capsules of Entoral purchased both in the Midwest and in the East. His report included the following findings:

"While no live streptococci were found in either of the samples tested there were large numbers of viable spores of spore-forming aerobic bacilli. Most of the colonies in the plates were hemolytic and superficially resembled the colonies of hemolytic streptococci but they were all of sporulating aerobic bacilli. The counts indicated that there were from 13,000 to 15,000 of these living organisms in each capsule. It was noted that the capsules contain starch, evidently used as a filler, and it is possible that these bacterial spores were from that source. Just what the pathogenic significance of these organisms may be is doubtful. Ordinarily none of the aerobic spore-forming bacteria are considered markedly pathogenic, except the anthrax bacillus which was not found in this product. A few mice were injected intraperitoneally with broth suspensions of Entoral, representing up to about 1/10 of the contents of a single capsule. One mouse receiving 1/10 of one of the capsules in one lot died overnight and at autopsy the hemolytic sporulating bacilli were found in the heart blood. The other mice remained well. The conclusion reached by the bacteriologist is that Entoral is a heavily contaminated product from a bacteriologic standpoint."

A statement containing the foregoing information was transmitted to Eli Lilly and Company, and in reply the firm wrote (in part):

"Counts of 13,000 to 15,000 organisms per capsule are low and of no consequence. In general the organisms are contained in the starch, which is the same as any other starch used in pharmaceutical products. It is a regular food starch. The absurdity of attaching significance to the low bacterial count is recognized when one takes into consideration that the allowable bacterial count for milk in the State of Indiana is 100,000 per cc. For those who include milk in their daily diet, 500 cc per day is not an unusual amount, which would mean a total of 50 million organisms ingested with the milk alone. Compared to this,

1 Rockwell G E Van Kirk H C and Powell H M J Immunol 28 475 (June) 1935

2 Powell H M Am J Hyg 5 228 (March) 1925

3 Bailey G H and Shorb M S Am J Hyg 13 831 (May) 1931

4 Ross Victor J Immunol 27 235 (Sept.) 1934

5 Rockwell G E and Van Kirk H C J Immunol 31 417 (Nov.) 1936

the bacterial count of 'Entoral' is 0.03 per cent. As far as the bacteriologist's animal experiments are concerned it should be remembered that starch itself will cause a peritonitis and has been used for such purposes for many years. The animal test as run by the bacteriologist is not a valid test of the virulence of bacteria that may be associated in the starch. If the Council feels that it should make public the bacteriologist's report, then in all fairness they should make available to the same public the facts contained in this letter."

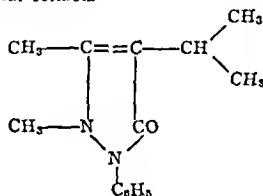
The Council held that the firm's reference to allowable bacterial counts of 100,000 per cc in milk in Indiana is quite beside the point. The Council believes that such milk should be regarded as heavily contaminated. Furthermore, if many of these bacteria in milk were spores, it would be interpreted as very dirty milk. Certified milk usually fails to show any spores in 10 cc samples. The Council does not mean to imply that the spore-forming organisms found in Entoral were pathogenic, and admits that the starch used in Entoral may be no more heavily contaminated than many other food starches. However, attention is called to the fact that food starch is usually cooked when used as food. It would appear that some other less highly contaminated material than food starch might better be used as a filler for pharmaceutical products of this character.

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT
PAUL NICHOLAS LEECH Secretary

LARODON 'ROCHE' NOT ACCEPTABLE FOR N N R

Larodon is the proprietary name under which Hoffmann-LaRoche, Inc., markets a product stated to be 1-phenyl-2,3-dimethyl-4-isopropyl-pyrazolon. The firm did not present the product for the Council's consideration but, prompted by the receipt of numerous inquiries, the Secretary of the Council asked the firm under date of Nov 5, 1935, to supply information concerning the composition of the product. The firm replied:

Your letter of November 5th inquiring about the structural formula of Larodon (Roche Preparation No 1947) has come to hand. This substance is 1-phenyl-2,3-dimethyl-4-isopropyl-pyrazolon and thus has the following structural formula:



"It is a finely crystalline white powder which has a slightly bitter taste. The melting point is 102-103°C. The substance dissolves readily in alcohol and ether sparingly so in water.

The new compound has been under investigation in European medical and dental clinics for several years (since 1932) and was found to exert a definite analgesic antipyretic action. On the strength of the clinical reports it was decided to introduce the remedy to the profession in this country. Before doing so we gave about a year prior to the first announcement trial supplies of Larodon to a number of important clinicians and dentists. Reports received from these also speak very favorably of the therapeutic action of the compound. It is expected that some clinical reports on Larodon will soon appear in the American literature and it is our intention to forward to the Council such clinical material with the usual technical information required in the presentation of a new remedy.

Larodon Roche is a one drug remedy and is distributed in tablets 5 grains each. For prescription writing the substance is available also in powder form in 1 ounce packages.

A series of promotional circulars representing Larodon as the acme of "progress in analgesia" has been issued by the firm, copies of which have been sent to the Council's office by physicians. One circular states:

Chemical pharmacological and clinical studies point unmistakably to the exceptional therapeutic performance of this newcomer to the non-official materia medica.

Another circular mentions as "Indications" for the use of Larodon the following:

Headache migraine neuralgia sciatica tabes dysmenorrhea arthritis lumbago myalgia head colds influenza grip tonsillitis pharyngitis laryngitis bronchitis pleurisy glandular fever rheumatic fever exanthemata especially measles and scarlet fever.

The product is advertised as being "kinder to the stomach" than acetylsalicylic acid. It is stated to be both analgesic and antipyretic, the claims are made that it "raises the pain-threshold without depressing the intellectual functions," that it "reduces febrile temperature, but does not affect normal temperature" and "never depresses temperature to sub-normal levels."

A consultant of the Council made a search of the literature and reported that he had been unable to find any article concerning the chemical or experimental examination of Larodon either during the past few months or prior to its introduction to the medical profession. The consultant stated, further, that because of the similarity of the formula of the drug, as given by Hoffmann-LaRoche, Inc., to that of aminopyrine and because of the known toxicity of the latter drug as well as the paucity of experimental and clinical proof of the worth of Larodon, one would hesitate to advise practicing physicians to use it.

Until adequate evidence for many of the claims advanced by the promoters of Larodon has been published, physicians may well ignore the firm's advice suggesting that Larodon be substituted for other well established analgesic and antipyretic drugs. If Hoffmann-LaRoche, Inc., has evidence to support the claims made, it should make this available to an impartial body such as the Council before launching such a vigorous campaign of advertising to the medical profession.

The Council declared Larodon 'Roche' unacceptable for New and Nonofficial Remedies because it is marketed with claims which are not supported by the available evidence.

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEECH Secretary

COD LIVER OIL CONCENTRATE TABLETS-MERRELL—A cod liver oil concentrate in the form of tablets, each having a vitamin potency of not less than 3,150 units (U S P) of vitamin A and not less than 315 units (U S P) of vitamin D. Each gram of tablet has a vitamin potency of not less than 5,380 units (U S P) of vitamin A and not less than 538 units (U S P) of vitamin D.

Actions and Uses—Cod liver oil concentrate tablets-Merrell possess properties similar to those of cod liver oil so far as these depend on the fat soluble vitamin content of the latter.

Dosage—Two tablets daily or as prescribed by the physician.

Manufactured by Wm S Merrell Company Cincinnati. No U S patent or trademark.

The concentrate employed in the manufacture of cod liver oil concentrate tablets Merrell is obtained from cod liver oil by concentration of its unsaponifiable fraction. The vitamin A and D potencies of cod liver oil concentrate tablets Merrell are determined by the U S P method when assayed by this method the product is required to have a potency of not less than 3,150 vitamin A units per tablet or 5,380 vitamin A units per gram of tablet and 315 units of vitamin D per tablet or 538 vitamin D units per gram of tablet.

POLLEN EXTRACTS-MULFORD (See New and Nonofficial Remedies, 1936, p 41)

Also supplied in complete treatment packages consisting of one 2 cc vial containing 100 pollen units per cubic centimeter and one 10 cc vial containing 5,000 pollen units per cubic centimeter.

Prepared by the Mulford Biological Laboratories Sharp & Dohme Philadelphia and Baltimore.

DEXTROSE (See New and Nonofficial Remedies, 1936 p 286)

The following dosage forms have been accepted:

The Abbott Laboratories, North Chicago, Ill.

Ampoules Dextrose 50% 10 cc Each ampule contains 10 cc of a solution containing 6 Gm of dextrose U S P.

Ampoules Dextrose 50% 100 cc Each ampule contains 100 cc of a solution containing 60 Gm of dextrose U S P.

CARBARSONE (See New and Nonofficial Remedies, 1937, p 93)

The following dosage forms have been accepted:

Tablets Carbarsonone 0.05 Gm (3/4 grain)

Tablets Carbarsonone 0.25 Gm (3/4 grains)

Suppositories Carbarsonone 0.12 Gm (2 grains)

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, JULY 17, 1937

TOTAL THYROIDECTOMY FOR CON- GESTIVE HEART FAILURE

Kocher and more recently Lahey have pointed out that a subtotal thyroidectomy performed on patients with congestive heart failure and hyperthyroidism frequently results in a definite and lasting improvement of the circulation. Blumgart found that in patients with congestive heart failure and a normal basal metabolic rate the basal velocity of the blood flow is greatly slowed and that, while the blood flow may be similarly slowed in patients with the low metabolic rate of myxedema, such patients do not show signs of congestive heart failure. He concluded that the diminished circulation of these patients is adequate for the diminished demands of the body. Observations on a patient who showed improvement following a subtotal thyroidectomy for suspected masked hyperthyroidism, later proved to be normal, suggested to Blumgart, Levine and Berlin¹ that the removal of the normal thyroid gland might be helpful in cardiac failure not due to thyrotoxicosis. Subtotal thyroidectomy performed on their first two patients caused a fall in the basal metabolic rate and clinical improvement as shown by the disappearance of edema, increased vital capacity of the lungs, and increased tolerance to exertion. During the next few weeks, however, the basal metabolic rate in these patients rose to the preoperative level and the clinical picture became less favorable. The authors therefore performed a total ablation of a normal thyroid on their third patient. This was followed by a striking and lasting improvement, which was attributed to a sustained lowering of the basal metabolic rate.

Another report eighteen months later, by Mixer, Blumgart and Berlin,² concerned fifty cases of congestive heart failure and twenty-five cases of intractable angina pectoris treated by total ablation of the normal thyroid. Complete relief was obtained in 35 per cent

of the anginal group, moderate improvement in 50 per cent, no improvement in 15 per cent, and no operative mortality. In the congestive heart failure group improvement took place in 55 per cent, moderate improvement in 26 per cent and no improvement in 7 per cent. The mortality rate was 12 per cent. Most of the failures in both groups were patients with low preoperative basal metabolic rates. These investigators therefore concluded that a low basal rate constitutes a contraindication to the operation. Cutler and Schmitker³ reported twenty-nine cases in which a total thyroidectomy was performed for the relief of severe anginal disease. Of twenty-one observed for periods varying from two to sixteen months, 46.7 per cent showed from 90 to 100 per cent improvement, 66.7 per cent from 75 to 100 per cent improvement, and 9.5 per cent less than 50 per cent improvement. They were impressed with the fact that the immediate relief from pain following thyroidectomy did not depend on the lowering of the basal metabolic rate, which as a rule is evident only some weeks later. Furthermore, patients with angina pectoris have no congestive heart failure and have a normal blood flow. Apparently the simple explanation of Blumgart did not seem to explain the improvement obtained by total ablation of the normal thyroid in angina pectoris.

Levine, Cutler and Eppinger⁴ suggest that the ablation of the thyroid may cause humoral alterations, particularly in the adrenal gland, in angina pectoris. In a later communication, Levine and Eppinger⁵ express the opinion that apart from the main effect of thyroidectomy in diminishing the work of the heart by decreasing the basal metabolic rate there is an additional important effect, one of diminution in the sensitivity of the heart to epinephrine. Thus Eppinger and Levine showed that, while epinephrine reproduced attacks of angina if injected before the operation, it failed to do so the second or third day after a total thyroidectomy.

Blumgart, on the other hand, maintains that the immediate relief of pain after thyroidectomy is due to interruption of the afferent nerve impulses from the heart at the time of operation and that the relief obtained by this mechanism is only temporary, lasting only a few weeks, and that permanent relief comes only with the lessened work of the heart and the development of surgical myxedema.

Parsons and Purks⁶ discuss data obtained from a survey of the literature and from an inquiry sent to all members of the American, Southern and Western surgical associations, the American Association for the Study of Goiter, and a number of American clinics.

³ Cutler L. C. and Schnitzer M. T. Total Thyroidectomy for Angina Pectoris. *Ann Surg* 100: 578 (Oct.) 1934.

⁴ Levine S. A., Cutler E. C. and Eppinger E. C. Thyroidectomy in the Treatment of Advanced Congestive Heart Failure and Angina Pectoris. *New England J Med* 209: 667 (Oct. 5) 1933.

⁵ Levine S. A. and Eppinger E. C. Further Experiences with Total Thyroidectomy in the Treatment of Intractable Heart Disease. *Am Heart J* 10: 736 (Aug.) 1935.

⁶ Parsons W. H. and Purks W. K. Total Thyroidectomy for Heart Disease. *Ann Surg* 105: 722 (May) 1937.

¹ Blumgart H. L., Levine S. A. and Berlin D. D. Congestive Heart Failure and Angina Pectoris. The Therapeutic Effect of Thyroidectomy on Patients Without Clinical or Pathologic Evidence of Thyroid Toxicity. *Arch Int Med* 51: 866 (June) 1935.

² Mixer C. G., Blumgart H. L. and Berlin D. D. Total Ablation of Thyroid for Angina Pectoris and Congestive Heart Failure. *Ann Surg* 100: 570 (Oct.) 1934.

Information was obtained on 229 patients operated on for congestive heart failure and 133 patients operated on for the relief of angina pectoris. Data on complications were obtained in 291 cases. Tetany was noted in 10.3 per cent. It was, however, of a transient character in all but one case, in which it was the cause of death. Injury to the recurrent laryngeal nerve was recorded in 8.2 per cent of the cases. In no instance was it bilateral or permanent. From these figures it appears that serious complications are not sufficiently frequent to militate against the procedure. The operative mortality in the group with congestive heart failure was 10.48 per cent. Excellent results in this group were obtained in 34.63 per cent, moderate improvement in 28.78 per cent, slight improvement in 2.92 per cent and no improvement in 33.65 per cent. The operative mortality in the group of 133 cases of angina pectoris was 3.7 per cent. Excellent results were obtained in 55.46 per cent, moderate improvement in 28.12 per cent and no improvement in 12.5 per cent. They conclude that "there is slightly more than 50 per cent chance of satisfactory improvement in cases with congestive heart failure and somewhat better than 75 per cent satisfactory results in angina pectoris." They admit the inability to answer the question whether the operation prolongs life. "It is admittedly only a form of symptomatic treatment which in no way alters the underlying cardiac pathology. We must bear in mind that we are treating one disease by substitution of another even though the latter, myxedema, is milder and more amenable to treatment."

In the discussion of the paper by Parsons and Purks, Lahey⁷ stated that his experiences with twenty-seven cases carefully followed up were not gratifying. He did not believe that this operation would endure, because these patients have a limited cardiac reserve and myxedema is an undesirable state for a decompensated heart. He believes that the majority will return to decompensation later. He admits that better results were obtained in a few cases of angina pectoris, so that if a patient is willing to exchange an active state for the sluggish state of myxedema there were undoubtedly cases in which the anginal pain could be reduced. Lahey emphasized the fact that a total thyroidectomy is a difficult operation with a definite mortality and a high percentage of complications, and that it demands the highest degree of technical skill.

All commentators on this proposed treatment emphasize the point that improvement in the results will in the future depend on a careful selection of patients. The operation is definitely contraindicated in the presence of bacterial or rheumatic carditis, renal insufficiency, liver cirrhosis or the presence of a recent coronary occlusion. It is doubtful whether anything can be accomplished in the rapidly progressing cases that do not show any improvement on prolonged rest

in bed and medical therapy, and in cases in which the basal metabolic rate is low. Enough definite clinical improvement has been obtained in a sufficient number of cases of congestive heart failure, and even more in angina pectoris, to justify the operation of total thyroidectomy as a distinct advance in the treatment of certain types of cardiac disease.

DENTAL LESIONS AND SYSTEMIC DISEASE

A connection between oral and systemic disorders has been frequently noted. Acute and chronic poisoning by fluorine leaves indelible records on the teeth. The so-called blue line due to poisoning by lead, bismuth, mercury and other metals is well known. Vincent's infection associated with granulocytopenia is commonly observed. Subacute scurvy can sometimes be identified through a careful oral examination alone. Other examples may be easily added from general experience. Hence it is important to recognize the character and incidence of correlative symptoms if they are to be of diagnostic value.

It has been suggested but never adequately proved that tuberculous individuals are more susceptible to lesions of the soft and hard structures of the mouth than the healthy. An intensive investigation of the possible significant oral signs of tuberculosis has been reported from the Montefiore Hospital.¹

Fifteen hundred patients in all stages of tuberculosis were studied to determine whether dental and periodontal signs could be determined as pathognomonic of tuberculosis. No excess of dental or periodontal disease, however, was found in tuberculous persons. Neither were gingivitis and erosion found more frequently, even in the presence of extreme debilitation from far advanced pulmonary tuberculosis. An unusual increase in caries, erosion or alveolar destruction was not noted. There was no evidence of decalcification of teeth that could be ascribed to a demineralization initiated by tuberculosis. This accords with the similar observations of Wells, DeWitt and Long.² Secondary lesions, which occur late in the course of pulmonary tuberculosis in the form of ulcers on the tongue or buccal membranes, were uncommon. Vincent's infection did not occur more frequently in tuberculous patients than in others.

Miller,³ however, was able to observe caries and erosion resulting from the use of lozenges with a high sugar content. Inquiries revealed that these patients were using lozenges to relieve dryness of their mouths and throats, and to prevent excessive coughing. This may help to explain why caries and erosion have been believed to be associated with tuberculosis.

1 Tanchester D and Sorrin S. Dental Lesions in Relation to Pulmonary Tuberculosis. *J Dent Res* 16:69 (Feb) 1937.

2 Wells H G, DeWitt L M and Long E R. The Chemistry of Tuberculosis. Baltimore: Williams & Wilkins Company, 1923, p 313.

3 Miller S C. *New York J Dent* 1:30 1934.

7 Lahey F H. in discussion on Parsons and Purks⁶

Current Comment

SIR SQUIRE SPRIGGE—AN EMINENT JOURNALIST

The death on June 17 of Sir Squire Sprigge, editor of the *Lancet* since 1909, marked the end of a great career in medical journalism. The history of the London *Lancet* and its founding have been previously recited in "The Life and Times of Thomas Wakley," written by him. It is interesting to learn that Sir Squire Sprigge received the cablegram which offered him a post on the *Lancet* when he was attending the Columbian Exposition in 1893. In 1909, at the age of 48, Squire Sprigge was promoted to the sole editorship. Since that time he had done much to advance medical education and to reform the curriculum in the interest of broad general knowledge. As editor of the *Lancet* he contributed largely to medical and general literature. Sir Squire Sprigge was the son of a physician, he had an innate feeling for medical problems and a tremendous influence, which he brought to bear on medical advancement. In the *Lancet* for June 26 appear a modern portrait and some fine discussions of his career which warrant the attention of all who are interested in medical history and in medical journalism. To the publishers of the *Lancet* THE JOURNAL extends sincere sympathy in the loss of a distinguished editor, a great author and a friend.

TROMBIDIOSIS, OR INFESTATION WITH CHIGGERS

Although Dorland's Medical Dictionary gives two definitions of the word "chigger," the second, "a harvest mite, or *Leptus* (*Trombicula*) *irritans*, of the southern United States," is more commonly adhered to. Parkhurst¹ has recently summarized a considerable amount of information on this subject. The chigger, which is the same approximately the world over, is the six-legged red larva of one branch of the family of Trombididae. Its essential characteristics are a hairy body with six legs terminating in claws, a rostrum bearing a pair of knifelike mandibles and two palpaе with five joints, provided with a trifold claw. Some species of this family have been reported from all the faunal areas of the tropical and temperate zones. In the northern hemisphere they may be encountered from the latter part of April until late in October. In the southern hemisphere they are found from November to March. *Trombicula irritans* Riley is the common North American chigger, according to Ewing. In the warm days of spring the adults, male and female, end their hibernation in the upper layers of the ground and emerge. From two to four weeks later about three or four hundred eggs are laid and after three or four weeks larvae hatch on the surface of the ground and on low plants. These larvae have six legs, are brick red and must apparently lead a parasitic existence in order to survive. Their hosts are reported to include

domestic animals, rodents, birds, certain reptiles and man. The larva does not change hosts and does not generally remain on the human body more than from two to four days. It drops off engorged with a fatty predigested tissue juice (not blood). The nymphs and adults are scavengers and do not infest man or animals. It has been shown that the chigger is the vector of the Japanese river fever or pseudotyphus and that the virus or organism enters the larva from the tissue of the host. According to Parkhurst there is some difference of opinion as to the location on the vegetation of chiggers. He feels, however, in common with some others, that many of the mites are actually present on tall weeds and bushes as well as on grasses. They may invade the skin of the host from the neck and shoulders down but are more commonly found from the feet and ankles up. As a rule they do not fasten themselves and feed immediately but run rapidly until they meet with an obstacle, such as a garter or a belt. Many attach themselves to the skin at points near which such obstacles are encountered. Unlike the itch mite, the chigger does not burrow but merely pierces the epidermis as deeply as possible with its pointed mandibular claws. When the chigger has thus anchored itself, it remains quietly in place and begins a process of epidermal liquefaction by extra-oral digestion. The phases of reaction have been studied and may be described as spastic ischemia, exudative arteriolitis and vasolysis with hemorrhage and vesiculation, followed by primary resorption and terminal repair. Thus, clinically, the earliest lesion to be noticed by the patient is seldom the actual bite but rather the earliest stage of the tissue reaction. The vesicle is often scratched and may be followed by a secondary infection. If it is not excoriated, it usually dries and is followed by scaling. Involution begins about the third day and is extremely slow. The diagnosis, according to Parkhurst, offers little difficulty as a rule. Immunity has been said to occur following repeated exposure, and some races are said to be relatively immune. Treatment consists of removing the mites, which is perhaps best accomplished by an application of benzene, kerosene or a copper compound, followed by bathing for a half hour with liberal application of soap, and a complete change of clothing. The second objective is relief of the severe itching by palliative measures, and the treatment or prevention of secondary infection. A variety of such measures has been tried. Parkhurst found that brief applications of rubbing alcohol (70 per cent) to the affected areas, followed immediately by a mild antiseptic antipruritic ointment, is satisfactory. A clean and generally effective application has been boric acid ointment U. S. P., to which may be added from 1 to 2 per cent of phenol and 0.2 per cent of menthol. Infestation may be fairly well prevented by the use of protective clothing or by dusting the skin with sulfur. By prolonged efforts, Parkhurst states, foci of chiggers in infested areas may be destroyed. This objective may be accomplished by removing weed and underbrush, keeping the grass cut short and carefully spraying the vegetation with sulfur by means of a dust gun or dust blower.

¹ Parkhurst, H. J. Trombidiosis (Infestation with Chiggers). Arch. Dermat. & Syph. 35: 1011 (June) 1937.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES NEW HOSPITALS EDUCATION AND PUBLIC HEALTH)

ARIZONA

Personal—Dr Roland A. Davison has been appointed to succeed Dr Louis C. B. Baldwin as medical director of the Desert Sanatorium, Tucson at the expiration of the latter's term next fall, it is reported. Dr Baldwin is returning to private practice.

ARKANSAS

District Meetings—At a meeting of the Eighth Council District Medical Society in Russellville, June 22, the following spoke: Dr Lycurgus Gardner, Russellville, "Diagnosis and Treatment of Simpler Eye Conditions", Mr Robert White, Russellville, "The Lawyer and Doctor", Dr George F. Jackson, Little Rock, "Cancer". A round table discussion was held on "Obstetric Experiences—Believe 'Em or Not". Among others, Dr Joseph F. Shuffield, Little Rock, addressed the Ninth Council District Medical Society, June 1, in Harrison, on "Common Fractures of the Lower Extremity" and Dr William B. Grayson, Little Rock, state health officer, "Social Security Act as Pertains to the State Health Department".

DISTRICT OF COLUMBIA

Personal—Dr Sara E. Branham, senior bacteriologist, U. S. Public Health Service, Washington, received the honorary degree of doctor of science from the University of Colorado at its commencement exercises, June 14, in recognition of her contributions to bacteriology in relation to public health. Dr Henry H. Hazen, professor of dermatology, Howard University College of Medicine, Washington, was elected president of the Washington Social Hygiene Society, June 12, filling the vacancy left by the late Dr William A. White.

IDAHO

Personal—Dr Charles R. Lowe, superintendent of the State Hospital South, Blackfoot, since 1930, has been appointed director of the Nampa State School and Colony to succeed Dr D. Orr Poynter, who resigned after several years in the position, ever since the school was built, it was reported.

ILLINOIS

University News—Alpha Epsilon Delta Honorary Pre-medical Fraternity announces the installation of the Illinois Alpha chapter at Illinois Wesleyan University, Bloomington, May 21. Emmett B. Carmichael, Ph.D., professor of physiologic chemistry at the University of Alabama School of Medicine, and grand president of the fraternity, conducted the installation ceremonies. This was the eighteenth chapter installed since the establishment of the fraternity at the University of Alabama in 1926.

Vital Statistics—The general death rate for Illinois was 118 per thousand of population in 1936 as compared with 109 in 1935, according to a recent report. Notifiable diseases decreased, the totals for 1936 and 1935 being 124,407 and 214,385. The fifth epidemic wave of poliomyelitis in twenty years occurred with 689 cases, 422 cases of smallpox were recorded, as compared with eighty-three in 1935 while greater prevalence was reported for pneumonia, syphilis, erysipelas, mumps and trachoma. For the last named there were 1,624 cases against 1,211 in 1935. Six cases of Rocky Mountain spotted fever were recorded during the year, twelve of pellagra, 165 of bacillary dysentery and one of leprosy. Fifty-six cases of tetanus and ninety-one of tularemia were reported, giving an incidence of about 60 per cent above that for 1935. Excessive heat caused 1,360 deaths in 1936 against ninety one in 1935 and heart disease accounted for 24,913 against 21,803 in 1935. The mortality was noticeably higher from cancer, diabetes, apoplexy and nephritis, said the report. The 5,245 deaths among infants gave a rate of 467 per thousand births slightly higher than for the year before, 454, and was attributed to an increase in deaths from diarrhea and enteritis. There were 476 deaths among women from puerperal causes giving a lower rate 42 per thousand births, than in any previous year. The number of births, 112,158 was somewhat higher than in 1935 but the rate was unchanged, 143. There were 19,348 more

births than deaths, the excess being the lowest on record. Motor vehicle accidents accounted for 2,464 deaths, 130 more than in 1935 but 111 less than in 1934, when the total of 2,575 established a new all time high.

INDIANA

Personal—Dr William E. Arbuckle has been appointed police and fire surgeon of Indianapolis to succeed Dr Frank T. Dowd. The latter was appointed a member of the Indiana State Board of Beauticians succeeding Dr Theodore D. Rhodes. Dr and Mrs John C. Sharrer, Francesville, observed their fifty-eighth wedding anniversary June 9.

Society News—The Marshall County Medical Society was addressed in Plymouth, June 23, by Dr Karl A. Meyer, Chicago, on "Recent Advances in Intestinal Surgery". At a meeting of the Gibson County Medical Society in Princeton, June 14, Dr Harold M. Trusler, Indianapolis, spoke on plastic surgery. Judge W. Lynn Parkinson, Lafayette, discussed care of crippled and diseased children and the Indiana penal system, June 15 at a meeting of the Tippecanoe County Medical Society in Lafayette. The Grant County Medical Society heard Dr Sidney Price, Marion, discuss "The Modern Management of Peptic Ulcer" June 24. At a meeting of the Park Vermillion County Medical Society, Clinton, June 16, Dr James C. Carter, Indianapolis, discussed summer diseases of children.

IOWA

Personal—Dr Daniel W. Coughlan has been appointed clinical supervisor at the Broadlawns Polk County Public Hospitals, Des Moines, effective July 1. Dr Lester J. Spinharney has been appointed health officer of Cherokee, succeeding the late Dr Charles F. Quinn. Dr Spinharney held the post from 1927 to 1931.

KENTUCKY

Personal—Dr Clifford N. Heisel, Covington, was the guest of honor at a dinner given by the staff of St. Elizabeth Hospital, June 16, in observance of the twenty-fifth anniversary of his connection with the hospital. Dr Chadwick W. Christine, Flemingsburg, has been appointed assistant health officer of Jefferson County.

Society News—Physicians of Caldwell, Crittenden and Lyon counties at a meeting in Princeton recently formed a tri-county medical society with Dr Thomas A. Henson, Frazer, Marion, as president and Dr William L. Cash, Princeton, as secretary. Drs Homer A. Gilliam and Jacob M. Mayer addressed the Graves County Medical Society, Mayfield, June 23, on "Injection of Hemorrhoids" and "Intestinal Obstruction," respectively. At the annual meeting of the Southwestern Kentucky Medical Association in May the speakers included:

Dr. Drew W. Luten St. Louis Management of Congestive Heart Failure
Dr. Frank Lee Stone Chicago Sterility
Dr. Clay O. Miller Chicago Structures of the Urethra and Associated Complications
Dr. Euclid M. Smith Hot Springs National Park Ark. Etiology and Pathology of Arthritis
Dr. John J. Shea Memphis Tenn. Sinusitis
Dr. Joseph A. Crisler Memphis Surgery—Notes from Clinical Trips

LOUISIANA

New Society for Mental Hygiene—The Louisiana Society for Mental Hygiene was organized in New Orleans, May 8, as an affiliate of the National Committee for Mental Hygiene. New Orleans. Officers include Drs Joseph A. O'Hara, New Orleans, president and executive officer, state health department, president, and Paul C. Young, Ph.D., professor of psychology, Louisiana State University, Baton Rouge, executive secretary.

MARYLAND

Personal—Abel Wolman, chief engineer of the state department of health, has been appointed professor of sanitary engineering at Johns Hopkins University.

Society News—Dr Simeon Burt Wolbach, Shattuck professor of pathologic anatomy, Harvard University Medical School, Boston, gave one of the De Lamar Lectures in hygiene, May 11, at the Johns Hopkins University School of Hygiene and Public Health, Baltimore. His subject was "Morphological Aspects of Vitamin Deficiencies."

Dr Abel's Eightieth Birthday—Dr John J. Abel, emeritus professor of pharmacology, Johns Hopkins University School of Medicine, Baltimore, celebrated his eightieth birthday, May 19, at a banquet given in the Welch Medical Library, attended by colleagues and former students. A scroll bearing the names and greetings of those in attendance was presented to

Dr Abel at the conclusion of the dinner. Dr Abel was born in Cleveland in May, 1857. He graduated in medicine at the University of Strassburg in 1888, and served as lecturer and professor of materia medica and therapeutics, University of Michigan School of Medicine, from 1891 to 1893, when he joined the faculty of Johns Hopkins as professor of pharmacology, holding the position until 1932, when he became professor emeritus. Since 1932 he has been director of the Laboratory for Endocrine Research. He was editor of the *Journal of Pharmacology and Experimental Therapeutics* from 1909 to 1932. He is a member of many scientific societies and has received the following awards: Research Corporation prize, 1925; Willard Gibbs medal, Chicago section of the American Chemical Society, 1926; gold medal of the Society of Apothecaries, London, 1928; Philip A. Conne medal, New York Chemists' Club, 1932, and the Kober medal, 1934. He delivered the first Kober Lecture sponsored by the Kober Foundation under the auspices of the Association of American Physicians in 1925.

MASSACHUSETTS

Veteran Physicians Honored—Fifteen physicians were presented with scrolls commemorating fifty years' membership in the Worcester District Medical Society at its annual meeting, May 12, in Worcester. They are Drs. Levi White, Samuel B. Woodward, Roscoe W. Swan, William C. Fogerty, William J. Delahanty, David Harrower, Charles A. Drew, John J. Brennan, Worcester; Walter P. Bowers, Clinton; Charles A. Deland, Warren; William H. Workman, Newton; George L. Tobey, Bremen, Maine; George A. Brown, Barre, and Albert C. Getchell and Homer Gage, Worcester. Dr. Charles A. Sparrow addressed the meeting on "Social Security and the Physician," and Dr. William A. Bryan was elected president of the society.

Dr. Gordon Appointed Professor of Preventive Medicine—Dr. John E. Gordon, field director of the International Health Division of the Rockefeller Foundation, New York, has been appointed professor of preventive medicine and epidemiology at Harvard University Medical School. According to the *New York Times*, the appointment is effective Sept. 1, 1938. Dr. Gordon was born in Austin, Minn., June 18, 1890, and received his degree in medicine from Rush Medical College, Chicago, in 1925. He served as instructor in bacteriology at the University of Chicago for two years and in 1925 became assistant medical superintendent at the Municipal Contagious Disease Hospital in Chicago. From 1927 to 1934 he was medical director of the communicable disease division of the Herman Kiefer Hospital, Detroit. In 1931 he was on the Michigan state commission on poliomyelitis and in the same year served on the committee of scientific exhibit on poliomyelitis for the annual session of the American Medical Association. In 1931 he was chairman of the Section on Preventive and Industrial Medicine and Public Health of the Association. For three years Dr. Gordon has been studying scarlet fever in Rumania for the Rockefeller Foundation.

MICHIGAN

University News—Dr. Charles W. Edmunds, professor of materia medica and therapeutics, University of Michigan Medical School, Ann Arbor, has been appointed to the executive board of the Horace H. Rackham School of Graduate Studies.

Personal—Dr. James H. Dempster, Detroit, editor of the *Journal of the Michigan State Medical Society*, has been appointed lecturer on medical writing at the Wayne University School of Medicine, Detroit. Dr. Edmund F. Collins has been appointed to succeed Dr. Warren L. Babcock as superintendent and director of Grace Hospital, effective October 1, it is reported. Dr. Babcock is retiring after thirty-four years in the position. Dr. Walter J. Wilson Sr., Detroit, has been made an honorary member of the Wayne County Medical Society. Dr. John L. Glees, Detroit, has retired from private practice to become medical director of the Briggs Manufacturing Company.

MINNESOTA

Personal—Dr. Wesley W. Spink, formerly of Duluth, has been appointed professor of medicine at the University of Minnesota School of Medicine, according to *Minnesota Medicine*. Dr. Edward J. Engberg, St. Paul, formerly secretary, Minnesota State Board of Medical Examiners, has been appointed superintendent of the Faribault School for the Feeble-minded, to succeed Dr. James M. Murdoch, resigned, effective July 1. Dr. Waltman Walters, Rochester, received the honorary degree of doctor of science from Dartmouth College, Hanover, N. H., at its recent commencement.

Chiropractor Given Suspended Sentence—Chester E. Paul, St. Paul, licensed chiropractor, pleaded guilty to an indictment charging him with performing an illegal operation, April 28, on a woman, aged 24, who died May 19. The indictment charged Paul with manslaughter in the first degree and with the crime of abortion in connection with this case, according to the state board of medical examiners. On the surrender in court of his basic science certificate and his license to practice chiropractic, Paul was sentenced to a term of not to exceed four years in a state penal institution and was placed on probation in custody of the probation officer of Ramsey County with the admonition not to practice healing in any way.

MISSOURI

University News—The Alumni Association of Washington University School of Medicine celebrated the fiftieth anniversary of the class of 1887 in the gold room of the Jefferson Hotel, St. Louis, June 5.

Society News—Dr. Howard A. Rusk, St. Louis, read a paper before a recent meeting of the St. Louis County Medical Society, entitled "Urticaria—A New Approach." Dr. Leon Bromberg, St. Louis, addressed the society, June 9, on "Artificial Fever Therapy." Dr. Edmund H. M. Lissack, Concordia, addressed the Lafayette County Medical Society at Lexington, May 25, on "Symptoms and Diagnosis of Pyelitis."

MONTANA

Personal—G. Albin Matson, Ph.D., associate professor of bacteriology, Montana State University, Missoula, has been appointed an assistant professor in the department of bacteriology and pathology, University of Utah School of Medicine.

NEVADA

Human Plague—A provisional laboratory diagnosis of plague has been made in a case of illness of a person who had been living in Lake Tahoe, Douglas County, about 6 miles from the cottage of a patient who developed the disease last year, according to *Public Health Reports*, June 25.

NEW HAMPSHIRE

Society News—Drs. Hiram Houston Merritt and Leo Alexander, Boston, conducted a clinicopathologic conference on neurologic conditions as guests of the Merrimack County and Center District Medical Society at its spring meeting in Concord. At the semiannual meeting of the Hillsborough County Medical Society at Nashua, May 4, Drs. Rodenck, Heffron, Boston, and William Joseph Paul Dye, Wolfeboro, spoke on "Pneumonia, Its Treatment with Serum and Its Prevention" and "Traumatic Injuries of the Hands with Particular Reference to a Method of Tendon Suture" respectively. Dr. John Rock, Boston, addressed the Grafton County Medical Society, Woodsville, at its spring meeting, on "Caution and Diagnosis of Sterility" and "A Consideration of the 'Safe Period'." Dr. Samuel T. Ladd, Portsmouth, spoke on "The Civic Responsibility of the Doctor in the Community."

NEW MEXICO

Hospital Dedicated—Holy Cross Hospital, recently given to the town of Taos by Mable Dodge Luhan, was dedicated May 3 by the Archbishop of Santa Fe. The hospital was opened in December 1936, the first the community has ever had.

NEW YORK

Personal—Dr. Ralph M. Vincent, Maine, has been appointed epidemiologist-in-training on the staff of the state department of health. Dr. David D. Rutstein, Boston, has been appointed full time medical consultant in pneumonia control on the staff of the state department of health. Dr. Edward R. Baldwin, Saranac Lake, received the honorary degree of doctor of laws at the annual commencement of Dartmouth College, Hanover, N. H.

Outbreak of Gastro-Enteritis—The water supply was believed to be the cause of an outbreak of 141 cases of gastro-enteritis in the village of Altamont, Albany County, in May. All persons who were ill reported that they had drunk the village water, while none of 125 interviewed who denied drinking from that supply had been attacked. Laboratory examination of samples of untreated water showed contamination.

Letchworth Village Superintendent Named—Dr. Harry C. Storrs, medical superintendent of the Wassauc State School, Wassauc, has been appointed superintendent of Letchworth.

Village, Thiells, to succeed the late Dr Charles S Little Dr Storrs, a graduate of Dartmouth Medical School, Hanover, N H, was first assistant physician at Letchworth Village for many years He is president of the American Association on Mental Deficiency

Society News—Drs Mather Cleveland and David M Bosworth, New York, addressed the Dutchess County Medical Society, Poughkeepsie, May 21, on "A Critical Analysis of Fifty Consecutive Cases of Fracture of the Neck of the Femur, Emphasizing Certain Causes of Nonunion"—Dr Madge C L McGinness, New York, was elected president of the New York State Women's Medical Society at its annual meeting in Rochester in May Drs Kathleen L Buck Rochester and Alice S Woolley, Poughkeepsie, were elected vice presidents and Dr Marguerite P McCarthy, Solvay, secretary—Dr Stuart B Blakely, Binghamton, addressed the Cortland County Medical Society, Cortland, recently, on "Diagnosis and Treatment of Human Sterility"

Obstetric Council in Erie County—The Medical Society of the County of Erie recently adopted a plan for an obstetric council following the final report of a special survey committee that made a study of maternal mortality The society requested each hospital taking obstetric cases to appoint a representative from its obstetric staff to the council The purposes of the council will be to carry on the statistical and educational work of the survey with the general goal of lowering the puerperal mortality rate and improving obstetric practice It will stand as a source of authoritative information on obstetrics to social agencies and the community at large, and will cooperate with recognized agencies in education of the public concerning accepted standards of obstetric care Dr Edward P Forrester is chairman and Dr Louis A Siegel secretary of the council Other members are Drs Francis C Goldsborough, Louis N La Mantia, Edward E Haley, Edward G Winkler, Curtis C Johnson, Harriet Hosmer, Abram L Weil, Bernard A Mohan and Milton G Potter

New York City

New X-Ray Unit—Contracts have been let for construction of a new x-ray plant at Long Island College Hospital, it was recently announced A high voltage therapy unit of 400,000 volts and modern equipment for diagnosis will be included in the new installation, which will cost about \$60,000 It is to be a memorial to the late Albert L Mason, for many years president of the hospital and a member of the board of regents Mrs Mason and the board have provided the funds

Dr Frank Honored—The June issue of the *American Journal of Obstetrics and Gynecology* was dedicated to the honor of Dr Robert Tilden Frank on the occasion of his retirement from active service as attending gynecologist at Mount Sinai Hospital The issue is made up of contributions from clinicians and research workers in various countries Dr Frank, who is 62 years old, was graduated from the College of Physicians and Surgeons of Columbia University in 1900 He was appointed to the staff of Mount Sinai in 1925

Grants to Columbia for Medical Research—Columbia University recently announced a grant of \$50,000 from the Josiah Macy Jr Foundation to further the program of graduate medical education made possible by the new laboratory facilities now under construction at the medical school (THE JOURNAL March 27, p 1127) Other gifts announced were

National Research Council \$13,500 for research under Dr Philip E Smith and the department of anatomy

Carnegie Corporation \$4,300 for research in biologic chemistry

Rockefeller Foundation \$1,800 to be applied on the salary of a research assistant in the department of pathology

Presbyterian Hospital Acquires Property—Presbyterian Hospital has recently purchased the property of the New York School for the Deaf on Riverside Drive just south of the Columbia-Presbyterian Medical Center The tract of seven acres is assessed at a valuation of \$1,775,000, according to the *New York Times* The purchase price was given to the hospital by an unnamed donor, it was said Plans for using the property have not been made public The school for the deaf, which has occupied the grounds since 1856, has purchased land in Greenvale, near White Plains in Westchester County, where it plans to erect a group of modern buildings

District Health Center Dedicated—The East Harlem Health and Teaching Center, first of eight district health centers to be opened this year as branches of the New York City Department of Health, was dedicated June 21, by Dr John L Rice, commissioner of health The district health center plan, by which the city's health services will be decentralized was begun in 1934 as the result of a survey conducted in 1929

by the Committee on Neighborhood Development and based on the experience of demonstration centers operated by the American Red Cross and the Milbank Memorial Fund A grant of \$2,107,797 was obtained from the Public Works Administration to construct the necessary buildings, of which the East Harlem unit is the first Seven others will be opened within the next four months, according to the *New York Times* The centers will be under the bureau of district health administration set up in 1934, each directed by a district health officer It is planned that thirty such centers will be completed by 1945 to carry out health service in all parts of the city In the East Harlem building are maternal and child health services, a tuberculosis clinic, social hygiene dental hygiene and health education services and facilities for instruction of medical students in public health work

OHIO

District Meetings—The annual summer meeting of the Eighth Council District of the Ohio State Medical Association was held at Rocky Glen Sanatorium, McConellsville, June 17, with the following speakers on the scientific program: Drs Myron Metzenbaum, Cleveland, on "Chronic Purulent Sinusitis and Its Relation to Secondary Pulmonary Complications", William N Taylor, Columbus, "Tuberculosis of the Kidneys", Walter G Stern, Cleveland, "Estimation of Disability from an Orthopedic Standpoint"—Drs Russel G Means, Columbus, and Frederick B Utley, Pittsburgh, were the guest speakers at a meeting of the Seventh Council District of the state association in Steubenville, May 27, on "Treatment of the Common Cold" and "Evaluation of Modern Methods of Treatment of Peptic Ulcer" respectively—At the summer meeting of the Sixth Council District at the Shady Hollow Country Club near Massillon, June 23, Dr Sidney M McCurdy, Columbus, medical supervisor for the State Industrial Commission, spoke on "Our Mutual Problems" and Dr Jonathan Forman, Columbus, "Allergy in General Practice"

Health Exhibit at the Cleveland Exposition—A health section arranged by the Cleveland Academy of Medicine for the Great Lakes Exposition has for its central feature the *Camp Transparent Woman*, made at the Hygiene Museum in Dresden, Germany, and brought to the United States recently by Mr S H Camp, Jackson, Mich Three hundred physicians and guests attended a preview ceremony June 15, at which the speakers were Drs John H J Upham, Columbus, President of the American Medical Association, Wingate Todd, Henry Willson, Payne professor of anatomy, Western Reserve University School of Medicine, Cleveland, Harold J Knapp, city health commissioner, and Mr Fred W Ramsey, city welfare director Dr John Dickenson, president of the academy of medicine, presided Other exhibits in the display include the progress of medicine, prepared by the American Medical Association, a full length x-ray film of the human body and other films by the Eastman Kodak Company, cardiovascular disease by the Metropolitan Life Insurance Company, undulant fever by the U S Public Health Service, "American Medicine—Past and Present," by the Cleveland Museum of Historical and Cultural Medicine, and models of the glands of internal secretion by the Cleveland Clinic Drs Hubert C King, Lakewood, Russell L Haden and Robert M Stecher made up the academy's committee that arranged the exhibit

OREGON

State Medical Meeting Dates Changed—The dates of the annual session of the Oregon State Medical Society have been changed from September 16-18 to October 21-23

PENNSYLVANIA

District Meetings—The Sixth Council District of the Medical Society of the State of Pennsylvania held its annual meeting at Philipsburg, May 13 Dr James A C Clarkson, Lewistown, who has been in practice fifty years and has been secretary of the Mifflin County Medical Society for thirty-eight years, was the guest of honor Speakers included Drs Hobart A Reumann, Philadelphia on "A Review of the Progress in Infectious Diseases", Lewis K Ferguson, Philadelphia "Treatment of Diseases of the Perinatal Region and Anal Canal" and Maxwell J Lick, Erie, president of the state society, "Health Fads and Fancies" Drs Frederick J Bishop, Scranton, president-elect of the state society, and Walter F Donaldson, Pittsburgh, secretary, discussed organization activities—The Seventh Council District held its annual meeting at Wilkesport May 14 Drs Maxwell J Lick, Erie, and Ferdinand Fetter, Philadelphia, discussed "Differential Diagnosis in Abdominal Tragedies" and "Fever Therapy" respectively

Philadelphia

Honorary Degrees—Dr George P Muller, professor of clinical surgery, Jefferson Medical College, received the honorary degree of doctor of science at the commencement exercises of Muhlenberg College, Allentown, June 8—Dr Chevalier Jackson received the honorary degree of doctor of philosophy at the annual commencement of Pennsylvania Military College, Chester, June 8—Dr Ross V Patterson, dean and Sutherland M Prevost professor of therapeutics, Jefferson Medical College, received the honorary degree of doctor of laws at commencement at Wake Forest College, Wake Forest, N C

Dr Donaldson Honored—Henry H Donaldson, Ph D, member of the Wistar Institute of Anatomy and Biology, received the honorary degree of doctor of science from Clark University, Worcester, Mass, June 5 A plaque of Dr Donaldson, sculptured by Dr R Tait McKenzie, was presented to the Lenape Club May 12, on the occasion of Dr Donaldson's eightieth birthday He has been president of the club for twenty years Dr Donaldson graduated from Yale University in 1879 and took the degree of doctor of philosophy at Johns Hopkins in 1885 He was a member of the faculty of Clark University for several years and became professor of neurology at the University of Chicago in 1892, remaining there until he joined the Wistar Institute in 1906 In 1916 he was president of the American Association of Anatomists

SOUTH CAROLINA

Personal—Dr James R Howell, Aiken has resigned as superintendent of the Aiken County Hospital—Dr William Fishburne, Monck's Corner, was elected president of the South Carolina Public Health Association at the annual meeting in Myrtle Beach in May

TENNESSEE

Society News—At a meeting of the West Tennessee Medical and Surgical Association in Paris May 20, the speakers included Drs Edwin W Coker, Memphis, on "Insulin in the Treatment of Certain Nervous and Mental Conditions" Harrison H Shoulders, Nashville, "Diagnosis of Acute Abdominal Conditions", Oval N Bryan, Nashville, "Diagnosis and Treatment of Syphilis," and J H Eugene Rosamond, Memphis, "Abstract of the Literature of 'Prontosil'"

Personal—Dr Oscar S Hawk, superintendent of the Tennessee Home and Training School for Feeble-minded Persons Donelson, has been appointed acting head of the Eastern State Hospital, Knoxville, it is reported—Dr Webster B Key, Memphis, has been appointed to the state public health council to succeed Dr John C Ayres, Memphis, resigned—Dr Fray O Pearson, Knoxville, has been appointed director of the Upper Cumberland health unit, comprising Fentress, Pickett, Clay, Overton and Jackson counties

TEXAS

Personal—Dr James H Stephenson, formerly superintendent of Parkland Hospital, Dallas, was appointed superintendent of Jefferson Davis Hospital, Houston, effective June 1 The hospital is to move into a new building about October 1—Dr Charles J Wagner, Lubbock, received the honorary degree of doctor of science at Monmouth College, Monmouth Ill, in June

VERMONT

Officers of State Board of Medical Registration—Dr Frank E Farmer, St Johnsbury, has been elected president of the Vermont State Board of Medical Registration Other officers are Drs Stanton S Eddy, Middlebury vice president, Winfield Scott Nay, Underhill, secretary, reelected, and George I Forbes, Burlington, treasurer Dr Nay was first appointed to the Vermont board in 1904

VIRGINIA

Professor of Military Science Appointed—Lieut-Col Edwin B Maynard, Medical Corps, U S Army, has been appointed professor of military science and tactics in the Medical Reserve Officers' Training Corps at the Medical College of Virginia Dr Maynard is a native of Virginia and was graduated from the University of Virginia Department of Medicine in 1908

Changes in Health Officials—Dr William Grossmann, Richmond, has been appointed epidemiologist in the bureau of communicable diseases of the state health department—Dr James N Dudley, formerly of Danville has been named health officer of Northampton County, with headquarters at Eastville He succeeds Dr Hugh B Magill Jr, who has gone to Hanover

County, with headquarters at Ashland Dr Linwood Farley, Ashland, recently in Hanover County, has been appointed assistant health officer of the Valley Health District, of which Dr Shockley D Gardner, Luray, is in charge

PUERTO RICO

University News—The School of Tropical Medicine of the University of Puerto Rico has recently acquired a parcel of land east of its buildings and will use it for an extension to the institution The University Hospital is undergoing reconstruction and will probably be reopened in about eight months

GENERAL

Orthopedic Board Examinations—The next meeting of the American Board of Orthopedic Surgery will be held in Los Angeles, Jan 14-15, 1938 Applications should be sent to the secretary, Dr Fremont A Chandler, 6 North Michigan Avenue, Chicago, on or before October 15 The board also announces that after October 1 the examination fee will be increased to \$50

Grant for Endocrine Research—The John and Marv R Markle Foundation, New York, has appropriated \$100,000 to the National Research Council for the support of research in endocrinology in the next three years The fund will be administered by the division of medical sciences and will be allotted in grants for approved programs of research in this field to be conducted in institutions which may wish to collaborate in the investigations, according to Science

Society News—The American Pharmaceutical Association will hold its eighty-fifth annual meeting in New York the week beginning August 16, with headquarters at the Hotel Pennsylvania—Dr William P Healy, New York was chosen president-elect of the American Radium Society at its annual meeting in Atlantic City, June 7-8—Dr Harry L Alexander, St Louis, was named president-elect of the Association for the Study of Allergy at the annual meeting in Atlantic City, June 7-8, Dr Warren T Vaughan, Richmond Va was elected vice president and Dr James Harvey Black, Dallas Texas, secretary

Pan American Medical Cruise—The seventh cruise congress of the Pan American Medical Association will take place January 15-31, on the *Queen of Bermuda* The group will spend four and a half days in Havana, where the main part of the congress will be held, three days of scientific sessions with operative clinics The cruise will continue to Port au Prince, Haiti, Trujillo City, Santo Domingo, and San Juan Puerto Rico Applications for reservations should be addressed to the Pan American Medical Association 745 Fifth Avenue New York The program committee will be pleased to receive applications for the presentation of scientific contributions, an announcement states

Meeting of Life Insurance Physicians—The twenty seventh annual meeting of the Medical Section of the American Life Convention was held in Colorado Springs, Colo, June 17-19 Among the speakers were

Dr Alexander Marble Boston Nondiabetic Glycosuria
Dr James Thornley Bowman London Ont Pregnancy and Its Complications
Dr James J Waring Denver Prognosis of Extrapulmonary Tuberculosis
Dr Alfred C Reed San Francisco Ultimate Prognosis of Hookworm Disease, Malaria and Amebiasis

Dr Walter E Thornton medical director of the Lincoln National Life, Fort Wayne, Ind, was elected chairman Dr Albert E Johann, Des Moines Iowa vice chairman and Dr Benjamin F Byrd, Nashville, Tenn, reelected secretary

Another Fraudulent Salesman—Physicians in Georgia and South Carolina have recently reported the activities of a salesman who claims to represent the "Atlas Sales Company" a salesman selling magazines, a medical dictionary and "National Medical Monographs," a six volume work Physicians paid from \$3 to \$8 for combinations of these publications One invoice sent to the American Medical Association is signed "S R Ray" and another with the initials "S R" Nothing was heard from the orders One physician wrote to the "Atlas Sales Company," the address of which was given as 1020 Walnut Street Philadelphia, and his letter was returned marked "no such company" The man was described in one report as about 50 years old, thin, about 5 feet 6 inches tall partly bald His hair was gray and he wore spectacles and was nervous In THE JOURNAL March 13, page 893 there was a warning of a fraudulent salesman for the same publications using the name J S Ray and claiming to represent the Continental Press, Chicago At that time the National Publishers' Association issued a bulletin stating that the Continental Press was nonexistent and

asking that physicians approached by the man wire immediately to Mr Frank Ware, National Publishers' Association 232 Madison Avenue New York

Proposed National Congress of Obstetrics and Gynecology—The *American Journal of Obstetrics* recently proposed editorially that a national congress of obstetrics and gynecology be organized in the United States, to be held possibly in 1939. Resolutions of endorsement have been approved by various national and sectional groups it was said and it has been suggested that preliminary arrangements be made by the American Committee on Maternal Welfare. Every practitioner of medicine interested in this branch as well as public health authorities and lay organizations that have contributed to the preparations for better maternity care should be reached in the call for this congress, it was observed. The editorial pointed out that the last International Congress of Obstetrics and Gynecology was held in Berlin in 1912 and that although one has been called in Amsterdam in 1938 disturbed conditions in Europe make it uncertain how much support the congress will receive.

Changes in Status of Licensure—The Oklahoma State Board of Medical Examiners recently reported the following actions taken at a meeting June 10

Drs Wade Calhoun Mitchell Henryetta John W McCrary McAlester William A Houser Durant George Washington Hill Ardmore licenses suspended for violation of the narcotic laws

Drs Glenn Waldow Zink Barnsdall Verner Ashton Hartman Post Texas and Clarence Andrew Griffin San Antonio Texas licenses revoked for violations of the narcotic laws

The New Jersey Board of Medical Examiners recently reported the following actions taken April 21

Dr Francesco Mandruzzato whose last known address was New York license revoked through his failure to present evidence that he had become an American citizen

The New York State Board of Medical Examiners recently reported the following action

Dr Jacob Joseph Seidenstein whose last known address was Brooklyn license revoked April 16 following conviction of a felony

The Massachusetts Board of Registration in Medicine announces the following action

Dr Roy L Garland Gloucester license revoked May 20 because of conviction in court on a charge of abortion

Dr Leslie A Burns Millers Falls license revoked May 20 because of repeated violation of the Harrison Narcotic Law and continued use of narcotics for other than therapeutic purposes

The Commission on Licensure in the District of Columbia reports the following action

Dr MacPherson Crichton Washington license revoked recently because of his conviction on the charge of performing an abortion he was sentenced to the penitentiary for from one year to eighteen months

The Eclectic State Medical Board of the State of Arkansas revoked the licenses of the following at its meeting, May 10, because it is said they were obtained by fraud and deception

Dr John M Betts Bloomfield N J
Dr Martin L Brockmeier St Louis
Dr Frank C Catanzaro St Louis
Dr Alva L Garner Devils Lake N D
Dr Leonard L Gramm Milwaukee

Medical Bills in Congress—*Changes in Status* A Senate amendment to H R 6652, making appropriations for the military establishment, has been agreed to by the House, increasing the medical corps of the army by fifty officers and the dental corps by twenty-five officers. The Senate Committee on Commerce held a hearing, July 8, on Senate 2067, proposing to authorize an annual appropriation of \$1,000,000 to enable the Surgeon General of the Public Health Service (1) to study and investigate the cause treatment and prevention of cancer and (2) to cooperate with the state boards or departments of health for the prevention, control and eradication of cancer within the states. H R 4716 has been reported to the Senate, without amendment, proposing an appropriation of \$1,500,000 to erect a marine hospital in Florida, the site to be selected by the Federal Board of Hospitalization. H R 6283 has been reported to the House, with amendments, proposing to increase the punishment of second, third and subsequent offenders against the narcotic laws. H R 6547 has passed the House, proposing to authorize an appropriation of \$4,850,000, to enable the Secretary of the Navy to construct in the District of Columbia, or in the immediate vicinity thereof, buildings to replace the present Naval Hospital and Naval Medical School, including facilities for the Naval Medical Center and Naval Dental School. *Bills Introduced* Senator Robinson Arkansas, has submitted in the Senate an amendment to be proposed by him to the third deficiency appropriation bill, proposing to make available to the United States Public Health Service the sum of \$189,000 for the maintenance and expenses of the Division of Venereal Diseases, a part of which is to be expended for

additional facilities and services at the Hot Springs Transient Medical Center and Infirmary. Senate 2731, introduced by Senator Nye, North Dakota, proposes to protect the public health by regulating the importation of dairy products into the United States. Senate 2746, introduced by Senator Robinson, Arkansas, proposes to authorize an initial appropriation of \$5,000,000 and for each fiscal year for four consecutive years a sum "sufficient to carry out the purposes of this act" to enable each state to make adequate provision for hospital beds for tuberculous patients. The sums to be appropriated are to be administered by the Surgeon General of the Public Health Service.

FOREIGN

Personal—Sir Frederick Gowland Hopkins, professor of biochemistry, University of Cambridge, has recently been awarded the Harben gold medal of the Royal Institute of Public Health. The medal is awarded every three years to the person considered to have done most to aid public health.

Memorial to Noguchi and Young—The *Lancet* reports that the government of the Gold Coast, West Africa is erecting a memorial to Drs Hideyo Noguchi and William Alexander Young, who died there of yellow fever in 1928 while working at the Medical Research Institute in Accra. In their memory a bronze tablet is to be placed in a room at the institute and a small drinking fountain in front of the outpatient division of the Gold Coast Hospital.

Prize for Essay on Tuberculosis—The International Union Against Tuberculosis announces that a biennial prize of 2,500 francs has been established in memory of the late Dr Leon Bernard, founder and for many years secretary-general of the union. The prize will be awarded for the first time in 1938 to the author of an original essay on the social aspect of tuberculosis written in French or English. Essays must be typewritten or printed, must not exceed 10,000 words and must be sent before May 1, 1938, by a government or an association belonging to the union to the secretariat, 66 Boulevard Saint-Michel, Paris (VI).

Government Services

New Director of Maternal and Child Health Division

Dr Edwin F Daily, assistant director of the maternal and child health division of the Children's Bureau has been appointed director. Dr Daily, a graduate of the University of Colorado School of Medicine in 1929 was formerly on the staff of the department of obstetrics and gynecology of the School of Medicine, Division of Biological Sciences University of Chicago. He will be in charge of the administration of the maternal and child health provisions of the Social Security Act.

Changes in Public Health Service

The U S Public Health Service announces the following changes among others

Medical Director Dana E Robinson relieved at Montreal Canada and assigned to Paris France where he will be in supervisory charge of service activities in Europe in connection with the medical examination of aliens at selected ports of Great Britain Ireland Irish Free State and continental Europe and the enforcement of quarantine laws and regulations applicable to ships and personnel destined to ports of the United States.

Medical Director Claude C Pierce relieved at Paris and assigned to New York to assume charge as director of public health service district 1 comprising the states of Maine New Hampshire Vermont Massachusetts Rhode Island Connecticut New York and New Jersey and in addition to act as regional consultant of district 1 in connection with disease and sanitation investigations in the New England states.

Asst Surg Wilfred N Sisk relieved at Boston and assigned to Nashville for duty with the Tennessee State Department of Health to assist in public health administration activities.

Surg Estella Ford Warner relieved at Washington D C and assigned to Albuquerque N M for duty in connection with the supervision of administrative affairs concerning the control of communicable diseases among the Indians.

Passed Asst Surg David C Elliott relieved at Hagerstown Md and assigned to Springfield Ill for advisory duty at the Illinois State Department of Health in connection with venereal disease control activities.

Sr Surg James F Worley relieved at San Francisco and assigned at Juneau Alaska for duty in connection with the control of communicable diseases among the Indians.

Surg Erval R Coffey relieved at Seattle and assigned to New York to assume charge of the regional office for district 1.

Dr Richard H Smith resident at U S Marine Hospital Ellis Island appointed and commissioned as assistant surgeon in the Recrue Corps for active duty.

Foreign Letters

LONDON

(From Our Regular Correspondent)

June 19, 1937

The Capitation Fee

The Insurance Acts Committee of the British Medical Association made a claim that the changes which have taken place since 1924, when the present capitation fee of 9 shillings (about \$2) per insured person was awarded, justify an increase of about a third. The Ministry of Health did not agree and a court of inquiry was appointed, at which lengthy arguments were brought forward on both sides. For the association it was pointed out that there had been "a reorientation of medical thought and a widening of the basis of medical practice," which now seeks not only to remove disease conditions but to promote health. The advance of medical science had increased the complexity of diagnosis and treatment. Since 1924 the average number of attendances per insured person had increased from 375 to 502. The proportion of elderly persons in the population had increased, and it was claimed that an important contributory factor in this was the constant medical attention they were able to command. In turn they required more medical treatment. Practice expenses in the form of rates, taxes, the employing of assistants, and traveling costs had increased.

For the Ministry of Health, evidence was given by its medical inspectors disputing these arguments. The ministry's own calculations showed that, while the number of office attendances increased by 107 per cent, the number of visits fell by 38. To estimate the net effect, visits and attendances were weighted in the proportion of $1\frac{1}{2}$ to 1 (according to the fees charged in private practice). The result was a net increase in services rendered of 35 per cent. With regard to the advances in medical science, the evidence for the ministry was that improved methods have mainly affected specialist practice and that such methods as have been adopted in general practice, for example the injection of varicose veins, have tended to reduce the total services required. Similarly, a great amount of work used to be thrown on the practitioner by cases of chronic dyspepsia or gastritis. Today the condition of these patients was diagnosed quickly and they were operated on or treated medically and in the majority of cases made good recoveries.

The court of inquiry reported that the present capitation fee of 9 shillings should be maintained, but the British Medical Association scored a success on one point. It has been decided to extend insurance to juveniles who leave school at 14 and enter insurable occupations. At present they do not come under the insurance act until the age of 16. For these the Ministry of Health offered first a smaller capitation fee than that paid for adults on the ground that they would make less demand on medical services than older persons and, secondly, did not require certification. They now claimed that half the adult fee was the appropriate rate. The court reported in favor of the full rate of 9 shillings for juveniles.

Physical Training and Recreation Bill Passed

The Physical Training and Recreation Bill has passed its third reading in the House of Commons. Local organization is in progress and a propaganda campaign will be started in the autumn. The aim is to build up a new leadership to train men and women and to inspire the whole nation with the ideal of personal fitness. Every child is to have access to physical education. Work in this direction has already been done by the National Playing Fields Association, which has helped to provide 1,600 playing fields and spaces during the twelve years of its existence. Most of these are in the industrial areas, where the need is greatest. Their aim is not mass drill formation but to develop the desire for physical health and recreation by encouraging the playing of team games, which develop

mental activity as well. They would rather have a million people doing 100 yards in twelve or thirteen seconds than a few sprinters doing it under ten.

Injuries of Peripheral Nerves

In civil practice, injuries of peripheral nerves which require surgical operation are infrequent, but the war gave rise to considerable experience of this kind. At the Royal Society of Medicine Mr. Harry Platt, an orthopedic surgeon, in opening a discussion on injuries of peripheral nerves stated that he had performed 510 peripheral nerve operations between March 1915 and December 1920, but during his civil practice in 1931-1936 only eighty-nine. A considerable proportion of the nerve injuries of civil life never reached the operating theater. He divided these injuries into three groups: (1) nerve injuries accompanying fractures and dislocations, (2) nerve injuries due to penetrating wounds, (3) traction injuries of the brachial plexus. The first group was subdivided into the following:

(a) Dislocations and fracture dislocations of the shoulder joint. Circumflex palsy occurred in about 5 per cent of all subcoracoid dislocations reduced promptly and efficiently. As the head of the humerus is thrust downward toward the axilla, the nerve is suddenly overstretched but rarely, if ever, completely ruptured. Under relaxation and reeducation recovery from the deltoid palsy usually takes place in three or four months. Total and permanent deltoid palsy, indicating complete rupture of the nerve, is almost unknown and must be regarded as beyond repair.

Damage of one or more of the infraclavicular plexus trunks may be sustained at the time of the dislocation or may develop later in an unreduced dislocation or fracture dislocation. The full effects of a severe plexus lesion are rarely demonstrable during the first week. The more spectacular wrist drop may mask coexisting palsy of the intrinsic muscles of the hand. The prognosis of primary lesions of the plexus trunks is not unfavorable. From posterior cord lesions, recovery within three to six months is the rule. For the inner cord recovery is much more prolonged and usually is incomplete. Experience of conservative treatment has convinced Mr. Platt that no advantage is to be gained from exploration in the early stage. In secondary lesions due to an unreduced dislocation, recovery is prevented by the strangling effects of scar tissue, which forms round the dislocated head. The nerve trunks should be freed without delay.

(b) Musculospiral lesions in fracture of the humerus. These may be primary (from direct impact of a bony fragment) or secondary (from adherence of the nerve to bone). The majority of lesions accompanying simple fracture undergo spontaneous recovery. Hence treatment should be conservative for three or four months. If after this signs of complete block still persist, the nerve should be explored.

(c) Nerve lesions in fractures and dislocations of the elbow. Lesions of the ulnar nerve are predominant. They are incomplete and usually recover under conservative treatment. In a minority, severe progressive neuritis occurs and demands neurolysis with transportation of the nerve to the front of the joint. The median nerve is rarely implicated. In mild cases the treatment is conservative, in graver lesions early neurolysis is desirable.

(d) External popliteal lesions in ligamentous rupture of the knee. These lesions are not common, during the last fifteen years Mr. Platt has operated in seven cases. In five cases a complete lesion with extensive gap was discovered and end to end suture performed. Three patients showed useful recovery of function, and failure was complete in the other cases.

Group 2. Nerve injuries due to penetrating wounds. In the upper limb these injuries are rare above the level of the lower third of the forearm. In cases of division of the median or ulnar nerve, if the wound is small and reasonably clean, primary suture may be practiced with safety. In more extensive

wounds with widespread bruising and multiple tendon injuries and in infected wounds, it is better to postpone repair of the nerve lesion until the wound conditions are more favorable.

Group 3 Traction lesions of the brachial plexus. These take two forms: (a) traction lesions of the infant during difficult labor, (b) traction lesions in the adult, usually due to road accidents. The majority of cases of birth palsy show spontaneous recovery of various degrees in the first few months. Imperfect recovery, with defective growth of the limb, is the rule. Operations have little to offer. In the past twenty years 300 cases have come under Mr. Platt's observation and in only ten has he felt compelled to explore the plexus. In two cases of resection and suture of the upper trunk, partial recovery of the upper arm muscles occurred. In a resection and suture of all three supraclavicular trunks there was excellent recovery in the upper-arm group but complete failure in the lower-arm group. In the remaining seven cases, nerve trunks barely recognizable, but obviously intact, were disentangled from scar tissue, or irreparable lesions were disclosed. The effects of the neurolysis were negligible.

The majority of traction lesions in the adult are not amenable to surgical repair and they may be completely inaccessible. But the opportunity occasionally arises for repair of a circumscribed lesion of one or more trunks. The main value of operation is in ascertaining the extent of the lesion. Thus in one case complete avulsion of the upper and middle trunk at the level of the intervertebral foramina—an irreparable lesion—was discovered. This information enabled a long period of splinting in abduction to be adopted and physical treatment of the forearm and hand to be concentrated on, resulting in considerable recovery of function.

PARIS

(From Our Regular Correspondent)

June 10, 1937

Treatment of Schizophrenia by Insulin Shock

Prof. Henri Claude, head of the department of psychiatry in the University of Paris, and Dr. P. Rubenovitch of Paris reported their technique in the treatment of the schizophrenic syndrome by insulin shock in the February 15 issue of *Semaine des hôpitaux de Paris*. They gave a daily injection, early in the morning before breakfast, for five days successively, followed by a two days interval during which nothing was given. The initial dose varied from 5 to 15 units according to the physical condition and weight of the patient, then the dose was increased 5 units daily. A personnel trained in watching for symptoms of hypoglycemia is indispensable. The attendants should be near the patient and close to a laboratory. The treatment room ought to be completely isolated in order that the treatment may be given in an atmosphere free from all noise. The treatment having been completed, the patients ought not to be sent back to the wards. They should continue treatment in an environment where occupational therapy is available.

As a result of the treatment, an improvement of the strength, appetite and sleep are noted. In two patients an oliguria appeared which gave rise to much concern. In two others, menstruation returned, after a suppression of several months. The mortality in Vienna and Switzerland is quoted as being 3 per cent. Although the treatment is not without its dangers, it merits trial in certain schizophrenic states if given in a hospital and under the strictest surveillance.

Legal Responsibility in Industrial Medicine

Two interesting decisions have been recently announced on the responsibility when a worker selects his own physician to care for an injury received while engaged in his usual factory occupation. In one case the treatment given the worker aggravated the injury and a suit was brought to determine whether the physician or the employer was responsible. Accord-

ing to the law of 1908, an injured worker has the right to be treated by any physician whom he chooses.

The two courts before which this test case was brought rendered practically identical decisions. The court at Beziers, Nov. 20, 1934, decided an injured worker is not able to claim damages from a physician for any malpractice that has made the injury worse because of unskilful treatment. It is impossible, according to the decision, to distinguish between the effects of the original injury and those resulting from improper care. The latter must be considered as a direct and immediate consequence of the accident, hence such sequels must be paid for by the employer or his insurance company.

In the second test case, the question submitted was whether the employer (or his insurance company) could claim damages from the attending physician for unskilful care of an injured employee. The Nantes court decision denied the responsibility of physicians under such conditions. A physician called to care for a patient injured in an industrial accident cannot be considered as liable either to the employer or to the employee. The physician's care of such an accident cannot be dispensed with and the law has provided for its being given to an injured employee. The latter has the right to choose his own medical attendant for an industrial accident, hence the surgical or medical care constitutes an indivisible entity with the accident and its consequences. As a result, the employer or his insurance company is not entitled to bring action against the employee's physician even though the treatment has not conformed with what the law considers reasonable care and skill.

Society of Hydrology and Medical Climatology

The annual meeting of the Society of Hydrology and Medical Climatology was held March 1. The first paper was by Guy Laroche and Grigaut of Paris on "Our Present Knowledge of Cholesterolemia and Its Clinical Importance." Cholesterolemia should be regarded as a part of lipemia and not as an independent condition. The cholesterol content of the blood (by the Grigaut method) in young adults is from 16 to 18 Gm., and any figures above 2 Gm. must be regarded as abnormal. Hypercholesterolemia as found in rickets, infections, hyperthyroidism, Addison's disease and advanced hepatic cirrhoses was described. Hypercholesterolemias can be divided into three principal groups. In the first group are those observed in chronic nephritis and nephrosis, diabetes, myxedema and disturbances of nutrition (gout, urinary lithiasis and arteritis). These diseases are accompanied by excess of lipids in the blood and adrenals and an increase in the ratio of cholesterol esters to total normal blood cholesterol. In the second group may be placed hypercholesterolemia due to hepatic dysfunctions. Here no reaction on the part of the adrenals exists and the ratio of cholesterol esters to total normal cholesterol is decreased. This type is seen in retention icterus, biliary lithiasis and xanthoma of hepatic origin. The third group is less sharply defined and includes hypercholesterolemia in plethora and in sedentary and asthmatic patients.

The second paper was by Tixer, Seze and Eck, on treatment of diseases due to hypercholesterolemia. There is often discordance between the blood cholesterol content and the clinical picture whether modified by treatment or not. In such instances the dermal reaction to cholesterol as suggested by Loeper is of considerable value. In attempting to treat hypercholesterolemia, it is necessary to employ opotherapy, chemotherapy and phytotherapy successively in conjunction with, vasodilators, diuretics, tonic-cardiacs and hydrotherapy.

In the third paper G. Binet reported a hypercholesterolemia in from 85 to 90 per cent of all patients suffering from liver disease, sent to Vichy. High blood cholesterol values are less often observed in uncomplicated biliary disorders than in those accompanied by disturbances of nutrition, such as diabetes, gout or plethora. The treatment at Vichy has a distinct beneficial influence on the hypercholesterolemia in from 80 to 85

per cent of the patients. Often weeks or months must elapse before the result can be evaluated. Certain waters, they believe, have a distinct cholagogue action by modifying the biliary pH , disinfecting the bile and thus opposing precipitation of cholesterol.

Conflicts Between Attending Physicians and Social Insurance Inspectors

One of the most disagreeable features of the present social insurance law is the interference of the representatives, both medical and lay, of the caisses, or compensation bureaus of the social insurance organization, in the treatment of a patient by the attending physician. Such interference consists in criticism of both the diagnosis and the treatment when the attending physician is absent, thus disrupting the necessary confidence that must exist between patient and physician.

The following case is cited in the May 9 *Concours medical*. The attending physician advised a patient to resume work. The medical inspector visited her without the attending physician's knowledge and told her that, although she was better, resumption of work was inadvisable. The attending physician felt that such a visit to the insured without his knowledge was unethical. In the answer to this complaint, a paragraph in the modified (1936) law is cited, according to which medical inspectors are responsible for surveillance of all social insured persons and are authorized to carry out any investigation regarding the condition of the insured. But it is formally forbidden that a medical inspector should interfere in the patient-doctor relationship. Under no circumstances should the diagnosis or merit of the treatment be discussed in the presence of the patient. If the medical inspector disagrees with the diagnosis and treatment, he must address himself to the attending physician and also make his report and criticisms to the caisse or compensation bureau to which he is attached.

In the case cited, the medical inspector evidently violated the regulations in informing the patient that she was not cured and not able to resume work.

BERLIN

(From Our Regular Correspondent)

May 27, 1937

Investigation of an Epidemic of Scarlet Fever

In Pinneberg, a town of some 9,000 population near Hamburg, a number of children and adults became suddenly ill with moderately severe scarlet fever about the middle of April. The cause of this outbreak at first eluded the investigators, there had been no large meetings of townspeople and it was vacation time in the schools. The epidemic appeared with explosive suddenness and attacked the most disparate groups. Within the course of a single week, 225 unequivocal cases were reported. There were two fatalities. The local health department finally found that the path of the epidemic coincided fairly well with the customer route of a certain milkman. Certain nonresidents of Pinneberg, for example, who had been visiting the town just prior to the outbreak and who had partaken of milk from the source in question also came down with the disease. When the milk supply from this source was stopped by the authorities the number of new scarlet fever cases dropped immediately and the epidemic came to a virtual end. Diseased cattle were in no way responsible for the contamination, but the milkman himself was found to have an undiagnosed scarlatinal infection accompanied by otitis.

Conservative and Operative Treatment of Goiter

Dr. Breitner, professor of surgery at the University of Innsbruck, Tyrol, discussed conservative and operative treatment of goiter before the Frankfurt Medical Society. The high incidence of goiter in the Tyrol lends itself well to this study. He finds it relatively easy to separate goiter into two groups on the basis of therapeutic indications: conservative or operative. Any goiter that causes mechanical disturbances will

require operative treatment. In intrathoracic goiter operative treatment is unqualifiedly indicated and it is only a question of which type of intervention should be attempted. Conservative iodotherapy is preferable to operation only in diffuse goiters of young children and adolescents. The fundamental differentiation of diffuse, nodular and mixed goiters (a decisive point in indicating the type of treatment) involves the peculiar character of general thyroid enlargements. The problem of selecting a suitable therapy lies in the diversity of forms which general enlargement may assume. Nodular goiter should remain untouched only in the absence of any symptoms. Elsewhere conservative treatment has not proved successful in pure struma adenomatosa, but goitrous nodules in a diffuse struma are favorably influenced by medication.

Goiters may be differentiated on a morphologic basis as set forth in the accompanying table.

Four Types of Goiter

Normal formation of secretion	All secretion is quickly excreted	Struma parenchymatosa
Normal formation of secretion	Most of the secretion retained	Struma colloidosa type I
Increased secretion	All excess secretion quickly excreted	Struma basedowiana (toxic goiter)
Near or complete cessation of secretion	Complete retention of secretion	Struma colloidosa type II

Each of these four types represents a pathologic alteration of function which needs to be restored to normal. When exaggerated excretion is present, iodine will be found most effective in curtailing the output. Iodotherapy can serve both to check an excessive excretion and to induce a more liberal secretion in suppressed states.

Diffuse goiter of youth is struma parenchymatosa with increased production and elimination. The results of iodotherapy are usually favorable. Operative treatment is indicated in the presence of mechanical disturbances. There should be postoperative systematic administration of thyroid for from six months to a year so that by compensation of the deficient secretion a recurrence may be prevented. Three types of hyperthyroidism can be differentiated: the psychogenic exophthalmic goiter, the iodine toxic goiter and the toxic goiter of endocrine origin. The standard routine calls for preliminary treatment with iodine (following Plummer's method) prior to operation. Toxic adenoma is refractory to iodotherapy and may even be aggravated by it. Breitner's observations indicate that no one system of therapy guarantees the favorable outcome of a given case.

Spatial Representation in the Roentgenogram

Spatial visualization of a physiologic process offers great difficulties. It is well known how much effort was entailed fifty years ago before the mechanics of the human gait could be established with anything like mathematical exactitude. The plastic visualization of motor processes was easy; the difficulty lay precisely in three-dimensional representation. Meanwhile the technic has been greatly improved. Cinematography, slow motion photography and roentgenography, especially the two first named, permit complicated motor processes to be represented with exactitude. Nevertheless the scientific knowledge of the human gait, of the statistics and mechanics of the human body have not been substantially augmented. As Dr. H. Koehnle demonstrated to the Dusseldorf Medical Society, the sectional x-ray visualizations of the human body can now be made not only in normal projection but in the third dimension. The ultimate aim is, however, to portray the spatial visualization of a particular region of the body as apart from the x-ray visualization of the organism as a whole and to study the mechanics of this region at rest and in movement. Koehnle has succeeded, using apparatus perfected by himself, in portraying the entire body both in visible light and by x-rays while the spatial position remained unchanged. The exposures

were also submitted to photogrammetric evaluation by means of special apparatus. Differences in bodily attitudes (during a given movement) are important, these vary among normal persons and persons affected with rigidity of the vertebral column or rigid and shortened feet.

Is Removal of the Tonsils Injurious?

Dr Eigler recently submitted a report of investigations undertaken at the Koenigsberg clinic on the late deleterious effects of removal of the palatine or pharyngeal tonsils. In no instance were permanent changes in the hematogram or impairment of the endocrine organs observed. The view is prevalent that the lymphatic pharyngeal ring offers protection against infection. There are two opposing theories of this defense mechanism. According to the newer theory, as formulated by Linck and Digby, the pathogenic micro organisms continually enter the adenoid tissue, there to be destroyed. This process leads to the formation of antibodies that are carried into the circulation. Patients who possess a susceptibility to pharyngitis, laryngitis and bronchitis furnish a reliable indication for tonsillectomy. In the presence of a well developed laryngitis granularis or pharyngitis sicca, tonsillectomy is contraindicated unless life itself is endangered. Then too in the treatment of singers and lecturers the physician must be especially careful in determining the indication for tonsillectomy, since the intervention might be followed by modifications of the vocal resonance.

AUSTRALIA

(From Our Regular Correspondent)

May 17, 1937

The National Health

There seems little doubt that our descendants will look back on our boasted Australian civilization, with its comparatively high incidence of tuberculosis, its high cancer rate, numerous acute and chronic diseases, its relatively high maternal and infantile mortality, its infectious diseases, and its epidemics of influenza, to say nothing of the more serious common cold, with the same sort of tolerant pity with which we regard our ancestors of the middle ages. This was a dominant note of the Ann Mackenzie oration delivered at the Institute of Anatomy, Canberra, this month by Harold Dew, professor of surgery at the University of Sydney. 'It is a lamentable fact,' he said, 'that the average standard of health in Australia is much below what it should be. Australia has an almost unequalled climate and an abundant supply of fresh food. Its people came from a comparatively hardy and vigorous stock. Health should be the right of every citizen but it is a tragic fact that a large proportion of the population rarely exhibit that glowing radiant appearance which denotes perfect health.' Professor Dew said that in New South Wales in recent years the average number of patients attending public hospitals was 26 per cent of the whole population. The figure for South Australia was 36 per cent, while those of the other states were somewhat smaller, but they all took no regard of the number of patients seen by private doctors. 'There is far too much chronic ill health,' he said, 'much of which could be controlled or prevented. The degree of suffering and the amount of time lost from work, and the lessening of national efficiency from that cause is beyond computation. The death rate must be greatly reduced and there is no reason why Australia should not build up the highest average national health standard in the world.' The formation of the Commonwealth Council for National Health and Medical Research has recognized the essential need for education of the people on health matters, by every possible modern method. The council has recommended the granting of financial aid for research work, and it has plans for appointing junior research workers for three year periods at a good salary from which senior research workers will be chosen, given permanent positions and employed on special work.

Foundation of Queensland Medical School

The inauguration of the Faculty of Medicine in the University of Queensland marks a new step in the progress of medical education in Australia. As roughly a half of the area of Queensland lies in the tropics, a feature of this medical course will be the inclusion of tropical hygiene and medicine as a compulsory subject in the undergraduate course. It is fifty years since a medical school was founded in Australia, the last being that in Adelaide, which was opened in 1885 and which has just celebrated its jubilee. The school in Melbourne, opened in 1863 was the first to be established in Australia. The Sydney school was opened twenty years later in 1883. At the present time the number of medical students in Sydney is 632, in Melbourne 609 and in Adelaide 120. It is expected that about forty students in each year will enter the Queensland Medical School making a total of over 200 medical students in all. In order to be admitted as an undergraduate to the Medical School of the University of Queensland, a preliminary educational standard known as matriculation is required. In framing the requirements for matriculation, the aim has been to encourage future medical students in their general education to study those subjects which will best fit them for entrance into the faculty. A notable deviation from the usual practice is that Latin is no longer compulsory, but a choice can be made between French and German. The study of German is recommended because it enables the medical student to gain access to the greatest volume of medical literature written outside their own tongue. Mathematics is compulsory, also both physics and chemistry, although only one of the latter two need be taken at the senior standard. The medical school is fortunate in having in Brisbane a 600 bed hospital comprising all the institutions necessary for the education of medical students. The Brisbane hospital includes a children's hospital, a modern maternity hospital and a hospital for infectious diseases, as well as providing all the usual training facilities of a general hospital. In the three other medical schools of Australia these various departments are scattered about in different places in a large city, and much time is wasted by the students in moving about from one to the other. The recommendations of the recent report of the British committee which studied the medical curriculum have been embodied in the curriculum adopted at the University of Queensland. Prof. H. J. Wilkinson is the dean of the Faculty of Medicine and professor of anatomy. Professor Wilkinson has relinquished a professorship in the Adelaide University to be the foundation dean of the Queensland Medical School. Prof. H. K. Lee is the professor of physiology. Australia as a whole is rightly developing a national spirit, but it is beginning to be recognized that Queensland presents problems peculiar to itself, which needs more determined and extensive study along certain and well defined lines. Sir Raphael Cilento has been appointed honorary professor of social and tropical medicine. Professors of pathology and obstetrics as well as lecturers in bacteriology, medicine, surgery, public health and preventive medicine have yet to be made. The first students will graduate in December 1940. The educational facilities of the Queensland Medical School will be comparable with those available in other Australian medical schools. Moreover, the experience gained by other Australian medical schools will be useful in avoiding many mistakes which are inherent in the development of an organization of this scope. Such a standard of medical training will be aimed at that reciprocity in medical registration will be sought from the general council of Great Britain. The future of this school will be worthy of being watched with great interest.

Physical Education in New Zealand

The national campaigns for improved physical fitness and nutrition in the older countries of Europe have had their effect on administrative thought in this part of the world. The New

Zealand government has drawn up plans for a national council of sport, the object of which is to encourage and develop all sports with the cooperation of all the sporting bodies in New Zealand, and the coordination of their activities. The New Zealand government recognizes that the foundation of the system of national physical well being must be the schools. The children will be taught real physical education, including something about their own physical make up. The national sport council would control the physical education and instruction of children while they are at school. The existing sports organizations would not be interfered with. Provincial councils would be formed, representative of all sports. The task of providing national playgrounds would be handled by the national council, which would control all gymnasiums, swimming baths, places for education and instruction and libraries, and would also organize parades and demonstrations of physical fitness.

Effect of New Zealand Traffic Code

Last July a strict traffic code was introduced in New Zealand, the chief feature of which has been that the speed limit of 30 miles an hour is enforced in "built up" areas. It is considered that this has been responsible for the marked reduction of accidents. The saving of lives since the campaign started in July has been at the rate of 100 a year when comparison is made with other years. Although the total of all traffic deaths has been substantially reduced in the last few months, the death rate among motor cyclists remains constant. They were involved in nearly a fourth of the fatal road accidents. The problem of the intoxicated driver still exists, but a more serious attitude toward this menace is being adopted.

BELGIUM

(From Our Regular Correspondent)

April 27, 1937

Creation of a Ministry of Health

Apropos of the creation of the Ministry of Health, Rene Sand has outlined for the Societe medicale belge d'education physique the role that the new department will play in the development of curative and preventive social medicine, a role that will make of it the veritable complement of previously existing medical legislation. Social diagnostics is the complement of medical diagnostics; social medicine completes the treatment. It is obviously not for the physician to conduct the social investigation or to apply the "social" remedy. Social medicine is poorly understood by the physician, since he does not perceive in the aggregate the medical problems of his country. To solve these problems will be the task of the Ministry of Public Health. To broaden the new department's sphere of activity there have been brought together under it the bureaus of sanitation, of welfare, of physical education and of health. Its resources will consist of 55,000,000 francs in the ordinary budget (namely, less than 0.5 per cent of the state budget) and 100,000,000 francs in the extraordinary budget. Recognizing the need for establishing better coordination of various departmental functions having to do with medical, hygienic or social problems, the minister has organized an interministerial committee for health activities. Sand described the tasks and duties already accomplished and concluded his noteworthy report by sketching the program of the new Ministry of Public Health, which includes plans for the construction of playgrounds, field houses and natatoriums.

The Campaign of the Academie Against Alcoholism

The Academie royale de medecine de Belgique has transmitted to the minister of public health the text of a motion unanimously adopted by those present and having for its objective the continuation in force of legislation against alcoholism. The text reads as follows. In conformity with its previous utterances in the matter of the necessity for a vigorous fight against alcoholism, the Academie royale de medecine disap-

proves categorically of any restoration of the legal right to the consumption of spirituous beverages in public places. The Academie regrets that from time to time attempts are made to exact from parliament repeal of legislation which possesses a high moral significance and the effects of which have been salutary. The Academie hopes that in future the concept that, of all the duties incumbent on the state, the most important is that of protecting the race against the forces of moral degradation and physical deterioration, will cease to be contested.

Health Supervision of Youthful Workers

Health supervision of employees under 18 years of age has been instituted in industrial and commercial establishments by the Labor Medical Service. This supervision consists chiefly of medical examinations undertaken according to the following routine: (1) an examination of each worker during the first month of employment, (2) a general annual check up and (3) special follow ups of young workers whose state of health has been judged precarious on previous examination. These follow ups may be semiannual, quarterly or monthly according to the decision of the medical inspector.

Employers are compelled to cooperate with the medical officers in order that the health supervision may function as smoothly as possible. The principal duties of employers in this connection are: 1 Maintenance of an up to date list, in conformity with the model prescribed by the health service, of all employees under the age of 18. This list may be requisitioned at any time by the regular medical inspectors or their superiors. 2 Notification of the medical inspector within two weeks following the employment of any person less than 18 years of age. 3 Reporting to the medical inspector the frequent absence on account of illness or the chronic ill health of any young employee. 4 Provision of the examining medical officers at the time of their visits with quarters that are suitably lighted, ventilated, heated during cold weather and equipped in a way that will assure the swift and decent conduct of the examinations. 5 Full compensation of the employee for time lost from work on account of medical inspections. 6 Compliance with the recommendations of the medical officer in the matter of the type of work assigned to the individual adolescent employee. This will safeguard the physical development of youths known to be in delicate health. 7 Communication to the Labor Medical Service of all information requested by it with regard to decisions in particular cases.

The medical examinations mentioned under article 1 take place at the expense of the employers and are carried on by physicians selected by the employers and approved by the minister of labor and the Prevoyance sociale. Examination will take place either at the doctor's office or in suitable quarters on the firm's premises placed at the doctor's disposal.

The results of these medical examinations shall be entered in the "carnets sanitaires" (individual pocket health cards) of the employees in question. A "carnet sanitaire" is made out by the employer following the initial medical examination of any employee who does not already possess such a card.

Substitutes for Dairy Products

In the face of the increasing importation of foreign substitutes for dairy products, a law has just been passed which prohibits the importation, manufacture or preparation of the following classes of substitute products: (1) artificial emulsions of fatty or oily foodstuffs that are susceptible of being utilized as substitutes for whole milk or for the liquid derivatives of whole milk, (2) reconstituted milks, (3) products suitable for human alimentation that contain pectin, gelatin, gelose, gums and other thickening agents similar to whole milk or its liquid derivatives and (4) cheeses the fatty ingredients of which are partially or totally composed of substances foreign to milk, or of grease obtained from butter by some purifying or refining process.

Marriages

EDWARD RHODES STITT, Surgeon General, Rear Admiral, U S Navy, retired, Norfolk, Va, to Mrs James Thornwell Newton, May 3

JOHN LYON CAUGHY JR, New York, to Miss Winnifred Emily Scott of Auburndale, Mass, May 22

REGINALD CHARLES FARROW, Newark, N J, to Miss Carolyn Tyler Chase of Hartford, Conn, June 18

ROBERT H GELDER, Winthrop, N Y, to Miss Mary Wisdom Zirkle of Kingston, Tenn, May 8

CHARLES W REAVIS, Richmond, Va, to Miss Allie Virginia Cheek of Warm Springs, May 20

GLENN T SCOTT JR, Memphis, Tenn, to Miss Frances Lawrence of Barlow, Ky, recently

DONALD PAUL BIRD, Lakeland, Fla, to Miss Mildred Elaine Lewis in Bartow, April 17

Deaths

John Randolph Winslow, Baltimore University of Maryland School of Medicine, Baltimore 1888 member and formerly historian of the Medical and Chirurgical Faculty of Maryland fellow of the American College of Surgeons professor emeritus of rhinology and laryngology at his alma mater, professor, 1913-1921, and clinical professor of nose and throat diseases, 1903-1913, lecturer on chemistry 1888-1889, professor of physiology, 1889-1894, Woman's Medical College, Baltimore for many years surgeon to the Baltimore Eye Ear and Throat Hospital and throat surgeon to the Presbyterian Eye, Ear and Throat Hospital, aged 71, died, June 26 of chronic myocarditis

Russell Edward Stone, New Orleans, Vanderbilt University School of Medicine, Nashville, Tenn, 1899, member of the Louisiana State Medical Society, fellow of the American College of Surgeons, since 1931 professor of clinical surgery, Graduate School, Louisiana State University, served during the World War, aged 58, chief of the surgical service of the Woman's Hospital, senior visiting surgeon to the Charity Hospital, senior associate surgeon to the Touro Infirmary, where he died, June 18, of complications following an operation for appendicitis

Hugh Allison Greenwood Ⓢ Maracabo, Venezuela, South America, Tulane University of Louisiana Medical Department, New Orleans, 1907, member of the Medical Association of Isthmian Canal Zone, served as a physician to the Isthmian Canal Commission from July 17, 1909 to April 6, 1913, served on the Costa Rica Panama Boundary Commission, was medical director and chief surgeon for the Standard Oil Company, aged 58, died, June 20, in Chapel Hill, N C, of cerebral hemorrhage

Francis Gabriel Minter Ⓢ Boston, Tufts College Medical School, Boston, 1913, member of the American Academy of Ophthalmology and Oto-Laryngology and the New England Otolological and Laryngological Society, served during the World War, aged 53, on the staffs of the Cambridge (Mass) City Hospital, St Margaret's Hospital and the Carney Hospital, where he died, April 10, of pneumonia, following an operation for appendicitis

Victor Mildenberg, Jamaica, N Y, Long Island College Hospital, Brooklyn, 1898, member of the Medical Society of the State of New York, director of the bureau of preventable diseases of the New York City Department of Health, veteran of the Spanish-American War, member of the National Defense Council during the World War, on the staffs of the Jamaica and Mary Immaculate hospitals, aged 61, died, April 13

Sally Josephine McCollum, Chicago Illinois Medical College Chicago, 1898 Northwestern University Woman's Medical School, Chicago, 1899 member of the Illinois State Medical Society and the Associated Anesthetists of the United States and Canada, on the staff of the Women and Children's Hospital, aged 76 died April 24, of arteriosclerosis diabetes mellitus and lobar pneumonia

Daniel Charles O'Neil Ⓢ Binghamton, N Y University and Bellevue Hospital Medical College New York 1899 served during the World War at one time medical superintendent of the Endicott Johnson Clinton Street Hospital, aged

59, on the staff of the Charles S Wilson Memorial Hospital, Johnson City, where he died, April 22 of coronary occlusion

Clifford Joseph Ouellette Ⓢ Oconto Wis Marquette University School of Medicine Milwaukee 1914, served during the World War, county physician for a number of years past president and secretary of the Oconto County Medical Society, on the staff of the Oconto City and County Hospital, aged 47 died, April 29, in a hospital at Milwaukee

J Baldwin McComb, Palo Alto, Calif, Starling Medical College, Columbus, 1897, formerly connected with the U S Public Health Service for many years on the staff of the U S Veterans Administration, stationed at Alexandria and Algiers aged 63, died, April 21, of tumor of the meninges and coronary occlusion

William Connely McDonough Ⓢ Topeka, Kan, Rush Medical College, Chicago 1902 member of the Radiological Society of North America, at one time demonstrator of anatomy at the Kansas Medical College on the staffs of St Francis Hospital and the Christ Hospital, aged 69 died, April 17 of chronic myocarditis

Harry Hartzell Penrod Ⓢ Johnstown Pa Jefferson Medical College of Philadelphia, 1904 served during the World War, past president of the Cambria County Medical Society, aged 61 formerly on the staff of the Conemaugh Valley Memorial Hospital, where he died, April 7, of chronic nephritis and myocarditis

William John Middleton, Steelton, Pa, Jefferson Medical College of Philadelphia, 1879, member of the Medical Society of the State of Pennsylvania, past president of the Dauphin County Medical Society and the Harrisburg Academy of Medicine, aged 79, died, April 13, in Atlantic City, N J, of coronary sclerosis

Everett Edwin Robinson Sr, Meridian, Miss, University of Nashville (Tenn) Medical Department, 1902, member of the Mississippi State Medical Association, at one time professor of minor surgery and assistant to the chair of gynecology at the Mississippi Medical College, aged 60 died, April 4

John Roberts, Kingston, Tenn Tennessee Medical College, Knoxville, 1898 member of the Tennessee State Medical Association chairman of the county board of education formerly county health officer, aged 67, died, April 29, of myocarditis and arteriosclerosis

Edward N B Mershon, Saxonburg Pa, University of Buffalo School of Medicine, 1877, member of the Medical Society of the State of Pennsylvania, also a pharmacist, for many years president of the school board and board of health, aged 88, died, April 23

John Kimball Parish Ⓢ Hermansville, Mich Tulane University of Louisiana School of Medicine New Orleans 1919 secretary of the Menominee County Medical Society on the staff of the Pinecrest Sanatorium, Powers aged 40 died, April 18, of pneumonia

Sylvan Myers, Vicksburg, Miss, University of Pennsylvania Department of Medicine, Philadelphia, 1894, at one time county health officer, formerly on the staff of the Mississippi State Charity Hospital, aged 63, died suddenly, April 30, of coronary thrombosis

James John Meece, Dunmore Pa, Jefferson Medical College of Philadelphia 1928, member of the Medical Society of the State of Pennsylvania, county jail physician aged 34 died, April 10, in the Mercy Hospital, Scranton of septicemia following furunculosis

Wayman C Melvin, Linden, N C, University College of Medicine, Richmond, Va, 1900, member of the Medical Society of the State of North Carolina, member of the school board, aged 61, died, April 26, in the Goodhope Hospital, Erwin, of pneumonia

William Edward Rudd, Salem Mo Barnes Medical College, St Louis, 1897, member of the Missouri State Medical Association, served during the World War aged 66 died, April 22, of coronary thrombosis, myocarditis and arteriosclerosis

William Edwin Savage, Lynchburg, Ohio, Medical College of Ohio, Cincinnati 1899, member of the Ohio State Medical Association, served during the World War, aged 65, died, April 21, in the Good Samaritan Hospital, of cerebral hemorrhage

Julius Jay Selman Ⓢ Cleveland, Western Reserve University School of Medicine Cleveland, 1917, on the staffs of the City Hospital and the Mount Sinai Hospital, aged 44, died, April 24, of injuries received when he fell from a ninth story window

William Edwards Shastid, Pittsfield, Ill., Jefferson Medical College of Philadelphia, 1886, member of the Illinois State Medical Society, formerly secretary of the Pike County Medical Society, aged 74, died, April 4, of cerebral hemorrhage

Clarence Charles McCreery @ Fall River, Mass., Long Island College Hospital, Brooklyn, 1911 fellow of the American College of Surgeons, orthopedic surgeon to the Truesdale Hospital, aged 47, died, April 23, of coronary thrombosis

Joseph T. Newlove, Minot, N. D., Detroit College of Medicine, 1896, member of the North Dakota State Medical Association, on the staffs of the Trinity Hospital and St. Joseph's Hospital, aged 69, died, April 16

James E. O'Connell, Milwaukee, Wisconsin College of Physicians and Surgeons, Milwaukee 1905, aged 71 died April 6, in the Milwaukee General Hospital, of carcinoma of the stomach and sigmoid

John David McRae @ Chippewa Falls, Wis., McGill University Faculty of Medicine, Montreal, Que., Canada, 1897, on the staff of St. Joseph's Hospital, aged 68, died suddenly April 21, of lobar pneumonia

James R. Linzy, North Little Rock, Ark., Memphis (Tenn.) Hospital Medical College, 1897, aged 68, died, April 15, in the Baptist State Hospital, Little Rock, of chronic myocarditis and nephritis

Herbert M. McConathy, Tampa, Fla., University of Louisville (Ky.) Medical Department, 1898, veteran of the Spanish-American War, aged 67, died suddenly, April 1, of chronic myocarditis

Frederick Lucius Muth, Wilmerding, Pa., Hahnemann Medical College and Hospital of Philadelphia 1898, president of the board of health of Wilmerding, aged 60, died, April 20, of lobar pneumonia

George Washington Johnson, San Antonio, Texas, Eclectic Medical Institute, Cincinnati, 1883, member of the State Medical Association of Texas, aged 76, died, April 5 of bronchopneumonia

Oscar A. Lambert, Okmulgee, Okla., Starling Medical College, Columbus, 1894, at one time mayor of Marietta, Ohio, aged 71, died, April 23, in Lakeland, Fla., of acute dilatation of the stomach

Nathan Smilie, Philadelphia, Hahnemann Medical College and Hospital of Philadelphia 1894, aged 68, died, April 27, in the Jackson Memorial Hospital, Miami, Fla., of cerebral hemorrhage

Vera Mae Irene McDorman, Moose Jaw, Sask., Canada, University of Manitoba Faculty of Medicine, Winnipeg, 1932, house physician to the Providence Hospital, aged 28, died, March 12

James W. Pinch, Milwaukee, Michigan College of Medicine and Surgery, Detroit, 1891, aged 72, died, April 30, in the Evangelical Deaconess Hospital of chronic myocarditis

John J. Raaf @ Pocatello, Idaho, Barnes Medical College St. Louis, 1898, on the staffs of the Pocatello General Hospital and St. Anthony Mercy Hospital, aged 65, died April 9

Eugene S. Miller, Childersburg, Ala. (licensed in Alabama in 1908), formerly health officer of Macon County, aged 54, died, April 26, in a hospital at Sylacauga, of pneumonia

Arthur Ross Mead, Jeffersonville, Ind., University of Louisville (Ky.) Medical Department 1911, aged 50, died, April 11, of influenza and hypertensive heart disease

George Frederick Seitters, Liberty, Ohio, Eclectic Medical College, Cincinnati 1919, aged 61, died April 6, in the Miami Valley Hospital, Dayton, of lobar pneumonia

John Bunyon Johns, Bethany, La., University of Louisville (Ky.) Medical Department, 1890, aged 72, died, April 10, in a hospital at Texarkana, Ark., of chronic malaria

Louis Winfield Myers, Los Angeles, College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1905, aged 55, died, April 3

Edward Clay Robinson, Augusta, Ga., Leonard Medical School, Raleigh, N. C., 1901, aged 61, died, April 10, of hemiplegia, cerebral hemorrhage and hypertension

Horace R. Rankin, Chicago, University of Louisville (Ky.) Medical Department, 1897, aged 67, died, April 11, in the Cook County Hospital of pulmonary tuberculosis

Preston Allan Miller Lyster, Chula Vista, Calif., McGill University Faculty of Medicine, Montreal, Que., Canada, 1922, aged 47, died, April 26, of coronary thrombosis

Hagop H. Rejebian, New York, Bellevue Hospital Medical College New York, 1888, member of the Medical Society of the State of New York, aged 71, died, April 3

James Monroe Sample, New Washington, Ind., Louisville (Ky.) Medical College, 1907, aged 55, died, April 25, in Madison, of sclerosis of the spinal cord

Charles D. McKenzie, Cincinnati, Cincinnati College of Medicine and Surgery, 1896, aged 81, died, April 3, in St. Francis Hospital, of arteriosclerosis

A. L. Norfleet, New York, St. Louis Medical College 1881, aged 79, died, April 24, in the Columbia Presbyterian Medical Center, of cirrhosis of the liver

John W. Linthicum, Catonsville, Md., University of Maryland School of Medicine, Baltimore, 1884, aged 75, died, April 18, of nephritis and heart disease

Alfred Mitchell Butterfield, North Troy, Vt., University of Vermont College of Medicine, Burlington, 1905, aged 55, died, April 25, of epithelioma

Samuel Harvey McCoy, Ottawa, Ont., Canada, University of Toronto Faculty of Medicine 1892, F.R.C.S., of Edinburgh, Scotland, 1905, aged 71, died, April 9

Charles W. McFarling, Tulsa, Texas, University of Tennessee Medical Department, Nashville, 1901, aged 64, died April 3, of influenza and pneumonia

Marion Edmond, Eagle Rock, Va., Medical College of Virginia, Richmond, 1901, member of the Medical Society of Virginia, aged 59, died, April 25

Emma Comly Waln Goodman, Ambler, Pa., Woman's Medical College of Pennsylvania, Philadelphia, 1893, aged 80, drowned in a bathtub, April 26

Carrie Estella Slaght, Interlaken, N. Y., Rush Medical College, Chicago, 1915, aged 52, died, April 1, of fibroids of the uterus and acute nephritis

James Alexander McNaughton, Los Angeles, University of Toronto Faculty of Medicine, 1893, served during the World War, aged 67, died, April 28

Harry Alexander Manchester @ Lincoln, R. I., Long Island College Hospital, Brooklyn, 1899, aged 59, died in April of cerebral hemorrhage

Charles James Fox, Pubnico, N. S., Canada, University of Pennsylvania Department of Medicine, Philadelphia, 1876, aged 86, died, March 24

Francis Edward Croghan, Providence, R. I., Georgetown University School of Medicine, Washington, D. C., 1908, aged 54, died, April 29

Ignatz Lange, Chicago, Rush Medical College, Chicago, 1888, aged 75, died, April 27, in the Columbus Hospital, of ruptured duodenal ulcer

Henry B. Rue, Hoboken, N. J., University of Pennsylvania Department of Medicine, Philadelphia, 1880, aged 81, died, April 2, of myocarditis

Henry Medd, Philadelphia, Jefferson Medical College of Philadelphia, 1896, also a druggist, aged 78, died, April 16, of cerebral hemorrhage

Guy Stewart Peppers, Fort Pierce, Fla., Baltimore Medical College 1911, served during the World War, aged 56, died, April 20

James Scott St. Clair, Bonsack, Va., University of Virginia Department of Medicine, Charlottesville, 1880, aged 79, died, April 5

Edward Bryant Milburn, Calico Rock, Ark. (licensed in Arkansas in 1903), aged 63, died, April 10, of acute dilatation of the heart

Paul William Newcomer, Pomona, Calif., Denver and Gross College of Medicine, 1906, aged 62, died, April 20, of leukemia

Friedrich Wilhelm Schnauss, Jacksonville, Fla., Atlanta College of Physicians and Surgeons, 1906, aged 68, died, April 20

John H. Sayrs, Zion, Ill., Medical College of Ohio, Cincinnati 1884, aged 79, died suddenly, April 12, of angina pectoris

John Earl McCreery, Beckley, W. Va., University of the South Medical Department, Sewanee, Tenn., 1904, died, April 19

Henry Grundy, Toronto, Ont., Canada, University of Toronto Faculty of Medicine, 1890, aged 77, died, April 8

John Barnett Mitchell, San Francisco, California, Medical College San Francisco, 1895, aged 76, died, April 11

Robert William Rooney, Orangeville, Ont., Canada, Trinity Medical College, Toronto, 1889, died, April 2

John Charles Reeve, Monterey, Calif., Jefferson Medical College of Philadelphia, 1886, aged 77, died, April 8

Bureau of Investigation

DIABETES FRAUD EXPOSED

Brazen Scheme Conducted by Carr Laboratories and Martin Carr Barred from Mails

The Postmaster General, under date of June 22, 1937, closed the United States mails to the Carr Laboratories and Martin Carr of Spokane, Wash. Carr conducted one of the rankest of frauds in the mail-order diabetes field. Martin Carr and the Carr Laboratories were in a class by themselves when it came to brazenness in exploiting the diabetic.

According to the post office fraud order, the Carr Laboratories, a Washington corporation, was chartered Feb. 4, 1926, with 99,999 shares of stock of no par value, of which 33,000 shares are held by Martin Carr, president, 12,000 by G. A. Nikotich, vice president, 10,000 by Peter S. Pope, treasurer, and 10,000 by George Clair, secretary. The remainder of the stock is held in the treasury of the concern.

According to the statements of a Mrs. Elsie A. Merrick, who appeared for and in behalf of the concern at the hearing, Mr. Carr is a Czechoslovakian immigrant who "can't explain himself in this language." Mrs. Merrick was only vaguely informed as to Mr. Carr's educational background. According to the evidence, President Carr is engaged at present as a cook in an establishment called the "Little Brick Cafe." The Carr Laboratories are conducted by Mrs. Merrick, who is the wife of a half-brother of Secretary Clair. Although Mrs. Merrick is wholly without a medical education, she handled all mail and answered all questions asked by diabetic sufferers who corresponded with the Carr Laboratories.



CARR TREATMENT

ORDER THROUGH YOUR DRUGGIST

Carr Treatment is obtainable only through reputable druggists by direct order.

Carr Treatment is packed in bottles—each bottle containing sufficient Carr Treatment for one week's treatment. We recommend however, the purchase of four bottles at once, as the price of the Carr Treatment is usually expedient.

One Bottle Carr Treatment \$2.50
Four Bottle Carr Treatment \$9.00

CARR LABORATORIES
736 E. SPokane Ave.
Spokane, Washington

According to a booklet put out in 1926 by Carr's Diabetic Remedy Company, "Carr's Diabetic Treatment for Sugar in the Blood and Urine—A New Discovery" was "Offered to the Public for the First Time Feb. 15, 1926." As is frequently the case in "patent medicine" exploitation, the "remedy" was an old family possession, having come into the hands of Thomas Carr, Martin Carr's grandfather, "a country physician of Crkvenica, Austria-Hungary (now Jugo Slavia)" from "a prominent physician of Vienna." On the death of Thomas Carr, Martin Carr came into ownership of the formula. "Interested in this formula, Martin Carr prepared some of the medicine according to its directions. To do so required the purchasing of many ingredients and their slow and careful compounding over a period of many days."

The booklet calls attention to the fact that "Carr's Remedy is still compounded in this slow and painstaking manner under the personal supervision of Martin Carr." The legend does not state just when Martin Carr, cook at the "Little Brick Cafe," took off his apron and chef's cap and laid aside his short-order pans and skillets to become President Carr, the "painstaking" compounder of "Carr's Diabetic Remedy."

According to another booklet, "The first persons treated with Carr's Treatment were persons living in and about Spokane, Washington. Martin Carr personally supervised these treatments, calling on the patients four times daily to administer the medicine. News of the results spread until Mr. Carr could no longer possibly call on all the patients to administer his remedy." Which is quite understandable, as poor Mr. Carr must have been in a terrible dilemma trying to turn out a pot of Hungarian goulash with French fries at the "Little Brick Cafe," hurrying to Carr Laboratories to mix a batch of Carr's Diabetic Remedy, and then trying to find time to administer the concoction personally in teaspoon doses.

With unsurpassed brazenness the Carr Laboratories advertised the Carr treatment for diabetes in national publications. One of these advertisements reads as follows:

"DIABETICS

I would like to receive names and addresses of persons suffering from diabetes. I feel that I owe it to them to give the evidence accumulated by nine years experience. I will send you my valuable, interesting booklet FREE. It costs you nothing—no obligation. Send your name and address, that's all.

MARTIN CARR, President
CARR LABORATORIES, Dept. A,
P. O. Box 1964, SPOKANE, WASH."

Victims of the fraud, responding to the foregoing and similar advertisements, were forwarded a quantity of circular matter, one follow-up letter reading in part:

"Dear Friend—You wish to be well and strong again—to enjoy the blessing of perfect health. We can make your wish come true.

Carr's Diabetic Treatment is long past the experimental stage. Letters pour in to us from persons who have had complete recovery. 'My doctors had given me up.' 'I was pronounced incurable.' We would like to take you to visit persons it has cured completely—persons who have given us sworn affidavits to that effect.

The formula was submitted to the United States pure food authorities and approved by them as harmless and non-habit forming. Carr's Treatment means hope for you. Every statement I make to you in this letter or in our booklet is absolute truth.

According to the post office report, the formula used in manufacturing the liquid included in the Carr "treatment" is as follows:

Jumper berries	180 grains
Spanish saffron	420 grains
Quassia chips	10 grains
White agaric	420 grains
Oil of hemlock	4 ounces
Camphor	10 grains
Zedoary	420 grains
Rhubarb	420 grains
Venice	10 grains
Aloes	78 grains
Alcohol and water in equal parts to make a gallon	

Uncontroverted expert medical testimony adduced at the hearing showed that the Carr liquid is merely diuretic and laxative in effect, and wholly without therapeutic value in the treatment of diabetes. The dietary instructions furnished patrons, while held to be "moderately satisfactory for persons suffering from the disease in a mild form might prove not only useless but definitely harmful to individuals having severe cases thereof." The expert testimony also showed "that in many cases of diabetes the use of insulin is not only advisable but absolutely essential, and that dependence upon the Carr treatment in such cases will result inevitably in progressive loss of weight and strength, coma and death."

The claims in the Carr literature to the effect that the enterprise had been passed on favorably by the United States Food and Drug Administration had been continued despite the issuance of an order by the Food and Drug Administration directing withdrawal of similar statements from the labels and packages containing the "medicine."

The issuance of the post office fraud order removes from the mails, at least, a vicious scheme to lull the unfortunate person with diabetes into a false sense of security.

Correspondence

MICROSCOPIC REPRESENTATION OF THE SURFACES OF LIVING ORGANS

To the Editor—In THE JOURNAL, June 12, the Vienna correspondent reports on "Microscopic Representation of the Surfaces of Living Organs" and writes (p. 2054) "Thus far, however, enlargements up to a magnification of only about 30 diameters have been practicable for the observation of surfaces, and the instruments did not permit inspection of individual cells or their constituents. Dr. Pick, who holds the chair of anatomy at Vienna, devised a new apparatus by means of [which] he is able to obtain magnifications of 800 diameters."

Knowing from personal experience of the high standard with which you conduct THE JOURNAL and also of the exactness for which you are striving in your reports, I wish to call to your attention the misrepresentations in the sentences quoted. A decade ago three instruments were devised, one by Vonwiller, one by me, and one by Ellinger and Hirt, to suit various needs in observation of living tissues *in situ*. Magnifications of 800 and higher diameters were obtained and exact cytologic observations were made. Linear magnifications can be obtained by various means and as such do not have any value if the resolving power of the objective is not high. I devised objectives with 60 \times and 90 \times magnifications with a numerical aperture 0.8 and 0.9 and with comparatively long working distances. According to the eye pieces selected a magnification of 1,080 diameters can be obtained without blurring the image. The average magnification we use is 600 \times . Experiments similar to those described in the article of your correspondent were conducted in my laboratory by my co-workers and myself on a much broader scale, including observations of pathologic phenomena in fluorescence light as well as in white light. Reprints of my works relating to this subject are in your possession, as you had requested them for an editorial review at the time, when I had the pleasure of speaking to you in Chicago.

Dr. Pick's position is also not as stated. He does not hold the chair and I hope that Dr. Pick, whom I know by corresponding, will not suffer innocently by this erroneous report.

EDWARD SINGER, M.D., New York

TETANY OF THE NEW-BORN

To the Editor—Tetany in the new-born has received considerable attention in the recent literature. Some older physicians rather doubted its occurrence except as a clinical curiosity. Recent reports, however, indicate that the incidence of this disorder is on the increase. Why?

My interest was aroused in this subject by the occurrence of a dozen cases of convulsions of the new-born in a St. Louis hospital. I examined only one of these infants. In addition to a syndrome characteristic of tetany, edema was also present, and some of the symptoms clearly indicated an increase in the intracranial pressure. It was difficult to exclude the possibility of a late intracranial hemorrhage, and yet the infant completely recovered under the administration of calcium and a change in diet. In this hospital prelacteal feeding was freely

used as a routine. The mixture contained lactose 5 per cent and sodium citrate 1 per cent. We concluded that the large number of cases of tetany was produced by the alkalis in the food. The percentage of sodium citrate prescribed was 0.5 per cent, but through some technical error the infants received a 1 per cent solution. In another hospital where the lactose citrate (0.5 per cent) solution was used, no case of tetany occurred, but the infants received only a small quantity of the solution on the second day of life.

It is unfortunate that physicians reporting the cases in the recent literature have not given in detail the diet of the infant in the first few days after birth. I want to raise the question, is the increased incidence of tetany in some way connected with prelacteal feeding? In this hospital only well-to-do mothers under the private care of competent obstetricians are received. A deficiency in the diet of the mother scarcely merits consideration. In another hospital, in which a poorer class of mothers receive obstetric care and in which no prelacteal feeding had been instituted, not a single case of tetany was observed during the same period.

From this observation I am inclined to adopt the theory of Shannon that alkalosis is the chief metabolic disturbance causing tetany of the new-born.

For the present we have discontinued prelacteal feeding in the hospital, and no case of tetany has been observed in the last few months.

JOHN ZAHORSKY, M.D., St. Louis

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

DERMATITIS BETWEEN FINGERS

To the Editor—A white man, aged 42, married, who has two children has had no serious illnesses except a history of headaches with nausea and vomiting, and at times a good deal of dizziness. This condition occurred several years ago but has not bothered recently. In May 1936 while on a fishing trip a rash developed between the fingers on both hands. This looked like a poison ivy or poison oak and he treated it accordingly without consulting a physician. The lesions disappeared but since that time he has had repeated outbreaks. The lesions are typically like those of poison ivy or poison oak, with characteristic elevated blisters. They occur only between the fingers and occasionally extend a slight way on the palmar surface of the fingers and hands. They are not particularly uncomfortable except that he is conscious of it. The patient's physical examination is negative. The Wassermann and Kahn reactions are negative. The urine is normal. Microscopic examinations of scrapings of the skin show no mycelium or fungus like bodies, and scratch tests for foods and bacteria were all negative. Careful questioning as to contact with cosmetics or irritants of any kind (hair dyes, chemicals) have been negative. The lesions usually respond to almost any form of treatment used for a dermatitis venenata. I was wondering whether you could give me a suggestion as to what this condition might be and what treatment could be used to prevent recurrence.

WILLIAM J. MATOUSEF, M.D., Glendale, Calif.

ANSWER—Vesicular dermatitis in the webs of the finger along the sides of the fingers and on the palmar surfaces is very common and may be (1) ringworm infection, (2) dermatitis venenata, (3) eczema or (4) pompholyx.

1. Ringworm infection has not been ruled out in the case cited. It is not enough to examine scrapings. The tops of the vesicles should be removed, placed upside down on the slide and examined in from 10 to 50 per cent potassium hydroxide for spores and mycelia. The toes should be examined if no vesicles are present, macerated scales from between the toes may be used. Frequently, fungi can be found about the toes and not in preparations from the hands. This may mean that they are few in the hand lesions and therefore difficult to find, or it may mean that the hand lesions are dermatophytid, lesions in which the organisms have been destroyed by the resistant tissue.

The vesicles of ringworm infection are deep and do not break easily. There may be little redness or considerable. The lack of itching in the case under consideration and the ready subsidence of the eruption under soothing treatment have been

weight against the diagnosis of ringworm but do not rule it out. The presence of ringworm between the toes or on the soles would be strong evidence in favor of a trichophytid on the fingers.

If the diagnosis of ringworm is confirmed by direct examination of vesicles or scales from fingers or toes, treatment of the disease on the feet may prevent further recurrence of the hand eruption. The occasional use of Whitfield ointment, 5 per cent salicylic acid, 10 per cent benzoic acid in rose water ointment, on the feet, and 2 per cent salicylic acid with 4 per cent benzoic acid on the hands, may be effective in preventing recurrence.

2 and 3 The description given omits to mention the color of the eruption. Is it very red and do the thin vesicles break and form weeping areas? Judging from the lack of itching, 'they are not particularly uncomfortable,' it is not at all typical of dermatitis venenata or of eczema. It is difficult to imagine either of these behaving so benignly.

The opportunity for contact with irritants is so frequent that it is impossible to rule them out except by keeping the hands covered. Soap is the commonest offender. See the list of irritants given by L. F. Weber (*External Causes of Dermatitis*, *Arch. Dermat. & Syph.* 33:129 [Jan.] 1937). Scratch tests are of no value in testing for these diseases. Patch tests must be made, fastening the suspected substance on the unaltered skin, preferably on the arm or back, and leaving the patch for forty-eight hours.

4 Pompholyx or disidrosis is manifested by an eruption like that described. It used to be frequently diagnosed, but of late ringworm fungi have been found so often in cases of this kind that many have been come to believe that all such cases are caused by fungi. This may be the case, but there still remain some vesicular eruptions of the hands and feet in which fungi are not found. If there is such a disease as pompholyx, it is supposedly a sweat duct disorder caused by an intestinal toxin in persons whose resistance is reduced by nervousness, worry or overwork.

Soothing lotions or ointments locally and tonics or change of climate are recommended. The case in question, the lesions of which yield so readily to soothing applications, is possibly a pompholyx. The prevention of this is a problem which is far from solution. Maintenance of good health and building up of general resistance are first requisites. Use of salicylic acid, from 0.5 to 1 per cent in 50 per cent alcohol, as a lotion on the hands may help. Suberythema doses of ultraviolet rays, local and general, may aid. This should be tried out on a small area first to rule out the rather unlikely possibility that a sensitization to light exists.

HAY FEVER IN THE SOUTH

To the Editor—I have a wife and child who have severe hay fever. They are allergic to annual pea, walk grass, meadow fescue, beach grass, sweet vernal grass, wild oats, California brome grass, woodland brome grass, seaside brome grass, Bermuda grass, alkale rye grass, velvet grass, meadow barley, Australian rye grass, darnel, timothy, Johnson grass, cat epithelium, dog epithelium, duck feathers, goose feathers, kapok, mustard, western ragweed, white elder, hick, walnut, blue gum, caryate date palm, careless weed, rough pigweed, pepper tree, Monterey cypress, Italian cypress, silver acacia, ash, and Fremont poplar. The dust and dryness here seem to make them worse. I have had them listed by allergists here and in Los Angeles and San Francisco. As the government has hospitals in Gulfport, Miss., Augusta, Ga., and Lynchburg, Va., I was thinking of trying to obtain a transfer as we live in the South. How would these climates agree and what ones offer the best chance of help?

M D Arizona

ANSWER—An analysis of the positive skin reactions (not necessarily synonymous with hypersensitivity or allergy—a positive skin test may mean past, present or future trouble) reveals that sixteen of them are to various members of the grass family. Of these Bermuda grass is probably the most important cause of hay fever in the South and, as all the locations mentioned, including Tucson, are in the South, a change of location would probably not help.

We are assuming that Bermuda grass is the important factor, but as the time of symptoms is not mentioned in the query there is some doubt. As to the trees enumerated it would be best to see whether symptoms occur when these are pollinating. Trees pollinate for relatively short periods. The tree problem is a local one.

The reactions to careless weed, rough pigweed and ragweed may be important. Does the hay fever come late? Watson and Kibler in a pollen survey of Arizona and the Southwest (*THE JOURNAL*, March 11, 1922, p. 719) showed that early hay fever (February and March) is due chiefly to cottonwood and ash trees, and that the spring type is due chiefly to Bermuda grass (*Capriola dactylon*), which blooms throughout the spring, summer and autumn months and is the important cause at altitudes

up to 4,500 feet. At higher altitudes June grass (*Poa pratensis*) replaces Bermuda grass in importance during the spring. Also important in spring are rabbit bush (*Franseria deltoidea*), a ragweed, and shad scale (*Atriplex canescens*), a member of the goosefoot group.

The fall type is due chiefly to the pigweeds (*Amaranthus palmeri* and *Amaranthus retroflexus*), with false ragweed (*Franseria tenuifolia*) as a factor of secondary importance. The amarantids of the Southwest take the place of the ragweeds of the East and of the artemisias in the Rocky Mountain region. E. W. Phillips (*Southwest Med.* 7:273 [Aug.] 1923) made a similar survey with similar results.

It would seem wise to take injections with a view to hypodermatization from some physician familiar with the local flora. If this procedure should not be agreed to or if it has been tried and has failed, removal north or northeast would practically eliminate suffering from Bermuda grass and from the amarantids.

The positive tests to cat and dog hair and duck and goose feathers and to kapok may be associated with perennial symptoms. It would seem advisable to avoid these as much as possible.

EPILEPSY

To the Editor—A woman aged 41, a housekeeper who for the past year has been having nocturnal convulsions, has had attacks usually within one week of the menstrual period either preceding or following it. The convulsion is characteristic each time occurring while the patient is asleep and begins as a tonic contraction of all the muscles with the extensors predominating as the attack wears off the spasms become clonic, the neck being rigid, the pupils dilated and nonreactive. There is chewing of the tongue. The patient does not awaken following the attack but sleeps on until her usual hour for rising. She recalls nothing of the attack and experiences only soreness of the muscles of the neck following the attack. The blood pressure and pulse have been normal on two occasions when I have seen the patient during the convulsion. There are no prodromes and the patient has no warning of the impending attack. The history reveals only the following positive facts: The menstrual periods have been occurring about every twenty-five days since the onset. They had previously been regular and of the twenty-eight day variety. The patient began menstruating at 12 years of age. For the past seven years she has had an essential hypertension which responds to rest and sedation. The blood pressure range is from 130/90 to 180/110. There is no evidence of impairment of the kidney function or of arteriosclerosis. An older sister is now confined to an asylum with what I assume to be a manic depressive psychosis. A brother is also said to have been insane but I am unable to arrive at any conclusion as to the type from the history. Physical examination reveals three decayed and dead teeth and small cryptic infected tonsils which have been partially removed by the electric cautery. There is no other evident focus of infection. The neurologic examination is negative. There is no evidence of mental deterioration. During July, August and September, 1936, the patient was free from convulsions. During this period she had one dose of theelin (1,000 units) and was undergoing treatment of the tonsils (electric cautery). At present only a small amount of tonsillar tissue remains and all dental work has been done except for extraction of the dead tooth. From the foregoing can you give any hint as to diagnosis and proper treatment? Please omit name.

M D Tennessee

ANSWER—The diagnosis, based on the history of the attack as given, is epilepsy. The nocturnal character, the association with the menstrual period and the sequence of events are all in accord with this diagnosis. The cause of the disease, beginning at the age of 40, is suggested by the history of essential hypertension, a condition often leading to cerebral arterial changes, with hemorrhage and edema of brain tissue. This is often clearly depicted in the appearance of the optic fundi, in which choked disk and vascular disorder can be easily observed. Also important is the history of grave mental disease in the patient's family. Brain tumor, the most common cause of epilepsy after the age of 40, and neurosyphilis have not been ruled out by complete investigation. A check of the optic fundi, fields of vision, x-ray examination of the skull and lumbar puncture should all be done before the physicians rest secure in making a diagnosis so grave as epilepsy. It is only by such studies that we can be sure that we have not missed essential facts that would lead to a complete change in the treatment such as an operation for brain tumor or antisyphilitic treatment for neurosyphilis. Epilepsy is no longer a complete diagnosis; one must think in terms of the epilepsies. If evidence for brain tumor or neurosyphilis is not found the patient's disorder should be provisionally classified as one of nocturnal epilepsy of probably vascular origin. In this condition phenobarbital has proved to be a most valuable remedy, used in doses of from 0.03 to 0.1 Gm. doses at bedtime. Once a satisfactory dose is agreed on, this should be continued indefinitely and probably during the patient's entire life. A single physician over a long period, a single drug and continued observation for signs of important causative factors, which may not appear for some years, are often the secret of the care of the epileptic patient in private practice.

DOG TYPHUS OR STUTTGART DISEASE

To the Editor—I have been informed that there is a condition in dogs known as dog typhus. The symptoms of the disease in dogs appear to be almost like the typhus of man. Is it possible for man to contract this 'dog typhus'? My interest in this was aroused by a friend of mine who had several dogs die with dog typhus. Any information you may give will be appreciated by both of us. Please omit name.

M D, Kansas

ANSWER—Dog typhus is also known as Stuttgart disease. It has appeared periodically for years in England and continental Europe in epizootic form. In the course of the disease severe gastro-intestinal inflammation is observed, frequently complicated by ulcerative stomatitis and nervous symptoms.

This disease is closely allied to, and believed by some to be the same as, infectious jaundice, or Weil's disease, in man, which is caused by a spirochete, *Leptospira icterohaemorrhagiae*. This spirochete is believed also to be the cause of dog typhus. It has been found in the lungs, liver and kidneys of dogs dead of typhus. The disease does not seem to be transmitted from dog to dog by contact. The common rat appears to be the host of the leptospira. The disease is spread by dogs eating rats harboring the leptospira or by such rats soiling the food of dogs by their excretions.

During the past fifteen or twenty years the disease in dogs has been reported from various parts of this country, but because of lack of laboratory confirmation these have been doubted.

Recently Dr E. Jungheer of the Storrs Agricultural College at Storrs, Conn., has reported finding spirochetes resembling morphologically *Leptospira icterohaemorrhagiae* in the lungs, liver and kidneys of three dogs dead of a disease in which the necropsy disclosed conditions the same as those of the European disease. These cases appear to be the first reported in this country which are supported by laboratory evidence.

DEFINITION IN PSYCHIATRY

To the Editor—Having found the information from the usual sources confusing, incomplete or contradictory, I should like the accepted as accurate as possible definitions and the distinctions between the following words: (1) neurosis (2) anxiety neurosis (3) compulsion neurosis (4) psychasthenia (5) psychoneurosis (6) neurasthenia and (7) hysteria. Also please either state or give reference to the exact definition and the exact technique (naturally there are many so the most commonly used method) of (1) psychoanalysis and (2) hypnosis. It is astounding that despite the realization of its importance and continual reference to it, psychotherapy almost always is dismissed by mere mention or is hidden in a morass of semimystical terminology.

MICHAEL B. SHINKIN M.D. San Francisco

ANSWER—These questions require answers so extensive and embodying so much controversial material that it is recommended that the standard works of psychopathology be consulted. Among these Henry's Psychopathology, Malamud's Psychopathology, Diethelm's Treatment in Psychiatry and Hart's Psychology of Insanity may be profitably perused. The usage of the words included in the question varies considerably with the so-called schools of psychiatry. Psychotherapy, meaning literally psychologic treatment, is a broad term covering many techniques, but so does physical therapy.

PUTTEES AND BUERGER'S DISEASE

To the Editor—I am finding a number of cases of Buerger's disease in retired army officers. I wonder if this could be caused by the long use of puttees. They must more or less restrict circulation. This is one question I should like to have published in THE JOURNAL to see what reaction we can get from the experience of other men.

M D Florida

ANSWER—In recent years there has been a tendency to use the diagnosis of thrombo-angitis obliterans, or Buerger's disease, rather indiscriminately. Usually it causes obliteration of the arteries of the extremities of persons less than 45 years of age, who are almost uniformly excessive smokers of tobacco and who are predominately Jewish, although the disease has been described as affecting persons of almost all nationalities. Superficial phlebitis occurs at some time during the course of the disease in about 40 per cent of the cases. There is no consistent history of the use of puttees, in fact in a large series of cases the number of army officers has been conspicuously small.

Since the correspondent speaks of retired army officers it seems permissible to assume that they are in the later decades of life and that if they have chronic occlusive arterial lesions these are much more apt to be degenerative than inflammatory, that is, the diagnosis is more apt to be arteriosclerosis obliterans

than thrombo-angitis obliterans. Before one can answer the correspondent's question, one would need to know whether or not the incidence of this type of arterial lesion is more frequent in army officers than in a group of persons of comparable age who have not worn puttees. It is not apparent that the use of puttees ordinarily obstructs the arterial circulation, although it may cause compression of the superficial veins. However, it is difficult to understand how such compression could produce organic changes in the arteries. The opinion is that the use of puttees does not cause occlusive arterial lesions, although this is not a certainty.

SENSITIVITY TO ARSPHENAMINE IN SYPHILIS

To the Editor—A white woman aged 28 developed a chancre on the eyelid six months ago. This lesion was allowed to go untreated until a Wassermann reaction was four plus at which time treatment was started. After five doses of neoarsphenamine she developed an arsenical dermatitis. The arsenic was left off and bismuth therapy instituted in conjunction with mixed treatment by mouth. All of this transpired prior to my seeing her. I should like to ask your advice as to what treatment she should receive from now on. She had had weekly injections of a bismuth compound before coming under my care. If you will kindly outline the treatment I should follow with her I shall be obliged. M D Georgia

ANSWER—The history of an arsenical dermatitis following five doses of neoarsphenamine warrants the use of considerable caution in the further treatment of this patient. A woman of 28 with acute syphilis is in need of special effort to arrest the disease because of the eventuality of a pregnancy and an infected offspring. If the dermatitis was a generalized exfoliative one of severe degree, sufficient time has not as yet elapsed to try her again on one of the arsphenamines. If, however, the dermatitis was mild and disappeared in a few days, it might be that she would now tolerate one of the other arsenic preparations, such as mapharsen. The dose, however, should be a minimal one, starting, for example, with 0.005 Gm and increasing the dose 0.005 Gm with each injection up to but of course not exceeding the full dose of from 0.03 to 0.04 Gm, if this is tolerated by the patient. If she shows evidence of intolerance to the mapharsen the subsequent treatment must be limited to preparations of bismuth or mercury. The bismuth compound should be given continuously, every five or seven days for at least eighteen months. The spinal fluid reaction should be determined, especially if the blood reaction remains positive.

COLON BACILLI AND KETOGENIC DIET

To the Editor—Will you please inform me which variety or varieties of colon bacilli respond best to ketogenic diet therapy? Does the same apply to mandelic acid therapy? Please omit name. M D Florida

ANSWER—Beta-oxylbutyric acid and mandelic acid are similar in that their bactericidal actions are developed at a concentration below 1 per cent and at a pH of 5.5 and below, as shown by both in vitro experiments and clinical trial. The gram negative bacilli that are most easily killed off by means of the ketogenic diet or the administration of mandelic acid are those of the subgroup *Escherichia coli* (*Bacillus coli*). Aerobacter aerogenes (*Bacillus lactis-aerogenes*) varies in its response, some corresponding closely to *Escherichia coli* and others being killed off with greater difficulty. The same applies to *Pseudomonas aeruginosa* (*pyocyaneus*). The *Proteus* organism in in vitro experiments is killed off just as readily as in *Escherichia coli*, but owing to the fact that it produces a very strongly ammoniacal urine it is difficult to make the urine sufficiently acid to obtain bactericidal action.

BRAIN INJURY AND BLOOD SUGAR

To the Editor—I should like some information concerning the relationship of brain injury to the blood sugar. Given a diabetic patient whose blood sugar was 166 mg per hundred cubic centimeters of blood some two weeks prior to an accident in which he received a brain injury and died. The blood sugar taken several hours before the patient died was 250 mg per hundred cubic centimeters of blood. I should like to know what extent if any the injury had on the increase of blood sugar.

A C BAIRD M.D. Parsons A N

ANSWER—Claude Bernard in 1855 was the first to demonstrate the relationship of the brain to carbohydrate metabolism. He punctured the region of the floor of the fourth ventricle in animals and found that they developed a prolonged glycosuria. In such experimental animals the blood sugar often attains very high values.

Lesions in the hypothalamic region may cause hyperglycemia. Stimulation of the thoracic autonomic center in the hypothalamus as well as irritation of the pons and medulla (Donhofier

and Macleod) cause hyperglycemia. Thus lesions of the brain involving the pathways which carry glycogenolytic impulses to the liver, or the tracts which supply the adrenals, pancreas or pituitary, may cause serious disturbances of carbohydrate metabolism. Any interference with the activity of the respiratory center may produce hyperglycemia by causing asphyxia.

Severe nervous or mental shock following injuries, or severe emotional disturbances, not infrequently precede the onset of diabetes mellitus. Various injuries and diseases of the central nervous system, such as concussions, skull fractures, apoplexies or brain tumors, may produce hyperglycemia or aggravate an existing diabetes.

It must not be forgotten that infection with acidosis, dietary indiscretions, hyperthyroidism, hyperpituitarism and renal disease are frequent causes of the rise in blood sugar.

CHRONIC CYSTIC MASTITIS

To the Editor—A woman aged 41, has been lactating from the left breast since the birth of a boy eight years ago. The right breast is normal. Three pregnancies were ended with curettements previously because of pernicious vomiting otherwise the past history is negative. She has various neuritic pains on the left side which radiate to the left shoulder and even to the back. To the touch the left breast feels larger, no masses are present. The patient does have some sort of endocrine unbalance. I believe. What will stop the breast from forming milk? Please omit name. M D Arkansas

ANSWER—The condition seems to be a chronic cystic mastitis, characterized by localization in one breast and radiating pain. It probably originated during the last pregnancy or the interrupted pregnancies could have influenced the condition. If the endocrines were a factor in this case at present, both breasts should be involved.

The fluid coming from the breast probably is not milk but is a secretion of the glands as a result of irritation or subacute inflammation.

The condition of the breast should be observed from time to time, for there is always the possibility of a malignant condition developing, although this is not of frequent occurrence.

DRUGS ANTAGONISTIC TO EPINEPHRINE

To the Editor—I am inquiring about an antidote in case of an accidental injection of epinephrine during a local infiltration of procaine hydrochloride. On two occasions I have injected a little epinephrine possibly intravenously followed rapidly by symptoms which are very severe headache feeling as if the top of the head were coming off and flushing which are a little embarrassing to the operator when he has told the patient that the injection would be relatively symptomless. I wonder what you have to suggest as to an antidote. Would one of the choline derivatives be of any use in counteracting the effect of the epinephrine? I will appreciate any assistance you have to offer.

JOHN W. COOPER, M.D. Honolulu T. H.

ANSWER—Nitrite antagonizes the vasoconstriction due to epinephrine and the cautious inhalation of amyl nitrite might be tried. Histamine may be of value.

DIABETES AND WEATHER

To the Editor—A diabetic patient whose blood and urine are free from sugar in a cold climate is quite diabetic in warm weather. Short wave diathermy causes sugar to appear in the urine without change in the diet or the administration of insulin.

LOUIS L. SHERMAN, M.D. Oakland Calif.

ANSWER—A moderate increase in the amount of insulin required has been observed frequently in warm weather. One possible explanation is the loss of salt (sodium) by perspiration. McQuarrie's observations indicate that the amount of insulin required is to some extent dependent on the supply of sodium (Thompson, W. H. and McQuarrie, I. *Proc Soc Exper Biol & Med* 31:907 [May] 1934. Glass, J., and Beiliss, I. *Ztschr f d ges exper Med* 73:801, 1930).

BJERRUM'S SCOTOMA

To the Editor—I would appreciate any information you can give me on the radius of curvature of Bjerrum's scotoma. Please omit name. M D, New York

ANSWER—This question is not clear. The radius of curvature of the scotoma varies according to the size and length of time that it has been in existence. In the beginning, the Bjerrum scotoma in glaucoma starts from the inner edge of the blind spot and hence has a radius of curvature of about 135 degrees.

Medical Examinations and Licensure

COMING EXAMINATIONS

STATE AND TERRITORIAL BOARDS

Examinations of state and territorial boards were published in *The Journal* July 10, page 156.

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS *Parts I and II* Sept 13-15. Ex. Sec. Mr. Everett S. Elwood, 225 S. 15th St. Philadelphia.

SPECIAL BOARDS

AMERICAN BOARD OF INTERNAL MEDICINE. *Written examination* will be held in different centers of the United States and Canada Oct. 18. Chairman, Dr. Walter L. Biering, 406 Sixth Ave. Rm. 1210, Des Moines, Iowa.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY. *Group B Written examination* will be held at various cities throughout the United States and Canada Nov. 6. *Case histories must be submitted at this time.* Sec. Dr. Paul Titus, 1015 Highland Bldg. Pittsburgh (6).

AMERICAN BOARD OF OPHTHALMOLOGY. Chicago Oct. 9. *All applications and case reports, in duplicate, must be filed at least sixty days before the date of examination.* Sec. Dr. John Green, 3720 Washington Blvd. St. Louis Mo.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY. Los Angeles Jan. 14-15. Sec. Dr. Fremont A. Chandler, 6 N. Michigan Ave. Chicago.

AMERICAN BOARD OF OTOLARYNGOLOGY. Chicago Oct. 8-9. Sec. Dr. W. P. Wherry, 1500 Medical Arts Bldg. Omaha.

AMERICAN BOARD OF PEDIATRICS. Los Angeles Nov. 14. Sec. Dr. C. A. Aldrich, 723 Elm St. Winnetka Ill.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY. New York Dec. 28 (tentative). Sec. Dr. Walter Freeman, 1028 Connecticut Ave. N.W. Washington D. C.

AMERICAN BOARD OF RADIOLOGY. Chicago Sept. 9-11. Sec. Dr. Byrl R. Kirklin, 102-110 Second Ave. S.W. Rochester Minn.

AMERICAN BOARD OF SURGERY. *Part I (written)* Sept. 20. Sec. Dr. J. Stewart Rodman, 225 S. 15th St. Philadelphia.

Colorado April Report

Dr. Harvey W. Snyder, secretary, Colorado State Board of Medical Examiners, reports the written examination held in Denver, April 7-9, 1937. The examination covered 8 subjects and included 165 questions. An average of 75 per cent was required to pass. Four candidates were examined, all of whom passed. Nine physicians were licensed by endorsement. The following schools were represented:

School	PASSED	Year Grad	Per Cent
Kaiser Wilhelms Universität Strassburg Osteopaths †	Medizinische Fakultät (1907)	75	79.5*
School	LICENSED BY ENDORSEMENT	Year Grad of	Endorsement
University of Arkansas (1932) Missouri	School of Medicine	(1926)	Arkansas
Rush Medical College		(1914)	Illinois
University of Illinois College of Medicine		(1928)	Illinois
University of Louisville School of Medicine		(1927)	Kentucky
Harvard University Medical School		(1932) N. B. M. Ex.	
University Medical College of Kansas City	Missouri	(1913)	Nebraska
Jefferson Medical College of Philadelphia		(1905)	Illinois
Vanderbilt University School of Medicine		(1899)	Wyoming

* Verification of graduation in process.

† Licensed to practice medicine and surgery.

Hawaii April Examination

Dr. James A. Morgan, secretary, Board of Medical Examiners, reports the oral and written examination held in Honolulu, April 12-15, 1937. The examination covered 10 subjects and included 80 questions. An average of 75 per cent was required to pass. Six candidates were examined, five of whom passed and one failed. The following schools were represented:

School	PASSED	Year Grad	Per Cent
Chicago College of Medicine and Surgery		(1916)	85.4
Chicago Medical School		(1920)	75
Loyola University School of Medicine		(1934)	78.7
University of Michigan Medical School	(1923) 80.5	(1934)	83.2

School	FAILED	Year Grad
Licentiate of the Royal College of Physicians of London and Member of the Royal College of Surgeons of England		(1936)*

Two physicians were licensed by endorsement after an oral examination on March 12 and April 2. The following schools were represented:

School	LICENSED BY ENDORSEMENT	Year Grad of	Endorsement
Rush Medical College		(1918) N. B. M. Ex.	
Harvard University Medical School		(1918) N. B. M. Ex.	

* Verification of graduation in process.

Book Notices

The Physiological Basis of Medical Practice A University of Toronto Text in Applied Physiology By Charles Herbert Best M.A. M.D. D.Sc. Professor and Head of Department of Physiology University of Toronto and Norman Burke Taylor M.D. F.R.S. F.R.C.S. Professor of Physiology University of Toronto Cloth Price \$10 Pp 1 684 with 399 illustrations Baltimore William Wood & Company 1937

While this textbook will be of great value to the physician, it is doubtful that it will prove attractive to most medical students because of the unnecessarily voluminous text and the extraordinarily unoriginal and monotonous style. The authors proceed with no introduction into general physiology or exposition of biologic or physicochemical principles to discuss one of the most complex phases of physiology—the blood. Experience of most physiologists is that the more effective approach to physiology is through other less intricate phases of the subject. About a hundred pages of the text is occupied by bibliographic references. Out of more than 2,000 such individual references less than 100 are from literature in other than the English language. One wonders if this is a new expression of Anglophile nationalism or merely a concession to the average student's inability to read these languages. While the textual material is sound in content and for the most part well balanced as to proportionate amounts, there appears to be a somewhat inadequate discussion of sense organs. Possibly this is due in part to the fact that this material is intimately distributed through the section on neurophysiology, which is certainly an unusual method of presentation. Another weakness is the rather inadequate treatment of muscle physiology. The disparity between the sixteen pages devoted to this subject and the 178 devoted to blood and body fluids and the 100 odd pages allotted to the kidney is rather puzzling. The authors have introduced an innovation likely to be especially appreciated by the physician. After each section there is a discussion of the clinical applications of physiologic principles elaborated in the preceding pages. Illustrations are well selected and for the most part well reproduced. Many are obviously originally prepared for the text. Despite the defects mentioned, some of which are dependent on the fact that this is a first edition, the book will be a valuable reference work for any one.

Die Sternalpunktion als diagnostische Methode Von Professor Dr Hans Schulten Boards Price 18 marks Pp 82 with 18 illustrations Leipzig Georg Thieme 1937

There have been a number of short monographs on the subject of sternal puncture of recent publication in Europe. Few, however, have presented the subject as comprehensively in such a concise manner. The author discusses the advantages of sternal puncture as compared with trephine and section technic. The detailed technic is clearly stated and methods are described for the staining of the aspirated material. There is then a detailed discussion of the morphology and embryogenesis of cells of the sternal marrow. The author discusses the disagreement as to the nomenclature of the different young forms of red cells and adopts a classification based on cell size, reaction of the protoplasm to dyes, and the nuclear structure. He brings out the point that, while under normal conditions growth is regular and occurs through given stages, many irregular changes may take place in diseases that can be classified only with great difficulty. Controversial points are discussed in a broad manner and the various points of view are fairly treated. The author regards the Ferrata cell as an artefact but he feels that it has pathologic significance. Where the text permits crystallization in the form of diagrams and tables, this method of exposition is used. The origin of marrow cells is conveniently presented in diagrammatic form. The sternal marrow picture in the various diseases of the blood-forming organs is next considered. The detailed changes in treated and untreated cases of pernicious anemia are enumerated in detail. The author is of the opinion that sternal puncture by itself is of little value as a diagnostic procedure until pernicious anemia is well developed.

The primary and symptomatic anemias are then discussed with reference to sternal marrow changes. The author feels that polycythemia vera can be distinguished from the symp-

tomatic variety by the absence of characteristic appearances of the marrow in the latter condition. In infectious diseases, Schulten feels that the diagnostic and prognostic value of sternal puncture is not great. A short discussion is devoted to Pelger's familial nuclear anomaly. The condition is considered to be of little pathologic significance.

Eosinophilia is not taken up in great detail and the author tactfully advises that other sources of information be consulted to clarify the confusion that exists. The leukemias are considered in detail and this section is particularly well done. Schulten feels that sternal puncture is of definite value in establishing a more precise diagnosis and in differentiating different clinical and laboratory observations in which leukemia is simulated. There is an unsatisfactory knowledge of the sternal marrow changes in the group of lymphogranulomas so that little can be added at this time. Gaucher's disease is briefly but adequately discussed.

The author's contention that sternal puncture is of value in differentiating splenogenic medullary thrombopenias is open to question. It is not an unusual experience among those employing this procedure to find that megakaryocytes are frequently absent from smears of normal cases. In hemophilia the procedure is definitely contraindicated. The changes in metastatic carcinoma, lymphosarcoma and myeloma are next discussed. While there are a few controversial points in this monograph which the author treats dogmatically when he is without adequate proof, the reader will find the subject generally treated in as authoritative and lucid a manner as in any other text. It is well organized and edited and beautifully illustrated by diagrams and colored plates of cells that are encountered by sternal aspiration in health and disease. The illustrations alone are worth the price of the monograph. The work is highly recommended to the pathologist, hematologist and the clinician interested in diseases of the blood-forming organs.

Hay Fever with Special Reference to Treatment by Intranasal Ionization By Clive Shields B.M. B.Ch. Clinical Assistant Physiotherapy Dept St George's Hospital Cloth Price \$2 50 Pp 51 with 4 illustrations New York & London Oxford University Press 1937

The introductory sections on allergy and hay fever are very brief. So too is the section on the anatomy and physiology of the nose and sinuses. In his discussion on treatment the author advises against the use of local medication, such as ephedrine, since he states that the effects are only evanescent and the reaction usually makes the patient much more miserable than he has been before its use. He uses ephedrine plus a barbiturate internally. His method of nasal ionization is discussed in detail. Rather than giving one ionization for a long period, with a high current, he gives many ionizations for short periods with a low current. The contraindications to ionization which he observes are gross infection of paranasal sinuses unless proper drainage has been effected, gross nasal obstruction from markedly deflected septum, polypi, spurs and neoplasms, and dental sepsis or septic tonsils. Any of these conditions, if present, is treated first and, if necessary, ionization follows at a later date. The author uses a constant unidirectional current of from 15 to 20 volts and when the source is other than a battery he gives precautions and methods to prevent fluctuations in current. He includes a milliampere meter in the circuit and also a rheostat whereby the current can be raised gradually. The electrodes used are simple, made by bending zinc wire. The two sides of the nose are ionized at one time. This procedure is repeated at weekly intervals for four or five treatments the first year. If necessary, two or three treatments are given the second year and one or two the third year. Shields warns that adequate cocaine anesthesia is absolutely essential before proceeding with ionization, and he allows the cocaine to act at least fifteen minutes before he begins ionization. He carefully describes his method of packing the nose and states that when sloughs occur after ionization they are usually due to improper packing of the nose or to current alterations. In certain cases in which the proper packing of the nose is not possible, he uses the continuous irrigation technic. This consists of ionizing through a constantly flowing 2 per cent zinc sulfate solution. When this method is used the reactions from ionization are more severe. Shields is enthusiastic about zinc ionization and the results that he apparently obtains are unbelievably good. His claims

for the technic described are almost immoderate in their enthusiasm. He states that the complications of ionization that have been described by other authors, e. g., otitis media, anosmia and sloughing of the mucosa (considered a necessary result by American workers), are avoided with no decrease in beneficial effects by using his technic.

La perméabilité. En physiologie et en pathologie générale. Par Ernst Gellhorn professeur du physiologie au Collège du médecine de Chicago Université de Illinois (U. S. A.) et Jean Régner professeur agrégé à la Faculté du pharmacologie de Paris. Paper. Price 160 francs. Pp 928 with 42 illustrations. Paris: Masson & Cie 1936.

Permeability is of fundamental importance in biology and medicine. It has been and must continue to be the subject of research by those who would elaborate a physicochemical science of cell physiology. In the German edition (1929), Gellhorn studied about 1,400 references, in the French translation more than 100 more are added. The book is indeed more a collection and critical analysis of the literature than a contribution of original work, although it contains much that is original. In the translation, Régner gives original German in Roman letters, and his own comments, which are voluminous, in italics. The order of presentation is: Methods of study, direct and indirect. Permeability of membranes. Permeability of cells, vegetable and animal. Permeability of organs. Results and theories of permeability. Final considerations. Included under this outline is work in physiology, pathology, pharmacology and some envisagement of therapeutics. As an example of physiology, one may consider absorption, secretion and excretion, of pathology, edema and glaucoma, of pharmacology, anesthesia, of therapeutics, the permeability of immunizing agents.

In any subject the actual understanding of it is about in the inverse ratio of the square of the number of theories that would explain it. The authors emphasize only four: the lipid membrane theory, the colloid-chemical theory, the theory of adsorption and the theory of ultrafiltration. They conclude that no one theory will explain all the facts. An explanation may be given by a fusion of several theories, the fusion, however, may have to differ for different cells. A great drawback to the book is the lack of an index. It is divided into forty-one chapters. Neither the content of these nor the general subject matter is indexed. Without the index, however, this monograph is a valuable contribution. It is a great aid to research workers. Any one interested in the important subject of permeability will find the literature and an analysis of it presented in a manner as acceptable and complete as the present knowledge of the subject permits.

Internal Diseases of the Eye and Atlas of Ophthalmoscopy. By Manuel Uribe Troncoso M.D. Instructor in Ophthalmology College of Physicians and Surgeons Columbia University, New York. Cloth. Price \$15. Pp 530 with 239 illustrations. Philadelphia: F. A. Davis Company, 1937.

The newer textbooks in medicine have made a definite attempt to correlate pathology with clinical symptoms. In the preface to this volume the author states that "success in teaching is due chiefly to the method of presenting the subject. The more scientific approach is first to emphasize the pathologic changes and physiopathology of the disease, and then endeavor to deduce the symptoms from the lesions." The ophthalmologist has the advantage of being able to study structural changes in the course of their development and to observe the different stages and final results objectively from the exudate to atrophy, from vascular changes to hemorrhage and connective tissue development, while in other parts of the body the pathologic changes have to be reconstructed from specimens of dead tissues. It is important, therefore, that the student should be taught how to correlate the ophthalmoscopic symptoms with the pathologic lesions, trying to visualize the changes going on in the structures and thus to forecast their final results. Such a commendable task is difficult of accomplishment with mere word descriptions, which must of necessity be short, together with illustrations in black and white and others colored on the flat pages of a book. The new terms retinosis and choroidosis are of a certainty better than retinitis and choroiditis, in which no inflammation is evident, but the question as to whether these terms are better than retinopathy and the like must remain for choice and usage to decide. The technic of ophthalmoscopy and the structural features of the internal eye are adequately discussed. The basic factors in the understanding of visual field

determinations is thoroughly set down. The main features of developmental anomalies and vascular physiology and pathology of the eye are well emphasized. Disease and its consequences affecting the optic nerve, the retina and the choroid have by description and illustration aided in the comprehension of the changes by vividly portraying objective evidence to the student. Short chapters on vitreous changes and those due to injury of the various tissues of the internal eye complete the volume. The illustrations in black and white are excellent, while the colored pictures have a decided tendency to exaggerate the condition depicted. While there is frequent mention of the name of authorities, there is a definite loss in the omission of a bibliography. Many of the newer contributions, which one might expect to find in a work so recently from the press, are found wanting. Certainly it may be said that the author has contributed a useful and pertinent work which brings together much to the physician interested in diseases of the internal eye and the effect of general disease on these structures.

Vitamins Minerals and Hormones. By Albert P. Mathews. Andrew Carnegie Professor of Biochemistry University of Cincinnati Cincinnati, Ohio. Reprinted from Principles of Biochemistry by the same author. Cloth. Price \$1.50. Pp 97. Baltimore: William Wood & Company, 1937.

Three chapters from the author's larger Principles of Biochemistry are here reprinted in the form of a convenient volume. It is unfortunate that some information is presented without bibliographic references. There are also occasional statements of dubious importance, for example, it is said (page 19) that "corn silk extract has long enjoyed a reputation of value in treating obstinate cases of cystitis. Whether its use for this purpose depends upon its vitamin B₁ content is, however, undetermined." The chapter on mineral metabolism is inadequate, even for an elementary presentation. The chapter on hormones is brief and might be useful as an introduction to the chemistry and physiology of the subject.

Alkoholfachweis bei Verkehrsunfällen. Von Dr. Kurt Hoffmann. Oberfeldarzt der Polizei beim Sanitätsamt des Chefs der Ordnungspolizei im Reich und Preussischen Ministerium des Innern. Mit einem Vorwort von Generalarzt der Polizei Dr. Kloster. Erweiterter Sonderdruck aus Neue Deutsche Klinik. Handwörterbuch der praktischen Medizin. Band XIV. Herausgegeben von Prof. Dr. R. Cobet und Prof. Dr. K. Gutzeit. Paper. Price 2.50 marks. Pp 56 with 3 illustrations. Berlin & Vienna: Urban & Schwarzenberg, 1937.

The value of the determination of alcohol in the blood in persons involved in automobile accidents is presented here in the light of the experience of the Prussian police department in about 3,600 instances analyzed with the micromethod of Widmark. The author gives a brief discussion of the general problem of traffic accidents, classifying the half million accidents reported according to the vehicle involved, the age and sex of persons killed and injured, and the apparent cause of the accident. The increasing fatality rate from traffic accidents is pointed out, and the importance of alcohol in contributing to this figure is emphasized, 8,679 drivers having been found to be under the influence of alcohol.

The clinical effects of alcohol on the central nervous system, the psyche, the reaction time, motor and sensory activity, pulse rate, pupillary reactions, ataxia, appearance, conduct, orientation and ease of performance and the difficulties in clinical diagnosis, the effects of diseases, habituation, or injuries, and the significance of the odor of alcohol in the breath and in the urine are briefly presented. The quantitative methods for the determination of alcohol in other materials are lightly dismissed and the Widmark method for the determination of the alcohol content of a drop of blood collected in a capillary tube is described in detail. The special capillary tubes for this purpose with their rubber stoppers were distributed widely in Prussia and the specimens taken in increasing numbers.

Analysis of the results shows that a clinical diagnosis of "under the influence of alcohol" was obtained in less than 10 per cent of the instances with a concentration of alcohol in the blood of less than 0.04 per cent but in increasing frequency above this figure, reaching over 90 per cent in those with 0.18 per cent and 100 per cent of those over 0.3 per cent. The inaccuracy of the clinical diagnoses rendered by 574 different physicians is stressed and the conclusion drawn that the chemical data are in good agreement with the clinical observations. The distribution of cases by day of the week, time of day, age and

occupation show interesting differences. Sources of error in the determinations, such as the differences between venous and capillary blood, the danger of using tincture of iodine or some other alcoholic solution in disinfecting the skin before drawing the blood, titration and other technical errors, and the possibilities of interference by the 0.003 per cent alcohol found in normal blood or by acetone or other volatile organic materials in the blood, as well as the role of carbon monoxide in the blood of motorists are critically considered. The effect of insulin on the alcoholic concentration in the blood, described by Bickel and his co-workers, is held to be still without clinical verification in man, but the danger of insulin poisoning in the causation of traffic accidents and its differentiation from alcoholic intoxication are emphasized.

Social and medicolegal aspects of the use of alcohol, and the determination of alcohol in the blood of all involved in automobile accidents, as described in Prussia, differ markedly from those which would be encountered in this country, but the rich clinical and laboratory experience described in this work should go far toward establishing the validity of the chemical determinations in the diagnosis of acute alcoholic intoxication.

Cosmetic Dermatology With Dictionary of Ingredients. Discussion of Anatomic, Physiologic and Pharmacologic Bases of Cosmetic Application. 'Shelf Tested' Formulary and Appendices on Odor and Color in Cosmetics. By Herman Goodman, B.S., M.D. Cloth. Price \$6.50. Pp. 591. New York & London: McGraw-Hill Book Company, Inc. 1936.

It takes a stretch of the imagination to call this book a dermatology. The volume is divided into two parts, the first containing a list of substances used in dermatology, and the second a set of recipes for what might be called beautifying cosmetics on the one hand and preparations definitely medicinal in nature on the other. At times there are limited and elementary discussions on lesions and treatment. There are no illustrations and no references to the literature. In appendix A is found a list of cosmetic colors. The volume will be found of value to certain dermatologists and to cosmetic manufacturers. It covers about the same ground as the *Lexicon der kosmetischen Praxis* by Volk and Winter but is not as complete.

Physical Diagnosis By Ralph H. Major, M.D., Professor of Medicine in the University of Kansas. Cloth. Price \$5. Pp. 457 with 127 illustrations. Philadelphia & London: W. B. Saunders Company. 1937.

This book is well written, well constructed and exceedingly well illustrated. It is interesting reading because, as the author states, he "has made free use of quotations, partly because of an interest in classic description and partly because of the excellence of these early accounts." The subjects of temperature and fever are usually omitted in textbooks of physical diagnosis and their inclusion is commendable. Another welcome addition is a short explanation of the physics of sound. The author's failure to discuss incipient tuberculosis in the chapter on diseases of the lung is subject to criticism. His failure to devote as much space to a discussion of roentgen rays in the diagnosis of diseases of the lung as to the roentgen rays in the diagnosis of diseases of the heart and abdomen may give a wrong impression to the student as to the relative importance of the roentgen rays in the diagnosis of diseases of the lung. The chapter on history taking and recording is the last one and in general the discussion and outline follow the conventional rules. Since social, domestic and economic factors are now well recognized as having an important bearing on the entire clinical history, a statement of their importance should have been included and the student's attention directed to them. Despite these few faults, Dr. Major has succeeded in presenting an unusually vivid textbook of physical diagnosis which should hold the interest of the medical student.

Complement or Alexin By T. W. B. Osborn, University of the Witwatersrand, Johannesburg. Cloth. Price \$3. Pp. 116. New York & London: Oxford University Press. 1937.

This monograph reviews the writings about complement, the thermolabile element in the blood which in combination with specific immune bodies causes the destruction of bacteria and foreign red cells. After the introductory consideration come chapters on the constitution of complement, the scope of its activity, factors influencing its action *in vitro*, the nature of its action and possibly related phenomena, its presence in the blood stream, its origin in the body and its variations *in vivo*.

In discussing the constitution of complement the author calls the midpiece and the endpiece "midstuk" and "endstuk," but there seems to be no need for any such words in English. Throughout the book Friedberger is misspelled Friedberger. The book will be helpful to students of complement. It records the slow advance in our understanding of that principle by exhaustive research, although it is forced to catalogue many discordant results. One may well agree with the author when he states that the impression is left "that too many contributors have been eager for quick practical results, too many have tried to short-cut the more academic fundamental problem, and too many have used inaccurate methods of estimation and inefficient controls. There is a feeling abroad that the obscurities will remain until the biochemist and the biophysicist are enticed and encouraged to join in the work."

An Introduction to General Practice By E. Kaye Le Fleming, M.A., M.D., Chairman of Council, British Medical Association. Cloth. Price \$2. Pp. 150. Baltimore: William Wood & Company. 1936.

This book has little interest for the older practitioner but has a certain value for the person who is just about to enter the general practice of medicine, for whom it is intended. It contains advice relative to his conduct toward other physicians, patients, hospitals and druggists, and discussion of certain legal problems. There is a rather sketchy chapter concerning the doctor and finance. The value of the book in this country is somewhat impaired by its purely British background, but it will furnish something of value to the senior student and the intern.

Source Book of Orthopaedics By Edgar M. Bick, M.A., M.D., Adjunct Orthopaedic Surgeon, Hospital for Joint Diseases and Mt. Sinai Hospital, New York. Cloth. Price \$4. Pp. 376. Baltimore: Williams & Wilkins Company. 1937.

The author has written a comprehensive history of orthopedic surgery. The book is a real contribution to the medical literature of the world and will act as a stepping stone for the future history of orthopedics. Starting with primitive man and ancient practice, it covers the renaissance, the seventeenth and eighteenth centuries and the modern period. The author is a medical historian and has evolved a one volume book which reveals extensive research and infinite patience. Orthopedic conditions and therapy are traced from primitive times to the present day. The fluctuation of knowledge and factors that resulted in progress or the reverse are elucidated. Descriptions of orthopedic conditions are woven into the history in a chronological manner, and the modification of theory and practice through the centuries is discussed. The bibliography of orthopedic literature is exceedingly complete. One can at a glance determine the historical background of most orthopedic conditions. The book is valuable because it is a history of orthopedic surgery, a reference library of orthopedic literature and a bird's eye view of the specialty. It simplifies the task of preparing a paper on an orthopedic condition.

Traité de chirurgie orthopédique Publié sous la direction de L. Ombredanne et P. Mathieu. Secrétaires de la rédaction: M. Lacroix, G. Huc et P. Padovani. Tome 1. Cloth. Price 300 francs. Pp. 504 with 433 illustrations. Paris: Masson & Cie. 1937.

This is the first of a five volume set on orthopedic surgery edited by two of the leading orthopedic surgeons of France and written by sixty-four well known collaborators. The first volume contains a discussion on physiology, pathology and therapeutics in general. Orthopedic surgical treatment and its evolution are described. Congenital malformations of the extremities, including their development, congenital hypertrophy defects and deformities due to amniotic disturbances and aplasia are discussed. The normal and pathologic histology of bone substances and bone structure, reparative ossification and heterotopic ossification closed and open fractures, fractures with malunion, compound fractures, fractures with vicious consolidation and pseudarthrosis, traumatic separation of the epiphyses, osteomyelitis in adolescents and osteomyelitis in infants are considered. The second part contains a discussion on the spine and the lower extremities. There is a section on amputations and procedures to equalize the length of the legs and a small section on shoes and the disabilities following injury. The section called amniotic lesions is well handled. There is a creditable section on chronic osteomyelitis. The illustrations are appropriate and beautifully reproduced.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Medical Practice Acts Assisting Unlicensed Person to Practice Medicine—The medical practice act of New Jersey prohibits the giving of aid or assistance to "any person not regularly licensed to practice medicine or surgery in this state." The state board of medical examiners instituted proceedings against the defendant, a physician, charging that he had violated the foregoing prohibition. In the trial court the defendant moved to dismiss the complaint on the ground that the prohibition against aiding unlicensed persons to practice medicine did not apply to a licensed physician. With this contention the trial court agreed, dismissed the complaint, and entered final judgment for the defendant. The board thereupon sought a review of the ruling in the supreme court of New Jersey.

The defendant's contention, said the court, was that the prohibition merely indicated a legislative intent to protect the public at large from being treated by an unlicensed person and that if the legislature had intended to punish a licensed physician for giving aid or assistance to an unlicensed person it would have provided for the revocation of such a physician's license. A physician, it was further argued, cannot aid or assist any one unlawfully to practice medicine, because in responding to a call made on him professionally he is actually engaged in the practice of medicine and is necessarily doing that which he has a perfect right to do. But, said the supreme court, the prohibition applies to "any person," and a licensed physician certainly comes within the phraseology used. The fact that the legislature did not designate the giving of such aid or assistance as a cause for revoking a physician's license did not, the court thought, foreclose the application of the prohibition to a licensed physician, the legislature may have concluded that the act of giving such aid was not sufficient cause for the revocation of a physician's license yet should not go entirely unpunished.

There are many cases in other jurisdictions, the court pointed out, in which the revocation of a physician's license for aiding an unlicensed person has been sustained. True, the issue at bar does not relate to the revocation of a physician's license, it relates to the imposition of a penalty on a licensed physician. The basic question, however, that is, whether a licensed physician can be guilty of aiding or assisting an unlicensed person to practice medicine or surgery, is present in each instance. The resultant statutory penalties only are different. The question to be decided in each case is: Did the licensed physician, as such, treat the patient, or did he merely give aid or assistance to an unlicensed person to practice medicine or surgery? In the former circumstance, the prohibition in the medical practice act would not apply, in the latter, it would apply. The facts of each case must necessarily control the answer. The trial court refused to permit the prosecution to present the facts and in doing so committed a reversible error. The judgment of the trial court was therefore reversed and the case remitted for further consideration.—*State Board of Medical Examiners of New Jersey v. Wallen* (N. J.) 188 A 449.

Medical Practice Acts Naturopathic Applicant Not Qualified for License—The appellant, Harold A. Davis, applied to the state board of medical registration and examination of Indiana for a certificate authorizing the clerk of the Marion circuit court to issue him a license to practice naturopathy. With this application, Davis submitted a diploma issued to him by the College of Drugless Physicians, purporting to confer on him the degree of Doctor of Naturopathy. The board refused to issue the certificate and after the superior court upheld the action of the board Davis appealed to the appellate court of Indiana, in banc.

According to the evidence, Davis was born Nov. 16, 1911, and attended public school to and including the third grade and parochial school after that until he had completed the eighth grade. He thereafter spent one term in a parochial high school. On Sept. 9, 1925, when he was 13 years and 9 months old,

Davis entered the College of Drugless Physicians, also referred to in the record as 'Briggs School,' at which time he was still a student in the grade schools during the day. On Nov. 16, 1926, on the day he was 15 years of age he received the degree of Doctor of Naturopathy from the college, after having attended it only one year, two months and seven days. The evidence further disclosed that the school had been closed by the courts and that Briggs was convicted of operating a diploma mill. The board refused to issue the certificate because of Davis's immature age at the time he attended the college and because the school of graduation did not comply with the standards established by the board.

The medical practice act of Indiana authorizes the board of medical registration and examination to establish a schedule of minimum requirements and rules for the recognition of medical colleges. An amendment to the medical practice act was enacted in 1927, providing in part as follows:

Provided That any chiropractor or practitioner of any other system or method of healing who is a graduate of a school or college teaching the system or method of healing which he practices and who was on January 1, 1927, residing in the state of Indiana and practicing chiropractic or any other system or method of healing taught by the school or college of which he is a graduate shall be given without examination a certificate for a license to practice the system or method of healing in which he has been so engaged.

Davis contended that under this amendment he was entitled to a certificate because he was on Jan. 1, 1927, a graduate of a school or college teaching a system or method of healing, at which time he was residing in Indiana and practicing the system or method in which he had been taught by the school or college. The medical practice act, said the court, must be construed as a whole to determine the intent of the legislature and the meaning of the language used in the various amendments that have been enacted. At the outset, in 1897, the legislature enacted legislation to regulate the practice of medicine, surgery and obstetrics. Subsequent to that time there were those who sought to evade the requirements of the act and as a result many new cults grew up. To meet this situation, various amendments were enacted in an effort to make the act broad enough to cover every method of practice. The legislature gave to the board the specific right to prescribe rules and regulations for schools which asked recognition from the board and it necessarily follows that a school which does not meet the requirements of the board is not a school within the meaning of the act. Since Davis did not present to the board satisfactory evidence that he was a graduate of such a school, he was not entitled to a certificate. The judgment of the superior court for the board was therefore affirmed.—*Davis v. State Board of Medical Registration and Examination* (Ind.), 5 N. E. (2d) 125.

Malpractice Death Resulting from Chiropractic Treatment for Headache—This is the fourth opinion rendered by the Supreme Court of Florida in this case.¹ Briefly, Foster, a chiropractor, undertook to treat Mrs. Thornton for a chronic headache by daily chiropractic "adjustments." During the last "adjustment" he sharply twisted her neck and she immediately felt an excruciating pain in the back of her head and neck. She became nauseated, vomited and fainted. A nonsectarian physician was summoned and administered a hypodermic of morphine. About an hour later another nonsectarian physician found her in a comatose condition. Her pulse was weak, she was cold and clammy, the pupil of her left eye was dilated, that of her right eye was contracted. Two weeks later she died. An autopsy indicated that death was caused by a hemorrhage resulting from a ragged tear about three-fourths of an inch long in the left lateral sinus. The patient's husband then sued the chiropractor. In this trial of the case the jury returned a verdict for the husband for \$20,670, which was reduced by remittitur to \$10,670, and the chiropractor appealed to the Supreme Court of Florida.

The principal question involved was whether or not the jury was warranted in assuming from the evidence that the chiropractor applied undue force and failed to exercise the degree of care required by chiropractic standards in treating the deceased. For the plaintiff, a nonsectarian physician testified

¹ Malpractice Death Resulting from Chiropractic Treatment for Headache. J. A. M. A. 103:1260 (Oct. 20) 1934. Malpractice Cerebral Hemorrhage Attributed to Chiropractic Adjustment. *ibid.* 103:1714 (Nov. 23) 1935.

that he had some degree of learning in the "chiropractic art," had made adjustments in conformity with chiropractic methods and was familiar with the degree of care required of chiropractors in making adjustments like the one in question. In his judgment, the injury to Mrs. Thornton was caused by a negligent application of undue force by the chiropractor. Another nonsectarian physician, a neurologist, testified that there was no possible explanation for the injury to Mrs. Thornton except the negligent adjustment given by the chiropractor. Several other nonsectarian physicians testified that a lesion in the brain would often cause symptoms such as those exhibited by Mrs. Thornton immediately after her injury. In their judgment the lesion in this case could not have been caused by a disease condition of the brain or in removing the brain in the course of the autopsy. The chiropractor contended that before his negligence could be established evidence must be adduced through the testimony of chiropractors concerning the standard of care required in making an adjustment like the one complained of and to prove that in treating Mrs. Thornton he negligently departed from that standard of care. But, said the Supreme Court, the rule contended for by the chiropractor does not exclude the testimony of physicians of other schools when that testimony bears on a point on which the principles of the schools of healing do or should concur. There was no question that the treatment given Mrs. Thornton was approved by chiropractic theory. The only question to determine was whether a recognized treatment was negligently administered. The determination of the trial court that the witnesses were qualified cannot be disturbed unless the determination was clearly erroneous.

The chiropractor contended further that the trial court erred in admitting certain statements in evidence alleged to have been made by Mrs. Thornton to her husband and to a nonsectarian physician immediately on regaining consciousness after the last adjustment. Declarations, said the court, that are natural emanations or outgrowths of the act in litigation, although not precisely concurrent in point of time, are admissible as part of the act or transaction if they are voluntarily and spontaneously made so nearly contemporaneous as to be in the presence of the transaction which they illustrate and explain, and if they are made under such circumstances as necessarily exclude the idea of design or deliberation. The statements complained of were made immediately after the patient regained consciousness, were the outgrowth of the transaction and were explanatory of it, they excluded any idea of design or deliberation, and they were corroborated by the evidence of several other witnesses. They were therefore admissible.

The judgment against the chiropractor was affirmed.—*Foster v. Thornton (Fla.) 170 So 459*

Malpractice Amputation Following Fracture Attributed to Physician's Negligence—The plaintiff, aged 13 years, sustained a compound fracture of his left arm, June 22, 1933. The defendant, a physician, was called to attend him and treated him at home until June 29, when he was removed to a hospital. In the meanwhile, gas gangrene infection had developed and amputation of the arm was necessary. The plaintiff thereupon sued the defendant and, from a verdict of the jury in favor of the defendant, the plaintiff appealed to the Supreme Court of Errors of Connecticut.

The plaintiff contended that the trial court erred in charging the jury as follows:

In order to recover the plaintiff must show not only that the physician or surgeon was negligent or unskillful but also that the injury resulted directly from such negligence or unskillfulness. No recovery can be had if there was any intervening cause in the absence of which it is reasonably probable that the plaintiff would not have suffered injury from the wrongful act or negligence. must have been a substantial contributing factor in producing the injuries complained of. Even if [the defendant] was negligent in some respect but that negligence didn't result in these injuries your verdict must be for the defendant.

The plaintiff's main contention was that the nature of the proof of causation in malpractice suits is peculiar and exceptional, and that recovery should be allowed if the negligence or unskillfulness of the defendant "deprived the plaintiff of the chances of a better recovery presumed to flow from proper treatment." Except as to speculative considerations involving mere possibilities in the course of the train of circumstances leading up to the final result, said the Supreme Court of Errors, the effect

of negligent treatment by a physician on the chance of the patient for a better recovery is necessarily included in the inquiry which was directed by the charge given by the trial court. Necessarily, if the jury found that the result was not as favorable as it would have been but for unskillful or negligent treatment by the defendant, they would have to find, under that instruction, that it was a "substantial contributing factor in producing that result." The injuries alleged by the plaintiff in the complaint included the development and progress of infection as well as the amputation of the arm, all of which are alleged to have resulted from negligent treatment by the defendant. Under the charge as given, the jury were in effect instructed that if they found the negligence of the defendant was a substantial factor in producing any of these injuries the plaintiff was entitled to recover therefor, otherwise not.

The trial court, continued the Supreme Court of Errors by using the word "contributing," sufficiently signified and emphasized that negligence, to impose liability for the consequences complained of, need only to have constituted a cause which contributed thereto substantially. As applied to the alleged negligence of a defendant, "contribute" or "contributing" signifies a causal connection between injuries and negligence which transcends and is distinguished from "those negligent acts or omissions which play so minor [a] part in producing the injuries that the law does not recognize them as legal causes." If the chain of causation of the damage, when traced from the beginning to the end, includes an act or omission which, even if wrongful or negligent, is or becomes of no consequence in the results or so trivial as to be a mere incident of the operating cause, it is not such a factor as will impose liability for those results.

The court could find no error in the record.—*Connellan v. Coffey (Conn.), 187 A 901*

Workmen's Compensation Acts Heat Stroke from Exposure to Temperature of 68 Degrees Fahrenheit—The claimant, an employee of the Southern Ice & Utilities Company, was ordinarily employed in an ice house where the temperature was approximately 28 degrees Fahrenheit. He contended that he suffered an accidental injury in the nature of heat exhaustion when he went from the ice house out into the open, where the temperature was approximately 68 degrees Fahrenheit. The state industrial commission allowed compensation and the company appealed to the Supreme Court of Oklahoma.

The company contended that it was utterly impossible for the claimant to have sustained a heat stroke under such circumstances. It presented what the court referred to as a very logical survey of authorities and argued that the court should take judicial notice of the fact that when the employee walked from a room averaging 28 degrees into the outside to work on pipes in a temperature not more than 70 degrees there could not possibly be a sunstroke. But, the court said, the physician testifying for the claimant stated that the injury was occasioned by change in temperature which resulted in heat exhaustion similar to sunstroke. In the opinion of the Supreme Court, therefore, the industrial commission had competent medical testimony on which to base its finding.—*Southern Ice & Utilities Co. v. Barra (Okla.), 62 P (2d) 988*

Society Proceedings

COMING MEETINGS

Idaho State Medical Association	Boise	Aug 30	Sept 3	Dr Harold W
Stone 105 North Eighth St	Boise	Secretary		
Kentucky State Medical Association	Berea	Sept 6	Sept 9	Dr A T
McCormack 532 West Main St	Louisville	Secretary		
National Medical Association	St Louis	Aug 15	Aug 20	Dr John T Green
1108 Church St	Norfolk Va	General Secretary		
Northern Minnesota Medical Association	Virginia	Aug 27	Aug 28	Dr J F
Norman Crookston	Secretary			
Rocky Mountain Medical Conference	Denver	July 19	July 21	Mr Harro
T Sethman 1612 Tremont Place	Denver	Secretary		
Utah State Medical Association	Salt Lake City	Sept 2	Sept 4	Dr F M
McHugh 17 Exchange Place	Salt Lake City	Secretary		
Washington State Medical Association	Seattle	July 19	July 22	Dr Ver
W Spickard 1303 Fourth Ave	Seattle	Secretary		
Wyoming State Medical Society	Denver Colo	July 19	July 21	Dr M C
Keith 156 South Center St	Casper	Secretary		

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers in continental United States and Canada for a period of three days. Periodicals are available from 1926 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Heart Journal, St Louis

13 511 632 (May) 1937

*Thrombo Anguitis Obliterans in Negroes. Report of Five Cases Studied Arteriographically and Pathologically. W. M. Yater, Washington D. C.—p. 511

*The Heart Fifteen to Twenty Years After Severe Diphtheria. W. P. Thompson, S. E. Golden and P. D. White. Boston—p. 534

Elevation of Rectal Temperature Following Mechanical Obstruction to Peripheral Circulation. J. M. Steele. New York—p. 542

Heart Changes and Physiologic Adjustment in Hookworm Anemia. W. B. Porter. Richmond, Va.—p. 550

Acute Pernicious Form of Beriberi and Its Treatment by Intravenous Administration of Vitamin B₁ with Especial Reference to Electrocardiographic Changes. H. Hashimoto. Tokyo, Japan—p. 580

Circulatory Dynamics in Tricuspid Stenosis. Their Significance in Pathogenesis of Edema and Orthopnea. M. D. Altschule and H. L. Blumgart. Boston—p. 589

Occurrence and Pathogenesis of Cardiac Hypertrophy in Graves Disease. C. K. Friedberg and A. R. Solval. New York—p. 599

Thrombo-Anguitis Obliterans in Negroes—Yater declares that the clinical correlation of his five cases in Negroes with cases of thrombo-anguitis obliterans occurring in Caucasians is not so great as are the pathologic similarities. Nevertheless, the clinical histories are not incompatible with the diagnosis of that disease. All five patients were smokers, two of them more than moderate addicts of this habit. All were relatively young men. The history was one of chronic peripheral vascular disease in three cases, and typical intermittent claudication occurred in two. Buerger, and Brown, Allen and Mahorner have described cases of thrombo-anguitis obliterans in Caucasians presenting histories quite similar to those of these five cases. Physical examination gave incontrovertible evidence of bilateral and extensive occlusive vascular disease in the lower extremities in all five cases. Arteriograms were typical of thrombo anguitis obliterans as seen in the white race, and the oscillometric studies in two cases confirmed the closure of all large arteries bilaterally. The nature of the gangrene in all cases was similar to that seen in thrombo-anguitis obliterans. Pathologically, all five cases were typical examples of the advanced stage of the disease. In three cases the veins were affected as well as the arteries. In the other cases only the dorsalis pedis artery was studied by means of biopsy of this vessel. None of the lesions were in the active stage of the disease. The lesions in the arteries were more suggestive of panarteritis than simple inflammation of the intima. Syphilis has been excluded as a prominent or specific cause of Buerger's disease. All five patients undoubtedly had, or had had, syphilis. Although special studies did not reveal the spirochete, its absence is not sufficient to eliminate it as the pathogenic organism in the healed stage of vascular disease represented. The lesions are not suggestive of syphilis. It is conceivable that in susceptible individuals the toxins of the spirochete might produce such vascular lesions or even that the end stage of actual spirochetal invasion might present such a pathologic picture.

The Heart After Severe Diphtheria—Thompson and his co-workers reexamined ninety-one of 100 persons who had severe diphtheria from fifteen to twenty years ago. No clear instance of auriculoventricular or intraventricular block was found. There were three cases with auriculoventricular conduction at the upper limit of normal (PR interval, 0.2 second) and four cases in which there is a possibility that there may have resulted a slight interference with intraventricular conduction. In two of the three former cases the PR interval is greater than it was at the time of a previous follow-up examination ten years before, and in the four latter cases the width of the QRS complexes is slightly greater in two cases than it was ten years before, but in no case is true abnormality a cer-

tainty. In two of the three cases with PR intervals of 0.2 second there was strong suspicion that there had been an intercurrent rheumatic infection. While there are acceptable cases of the development of disturbed conduction during the course of diphtheria and in very rare cases the disturbance persists permanently, there is as yet no proof that it may develop some years after the illness.

American Journal of Clinical Pathology, Baltimore

7 221 284 (May) 1937

Preparation of Dextrose Solution for Intravenous Administration. W. J. Elser and R. G. Stillman. New York—p. 221

Supravital Observations on Some Uncommon Intracellular Structures of Cellular Elements in Human Peripheral Blood. L. A. Erf. New York—p. 235

Modification of Hinton Test Applied to Spinal Fluid. J. A. V. Davies, Boston—p. 240

Examination of Cerebrospinal Fluids by Colloidal Carbon. W. J. Deady, F. J. Elliott and H. Smith. Hamilton, Ont.—p. 246

Criticism of Laboratory Routine in Modern Institutions of Pathology. N. C. Foot. New York—p. 251

*Flocculation Method for Diagnosis of Active Tuberculosis. F. Rytz and G. K. Higgins. Minneapolis—p. 264

Flocculation Method for Diagnosis of Tuberculosis—Rytz and Higgins outline a simple serologic reaction that differentiates with reasonable accuracy and aids in the detection of early active tuberculosis. The test is of a nonspecific nature, as a simple alcohol-saline mixture serves as antigen. However, Lehmann-Facius and Steinert have shown that in tuberculous infections the euglobulin may acquire antigenic properties and combine in vitro with the antibody. On that basis it would be explainable why the present reaction and other tests may become negative in severe cases of active tuberculosis when great numbers of disintegrated tubercle bacilli and other cell substances possibly enter the circulation to combine with the antibody of the blood stream. The free antibody of the circulation, ordinarily causing a reaction, may thus be combined and unable to unite in vitro with antigenic protein, or other antigenic substances, possibly activated by alcohol-saline solution. The antigen is prepared from ground tubercle bacilli (H37) that had been grown on glycerol-agar. The serum must be free from hemolysis and blood cells, and the sample should not be more than two days old. Of the 860 serums tested, 175 were from patients in tuberculosis sanatoriums. By clinical classification 121 were from patients with active tuberculosis and thirty-nine of the group were clinically defined as borderline cases. Blood samples were also taken from fifty-four tuberculous patients, clinically classified as arrested, forty-nine of whom gave negative reactions. In a comparatively small number of severe and hopeless cases of active tuberculosis, the test had become negative in about 50 per cent. In 80 per cent of the total number within the group of tuberculous patients the serologic observations agreed with the clinical classification.

Am J Roentgenol & Rad Therapy, Springfield, Ill

37 577 720 (May) 1937

*Osteoporosis Circumscripta of Skull and Paget's Disease. Fifteen New Cases and Review of Literature. H. H. Kasabach and A. B. Gutman. New York—p. 577

Roentgen Evidence of Behavior of Human Lung in Recent Tuberculous Infections. K. D. A. Allen. Denver—p. 603

Diaphragmatic Hernia and Associated Conditions. J. H. Marks. Fall River, Mass.—p. 613

Roentgenologic Studies of Liver and Spleen. C. L. Martin. Dallas, Texas—p. 633

Roentgen Pelvimetry and Fetometry. P. C. Hodges. Chicago—p. 644

Benign Giant Cell Tumor of a Rib. Report of Case. L. M. Hilt. Grand Rapids, Mich.—p. 663

Herniation of Stomach into Scrotum. Report of Case. F. J. Lust, New York—p. 666

Use of 200 to 600 Millicurie Radon Pacl in Treatment of Malignant Lesions. W. E. Howes. Brooklyn—p. 668

Therapeutic Use of Various Solutions of Radium Emanation. Preliminary Report. I. I. Kaplan. New York—p. 675

Evaluation of Bone Density in Roentgenogram by Use of Ivory Wedges. I. Stein. Philadelphia—p. 678

Circumscribed Osteoporosis of Skull and Paget's Disease—Kasabach and Gutman present fifteen cases of circumscribed osteoporosis of the skull together with follow-up studies on seven cases reported previously by Kasabach, Dyke and Schuller. The roentgenologic, clinical, pathologic and biochemical characteristics of the disease are summarized, so far as the data in the literature and their own material permit. The progress of the disease has been studied for periods of

from three to thirteen years. In reconstructing the development of the bizarre patterns seen in advanced stages, it would appear that the disease begins as small, rounded, circumscribed areas of osteoporosis, often in the frontal region near the base, sometimes in the occipital region, occasionally elsewhere. These areas expand over a period of years until the major portion of the calvarium or the entire calvarium is involved. Since the initial foci originate near the base, the last remnant of normal bone is likely to be in the parietal region posterior to the vertex, producing a characteristic design in the lateral roentgenogram of the skull. In thirty-two of the forty-seven cases (including eleven of the present cases) circumscribed osteoporosis of the skull was associated with typical Paget's disease somewhere in the skeleton. In eighteen cases the skull was the site of both circumscribed osteoporosis and the "cotton wool" shadows characteristic of Paget's disease. In five cases presenting only osteoporosis of the skull follow-up studies revealed the development of Paget's disease in or about the osteoporotic areas within two to eight years. Thus appears to be a regular sequence, though the areas of circumscribed osteoporosis may remain essentially unchanged for a number of years. Most cases are asymptomatic. In some, headache, vertigo, migraine and epileptiform attacks may have been related to the osteoporosis. The peak age incidence of circumscribed osteoporosis occurs two decades earlier than in Paget's disease. In the chemical analyses of the blood, with one exception, the serum calcium and inorganic phosphorus were within normal limits. Serum phosphatase activity was essentially normal in osteoporosis but was characteristically elevated when typical Paget's disease was also present. The results of pathologic changes of bone from osteoporotic areas are similar to and probably identical with those described in what Schmorl called "hemorrhagic infarction of the calvarium." There is no definite evidence now available to indicate whether vascular or the bony changes are primary. It is believed that circumscribed osteoporosis is not an obligatory, early phase of Paget's disease but a precursor of Paget's disease or, in a broad sense, an atypical form of Paget's disease as suggested by Sosman. Its occurrence solely in the skull is thought to be related chiefly to the peculiarities characterizing the diploic circulation and the cranial architecture.

Archives of Neurology and Psychiatry, Chicago

37 983 1236 (May) 1937

- Athetosis. II. Surgical Treatment of Unilateral Athetosis. P C Bucy and T J Case. Chicago—p 983
Anatomic and Pneumographic Studies of Temporal Horn. Further Note on Pneumographic Analysis of Cerebral Ventricles. A E Childe and W Penfield. Montreal—p 1021
*Serum Disease of Nervous System. Report of Three Cases. W M Kraus and L B Chaney. New York—p 1035
Nature and Significance of Multiple Petechial Hemorrhages Associated with Trauma of the Brain. W F Schaller, K Tamaki and H Newman. San Francisco—p 1048
Contribution Made by Roentgenographic Evidence After Injection of Iodized Oil. J H Globus. New York—p 1077
Neuroptic Myelitis versus Multiple Sclerosis. Pathologic Study. G B Hassin. Chicago—p 1083
Primary Demyelinating Processes of Central Nervous System. Attempt at Unification and Classification. A Ferraro. New York—p 1100
Chronic Bilateral Subdural Hematoma. Encephalographic Diagnosis with Report of Three Cases. W L Holt Jr and G B Pearson. Boston—p 1161

Serum Disease of Nervous System—Kraus and Chaney confine their discussion to serum disease of the nervous system. The cause of the disorder in question is an allergic or anaphylactic reaction in the body due to a foreign serum. The specific antitoxins in the serum play no part. The neuropathologic changes associated with serum sickness are the same as those which appear elsewhere in the body and consist of a primary disorder of the blood vessels, causing nutritive impairment of the tissues of the nervous system and interfering temporarily as a rule with the activity of the nerve fibers and cells but occasionally causing cell death and parenchymal necrosis. Serum sickness involving the nervous system produces a group of syndromes almost as varied and numerous as syphilis or lethargic encephalitis. Though the pathologic process is reasonably well defined, there is still no adequate explanation of the widely different sites of involvement in the various cases reported. There may be moderate or high fever, urticaria either generalized or limited to the region of the injection or to other

regions, pain, swelling and increase in temperature of one or many joints, enlargement and painfulness of the lymph nodes, severe neuralgia in one or several extremities, headache, nausea and vomiting. After the initial onset the picture varies according to the syndrome that appears. There is no relation between the site of injection and the site of the disease of the nervous system. The syndromes may be divided into cerebral, spinal, radicular and neural. As a rule recovery occurs, though months may be needed for complete cure. Occasionally paralysis and weakness, complete or partial, of one or several muscles may remain. The pain that is present at the onset usually disappears within a week. Such drugs as atropine and epinephrine are indicated both for the serum sickness and for the resulting paralysis. Massage and electrical therapy are indicated in the presence of muscular paralysis and wasting. Three new cases are reported. In spite of the complications of therapeutic serums, use should be made of them when they are indicated for the prevention or cure of the specific disease.

Archives of Pathology, Chicago

23 615 756 (May) 1937

- Glomal Tumors. H E Radasch. Philadelphia—p 615
Production of Coitis in Dog with Staphylococcus Toxicus. R H Rigdon. Nashville. Tenn.—p 634
Changes in Liver of Cat Following Ligation of Single Hepatic Ducts. H L Stewart, A Cantarow and D R Morgan. Philadelphia—p 641
Hemoblastic Leukemia. Study of Case. H E Jordan. Charlottesville. Va.—p 653
*Histologic Study of Ameloblastoma. H B G Robinson. Rochester. N Y—p 664
Role of Vitamin C in Resistance. D Perla and Jessie Marmorston. New York—p 683

Histologic Study of Ameloblastoma—Robinson states that cystic, cystic and solid, and solid forms of ameloblastoma are encountered. Cornification, hornification or epithelial pearl formation may be found occasionally in the ameloblastoma, as in one of the cases that he cites and in fifteen instances collected from the literature. While no single ameloblastoma has yet been traced from the solid to the cystic form through histologic studies, it seems highly possible that such a transition takes place. The solid ameloblastoma closely resembles the developing tooth up to the point at which generative processes should begin. From this point on, a graded series of degenerative changes with cyst formation in the stellate reticulum can be noted in the neoplasm. This degeneration from solid to cystic was noted by Kronfeld (1930) in a series of ameloblastomas, and his observation is confirmed by the author's study. While this evidence is highly suggestive, it cannot be asserted that such a process is known to take place.

Florida Medical Association Journal, Jacksonville

23 555 610 (May) 1937

- Diagnosis and Treatment of Trigeminal Neuralgia. H H Cook. Miami—p 567
Trichinosis. Case Report. Localization in Semicircular Canals. T F Hahn. DeLand—p 571
Ambulatory Treatment of Fractures of Hip and Spine. M P Travers. Miami—p 574
Experimental Studies on Dysmenorrhea. Case Report. C D Hoffmann. Orlando—p 579
Epidemic Cerebrospinal Meningitis (Cerebrospinal Fever). Spotted Fever. Meningococcus Meningitis. Report of Forty Cases Treated at St. Luke's Hospital in Jacksonville, Fla. During the Years 1926 to 1936. J Weinreb. Jacksonville—p 583
Surgery in Treatment of Pulmonary Tuberculosis. F G Slaughter. Jacksonville—p 586

Indiana State Medical Assn Journal, Indianapolis

30 275 324 (June) 1937

- Distribution of Physicians in Indiana. T B Rice and P S Connel. Indianapolis—p 275
Intracranial Dermoid. Case Report. N H Gladstone. Fort Wayne—p 282
Episiotomy and Repair. Indications and Technique. D L Smith. Indianapolis—p 284
Cyclopropane Anesthesia. Certain Fundamentals of Technique. F T Romberger. Lafayette—p 288
Clinical Diagnosis in Contrast with X-Ray Diagnosis. C A Sturtevant. Indianapolis—p 293
Ideals in Medicine. E E Long. Shells—p 301
*Subcutaneous Pyelography in Children. R C Travis, Indianapolis—p 302
Long Bone Retractors. D I Schwartz. Fort Wayne—p 304

Subcutaneous Pyelography in Children—Travis has examined eighteen patients by the method of subcutaneous pyelography. The ages of the patients varied from 3 weeks to

9 years The results have been fully as satisfactory as those obtained by the intravenous method Both methods were used in two cases and no difference was found in the detail or density of the shadows from the diagnostic standpoint, both being satisfactory One patient, the youngest of the group, showed no visualization of any portion of the urinary tract The remainder showed diagnostic shadows on at least one film of the series of three, made at intervals of ten or fifteen, thirty and forty-five to sixty minutes following injection The method, carried out with aseptic technic, is safe, and has shown no untoward reactions following the examination

Johns Hopkins Hospital Bulletin, Baltimore

60 313 376 (May) 1937

- The Motor' Cortex M Hines Baltimore—p 313
*Curious Illustration of Mass Reflex and Involuntary Micturition Following Injury of Spinal Cord O R Langworthy Baltimore—p 337
Cardiac Arrhythmia After Bilateral Ureteral Ligation in Dog W M Nicholson and A J Schechter Durham N C—p 346
Specificity of Thyrotropic Action of Anterior Pituitary Gland K Emerson Jr Baltimore—p 358
Use of Muscle Pedicle Flap for Prevention of Swelling of Arm Following Radical Operation for Carcinoma of Breast Preliminary Report W F Rienhoff Jr Baltimore—p 369
New Operative Technic for Closure of Main Bronchus Preliminary Report W F Rienhoff Jr Baltimore—p 372

"Mass Reflex" and Involuntary Micturition—Langworthy discusses the case of a young woman who sustained an injury of the lower lumbar portion of the spinal cord Reflex micturition finally became established Impending micturition produced flexion of the toes bilaterally, adduction of the right foot, and extension and internal rotation of the legs These movements were associated with cramplike pain in the urethra and the contracted muscles Holding the toes extended postponed micturition Voiding could be induced by stimulation of the perineal region The contraction of the muscles illustrates the sacral reflex

Journal of Bacteriology, Baltimore

33 451 576 (May) 1937

- Relation Between Growth of Mycobacterium Tuberculosis and Yield of Tuberculin on Synthetic Mediums S C Wong Seattle—p 451
Relations Between Plate Counts and Direct Microscopic Counts of Escherichia Coli During Logarithmic Growth Period M W Jennison Cambridge Mass—p 461
Studies on Effect of Synthetic Surface Active Materials on Bacterial Growth II J Katz and A Lipsitz Detroit—p 479
Streptococcus Zymogenes J M Sherman Pauline Stark and J C Mauer Ithaca N Y—p 483
Variations in Filtrability of Different Races of Bacteriophage N R Goldsmith Pittsburgh—p 495
Bacterial Type Transformation IV Micrococcus Tetragenus Infection H A Reimann with technical assistance of Cecilia G Kramer Philadelphia—p 499
Significance of Bacterial Variation V Micrococcus Tetragenus Infection H A Reimann with technical assistance of Cecilia G Kramer Philadelphia—p 513
Growth Inhibition of Escherichia Coli K M Wheeler and C A Stuart, Providence R I—p 525
*Isolation of Probable Pathogenic Staphylococci G H Chapman C W Lieb C Berens and Lillian Curcio New York—p 533
Formation of Sulfide by Some Sulfur Bacteria R L Starkey New Brunswick N J—p 545

Isolation of Probable Pathogenic Staphylococci—Chapman and his colleagues describe a medium that was developed to simplify the search for pathogenic types of staphylococci On this medium about 98.5 per cent of strains of the pathogenic type of staphylococcus grew luxuriantly while about 94 per cent of the nonpathogenic type were inhibited This medium should be useful for isolation purposes, particularly when a large series of cultures is to be tested The positive in vitro reactions of strains isolated from pus obtained from sinuses, osteomyelitic lesions, boils, carbuncles and the like, and the correlation of the three in vitro properties in a large series of strains indicated that hemolysis, coagulase and crystal-violet agar tests could be applied as in vitro indicators of probable pathogenicity The simultaneous use of several in vitro tests, each of which correlated with rabbit inoculation tests, increased the accuracy of interpretation of the results Search for a medium containing a dye that would differentiate pathogenic from nonpathogenic strains, and yet not inhibit pathogenic strains, led to bromthymol blue agar Best results are obtained when the concentration of the dye is increased to 0.17 Gm per liter To determine whether this concentration of brom-

thymol blue had an inhibitive effect on pathogenic types of staphylococci, swabs from the nose, throat and gum margins of patients suspected of having chronic diseases were plated on proteose lactose agar containing 0.017 per cent bromthymol blue Duplicate swabs were plated on rabbit blood agar Parallel results were obtained in sixty-nine of ninety-six pairs of swabs and widely different results were obtained in only three pairs Except for a few intermediate size colonies of in vitro negative strains, those strains which grew produced colonies as large as those on ordinary mediums

Journal of General Physiology, New York

20 649 766 (May 20) 1937

- Substances Affecting Adult Tissue in Vitro III Stimulant (the 'A Factor') in Serum Ultrafiltrate Involved in Overcoming Adult Tissue Dormancy H S Simms and Nettie P Stillman New York—p 649
Carboxypeptidase I Preparation of Crystalline Carboxypeptidase M L Anson Princeton N J—p 663
Method for Investigation of Electrosthenolysis E S Fletcher Jr R S Lillie and W D Harkins Chicago—p 671
Changes of Apparent Ionic Mobilities in Protoplasm II Action of Guaiacol as Affected by Hydrogen Ion Concentration W J V Osterhout New York—p 685
Polarization Studies in Colloid Membranes and in Synthetic Protein Lipid Membranes Mona Spiegel Adolf Philadelphia—p 695
Quantum Yield of Hydrogen and Carbon Dioxide Assimilation in Purple Bacteria C S French Berlin Dahlem Germany—p 711
Kinetics of Penetration XIV Penetration of Iodide into Valonia A G Jacques New York—p 737

Journal of Immunology, Baltimore

32 341 420 (May) 1937

- *Active Immunization Against Acute Anterior Poliomyelitis with Ricin Oleated Vaccine J A Kolmer with assistance of Anna M Rule Philadelphia—p 341
Toxins of Salmonella Aertrycke Ruth C Herter and L F Rettger, New Haven Conn—p 357
Opsone Action of Serum J Gordon Leeds England—p 375
Behavior Exhibited by Mixtures of Pneumococcus Type III and Homologous Antiserum Analogous to That Described for Similar Associations of Virus and Antiviral Serum J F Enders and M F Shaffer Boston—p 379
Role of Liver in Acute Anaphylactic Shock in the Guinea Pig R H Broh Kahn and I A Mirsky Cincinnati—p 409
Effect of Active Immunization on Lipid Content and Phagocytic Activity of Blood Leukocytes of Rabbits E M Boyd J H Orr and G B Reed Kingston Ont—p 415

Immunization Against Poliomyelitis with Ricinoleated Vaccine—During the last year Kolmer and Rule have immunized 130 additional rhesus monkeys with ricinoleated vaccine for the purpose of further determining its effectiveness in protecting these animals against intracerebral and intranasal inoculation with multiple infective doses of poliomyelitis virus, to compare the effectiveness of subcutaneous and intracutaneous routes of administration and to secure more information on the safety of the vaccine by determining the number or percentage of animals developing paralysis from subcutaneous and intracutaneous injections during the period of immunization Of eighty monkeys receiving from five to ten subcutaneous injections of vaccine in doses ranging from 0.05 to 1 cc per kilogram every five days, sixty-one, or 76.5 per cent, were found to have acquired effective resistance to intracerebral inoculations of virus The occurrence of acquired resistance induced by from five to ten doses of from 0.05 to 0.4 cc per kilogram varied from 64 to 75 per cent, while doses of 0.5 and 1 cc per kilogram completely protected from 93 to 100 per cent of a group of twenty one animals Of seven additional monkeys given five subcutaneous injections of the vaccine in doses varying from 0.1 to 1 cc per kilogram, five were found protected when inoculated intranasally two weeks after the last dose with 0.5 of 10 per cent virus (two instillations at intervals of forty eight hours) Of the forty three monkeys receiving from five to ten intracutaneous injections of vaccine by the multiple puncture method in doses ranging from 0.05 to 0.5 cc per kilogram every five days, thirty-two were found to have acquired effective resistance to intracerebral inoculations of virus It appears that intracutaneous injections engender a higher degree of resistance since doses of 0.1 and 0.25 cc immunized from 80 to 94 per cent of animals, while similar doses by subcutaneous injection immunized from 73 to 75 per cent Paralysis developed in three of the 130 animals This occurred in the 124 animals (in this and a former series) immunized by subcutaneous injections and occurred during the past year when the strain of virus was of greater virulence than in 1934

None of fifty-nine animals given intracutaneous injections showed any evidences of infection during immunization. The intracutaneous administration of the vaccine, therefore, is apparently safer than subcutaneous injections.

Kentucky Medical Journal, Bowling Green

35 221 272 (May) 1937

- Fundus in Arterial Hypertension W N Offutt, Lexington —p 223
Hypertension L Bach Bellevue —p 227
*Relation of Diabetes to Surgery I Abell Louisville —p 232
Puerperal Infections R E Kinsey Williamstown —p 237
Prenatal Care J T Molony Covington —p 238
Toxemias of Pregnancy L Higdon Paducah —p 240
Care of the New Born in the First Weeks of Life R G Elliott Lexington —p 243
Birth Injuries H S Andrews Louisville —p 245
Consideration of Fractures of Shaft of Femur W B Owen Louisville —p 247
Treatment of Lobar Pneumonia H P Linn Paducah —p 252
Treatment of Congenital Syphilis with Stovarsol J G Van Dermark Covington —p 256
Undulant Fever Diagnosis and Treatment O A Beatty Glasgow —p 260
Myositis Ossificans Report of Case F M Stites Louisville —p 265
Surgical Thyroid M D Garred Ashland —p 267
Anal Fissure and Irritable Anal Ulcer M W Haws Fulton —p 269

Relation of Diabetes to Surgery—While diabetic patients can be prepared for surgical procedures, Abell points out that an increased susceptibility to shock, intolerance to trauma, cardiorenal lesions, lessened recuperative and reparative powers, the ever present threat of acidosis, coexistent arteriosclerotic changes, depletion and dehydration from the effects of starvation, diarrhea and vomiting and the disturbing effect on metabolism exerted by fever and infection combine to make them poor surgical risks. In estimating the surgical risk of a patient with diabetes these problems must be borne in mind, in addition to the immediate surgical condition presented, and further consideration given to complications, hazards peculiar to the abnormal metabolism of diabetes, the effects of insulin and the pathology associated with diabetes. In the presence of surgical emergencies nothing is to be gained by delay in fact, when these possess infection as a feature delay may be actually harmful. The diabetic patients showing the greatest surgical mortality are those in whom complications arise as a result of infection, cellulitis, carbuncles and gangrene.

Maine Medical Journal, Portland

28 89 130 (May) 1937

- The Diet of the Infant C H Smith New York —p 89
Low Back Pain Etiology Diagnosis and Treatment C F Painter, Boston —p 101
General Considerations on Industrial Surgery M T Shelton Augusta —p 109

Medical Annals of District of Columbia, Washington

6 117 152 (May) 1937

- *Use of Sulfanilamide in Treatment of Gonorrhea Report of Results in 100 Cases F A Reuter Washington —p 117
Changes in Therapy of Peptic Ulcer E L Howes Washington —p 120
Etiology of Pellagra A B Chinn Washington —p 127
Biochemical Processes of Normal and Diseased Kidney J H Roe Washington —p 131
Pathologic Classification of Nephritides R M Choiser Washington —p 138
Methods of Venous Pressure Determination A M May and Marjorie M Crittenden Washington —p 143

Use of Sulfanilamide in Treatment of Gonorrhea—Reuter used sulfanilamide in the treatment of 100 cases of gonorrhea in all degrees and stages of infection. Although several patients showed no response to treatment with sulfanilamide so far as the clinical evidence was concerned, they did not show any tendency to get worse and remained stationary. Associated with the administration of sulfanilamide a long list of by-effects were observed, chiefly a profound weakness and fatigue and indescribable epigastric sensations called "indigestion," not associated with nausea or vomiting. Several persons described a sensitiveness of the skin of the lower extremities, and one of these very definitely insisted that there was a marked slowing of and loss of force to the urinary stream. All of these and other minor side-effects disappeared in from twenty-four to forty-eight hours after discontinuance of the agent. Any external or gross evidence of methemoglobinemia or sulfemoglobinemia was not observed. The time of onset of

these symptoms varied, but most patients began to complain when they had taken between 60 and 80 grains (39 to 52 Gm) of the drug. Those who complained early and bitterly of the side-effects gave the best response to the treatment, while the cases which are counted as failures apparently showed a great tolerance for the drug or did not react to it in that yet unknown manner by which it produces its best effect. Of the forty new infection cases treated with sulfanilamide there were three in which the treatment failed. In the old case group of sixty cases, treatment failed in seven. The average length of time for a clinical recovery was five days. In other words, recovery occurred in 92.5 per cent of the fresh cases, and in 88 per cent of the previously treated cases. The treatment consisted of the administration of 40 grains (26 Gm.) of sulfanilamide daily, 10 grains (0.65 Gm.) after each meal and 10 grains at bedtime. The criterion for cure was the disappearance of microscopic pus from the urine, absence of pus from the prostate gland, loss of all symptoms, and the failure to produce a recurrence. It is impossible to say whether or not any of these cases will eventually light up again. Sulfanilamide is well on its way to produce much harm, as well as benefit, unless those who have to do with dispensing it adopt some measures for its control.

Medicine, Baltimore

16 95 214 (May) 1937

- Recent Advances in Blood Coagulation Problem H Eagle Philadelphia —p 95
Phrenic Nerve Operations in Treatment of Pulmonary Tuberculosis Review A H Aufses, New York —p 139

New England Journal of Medicine, Boston

216 871 914 (May 20) 1937

- Acute Peripheral Arterial Occlusion and Its Treatment R R Linton, Boston —p 871
Why Medical Service Councils? Report to the Public Relations Committee Massachusetts Medical Society —p 876
*Metabolic Background of Rickets Interpretive Review R Gubner, Brooklyn —p 879
Twenty Five Years of Urology J D Barney and E R Muntz, Brooklyn —p 888

Metabolic Background of Rickets—Gubner defines rickets, as well as osteomalacia, as a derangement of mineral metabolism due to vitamin D deficiency, which is frequently associated with inadequate calcium or phosphorus or both in the diet, leading to characteristic osseous changes. The reduction of serum phosphate and calcium in rickets is due to an inability of the body to hold the normal quantity of these substances, and the action of vitamin D is directly concerned in the preservation of the mineral balance. The conclusion seems warranted that rickets is primarily due to phosphorus deficiency and that lack of vitamin D produces rickets by decreasing the retention of phosphorus, which secondarily depletes the body of calcium. Vitamin D is seen, then to serve as an agency for the conservation of the body's calcium and phosphorus stores, acting to maintain the mineral balance. Depletion of calcium and phosphorus is generally considered to produce rickets by virtue of the serum concentrations being too low to allow calcification to take place. The primary process in rickets, and particularly in osteomalacia, is not defective calcification but decalcification of the shafts of the long bones. The mechanism of decalcification is therefore a basic consideration in the pathogenesis of rickets. It is important that serum calcium and phosphorus be maintained at a certain level, not only to allow effective calcification but to keep a proper concentration of serum calcium, which is necessary for the performance of several other diverse body functions, such as the regulation of muscular excitability and the coagulation of blood. Rickets has thus far been considered as primarily affecting the osseous system. There are, however, important accompanying features, observed clinically, which often overshadow the bony deformities and which have received less attention than is deserved. Thus the rachitic child is often unduly fat, especially in slight or moderate degrees of rickets. Muscular weakness is almost always present, and the prominent symptoms of potbelly and constipation are usually ascribed to atonic abdominal musculature. The muscles are small, very flabby and poorly developed. The effects of muscular weakness are intensified by laxity of the ligaments. The great diminution in serum phosphorus may not be due solely

to its loss through the intestine, the depletion may also be augmented by increased loss through the urine. In all hyperparathyroid conditions, diminution of serum phosphorus with increased urinary phosphorus excretion is a constant finding. The manner in which this increased urinary elimination is accomplished is obscure. Perhaps the following mechanism may operate. The kidney, exclusive of the bones, is the organ richest in phosphatase and an increased phosphatase concentration results in a local hydrolysis of phosphoric esters in the kidney with increased urinary elimination of inorganic phosphate. Whatever the mechanism, the increased urinary phosphorus excretion results in further depletion of the bone forming minerals.

Northwest Medicine, Seattle

36 149 186 (May) 1937

- Arteriovenous Fistula E B Potter Seattle—p 149
Cerebrospinal Syphilis The Problem and the Treatment V W Miller, Salem Ore—p 154
Observations on Treatment of Head Injuries P G Flothow, Seattle—p 159
Cancer in General Practice W F Howard Pocatello Idaho—p 162
Desensitization by Oral Administration of Pollen Extracts R F E Stier and G Hollister Spokane Wash—p 166
One Hundred Years of Progress in Medicine H M F Behneman San Francisco—p 170
Total Reconstruction of External Ear J K Nattinger Seattle—p 172
Infirmarys in State Educational Institutions C A Smith Seattle—p 174

Radiology, Syracuse, N Y

28 521 650 (May) 1937

- Technic of Radium Treatment of Carcinoma of Rectum H H Bowing and R E Fricke Rochester Minn—p 521
Peroral X Radiation in Treatment of Intra Oral Cancer H E Martin, New York—p 527
Radiation Therapy of Malignant Lesions of Lip I I Kaplan New York—p 533
Osteopetrosis R M Smith and A T Smith Philadelphia—p 544
*Human Autonomic Pharmacology V Effect of Acetyl Beta Methylcholine (Mechoyl) on Atonic Colon A Myerson P G Schube and M Ritvo Boston—p 552
Excretory Urography J B Priestley Des Moines Iowa—p 559
Roentgen Diagnosis of Lesions of Upper Urinary Tract Observations on 432 Patients Having Retrograde Pyelograms C L Gillies and H D Kerr Iowa City—p 565
Hereditary Deforming Chondrodysplasia R G Alley Pittsburgh—p 576
*Diseases Affecting Intervertebral Foramina A Oppenheimer Beirut, Lebanon (Syria)—p 582
Apparatus for So Called Mucosal Relief Type of Gastro Intestinal Examination J C Bell Louisville, Ky—p 593
Fracture Dislocations in Region of Atlas and Axis with Consideration of Delayed Neurologic Manifestations and Some Roentgenographic Features G A Schwarz and R S Wigton Philadelphia—p 601
Nontraumatic Diaphragmatic Hernia Report of Case of Congenital Right Sided Hernia C C Thomas Lewiston Maine—p 608

Effect of Acetyl-Beta-Methylcholine on Atonic Colon

—Myerson and his associates discuss the effect of acetyl-beta-methylcholine and its nullification by atropine on the colon of man. In the course of the study it was observed that in well delineated cases of dementia praecox there was frequently a decrease in the tonus and the motility of the colon, which resulted in a delayed emptying time. It was felt that this type of colon was the most suitable in which to observe the effects of the drug. Each individual used in the study received a cleansing enema and two hours later a barium sulfate enema. The dosage was 30 mg of acetyl beta-methylcholine and $\frac{1}{400}$ gram (0.00065 Gm) of atropine sulfate. All drugs were given subcutaneously in the region of the deltoid muscle. Of the forty eight cases of dementia praecox the colon tonus was abnormal in 75 per cent, in 44 per cent it was decreased, and in 56 per cent it was increased. In 71 per cent of the cases the colon motility was abnormal, i. e. decreased. The time required for the emptying of the barium sulfate enema ranged from four to fourteen days. After the injection of acetyl-beta-methylcholine there was marked evidence of an increase in the tonus and in the motility of the colon. As each colon was followed under the fluoroscope there were at first irregularly scattered areas where the tonus would suddenly appear to be increased. These haustrations would frequently disappear entirely, leaving a spastic area from which the barium sulfate would be entirely evacuated. As suddenly as the increased tonus appeared, it would in many instances disappear and there would appear in another place another area of increased tonus. The increased tonus and motility were not confined to any one

specific portion of the colon. They appeared in five minutes, rapidly reaching a maximum of effect at that time and continuing thus for more than an hour, after which the colon appeared to have an increased tonus for at least twenty-four hours. Owing to the increased tonus and motility, during the first thirty minutes the patients would have one or more evacuations, which were imperative and which could not be restrained. The drug did not appear to affect the anal sphincter. At the end of twenty-four hours there had been two, three or four evacuations resulting in a colon that was practically free of barium. In those cases in which both acetyl-beta methylcholine and atropine were administered the atropine was given twenty minutes after the acetyl beta-methylcholine. As the atropine effect would manifest itself, the increased tonus and motility of the acetyl-beta-methylcholine would become definitely lessened and in some instances disappear. Occasionally a definite imperative urge to evacuate would slowly disappear as the atropine became effective. At the end of twenty-four hours the relaxed colon had returned to approximately its original state of tonus and motility.

Diseases Affecting Intervertebral Foramina—The X-ray signs that Oppenheimer presents concern a syndrome of recurrent or persistent pain, discomfort and progressive disability, clinically suggestive of rheumatism, arthritis, or referred symptoms from internal diseases. Segmental neuritis, resulting from compression of nerve roots within the intervertebral foramina, has been shown to be a common cause of these symptoms. In the case of backache and sciatica the correlation with a special type of spinal lesion is well known, but it has not yet been generally recognized that similar diseases in other segments of the spine, as well as pathologic processes of a different origin, may and do produce narrowing of intervertebral foramina and symptoms of segmental neuritis in various regions of the body. As a differentiation of these conditions has been found useful in determining the appropriate treatment, an attempt is made to classify the changes observed roentgenologically that are typical of chronic diseases leading to compression of nerves within the intervertebral foramina. Two groups of diseases, differing distinctly in origin and mechanism, may lead to narrowing of intervertebral foramina. Following the breakdown of tissues which normally support the bones encircling the foramen (1) mechanical collapse occurs, and (2) inflammatory swelling of periarticular tissues, followed by ossifications of membranes and ligaments, will constrict the foramen by encroachment on its lumen. Collapse is produced by softening, rarefaction or loss of elasticity in tissues which normally support the bones that encircle the foramen. Thinning of intervertebral disks (discogenetic disease) and rarefaction of articular processes invariably cause collapse. Constriction is produced by inflammatory swelling of the synovial membranes of the apophysial joint, followed by calcification of ligaments and ankylosis of the facets. The disks are not involved. The correlation of these conditions with hypertrophic spondylitis (deforming spondylosis) and ankylopoietic spondylarthritis is discussed.

Southern Medical Journal, Birmingham, Ala

30 451 564 (May) 1937 Partial Index

- Experience with Protamine Zinc Insulin M R Whitehill and G A Harrop Baltimore—p 451
Results of a County Wide Survey and an Outline of the Syphilis Control Program in Gibson County Tennessee F L Roberts Trenton Tenn and W C Williams Nashville Tenn—p 458
Evaluation of Serodiagnostic Tests for Syphilis on Spinal Fluid H H Hazen T Farran Washington D C A H Sanford Rochester Minn F E Senear Chicago W M Simpson Dayton Ohio and R A Vonderlehr Washington D C—p 465
On Fascia Transplant Operation for Ptosis H R Hildreth St Louis—p 471
Use of Para Amino Benzene Sulfonamide (Sulfanilamide) or Its Derivatives in Treatment of Infections Due to Beta Hemolytic Streptococci Pneumococci and Meningococci P H Long and Eleanor A Bliss Baltimore—p 479
Acute Hematogenous Osteomyelitis with Adjacent Joint Infection R C Robertson Chattanooga, Tenn—p 502
Bile Tree Visualization Its Surgical Importance R L Payne Norfolk Va—p 512
Histopathologic Studies of the Brain in Delayed Death Following Strangulation F C Helwig Kansas City Mo—p 531
Intestinal Parasitic Infections Complicating Pregnancy E L King E C Faust and J T Sanders New Orleans—p 543
Emergency Surgery of Stomach and Duodenum J S Horsley, Richmond Va—p 549

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Physical Medicine, London

12 122 (May) 1937

- Some Methods of Treating Rheumatic Conditions by Physiotherapy C F O White—p 2
Some Observations on Manipulative Surgery and Osteopathy A G T Fisher—p 4
Electrotherapy Papers III Ultraviolet Irradiation Clinical Applications A P Cawadiaz—p 7
Electromedical Apparatus Its Character, Operation and Care II The Faradic Current L G H Sarsfield—p 11

British Medical Journal, London

1 901 952 (May 1) 1937

- Transurethral Resection of the Prostate Review of Fourteen Years Work K M Walker—p 901
*Blood Transfusion in Obstetrics M D Black—p 903
*Prevention of Constipation E M Dimock—p 906
Treatment of Carcinoma by Inserted Radium Plaques H S Souttar—p 909
Present Day Methods of Sterilizing Dressings S N Hayes—p 911
Gastro-Enteritis Associated with Proteus Vulgaris J D A Gray—p 916

Blood Transfusion in Obstetrics—Black speaks of the formation of a blood transfusion service and gives an outline of the indications, method and dangers of blood transfusion. Among the branches of medicine in which there is a place for blood transfusion, obstetrics is preeminent, yet this fact has been neglected for many years on the ground that the pregnant or parturient woman stands the loss of blood better than any other type of patient. One of the greatest needs of an efficient maternity hospital is a blood transfusion service. In June 1936 such a service was started in the Glasgow Royal Maternity and Women's Hospital. Placards had been posted at the entrance to the hospital and in public places in the neighborhood stating that male donors were urgently required and that a fee of £1 and 1 shilling would be paid to any one giving blood. If the heart and lungs were normal and the Wassermann reaction was negative the donor was placed on the roll and informed to that effect. By this means a roll of 180 donors has gradually been built up. All groups are put on the roll. Before a donor is sent for, the recipient's blood is grouped to determine the appropriate donor. The policy of the hospital, notwithstanding, is still to use a relative when possible. By this means a saving of universal donors is effected. When a donor arrives, a rapid direct compatibility test is performed before the transfusion is started. Should a donor be called and not used, he is paid 5 shillings. By means of this service it is hoped to prevent as far as possible deaths from obstetric hemorrhage in the hospital. The main object in obstetrics in giving blood transfusion has been to replace blood loss from hemorrhage. At times it has been given with a view to increasing the patient's resistance to infection. Of the deaths from hemorrhage about three fourths can be prevented by transfusion within one hour of admission to the hospital.

Prevention of Constipation—Dimock claims that constipation is a preventable malady and that the continued use of purgatives is irrational. As constipation is practically unknown among savage tribes, it would appear that a method is required which will overcome the disadvantages of our civilized diets and sedentary occupations. There is now ample experimental evidence showing that the laxative effect of vegetable foodstuffs depends on their "fiber" content. The fiber of green vegetables and ordinary foodstuffs is more readily broken down in the alimentary tract than is that of wheat bran. This explains why the addition of fruit and vegetables to the diet so often fails to prevent constipation. The ingestion of bran and all dietetic measures relying on the action of fiber should be used only for prevention of constipation. The author has used bran as the mainstay of his treatment, combined with the use of a laxative as long as is necessary. Bran should not be added to the diet when constipation is actually present. The bran should be taken daily for a minimal period of four weeks, and as laxation increases the laxative given may be gradually reduced and finally left off. The amount taken varies from one table spoonful to a large cupful. In stubborn cases it may be neces-

sary to give bran twice a day before the patient's usual dose of purgatives can be reduced. The author has not found that the effect of the bran diminishes with use or that more is required, rather there is a tendency for patients to return to normal habits and for less bran to be necessary. Of 121 patients with habitual constipation, 80 per cent were treated with processed bran. The results in 110 cases of simple habitual constipation showed that the treatment was successful in restoring normal habits in 90 per cent, that women were more common sufferers than men in a ratio of 3 to 1, that the menopausal age is the most difficult, and that the prognosis and the rapidity of response to treatment depend on the length of the history of constipation. The psychologic benefit conferred on the patient is contrasted with the outlook of the patient taking laxatives.

Lancet, London

1 1033 1092 (May 1) 1937

- Prevention of Pulmonary Tuberculosis Among Adults in England in the Past and in the Future P M D Hart—p 1033
Rationale of Certain Methods Used in Physical Treatment L Hill—p 1035
Addison's Disease Due to Suprarenal Atrophy with Previous Thyrotoxicosis and Death from Hypoglycemia I A Anderson and A Lyall—p 1039
*Treatment of Urinary Infection Importance of Dietary Control H I Coombs C H Catlin and Dorothy Reader—p 1043
Jaundice Complicating Pneumonia with Especial Reference to Jaundice with Cholemia and Its Treatment C A Birch—p 1046
Pernicious Anemia in an Infant F S Langmead and I Doniach—p 1048
Relapsing Staphylococcal Septicemia Associated with Cirrhosis of Liver and Splenomegaly F A Phillips—p 1050

Treatment of Urinary Infection—Coombs and his associates state that a normal person can render his urine relatively alkaline or markedly acid merely by suitable selection of his food. Several patients were allowed their own selection of diet, and when no restriction was placed on "acid fruits" such as oranges and lemons it was found that the average pH of the urine was 5.5 or even 6 while the patient received the usual dose of mandelic acid preparations. When the diet was corrected the pH could be maintained below 5.3. The reaction of the urine can be much influenced by the diet both in normal persons and in patients suffering from infections of the urinary tract. It would seem expedient, therefore, to adjust the diet in all cases in which the maintenance of an acid or alkaline urine is of importance. In many cases this control of the diet need not be rigid, slight modifications which are hardly noticed by the patient often being sufficient. It has been found that a strict alkaligenic diet can be taken for long periods without inconvenience. A strict acidogenic diet, however, may sometimes result in slight gastric discomfort, but this, together with the slight dyspnea which often occurs, may be a manifestation of the acidosis and therefore inevitable.

Tubercle, London

18 337 384 (May) 1937

- Simple Pleurisy with Effusion W J Fenton—p 337
Diagnosis Case V C Cornwall—p 345
Internal Pneumolysis Result of 210 Consecutive Operations F G Chandler—p 348

Journal of Oriental Med, Dairen, S Manchuria

26 37 46 (March) 1937

- Experimental and Histologic Studies on Influence of Sympathectomy in Uppermost Thoracic Region of Lung Part I Study of Literature Regarding Anatomic Physiology of Lung Nerves Outside the Lung Especially of the Sympathetic Nerve S Hayashi—p 37
Exfoliative Erythrodermia Three Cases K Yajima—p 38
Studies on Influence of Water and Alcohol Soluble Principles and Ethereal Oil of Allium Scorodoprasum on the Iron Content of Blood T Miyamoto—p 39
Influence of Sympathectomy in Uppermost Thoracic Region on Absorption in Thoracic Cavity K Mori—p 40
Investigation on the Passage of Potassium Rhodanate into the Eye Y Kodama—p 41
Mixed Infection of Bacillus Dysenteriae and Dysentery Amebae T Yokoyama—p 42
Cysticercus Pissiformis T Yokoyama—p 42
Type Diagnosis of Tubercle Bacillus Strains According to Intracutaneous Four Leg Method of Toda H Tsubosaki—p 43
Study of Anaerobic Bacteria Part V Anaerobic Bacteria Isolated from Soil H Inoue—p 44
Id Part VI Anaerobic Bacteria Isolated from Gas Brand Pneumonia and Tetanus Patients H Inoue—p 45
Pathogenicity of Saprophytic Acid Fast Bacteria to Cold Blooded Animals H Inoue—p 46

Bulletin Medical, Paris

51 321 338 (May 15) 1937

- *Treatment of Burns with Silver Nitrate Ointment M Kissmeyer—p 323
Treatment of Immediate and Late Posttraumatic Disturbances by Local Infiltration Anesthesia M A Dumont—p 323

Treatment of Burns with Silver Nitrate Ointment—

According to Kissmeyer, the following formula has been used in his clinic for the treatment of burns of all degrees for the last twenty-five years 0.25 Gm of silver nitrate 25 Gm of distilled water, 50 Gm of hydrous wool fat, 25 Gm of olive oil This ointment is spread on a soft cloth and applied directly to the injured skin, which has been cleansed with sterile salt water and from which the blisters have been removed The whole is then covered with oil cloth and fastened with a bandage The author claims that beneath this ointment the wounds remain painless even during changes It is best suited for infants and children, giving their lesions an antiseptic medium without injury to the newly forming skin

Hôpital, Paris

25 286 317 (May) 1937

- Treatment of Fractures of Femur and Its Development for the Last Twenty Five Years A Treves and G Vidal Naquet—p 298
*Symptoms of Hepatic Insufficiency in Colitis M E Binet and J Baumann—p 302
Wine in Diet and in Treatment of Gastric Disturbances G Faroy and R J Weissenbach—p 306

Symptoms of Hepatic Insufficiency in Colitis—Binet

and Baumann state that the gravity of a colitis depends largely on the attitude of the liver If certain inflammations of the colon, no matter how grave, are only temporary it is because the liver has retained its defense properties When these properties have failed, the colitis tends to become chronic The fact that chronic colitis is so rare in children may be taken for a sign that hepatic insufficiency is just as rare The first defense reaction, which makes itself felt in the form of a drastic diarrhea, is directed toward the elimination of septic products This goes together with hyperformation of mucus and bile and comes once or intermittently, mostly in the morning or after meals The resulting irritability constitutes the first attack on the gallbladder One of the principal functions of the liver is the binding of sulfur, which is interfered with in colitis and during which putrefaction and fermentation as also the amount of microbic by-products, are quite considerable It leads to exhaustion of the liver defenses and in course of time the liver is no longer able to conduct correctly the processes of disintegration and synthesis This hyperactivity brings about an increase of the volume of the liver and an intensified indoxyl-emia which may soon return to normal, or it may lead to symptoms of hepatic insufficiency with hyperbilirubinemia and hypercholesterolemia The authors distinguish between early and late hepatic insufficiencies The first may be regarded as a congenital defect of the liver resulting not only from hereditary dispositions like ancestral alcoholism or syphilis it is also found in children with arthritic diathesis who have inherited their functional and organic disturbances These children present a pale or sallow complexion with rings around their eyes listless gaze and a slightly subicteric conjunctiva They are emaciated and remain so in spite of any therapeutic measures owing primarily to their intolerance to many foods Signs of anaphylaxis, such as skin edema, erythema and especially urticaria, appear quite frequently These children suffer much from acetoneuria preceded by stasis at the level of a very vascularized cecum, where an intense resorption of toxic or microbic products takes place this brings to the liver substances which inhibit the normal metabolic decomposition of the acid chains This acetoneuria is also manifested by elimination of acetone bodies in the urine Late hepatic insufficiency occurs in some adolescents but particularly in adults Its crises are frequent in patients with appendicitis operated on or not or typhlocolitis Here too the hepatic insufficiency is never a total one In some patients the biliary excretion is found disturbed, owing to a cholecystitis in which diarrheas alternate with constipation and discoloration with recoloration of stools In others are found anaphylactic symptoms due to impairment of the antitoxic properties of the liver which at times may be aggravated by hemiparesis or glycemia and even

glycosuria but only in exceptional cases In treating hepatic insufficiencies it is therefore necessary to make sure first of possible colitic disturbances before recourse is taken to cholagogues and cholaretics For these the authors recommend hydromineral treatment

Presse Médicale, Paris

45 729 744 (May 15) 1937

- Danger of Certain Surgical Interventions in Chronic Progressive Polyarthritides F Coste J Forestier and R Mande—p 729
*Types of Tubercle Bacilli with Smooth Colonies and Their Immunizing Properties Against Experimental Tuberculous Infections L Negre and J Bretey—p 730
Malignant Diphtheria and Its Treatment with Antidiphtheritic and Anti-gangrenous Serum A Stroe and D Hortopan—p 733

Tuberculous Infection of Laboratory Animals and Monkeys—

To prove the efficacy of BCG vaccination in children, Negre and Bretey tested the immunizing power of the smooth types of tubercle bacilli in a large number of guinea-pigs, rabbits and monkeys The bacillus obtained from human pathologic material extracted with acetone grows at 38 C (100.4 F) on glycerinated potato or on egg medium, producing a smooth culture Rabbits were given an intravenous injection of from 10 to 15 mg of the smooth culture bacilli and later an injection of 0.001 mg of virulent bovine culture While these rabbits showed merely rare granulations in lungs and kidneys, the nonimmunized control animals showed numerous tuberculous lesions in these organs The vaccine obtained by the authors proved to be superior in its effects to the BCG vaccine, virulent tubercle bacilli remain for several months in the lymph nodes of the port of entry and do not spread and form progressive lesions, as they do in nonimmunized control animals An intravenous injection of 1 mg of this culture in cynocephalic monkeys brings about an enlargement of the hilar and perihilar shadows with loss of weight, temporary fever and marked development of antibodies Monkeys first immunized by three intravenous injections of smooth colony bacilli and later tested with a subcutaneous inoculation of 0.001 mg of human tubercle bacilli were the only ones that presented no organic lesions as compared with the nonimmunized monkeys which developed a generalized tuberculosis With these experiments the authors believe that they have proved that by repeated immunizing injections it is possible to afford the animal a high degree of protection against experimental tuberculous infection

Schweizerische medizinische Wochenschrift, Basel

67 465 484 (May 22) 1937 Partial Index

- Nature and Cause of Drug Addiction A Zollner—p 465
*Bolting or Boring of Neck of Femur in Cova Vara of Young Persons J R Dreyfus—p 473
Directed (Accelerated) Confinement at Maternity Hospital in Geneva W Geisendorf—p 474
Phlebitis and Its Ambulatory Treatment E Stotzer—p 476
Percutaneous Treatment of Dermatoses with Estrogen Kaete Jaffe—p 477

Bolting or Boring of Neck of Femur—Dreyfus says that for bolting the neck of the femur he uses a simplification of the technic described by Bircher After an S-shaped incision, the neck of the femur is exposed to such an extent that it can be palpated with two fingers Under palpatory and, if possible, visual control, a hole is bored from the trochanter toward the upper half of the head of the femur and a splint of the tibia is introduced in such a manner that, although the base of the femoral head is penetrated, the articular surface is not In boring the hole the author observed that, beginning at the trochanter, boring was at first easy, but that as soon as the borer came near the epiphysal line a severe resistance was encountered After this resistance had been passed, the borer again entered softer tissue The origin of this denser zone, which offers the resistance, is not definitely known as yet, but it has been regarded by Huc as the result of the interruption between the arterial supply of the neck and that of the head of the femur The author himself reasoned that the surgical interruption of this zone would facilitate the development of vascular anastomoses through the opening and, if this was so boring alone should be adequate in some cases He actually produced favorable results simply by boring He cites a number of case histories which prove this In discussing these cases, he adds that the hematoma which develops in the boring canal

is of great significance. Aside from playing a part in the reestablishment of the vascular connection between the neck and the head of the femur, it forms the basis for the structure of the new bone, which considerably increases the supporting power of the neck of the femur. The author points out that in case of detachment of the epiphysis, bolting (after surgical reposition of the head) is a good method for the treatment of *coxa vara*. Boring alone has a favorable effect in not greatly deformed cases. There also are cases in which it is disputable whether boring or bolting is the better method.

Clinica Ostetrica, Roma

39 249 312 (May) 1937

- *Heart Disease Complicating Pregnancy. Clinical Study. D. Consoli—p. 249
 Psychologic Studies in Course of Obstetric Phenomena. G. Cristalli—p. 258
 Primary Cancer of Bartholin's Gland. Case. O. Margarucci—p. 265
 Secondary Abdominal Pregnancy. Case. A. Tavella—p. 285
 Snake Poison Used in Gynecologic Diseases. F. Clauser—p. 289

Heart Disease Complicating Pregnancy.—Consoli emphasizes the prognostic importance of the myocardial alterations, shown in the electrocardiogram, in cardiac diseases complicating pregnancy. The author followed the behavior of the myocardium during pregnancy and puerperium in 130 women who were suffering from cardiac disease, as well as the evolution of cardiac disease in 175 women including nulliparas and mothers. Pregnancy aggravates heart disturbances and stimulates latent cardiac disease to evolve. At the same time it permits establishment of compensating phenomena by means of which almost all patients tolerate pregnancy and the puerperium fairly well if they are under the care of a physician all through it. The cardiac alterations in course of pregnancy indicate processes of adaptation of the heart to the new humoral, circulatory and nervous conditions created by pregnancy. Decomensation rarely takes place and, if it does, it can be controlled without interrupting the pregnancy, except when the ventricular tonus is disturbed. Persistence of decompensation results in spontaneous production of abortion. Induction of abortion should be reserved only for cases showing grave alterations of the ventricular tonus. The patients have to be taught the advisability of preventing conception because the influence of pregnancy on the evolution of heart diseases is more unfavorable late after the pregnancy is concluded than during its evolution. This is due to the fact that the mechanism of compensation of the heart which is established by pregnancy, ceases when all the biologic and mechanical conditions created by pregnancy are over.

Gazzetta Internazionale di Med e Chir, Naples

47 229 262 (April 30) 1937

- Rupture of Spleen. Clinical and Anatomicopathologic Study. G. Guglielmin—p. 229
 Deficiency of Calcium from Derivation of Bile to Bladder in Relation to Skeletal Modifications Induced. Experiments. F. Licastro—p. 242
 *Occlusion of Mesenteric Vessels and Intestinal Infarction. A. De Blasi—p. 247

Occlusion of Mesenteric Vessels.—De Blasi studied experimental intestinal infarct from occlusion of the mesenteric vessels. He concludes that the occlusion of the upper mesenteric vessels, either arteries or veins, results in all cases in the production of hemorrhagic infarct. The occlusion of the mesenteric vein and superior mesenteric artery is followed immediately by death. Ligation of jejunal branches of the mesenteric vessels of first and third order is more difficult than that of mesenteric jejunal vessels of the second order. The grave intestinal lesions caused by the occlusion are, as a rule, associated with diffuse lesions of the liver and sometimes also with renal, pancreatic and splenic lesions. The factors which, in association with suppression of circulation, may aggravate the infarct are the type (arterial or venous) and number of the occluded vessels, the caliber of the anastomotic vessels, the duration of the intestinal spasm, the condition of the blood pressure, the time of exteriorization of the intestinal loop out of the abdomen, the reaction of the perivascular nervous plexuses and the amount of bacteria in the intestine at the time of ligation. Care is advised in applying the results of experiments to the interpretation of clinical cases. The entrance of bacteria from the intestine into the blood and the peritoneum

is more frequent in ligation of the arteries than in that of the veins. It depends on the intensity of the intestinal lesion, especially the condition of the intestinal mucosa, the thickness of the enteric wall, the amount of bacteria present, the bactericidal power of the humors of the given animal and the lymphatic lesions caused during ligation of the vessels. Roentgenograms of the thorax of a group of dogs taken some time after induction of the experimental intestinal infarct failed to show the presence of liquid in the abdomen of the animals except in rare cases.

Rivista di Chirurgia, Naples

3 121 180 (March) 1937

- New Procedure of Suturing in Fractures of Clavicle. R. Palma—p. 121
 Therapy of Malignant Tumors of Testicle. A. Greco—p. 125
 *Rare Syndrome from Tumor Within Velum Pendulum. Case. C. Simeoni—p. 140
 Solitary Osteogenic Exostosis. Cases. N. Toro—p. 144

Rare Syndrome from Tumor Within Velum Pendulum.—Simeoni reports a case of mixo-endothelioma within the left part of the velum pendulum, which caused a syndrome of intense somnolence, coughing, dyspnea and cyanosis. The symptoms disappeared after removal of the tumor. According to the author they were caused by compression of the jugular vein and of the vagus nerve by the tumor. The satisfactory results in his case prove the advisability of an early operation. The indications for ligating the external carotid artery on removal of the tumor depend on the size and extension of the tumor. In the author's case, ligation of the external carotid artery was not necessary. Bleeding was not profuse during the operation.

Prensa Medica Argentina, Buenos Aires

24 1049 1100 (May 26) 1937

- Schizophrenia, Psychosis and Schizophrenic Dementia. G. Bosch E. Krapf and C. R. Pereyra—p. 1049
 Hidatidosis of Ribs. R. L. Repetto—p. 1052
 *Azotemia and Polypeptidemia in Postoperative Period. R. S. Ferracani—p. 1084
 Appendectomy Without Assistant Surgeon. M. G. Lascano—p. 1091
 Diet of Athletes. G. P. Goullons—p. 1093

Azotemia and Polypeptidemia After Operation.—Ferracani made determinations of the azotemia and polypeptidemia during the first five days following operations without complications. He found that there is an increase of the polypeptides in the blood after operation which returns to normal after three days. Postoperative hyperazotemia does not show pathologic conditions of the kidney. It shows satisfactory functions of the liver in transforming the proteins and their elimination as urea. The increase of azotemia, followed by decrease of polypeptidemia and azotemia, is a sign of good prognosis. There were no clinically verified complications caused by intoxication with polypeptides in any of the author's cases. The determination of azotemia and polypeptidemia during the postoperative period is the best method of evaluating the behavior of the metabolism of the proteins after operation. It is advisable to complement the determinations with those of chloremia and chloruria. Disturbances of the latter show the need of the organism for rechlorination in the postoperative period.

Revista Medica del Rosario, Rosario de Santa Fe

27 169 272 (March) 1937

- Valve Mechanism in Cystic Diseases of Lung. E. S. Fiorito and J. Lopez Bonilla—p. 169
 *A New Sign for the Diagnosis of Diseases of the Breast. J. Benzadon—p. 188
 Fibrin in Blood. L. A. Chiodin—p. 205
 Air Cysts of Lung. C. Alvarez, M. Vignoles and J. V. Mann—p. 214
 Sclerogamous Cholecystitis. E. Vicens and A. C. Molina—p. 231

New Sign for Diagnosis of Diseases of the Breast.—The sign that is described by Benzadon is investigated in the presence of a tumor or inflammation of the breast. It consists in the retraction of the nipple when it is held between the fingers and given a movement of expression at the same time at which the tumor or inflammation is inwardly repelled with the other fingers. The sign is negative when the nipple protrudes and positive when it retracts, taking the aspect of a navel. It is negative in the normal breast and in several pathologic conditions of the breast other than cancer and suppurative galactophoritis. It can be induced early in the development

of cancer, at a time when neither an inflammatory reaction nor the permanent retraction of the nipple has taken place. The author found the sign positive in about forty cases, in all of which the diagnosis was confirmed by an anatomopathologic study.

Fortschritte a d Gebiete der Rontgenstrahlen, Leipzig 55 423 530 (May) 1937

- *Para Osteal and Para Articular Formation of New Bone in Organic Nervous Diseases. H. Voss—p 423
- Early Cases of Perthes Disease. H. Gickler—p 441
- Osteodystrophia Fibrosa Cystica Generalisata. V. Svab—p 450
- *Enlargements of Sella Turcica of Extrasellar Origin. L. Haas—p 458
- Studies on Physiologic Foundations of Roentgenoscopy. G. C. E. Burger and B. van Dijk—p 464
- Demonstration of Accumulation of Fluid and Induration of Pleura in Roentgenogram by Oblique Exposure. K. Inouye—p 471

Formation of New Bone in Organic Nervous Diseases

—Voss points out that the mass experience of the World War demonstrated that traumatic transverse lesions of the spinal cord are often followed by extensive ossifications in the soft parts of the paralyzed limbs. However, such heteroplastic ossifications occur not only after traumatic lesions but also after other spinal, cerebral and peripheral diseases of the nervous system. The author reviews the literature on such cases and then reports four cases which he himself observed. In the first patient ossifications in the soft parts developed after a compression injury of the cauda equina, whereas in the other three cases cerebral hemiplegias of various origins caused the new formation of bone. In discussing the pathogenesis, the author suggests that, in addition to the nervous lesion, other factors must play a part, for, in spite of apparently identical injury or neurologic disease, the ossifications develop in only some of the patients. It has proved impossible so far to produce heteroplastic bone formation in animals by cutting or injuring peripheral nerves.

Enlargement of Sella Turcica of Extrasellar Origin

—Haas says that an enlargement of the sella was formerly regarded as an indication of an intrasellar hypophysial tumor. This caused a large number of incorrect diagnoses. Today, however, it is generally known that an enlargement of the sella does not necessarily indicate a hypophysial tumor, because such an enlargement may be caused also by extrasellar factors. The extrasellar causes may be near the sella and may influence it directly by pressure, or they may be distant and act on it indirectly. In discussing the latter, the author points out that the sella may become impaired by pressure from a secondary hydrocephalic dilatation or by pressure that is exerted by a cerebral tumor. The cause of the dilatation of the sella can usually be determined either by simple roentgenoscopy or by encephalography.

Monatsschrift f Geburtshilfe u Gynakologie, Berlin 105 1 64 (March) 1937

- Pregnancy Glycosuria and Hormone Metabolism. L. Nurnberger—p 1
- Thyrotropic Hormone During Pregnancy. F. Bonilla and H. Kramann—p 8
- Rupture of Uterus During Treatment with Balloon. G. Vajna—p 17
- Functional Examination of Sympathetic Nervous System by Means of Cold Test in Pregnant Parturient and Puerperal Women. M. Bak—p 24
- Hydrothermomammization in Uterine Hemorrhages. J. J. Szarygin—p 30
- *Transfusion of Conserved Blood Plasma in Gynecologic Hemorrhages. A. Alovski and E. Burceva—p 38

Transfusion of Conserved Blood Plasma in Gynecologic Hemorrhages.—Alovski and Burceva assert that, besides having a substituting effect, blood transfusion also exerts a hemostatic action. The assumption that the hemostatic action was effected chiefly by the plasma was corroborated by investigations. Because plasma can be preserved more successfully and longer than whole blood, it was decided to try conserved blood plasma for hemostasis in gynecologic hemorrhages. On the basis of observations in more than 100 cases, the authors arrived at the following conclusions: 1 The transfusion of blood plasma produces a decided hemostatic effect. 2 The best results are obtained in hemorrhagic metropathia, persisting follicle, menopausal and juvenile hemorrhages. In case of poor hemostasis in the course of operations on the cervix uteri and vagina and in postoperative hemorrhages, the result is like-

wise favorable. In acute inflammatory processes, however, the hemostatic action of transfusion is not so successful. 3 If the first transfusion of plasma fails to produce the desired effect, a second transfusion is frequently successful. 4 The optimal dose is from 40 to 55 cc of plasma. In approximately two thirds of the cases, the transfusion of plasma is followed by a nonspecific protein reaction, but the intensity of this reaction is not dependent on the amount of plasma that has been introduced. The reaction is usually most severe in those cases in which a favorable hemostatic effect is obtained. The plasma is preserved and administered best by means of ampules.

Munchener medizinische Wochenschrift, Munich

84 761 800 (May 14) 1937 Partial Index

- *Fluorescence Microscopy of Viruses. P. H. Hagemann—p 761
- Medical Observation During German Himalaya Expedition. G. Hepp—p 765
- Eye Injuries Caused by Gas Warfare. Diagnosis. First Aid and Treatment. H. Schmelzer—p 770
- Combined Action of Quinine and of Posterior Lobe of Hypophysis. E. Puppel—p 777
- *Observations on Influence of Consumption of Coffee on Alcohol Content of Blood and Forensic Value of Alcohol Content of Urine. H. Koopmann and H. Kempfski—p 780

Fluorescence Microscopy of Viruses.—Hagemann describes a new method for the visualization of "subvisible" viruses. In this new method, which he designates as fluorescence microscopy, the virus bodies are stained by means of fluorescing substances, the fluorochromes, in a manner similar to the ordinary methods of staining. Whereas he used berberine sulfate in his fluorescence microscopy of leprosy bacteria (see abstract in THE JOURNAL, June 5, 1937, p 2006), he stained the viruses (canary virus, the virus of infectious ectromelia and the virus of variola vaccine) with a primulin solution. He prepares this fluorochrome solution in the following manner: One gram of primulin is dissolved in 1,000 cc of distilled water and, after 20 cc of liquefied phenol has been added, the mixture is well shaken. If stored in the dark, this mixture can be kept for several days. In order to stain the virus preparations, the primulin solution is poured over them and, after it has acted on the specimen for fifteen seconds, it is washed off with distilled water. The microscope, the general principles of which are described by the author, is equipped with filters which pass only ultraviolet rays. Some experience on the part of the observer is necessary in order to adjust the illumination and magnification to the best advantage. The author concludes that this new method of demonstration of viruses is far superior to all others.

Influence of Coffee on Alcohol Content of Blood and Forensic Value of Alcohol Content of Urine.—Koopmann and Kempfski report studies on the effect of coffee on the alcohol content of the blood. They found that coffee exerts a sobering effect in that the psychic manifestations of alcohol consumption are suppressed after coffee is taken. However, it does not influence the alcohol content of the blood, for the values remain the same or may even increase following the consumption of strong coffee. The alcohol odor of the breath is only temporarily suppressed by the drinking of coffee. The alcohol content of the urine is at first lower than that of the blood, but it increases gradually and finally surpasses that of the blood. This happens whether coffee is taken or not. Regarding the forensic value of the alcohol content of the urine, the authors say that it must be considered together with the alcohol content of the blood, for the examination of the urine, without the simultaneous determination of the alcohol content of the blood, does not permit definite conclusions regarding the degree of drunkenness.

Wiener klinische Wochenschrift, Vienna

50 619 650 (May 14) 1937 Partial Index

- Occupational Radium Injuries. L. Teleky—p 619
- Cerebral Genesis of Hyperthyroidism. E. Risak—p 623
- *Autohemotherapy and Procaine Hydrochloride in Treatment of Lesions of Crucial and Lateral Ligaments of Knee Joint. F. Mandl—p 625
- Clinical Practical Method for Determination of Hydrogen Ion Concentration of Whole Blood. F. Scholl and H. Scholz—p 630
- Role of Hypophysis in Neurology. H. Hoff—p 634

Treatment of Lesions of Ligaments of Knee Joint.—After citing the shortcomings of treatment by means of a plaster cast or by suturing the ligaments, Mandl says that there are many reasons which justify the use of other methods in

the treatment of old ruptures of the crucial ligaments. Since January 1936 he has tried autohemotherapy in patients in whom the function of the knee had not been completely reestablished after a lesion of the ligaments. After disinfection of the knee joint, 20 cc of blood is withdrawn from a vein of the arm. Before this withdrawal of blood, a thin injection needle is introduced subcutaneously in the region of the capsule of the knee joint. By means of this needle the blood is injected fanlike into the capsule. After this injection, which is frequently painful and therefore should be done under anesthesia, the patient should rest for twenty-four hours. After an interval of two days, the injection should be repeated. Observations on approximately fifty patients convinced the author that the results of this method are better than those of surgical repair of the crucial ligaments. If painful points above the articular space indicate a tear or detachment at the insertion of the lateral ligaments, and if symptoms of incarceration are complained of, which prevent normal extension and complete bending, the author resorts to the injection of a 1 per cent solution of procaine hydrochloride. On two or three successive days he injects 5 cc of the solution at the site of attachment of the lateral ligament. He found that this treatment effects complete cure most rapidly. Among those cured were some in whom other treatments had failed.

Wiener medizinische Wochenschrift, Vienna

87 537 600 (May 22) 1937 Partial Index

Surgical Indications in Diseases of Gallbladder and Pancreas H Finsterer—p 553

Aspects of Coagulation of Blood E Freund—p 561

*Track Encephalitis H Hoff and O Potzl—p 563

Thrombophlebitis During Pregnancy with Especial Consideration of Management of Delivery H Kahr—p 564

Persistently Positive Wassermann Reaction W Kerl—p 569

*Tertiarism in Patients with Paralytic Dementia After Malarial Therapy and Recurrent Fever Therapy A Pilcz—p 577

Track Encephalitis—Hoff and Potzl designate as "track encephalitis" a form of encephalitic processes of the brain stem in the course of which the same route of infection can be recognized, namely, the "trigeminus track," which Doerr and his collaborators demonstrated in infections of the cornea of rabbits with various strains of herpes simplex. Thus the term "track encephalitis" has been patterned after the term "track immunization." The authors apply the term to a group of human encephalitides, which they consider worthy of especial investigation. They cite a case of "track encephalitis," in a child, aged 12. Wallenberg's syndrome was present and since herpes of the cornea had preceded, infection by way of the trigeminus track was regarded as proved. The authors further describe animal tests on the virus. It proved possible to transmit the virus to rabbits. The experiments on the rabbits demonstrated the identity of the chief characteristics of the herpes virus that was obtained from the nasal secretion in a case of "track encephalitis" with the characteristics of the encephalitogenic herpes strains studied by Doerr. However, the examined virus proved exceptional in that the spinal cord was not infectious after encephalitis had been produced by inoculation and that the brain pulp proved noninfectious after myelitis had been induced by means of intravenous inoculation.

Tertiarism After Malarial Therapy and Recurrent Fever Therapy—According to Pilcz, the appearance of symptoms of secondary or tertiary syphilis is extremely rare in untreated cases of dementia paralytica. Moreover, in the few such cases that have been reported the diagnosis is doubtful. On the other hand, in patients with dementia paralytica who have been subjected to fever therapy the casuistics of the syphilitic manifestations on skin, mucosa, internal organs and so on are considerable. The author cites fifty-two cases from the literature, but on account of insufficient data in sixteen cases he evaluates only thirty-six. He shows that among them there was only one case of dementia paralytica in which, after malarial therapy, signs of tertiary syphilis developed and in which the malarial therapy had failed to produce results either as regards the clinical, the serologic or the pathologic-anatomic aspects. In all other cases the classic paralytic symptom complex was somewhat changed, either in that clinical or humoral remissions set in or that the clinical, or even the pathologic-anatomic, aspects were changed. The author concludes that

this summary evaluation supports those theories of the action mechanism of fever therapy which assume a transformation from an anergic into an allergic condition.

Nederlandsch Tijdschrift voor Geneeskunde, Haarlem

81 2327 2434 (May 22) 1937

Agranulocytosis Case E Gorter—p 2328

*Studies on Clinical Tests of Bactericidal Power of Blood H Fajerman—p 2335

Paratyphoid A in the Netherlands A W Pot—p 2339

Cases of Mongolian Idiocy Noteworthy for the High Age of the Patients C Simons and N Speijer—p 2344

Calcinosis Universalis J J C P A Roovers—p 2346

Bactericidal Power of Blood—Fajerman reviews recent studies on the Ruge-Phillipp test and stresses that some investigators observed that sodium citrate has an inhibiting effect on the bactericidal power of the blood. In summarizing, he states that the most suitable temperature for setting up blood for a test to determine the bactericidal power is a temperature of about 18 C (64.4 F). The lapse of time between the taking of the blood specimen and the carrying out of the test should not exceed three hours. The addition of sodium citrate in a concentration of 2, 1,000, 1, 1,000 or even 0.5, 1,000 impairs the bactericidal power considerably. This change is brought about mainly by an action of the citrate on the serum. This impairment of the bactericidal power can likewise be observed after the intravenous administration of large doses of sodium citrate. On discussing the clinical significance of these observations, the author points out that in case of immunotransfusion with citrated blood the patient should receive a prophylactic injection of a soluble calcium salt.

Bibliotek for Læger, Copenhagen

129 93 136 (April) 1937

*Investigations on Normal Liver Hematopoiesis at End of Fetal Life, at Birth and in Infancy. Contribution to Question of Normal Genesis of Blood Cells A Bertelsen—p 93

Normal Liver Hematopoiesis—Bertelsen's examination of ninety-three premature and full-term children showed a gradual decrease in liver hematopoiesis in the last third of pregnancy, an average of seventeen intralobular blood islands per field of vision with usual magnification still being found at birth, when there are also still a number of myelocytes and diffuse infiltration of erythroblasts in the portal connective tissue. In three normal infants and nine infants who died after acute diseases of brief duration there were also scattered remnants of hematopoietic foci in the liver, from which he concludes that liver hematopoiesis finally ceases after the first year of life and not, as generally stated, at the end of fetal life or directly after birth. In four premature children who lived from eleven days to three months after birth, erythropoiesis was somewhat reduced in comparison to the average for the corresponding stage of development, while the myelopoiesis was rather increased, leading to the assumption that the changes due to birth in the requirements for blood formation in the liver have an especially inhibitory effect on erythropoiesis. The cell values found on differential count of the intralobular blood islands, particularly, are thought to be best explained according to the unitaristic and neo-unitaristic hypotheses concerning the genesis of the blood cells.

Ugeskrift for Læger, Copenhagen

99 513 540 (May 13) 1937

Indications for Treatment in Cryptorchidism H Bjerre—p 513

Finsen Treatment and Diathermy Treatment (Electrocoagulation) of Lupus Vulgaris S Lomholt—p 518

Word Blind Children P A Schwalbe Hansen—p 520

*Acute Lethal Brain Disorder Having Possible Etiologic Connection with Epidemic Parotitis Case G F Johansen—p 522

Herpes Zoster—Chickenpox J Nordentoft—p 523

Brain Disturbance Following Epidemic Parotitis—In a girl, aged 9, mild uncharacteristic general symptoms of about twenty-four hours' duration developed about two weeks after epidemic parotitis and were followed by violent cerebral symptoms with fatal outcome in a few hours. Johansen says that the possibility of meningeal symptoms in epidemic parotitis should be borne in mind and, if they appear, the patient should be protected by rest in bed for some time, in order to avoid as far as possible, virus-activating factors.

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PREVENTIVE AND INDUSTRIAL MEDICINE AND PUBLIC HEALTH

NEXT STEPS IN ORGANIZATION AND ADMINISTRATION

CHAIRMAN'S ADDRESS

LEVERETT D. BRISTOL, M.D., DR. P.H.
Health Director American Telephone and Telegraph Company
NEW YORK

Custom and precedent make it possible for the chairman of a section of the American Medical Association to develop his address either from the strictly scientific or from the more philosophic point of view. In choosing the latter course one may assume the role of a historian, describing past or recent trends, a reporter, recording present status, or an amateur prophet, dealing with next steps. In spite of the hazards of attempting to chart the unknown medical "seas" of the future, thirty years' experience, including private practice, the teaching of preventive medicine, the administration of state, county and local health work, and more recently the field of industrial hygiene, have made possible a few brief suggestions as to some of our immediate objectives in the further organization and administration of preventive and industrial medicine and public health.

PREVENTIVE MEDICINE

The dividing line between curative and preventive medicine in the future will be less and less evident, the so-called healing art will become decreasingly pathologic and increasingly physiologic, the clinician and the hygienist will take up arms together in a common cause wherein voluntary and state efforts are more adequately interlocked.

In the field of preventive medicine, the somewhat hesitant steps already taken in some communities to make the doctor's office a real health center and his private practice a focusing point for the modern application of preventive medicine should be strengthened into the firm, sure advance of a well organized program. In this connection there is great need for a community demonstration to bring out the amount and kind of preventive services that should and can be offered successfully by the physician as a part of his regular practice and to determine how best to "sell" the idea of the private practice of preventive medicine to the public so that the doctor's clientele in the future will demand from him and be willing to pay him not only for curative treatment but also for individual health protection and promotion. To this end it is suggested that, with the study, guidance and sponsorship of the American Medical Association and the possi-

ble financial participation of one of the philanthropic foundations, a county medical society demonstration be organized to carry on an active experiment of this nature for a period of five years, the selection of a county society for such a proposed demonstration to be based on (a) a careful, preliminary survey of all county societies that might be interested and (b) the cooperation of associated state and local official and voluntary medical and health societies and boards.

MEDICAL ECONOMICS

Such an organized program of preventive medicine and individual hygiene undoubtedly would point the way to the ultimate solution of the most important health problems of the present day, namely, those insidious scourges of advancing years—diseases of the heart, kidneys and blood vessels, cancer and various nervous and mental instabilities, to say nothing of the ever important communicable diseases. At the same time, such a county medical society demonstration might be so organized as to help answer many questions with reference to the economics of medical care and the responsibility of the public for those unable to provide the medical care they need out of their own resources. The organized medical profession should assume the leadership in the development of a health and medical program which will satisfy the needs and demands of the general public, from the broad aspects of modern sociology and economics.

If majority and minority committee reports on the costs of medical care have been inevitable, how necessary and desirable it would seem to be for majority and minority experiments and demonstrations to be carried on in the field of medical economics! The next five years should be looked on as a period of active trial and critical evaluation of all reasonable plans in the interests of public security against sickness and the conservation of public health, in this connection, the American Medical Association should be prepared to defend its own position and beliefs through a well organized community demonstration, as suggested. Local medical and dental service bureaus for the adjustment and instalment settlement of bills and local associations for the provision of group prepayment of hospital bills are initial steps already taken in several communities toward the more complete coverage of those with smaller incomes who require preventive and curative medical services and more adequate economic security.

INDUSTRIAL MEDICINE

There are at least four steps that might be suggested as desirable in the future development of industrial medicine, and these may be presented briefly as follows.

1. Industrial medicine of the future must place more and more emphasis on prevention, we should think in terms of industrial health. The "company surgeon" undoubtedly will still have a function to perform, in

view of accidental injuries and compensation problems, but "next steps" should involve the more active direction of industrial health programs by physicians well trained in health and preventive medicine, with the assistance of industrial engineers, psychologists, nurses, nutritionists and other personnel that may be required. Mere attention to occupational disease must give way to the active promotion of occupational health. Attention to the prevention of tuberculosis and syphilis and of various types of emotional maladjustment and actual mental disease must become as active in the industrial health program as in the public health program in general, and much of the same methods of control should be inaugurated in cooperation with community authorities.

2 In order to make available well trained industrial health leaders, an important step that must be taken is the better and more general teaching of this subject in our schools of medicine and public health. The growing importance of industrial health would seem to warrant the placing of this branch of instruction under its own independent development in schools of medicine and public health, through a separate department and professorship of industrial health. In a detailed survey I¹ found that only thirteen out of eighty-five medical and public health schools in the United States and Canada give separate courses in industrial hygiene. While a number of other schools assign one or two lectures to this subject in their course on preventive medicine, twenty-one schools apparently give no instruction whatever on industrial hygiene or industrial medicine. There also would seem to be a real need for a cooperative demonstration between local medical schools and industrial organizations in the newer fields of social hygiene and mental health, in order that suitable programs under expert medical guidance may be forthcoming for the benefit of the great mass of the working population.

3 Possibly the most needed step for the further development and administration of industrial health services is the putting into practice of a recently suggested plan² or method for the measurement or appraisal of industrial health and safety activities. A subcommittee on industrial health appraisal of the Committee on Administrative Practice of the American Public Health Association has solicited the wide use of a preliminary trial appraisal form by industrial organizations. As chairman of this subcommittee, I may state that we shall be glad to receive suggestions and recommendations from those who have any practical experience with this tentative form so that, on the basis of group experience, a revised, standardized and official form for the appraisal of industrial health activities may be adopted in the near future.

4 While an appraisal form for the survey and measurement of an industrial health program, as mentioned will be of prime assistance to company management and personnel directors in the development and follow up of their health program, another step that is much needed is the inauguration of a plan by the American Medical Association whereby the quality and quantity of medical services performed in industrial medical departments may be surveyed, measured and possibly approved and

certified. This would seem to be a logical field for the influence and guidance of the entire organized medical profession of the country, which represents, through its association, the work of the general practitioner and all the important specialties.

The rapidly increasing organization of bureaus of industrial hygiene in state and local departments of health during the past year, the passage of laws in several states providing workmen's compensation for certain occupational diseases, the need for defining the functions of health and labor departments as pertain to activities in this field, the questions as to the relative positions of the physician and the engineer in the industrial health program, the proper relationship between industrial medical departments and the private practice of medicine, the better balance between health and safety activities in industry, the problem of how best to furnish much needed industrial health and medical services to the vast number of small business concerns and the constant requirement of improved medical and surgical technic in industry would seem to call for continuous expert thought and advice on the part of the American Medical Association, analogous to that given to medical education and hospital administration in the United States. There is every reason to believe that the management of private industries and various other agencies, official and voluntary, might welcome the guidance of the American Medical Association in things medical, just as have public and private institutions of learning, hospitals and other organizations. The creation of a Council on Industrial Health by the American Medical Association would be a much needed forward step. Representatives of industrial management and labor groups might be invited to serve as consultants or advisers to such a council.

PUBLIC HEALTH

Just as each doctor's office should become a health center for the private practice of preventive medicine so also his office should at least in part become a branch office of the local health department. Only in this way will the public health obstacles of the present and future be overcome. The control of pneumonia, syphilis, mental disease and various other disorders await the more active partnership of private doctor and public health officer. Not until the practicing physician assumes as much obligation and responsibility to the public as he does to his private patient will the problems, which are now pressing for solution, be solved. Moreover, it behooves the private practitioner to go at least half way toward the health department in a spirit of cooperation. In the interest of the better and more complete health and medical care of all the people, the gap in the organized care of the sick must further be closed, the best way to meet the need is for practicing physicians and health authorities to approach one another on the common ground of an active, coordinated program with the financial backing of the public, where necessary.

City health administration of the future must become more and more decentralized, with the possible development of neighborhood health districts and full time district medical officers. Under suitable medical auspices and guidance the city health district plan already in operation in one or two localities could be followed to advantage in many of the large cities. Committee of coordination made up of private physicians and public and voluntary health representatives should be set up for purposes of advisory supervision. Not only

1 Bristol L. D. The Teaching of Industrial Hygiene J. A. M. A. 102:990 (March 31) 1934.
2 Bristol L. D. An Appraisal Form for Industrial Health Service Am. J. Pub. Health 22:1263 (Dec.) 1932. Appraisal of Industrial Health Activities Indust. Med. 2:85 (Aug.) 1933. Measuring the Industrial Safety Program Personnel J. 13:193 1934. Practical Application of an Industrial Health Appraisal Form Am. J. Pub. Health 26:390 (April) 1936.

industrial health services, but local city health administration in general, should be closely integrated in the future with the curriculums and courses of local medical and public health schools, so that adequate training centers will be available for the education of prospective physicians and health leaders. Industrial medical departments and city health units should be the practical training and research grounds for the teaching of preventive and industrial medicine, just as are hospital wards for clinical or curative medicine.

While city health administrative units of the future should be contracted and increased in number, rural health units must be expanded and decreased in number. In this development (a) the state department of health, with federal financial assistance where necessary, should assume more authority, through state health districts or bureaus, over rural health administration, or (b) the county should be recognized as the smallest unit for rural health work, or (c) the town health union plan, wherein several small rural communities combine as a unit for health and hospital administration, should be endorsed, based on local conditions and needs. No one pattern for rural health administration seems practicable and feasible for all sections of the United States. The one thing which is evident, however, is that the small town, isolated, part-time, underfinanced local health department, without trained leadership, is entirely out of date, and in many communities there is urgent need for a new model. With available aid from Social Security funds and an increasing interest in rural affairs, the farmer of the future is bound to demand much more and better health protection than he has had in the past.

Whether or not public health degrees, based on special courses in public health, should become prerequisites for appointment to public health positions of leadership is a question that must receive careful consideration in the future. There would seem to be little logic in maintaining highly organized and endowed schools of public health for the granting of such degrees if they are not to be required of specialists in this field.

When better federal, state, local, industrial, collegiate and voluntary health services are built for the benefit of the people of the United States, let us hope that the American medical profession and its representative Association will have a large part in building them.

195 Broadway

ABSTRACT OF DISCUSSION

DR HOLMAN TAYLOR, Fort Worth, Texas. I am delighted to be able to make the report which the chairman requested. The House of Delegates yesterday unanimously approved the idea of a Council on Industrial Health, and the Board of Trustees agreed to set up such a council. The development of such a council will be along the lines of the other councils. I hadn't thought of it so directly before, Texas is not, in the strict sense, an industrial state, and yet there are many industries there. There are the oil industry, gas, and marble and granite quarries. Some time ago our health department established a bureau of industrial hygiene, and a very fine physician was placed in charge. He came to me as secretary of the state medical association for a discussion of his set-up. I asked him to work up his plan of procedure so we could see it, and perhaps prevent any unfortunate repercussions from the practicing physicians or from industry itself. The plan eventually evolved did that.

DR STANLEY NICHOLS, Asbury Park, N. J. It might interest this section to hear of the five year experience we have had in New Jersey with a modification of Dr. Vaughan's plan of organized medical participation. The Medical Society of New

Jersey started, after the White House Conference on Child Health and Protection, five or six years ago, on this program. In developing a program of this sort, the state medical society and the state department of health must get together on common ground and build from that foundation. There have been many approaches to this problem, and some of the functions of the various components in such a public health participation are not yet clearly understood by the family physician. There are two things that a family physician must do. One is that, as an individual physician, he must furnish preventive medical care to all his private patients. That is the fundamental part of this program. Second, as a member of his county and state society and of the American Medical Association he must be ready to furnish medical service to all indigent and low wage groups needing medical service, on terms that are suitable to the organized profession. In New Jersey we are building on that basis and have had the cooperation of the state department of health. The fundamental plan that we have set up is that the doctor, the dentist, the nurse and the medical social worker are projected as the medical service part of a triangle. The second part consists of the official public authorities, whether they are the board of health or the board of education or other public authorities. The third part, and the part that can best "sell" this plan, consists of the lay health agencies, with whom in the past the medical profession had no working relationship. Such a triangle of the administrative groups, the medical service groups and the "salesmen's" groups, the lay agencies, can together do any needed piece of public health work. We have developed, with the help of Social Security funds, our New Jersey plan to preserve the private practice of medicine and to furnish the needed medical service, working together with the public authorities, for the large indigent and low wage group which cannot be carried by the private practitioner any further without assistance. By using Social Security funds, through the close cooperation of our state department of health, we are training our individual doctors both by didactic literature and courses and by using baby health stations, maternal welfare clinics, and tuberculosis and venereal disease clinics as training centers for the practice of preventive medicine by each physician.

LYMPHOCYTIC CHORIOMENINGITIS

DEWITT DOMINICK, M.D.

PHILADELPHIA

In 1936 Scott and Rivers¹ reported two cases of meningitis in man caused by a filtrable virus. The etiologic agent was isolated from the spinal fluids of the patients. The authors pointed out that their serums possessed neutralizing antibodies for at least 100 lethal doses of the virus from nine to eleven weeks after the clinical onset of the disease.

It is the purpose of this paper to report in detail three cases of acute lymphocytic meningitis. Serum taken from the first two patients in this series contained neutralizing antibodies for the virus of lymphocytic choriomeningitis. Serum from the third patient and from a control did not contain such antibodies.

The method employed in proving the presence of the antibodies was in part described by Rivers and Scott² in 1936. It has been modified by Rivers recently and is briefly as follows:

A 10 per cent emulsion of a guinea-pig brain infected with lymphocytic choriomeningitis virus but free from ordinary bacteria is prepared with a diluent of Locke's solution and then centrifugated at full speed for from fifteen to twenty minutes. Serial tenfold dilutions of the supernatant fluid are made with the same diluent, the highest dilution being 10⁻².

From the Medical Service A, the Pennsylvania Hospital.

Dr. Thomas M. Rivers and his staff cooperated in this study.

1. Scott T. F. McN. and Rivers T. M. Meningitis in Man Caused by a Filtrable Virus. I. Two Cases and the Method of Obtaining Virus from Spinal Fluids. J. Exper. Med. 63: 397-414 (March 1) 1936.
2. Rivers T. M. and Scott T. F. McN. Meningitis in Man Caused by a Filtrable Virus. II. Identification of the Etiologic Agent. J. Exper. Med. 63: 415-432 (March) 1936.

0.25 cc of each dilution of virus, ranging from 10^{-1} to 10^{-8} , were mixed with an equal amount of each sample of serum under investigation and allowed to stand at room temperature for five or six hours. All neutralization tests are done with this particular strain of virus in the dilution of 10^{-2} , which is mixed with the various serums to be tested and with known normal serum and homologous immune serum as negative and positive controls. The dilution of the virus is determined on a statistical basis and applied to one particular strain of virus. After suitable incubation, each mixture is inoculated into four guinea-pigs and survival of the four or of three of the four for eighteen days is considered a positive result and the death of the four or of three of the four within that time a negative result.

In the cases reported the serum of the patients was taken for determination of the neutralization reaction approximately forty-three, forty-seven and forty-four days, respectively, after the onset of the disease.

CASE 1—History.—C P, a 14 year old white school girl, who was perfectly well before October 9, 1936, had on that day dizziness, a slight headache (which became worse and confined to the frontal region) generalized muscular pains and stubborn constipation. She went to school but was so dizzy that she was brought home. She remained in bed until her admission to the Pennsylvania Hospital on October 16, approximately the seventh day of the disease. No other members of her family were ill.

Examination.—On admission the temperature (by mouth) was 102.3 F, the pulse rate 116, the respiratory rate 24 and the blood pressure 104 systolic and 80 diastolic. The patient was ill and cranky, complaining bitterly of frontal headache. She held her eyelids nearly closed and the conjunctivae were red, her neck was painful to move but not stiff. The heart, lungs and abdomen were considered normal. The muscles of her legs and arms were painful to moderate finger pressure and painful to move. The neurologic examination gave essentially negative results; there was no Kernig's sign or Brudzinski's sign.

Course.—The temperature went to 104 F and then maintained a course from 104 to 99 F for three days, gradually returning to normal on the twenty-first day of the disease. Headache persisted during this time. Anorexia and constipation were present but improved after the second week. The patient was discharged from the hospital on the thirty-sixth day of the disease apparently well.

A roentgenogram of the chest showed no evidence of tuberculosis. On October 10 there were 11,300 white cells per cubic millimeter and a differential count showed polymorphonuclears

TABLE 1—Data on the Cerebrospinal Fluid in Case 1

Day of Disease	Date	Cells	Differential Count	Initial Pressure Cm of Hg per Water 100 Cc	Chloride Mg per 100 Cc	Sugar Mg per 100 Cc
10th	10/19/36	300	All lymphocytes	200	55	688
11th	10/20/36	300	All lymphocytes	150	58	702
14th	10/23/36	60	All lymphocytes	120	49	702
18th	10/27/36	90	96% lymphocytes	150	52	716
21st	10/30/36	35	All lymphocytes	150	52	734
28th	11/ 8/36	30	All lymphocytes	150		
114th	1/31/37	5	All lymphocytes	160		

10/20/36—colloidal gold curve 0000000000

52 per cent basophils 3 per cent, lymphocytes 37 per cent, monocytes 1 per cent and Türk's cells 10 per cent. A blood culture on October 17 was negative. Three examinations of the urine and two cultures of the urine for typhoid bacillus had negative results. The Wassermann and Kahn reactions of the blood were negative. The Wassermann reaction of the cerebrospinal fluid was negative on October 20.

The patient was seen on the 114th day after the onset of the disease. She was symptom free, and the physical and neurologic examinations gave negative results. Serum taken on the forty-third day from the onset of the disease contained neutralizing antibodies for the virus of lymphocytic choriomeningitis.

CASE 2—History.—M T, a 19 year old single Polish girl, employed in a dress factory, was perfectly well until October 23,

when frontal headache and dizziness developed. She continued to work that day, but the next two days she remained at home the headache persisting. On the fourth day she returned to work. She was forced to bed on the sixth day more headache, with vomiting and sore throat, having developed. Obstinate constipation was present, and she noticed some stiffness of the neck. She was admitted to the Pennsylvania Hospital on October 31, the eighth day of the disease. There was no family history of infection or illness.

Examination.—The temperature was 100 F, the pulse rate 80, the respiratory rate 24 and the blood pressure 100 systolic and 60 diastolic. On admission the patient was moderately ill and complained of stiff neck and photophobia. Her neck was stiff

TABLE 2—Data on the Cerebrospinal Fluid in Case 2

Day of Disease	Date	Cells	Differential Count	Initial Pressure Cm of Hg per Water 100 Cc	Sugar Mg per 100 Cc	Chloride Mg per 100 Cc
8	10/31/36	1,330	All lymphocytes	230		
9	11/ 1/36	1,100	All lymphocytes	140		
10	11/ 2/36	850	90% lymphocytes			
11	11/ 3/36	800	90% lymphocytes	150	42	68
13	11/ 5/36	610		110	45	69
18	11/10/36	180	98% lymphocytes	110		
20	11/12/36	60	90% lymphocytes	160		
29	11/21/36	40	All lymphocytes	130		
69	1/30/37	4	All lymphocytes	130		

10/31/36—colloidal gold curve 0000000000
11/ 1/36—pellicle acid fast organisms (?)

to lateral motion and painful but not stiff to flexion. The eyes, heart, lungs and abdomen were normal. Neurologic examination gave essentially negative results except for a moderate Kernig's sign on the left. There was no Brudzinski's sign.

Course.—A spinal puncture was done on admission, and because of the presence of cloudy fluid with 1,380 cells per cubic millimeter (which were later believed to be lymphocytes), the patient was given intravenously 30,000 units of anti-meningococcic antitoxin (Parke, Davis & Co.) in 100 cc of saline solution. On the following day, because some doubt was maintained as to the correct diagnosis, an additional 20,000 units of anti-meningococcic antitoxin was given. The patient had urticaria after the second dose of serum.

The symptoms cleared up in approximately five days after admission, the temperature was normal on the fourteenth day of the disease and there was a rise on the twenty-third day to 101 F because of severe rhinopharyngitis. The patient was discharged as well on November 22, the thirtieth day of the disease.

Three examinations of the urine gave negative results. There were 11,100 white blood cells per cubic millimeter on November 2 and 10,000 on November 10. A differential count showed polymorphonuclears 73 per cent, eosinophils 1 per cent, lymphocytes 25 per cent and monocytes 1 per cent. The Wassermann and Kahn reactions of the blood were negative.

Three cerebrospinal fluid cultures were taken, on November 2, 3 and 4, and all were negative. The Wassermann reaction of the cerebrospinal fluid was negative on November 3. Because of the acid-fast organisms (four in all, seen on only one slide) observed on November 2, guinea-pigs were inoculated with the spinal fluid. The results were later reported negative. Spinal fluid sent to Dr. Rivers on the seventeenth day of the disease did not yield a virus. Serum sent to Dr. Rivers on the forty-seventh day of the disease was found to neutralize the virus of lymphocytic choriomeningitis.

This patient was seen on the ninety-ninth day after the onset of the disease. She had gained weight, and the physical and neurologic examinations gave negative results.

A friend of this patient J D, who had no history of illness at the same time or before the patient's illness, was thought to be a good control. He had been in close contact with her before and during the early part of her illness. His serum did not neutralize the virus of lymphocytic choriomeningitis.

CASE 3—History.—C M, a 24 year old white man, married, machinist, was perfectly well until March 15, 1937, when he awoke with headache, nausea and generalized muscular pains. He went to work for two days but was forced to bed on March

17 by aggravation of these symptoms. He had some constipation and noticed that his neck was painful and stiff. He was taken to the Pennsylvania Hospital by ambulance on March 19, the fourth day of the disease. There was no family history of illness.

Examination—The temperature was 103 F (by rectum), the pulse rate 100, the respiratory rate 24 and the blood pressure 120 systolic and 100 diastolic. The patient appeared to be extremely ill, a little irrational and euphoric. He complained of frontal headache and photophobia. His eyes were tender to palpation of the eyeballs, the pupils were equal and reacted to light. The fundus on the right appeared a little blurred on the nasal side of the disk. Examination of the left fundus showed a disk which was blurred and not definitely elevated but a little edematous. The nasal mucosa was slightly red, and some pus was draining from the right ethmoidal region. The other sinuses appeared clear. The pharynx was red, and the tonsils were large and red. The ears were normal. There was some retraction of the neck, with definite rigidity. The heart, lungs and abdomen showed nothing abnormal. The extremities were normal. Neurologically, the deep reflexes were active and equal, there was no clonus or Babinski's sign. Kernig's sign was present on each side. The Oppenheim and Gordon signs were also present. There was no Brudzinski's sign.

Course—A lumbar puncture was performed immediately and after careful search it was believed that a few gram-positive diplococci were seen, although a culture of the spinal fluid was negative. The cell count showed 435 white blood cells per cubic millimeter, which were thought to be polymorphonuclear leukocytes. The patient remained very ill. On the following day, March 20, the spinal fluid contained 1,360 white blood cells per cubic millimeter, thought to be all lymphocytes. Because of suspicion of the presence of diplococci a cisternal puncture was done, and 10 cc of antimeningococcic antitoxin (Mulford's) was injected intracisternally and 20 cc intravenously. A total of 10,000 units of antitoxin was given. On March 21, 10 cc of the antitoxin was introduced into the lumbar region of the spinal canal, and 20 cc was given intravenously. Examination of the eyegrounds showed 1 diopter elevation of the left disk. The patient was given a blood transfusion of 250 cc of blood on March 21 and again the following day, and on the latter day he appeared improved, his headache and general muscular pains gradually decreasing. On March 26, the eleventh day of the disease, severe serum sickness developed, but the patient otherwise was improved. The temperature was approximately 102 F for seven days, with a gradual downward trend to normal on the twenty-first day of the disease. The patient was discharged as well on April 16, thirty-two days from the onset of the disease.

Three examinations of the urine gave negative results. On March 19 a blood count showed red cells 4,450,000, hemoglobin 70 per cent, and white cells 9,000; on March 20, white cells 6,700, polymorphonuclears 87 per cent and lymphocytes 13 per cent; on March 22, white cells 5,000, and on March 29, white cells 7,600. The Wassermann and Kahn reactions of the blood were negative. A blood culture on March 29 was negative. Roentgenographic examination on March 20 revealed that the mastoids were normal, but there was some evidence of sinusitis in the ethmoidal cells, with moderate clouding and thickening of the ethmoidal mucous membranes. On March 24, roentgenographic examination of the chest showed nothing abnormal. No acid-fast organisms were seen in any of four specimens of spinal fluid studied.

Serum was taken from this patient on the forty-fourth day from the onset of the disease and did not contain neutralizing antibodies for the virus of lymphocytic choriomeningitis. The patient was seen on May 18, the sixty-fourth day from the onset of the disease. He had gained weight and was perfectly well.

COMMENT

These three cases illustrate the difficulties encountered in making a correct diagnosis of lymphocytic choriomeningitis. The usual clinical and laboratory procedures are inadequate.

In case 1 the disease was thought to be typhoid fever or tuberculous meningitis until the clinical course and

the positive results of a neutralization test for lymphocytic choriomeningitis definitely ruled out these conditions.

In case 2 the diagnosis was first believed to be meningococcic meningitis. It was thought that on the tenth day of the disease a few acid-fast bacilli were observed in the spinal fluid. No more of these bacilli were seen. Tuberculous meningitis was seriously considered until the clinical course and the positive results of the neutralization test for lymphocytic choriomeningitis proved this to be the wrong diagnosis.

In case 3 the confusion caused by the observation of gram-positive diplococci was evident. The meningitis was later found not to be of the purulent type. The patient's serum did not contain neutralizing antibodies for the virus of lymphocytic choriomeningitis. As in the cases of Shambaugh³ and others, it is possible that the meningitis arose secondarily to infection in the ethmoid sinuses. The exact cause of the pleocytosis will probably remain in doubt.

The three cases fulfilled most of the postulates set down by Wallgren⁴ in 1925 in his description of the disease believed to be aseptic meningitis. They also simulated, particularly in the headache, constipation and

TABLE 3—Data on the Cerebrospinal Fluid in Case 3

Day	Date	Cells	Differential Count	Initial Pressure Cm of Hg per Water 100 Cc	Sugar Mg per 100 Cc	Chlorides Mg per 100 Cc	Cultures
4	3/19/37	435	?	160			Negative
5	3/20/37	1,360	All lymphocytes	180	58	640.8	Negative
6	3/21/37	200	All lymphocytes	180		640	Negative
7	3/22/37	550	All lymphocytes	250	53	639	
10	3/25/37		All lymphocytes	170	57	646	Negative
18	4/2/37	70		130			
32	4/16/37	63	All lymphocytes	130	51	687.4	
3/26/37—colloidal gold curve 000000000							

course, the two cases reported by Scott and Rivers¹. All the patients showed persistent and nearly complete lymphocytosis in the spinal fluid.

Clinically, the course of the disease is generally mild. Viets and Warren⁵ in 1937 described severe as compared to mild cases. They reported the death of one patient, who was proved to have encephalitic involvement as well as the usual choriomeningitis. So far as is known, this is the only mortality reported due to this disease. Clinically, the disease is more benign than either tuberculous meningitis or encephalitis. The course is generally short, and recovery is nearly 100 per cent. The neurologic changes when present rarely are localizing. The infectiousness of the disease is still a debatable point.

Reports of observations on the cerebrospinal fluid in cases of lymphocytic choriomeningitis indicate that the sugar content is between 40 and 70 mg and the chlorides about 700 mg or less per hundred cubic centimeters. Predominant lymphocytosis should always be present. According to Viets and Warren,⁵ the protein content in severe cases usually has a tendency to rise.

To make and prove the correct diagnosis of this disease, the virus should be isolated from the spinal fluid. How late the virus can be observed is not definitely known. It apparently disappears soon after the tenth day. According to Rivers and Scott,² neutralizing antibodies cannot be seen in the serum until after

3 Shambaugh, George E. Jr. The Surgical Treatment of Meningitis of Otic and Nasal Origin. J. A. M. A. 108: 696-700 (Feb. 27) 1937.
4 Wallgren, A. Une nouvelle maladie infectieuse du système nerveux central? Acta Paediat. 4: 158-1925.
5 Viets, Henry R. and Warren, Shields. Acute Lymphocytic Meningitis. J. A. M. A. 108: 357-361 (Jan. 30) 1937.

the sixth week from the onset of the disease. Because of the possible confusion with other forms of meningitis, it seems of great importance that if the virus is not obtained from the spinal fluid the serum should be tested for neutralizing antibodies.

That lymphocytic meningitis may be caused by etiologic agents other than this virus was demonstrated by Rivers and Scott.² They failed to find neutralizing antibodies against the lymphocytic choriomeningitis virus in the serums collected from seventeen patients who had recovered from diseases diagnosed as acute aseptic meningitis and from five patients convalescent from lymphocytic meningitis of unknown origin.

The term lymphocytic choriomeningitis should be employed in cases of lymphocytic meningitis only when the organism is found, or when the neutralization tests of the serum have positive results.

SUMMARY AND CONCLUSIONS

Of three cases of lymphocytic meningitis, two were later proved to be lymphocytic choriomeningitis.

It is possible for lymphocytic choriomeningitis to be confused with meningitis caused by other etiologic agents.

It is important to demonstrate the presence of the virus in the spinal fluid early in the course of the disease or the presence of neutralizing antibodies in the serum after the sixth week.

Eighth and Spruce streets

A NEW METHOD OF PREPARING INFUSION FLUIDS

BASED ON REMOVAL OF PYROGEN BY FILTRATION

CO TUI, M.D.

K. L. McCLOSKEY, M.D.

MILTON SCHRIFT, M.S.

AND

A. L. YATES

NEW YORK

A better understanding of the physiology of body fluids has led to universal intravenous use of dextrose solution and physiologic solution of sodium chloride. There is hardly a medical specialty that can dispense with their use. While most infusion fluids may be said to be safe, occasionally a febrile reaction, or series of reactions, occurs. The factors alleged to cause these reactions are mostly conjectures, which have accumulated in the way of clinical traditions until the preparation of infusion fluids has become so cumbersome that many hospitals now resort to commercially prepared fluids, some Council accepted and some not. This has imposed an added financial burden on hospitals. At the same time most of the factors alleged to be causative of this reaction have not been thoroughly investigated.

REVIEW OF THE LITERATURE

"Reactions" following the intravenous injection of aqueous solutions have been known nearly as long as intravenous therapy itself. These reactions are characterized by fever, often chills, vomiting, and other gastro-intestinal disturbances. The fever begins from

thirty to forty-five minutes after injection, reaches its height in from two to four hours and then begins to recede, until it has fallen practically to normal in from four to six hours. In our work there is also found a leukopenia within the first forty-five minutes after injection.

The literature on the subject was reviewed by Seibert¹ in 1923. Up to that time the only definitive work was that of Wechselsmann² and of Hort and Penfold.³ Wechselsmann in 1911 showed that febrile reactions following the intravenous administration of arsphenamine solutions could be eliminated if the solutions were made with distilled, germ-free water. This disproved the theory that the reactions were a specific water or salt effect. Hort and Penfold in the same year found that water obtained by distillation from a Jena glass retort did not produce fever if injected at once. However, a sample of the same water allowed to stand in an unsterile vessel at room temperature for forty-eight hours produced marked fever. They further showed that there was no parallelism between the toxicity of water and the number of microorganisms present and that the "pyrogen" was in the supernatant portion of a centrifugated specimen and was filtrable through a Doulton filter, cotton wool and even a Berkefeld filter. Seibert¹ extended this work, identified a bacterium from distilled waters standing in nonsterile containers, showed that the pyrogen was the product of this organism but not the bacterial bodies themselves, and that it was not retained by Berkefeld filters. She further showed that water distilled from an all-pyrex still equipped with a spray catching trap and used within twenty-four hours was nonpyrogenic. Bourn and Seibert⁴ subsequently identified two groups of river bacteria causative of this febrile reaction. They were groups X and XI of Jordan, the latter group causing a milder reaction than the former. This work was confirmed by Banks⁵ in 1934. Rademaker⁶ in 1930 stated that he confirmed Seibert's work and formulated a set of rules governing the preparation of infusion fluids. Perkins⁷ and recently Walter⁸ reported that infusion fluids prepared according to the specifications of Rademaker are nonreactive. It may be said that at present fluids are prepared according to the specifications of Seibert and Rademaker in most hospitals and commercial houses.

However, reactions still occur. While in the case of hospital-prepared fluids such accidents may be attributed to the oversight of an overworked staff, for fluids prepared in commercial houses, where occasionally pyrogenic samples are encountered, there is no such excuse. Here mechanized and standardized methods of production are in use.

An analysis of the method recommended by Seibert and Rademaker shows its weakness. Most emphasis

1 Seibert, Florence B. Fever Producing Substances Found in Sterilized Distilled Waters. *Am. J. Physiol.* **67**: 90-104 (Dec.) 1923. The Cause of Many Febrile Reactions Following Intravenous Injections. *ibid.* **71**: 621 (Feb.) 1925.

2 Wechselsmann. Neure Erfahrungen über intravenöse Salzwasserinjektionen ohne Reaktionserscheinungen. *München. med. Wchnschr.* **58**: 1510 (July) 1911.

3 Hort, E. C. and Penfold, W. J. The Dangers of Saline Injections. *Brit. M. J.* **2**: 1589 (Dec. 16) 1911.

4 Bourn, J. M. and Seibert, Florence B. Cause of Many Febrile Reactions Following Intravenous Injections. *Bacteriology of Medicine*. Distilled Waters. *Am. J. Physiol.* **71**: 652-659 (Feb.) 1925.

5 Banks, H. M. Hyperpyrenic Reaction Following Intravenous Therapy. *Am. J. Clin. Path.* **4**: 260 (May) 1934.

6 Rademaker, Lee. The Cause of Elimination of Reactions After Intravenous Infusions. *Ann. Surg.* **92**: 195-201 (Aug.) 1930. Reactions After Intravenous Infusions. Further Report on Their Elimination. *Surg. Gynec. & Obst.* **58**: 956-958 (May) 1933.

7 Perkins, A. H. Preventing Dangerous Reactions in Intravenous Therapy. *Modern Hosp.* **38**: 69 (Feb.) 1932.

8 Walter, C. W. Economical Intravenous Therapy. *J. A. M. A.* **104**: 1688-1690 (May 11) 1935. Preparation of Safe Intravenous Solutions. *Surg. Gynec. & Obst.* **63**: 645-646 (Nov.) 1936.

Aided by a grant from the Works Progress Administration. The ultrafilter was lent us by the Pfaltz & Bauer Company, New York. From the Laboratory of Experimental Surgery, New York University College of Medicine. The authors were assisted by Dr. Benjamin Shafiroff and given encouragement and advice by Prof. Arthur M. Wright.

is laid on the distilled water and the purity of the chemicals, but no remedy is recommended for possible contamination during the preparation. The method may be summarized in this schema

Distillation → addition of chemicals → sterilization

Thus while the distilled water and the chemicals may be of unquestioned purity initially, there is no insurance against contamination during the latter part of the preparation, i. e., during the addition of chemicals and subsequent handling. A redistillation is out of the question, and Berkefeld filtration does not hold back the pyrogen, once it is present.⁹

In this communication we are presenting a new method of preparing intravenous fluids. It is based on

for forty-eight hours and (2) a markedly turbid water from a fresh water aquarium used in the laboratory. The water was boiled and filtered through hard filter paper, and sodium chloride was added to make a physiologic solution. It was then reesterilized in the autoclave before injection. It may here be mentioned that the normal temperature of dogs ranges from 100.6 to 102.6 F.

In this study a number of precautions were necessary. They were occasioned by the fact that, as previously mentioned, in clinical circles, in addition to the presence of pyrogen in infusion fluids, it has been alleged that a number of other factors cause febrile reactions. The precautions pertinent to this investiga-

TABLE 1—Study on Dogs*

Experiment	Kind of Water	Type of Filter	Weight of Dog Kg	Volume Injected Cc	pH	Temperature Change F	Change Leukocytes × 1000	Symptoms
1	Tap		17	130	7.17	102.4-104.8		Shivering
2	Aquarium		10	40	7.88	102.2-103.8	20.6-6.4	Shivering diarrhea
3	Aquarium	Jena & Berkefeld W	13.0	150		101.4-105.9		Shivering diarrhea
4	Tap	Jena & Berkefeld W	14	150		102.0-105.2	20.5-7.8	Shivering diarrhea
5	Tap	Seitz	15	250	7.02	102.2-101.8	17.8-10.0	None
6	Aquarium	Seitz	16.0	250	7.02	102.6-101.6	21.2-20.8	None
7	Aquarium	Zsigmondy 1 sec	13	250		102.1-105.3	10.2-4.8	Shivering vomiting, prostration
8	Tap	Zsigmondy 1 sec	14	250		102.0-104.6	12.8-6.4	Shivering diarrhea
9	Tap	Zsigmondy 42 sec	15	250		101.8-104.2	10.5-5.3	Shivering
10	Aquarium	Zsigmondy 42 sec	16	250		102.4-104.5	40.3-12.75	Shivering retching
11	Aquarium	Zsigmondy 200 sec	16	325	7.61	101.8-101.4	17.0-16.8	None
12	Tap	Zsigmondy 200-sec	15.0	350	7.12	102.4-102.2	16.4-14.6	None

* Each of the experiments in the tables is representative of at least five experiments.

TABLE 2—Study on Human Beings

Series	Fluid	Subject	Volume Injected Cc	Filter	pH	Temperature Change F	Blood Count Change
I	Dextrose Com 5% ¹⁵ in normal saline lot X	Patient L L Volunteer M C	300 500	0 Seitz serum no 3 twice	6.30	100.6-105.6 98.6-98.4	11 500- 900
II	Glucose Com 5% ¹⁵ in normal saline lot Y	Volunteer L T Dog (11 Kg) Patient Y H Patient A S Patient T N	250 400 1 000 600 1 000	0 0 Zsigmondy M 200 second Seitz once Seitz twice	6.50 6.65	98.4-102.6 101.6-106.0 99.4-99.6 99.2-100.8 99.0-99.4	8 600-6 200 17,000-2 200 14,500-9 100 12 000-8 000 8 500-8 000
III	Dextrose Com 10% ¹ in normal saline	Patient R S Dog (13 Kg) Patient C D Patient P S	150-200 100 500 1 000	0 0 Zsigmondy M 200-second Seitz twice	4.10 5.61 6.61	99.6-104.8 101.2-104.6 98.8-99.6 98.6-99.2	21 800-13 400 12 200-8 900 11 000-11 300
IV	Tap water saline	Volunteer M S Volunteer P R Volunteer D G	125 1 000 1 000	0 Zsigmondy M 200 second Seitz twice	7.71 7.12 7.02	99.0-102.4 99.2-99.0 98.6-98.8	10 000-6 000 8 000-7 800 7 500-7 800
V	Aquarium water saline	Volunteer A P Volunteer M S Volunteer G D	40 1 000 1 000	0 Zsigmondy M 200 second Seitz, twice	7.88 7.61 7.52	99.4-103.8 98.6-99.0 98.8-98.8	10 000-5 000 8 300-9 200 16 000-15 200

the new principle of pyrogen removal by a special type of filtration. This principle was worked out in an extensive investigation of infusion fluids known to be pyrogenic.

In our filtration studies of proved pyrogenic fluids we employed the following types of filter: (1) Jena filter crucible, (2) Berkefeld filter W, (3) Zsigmondy membrane ultrafilters of graded porosity and (4) Seitz serum No 3 filter pads¹⁰ made of compressed asbestos.

Table 1 embodies a study made on dogs, a preliminary communication of which has been published.¹⁰ The pyrogenic infusion fluids were made from two lots of water: (1) tap water from the city main incubated

tion were (a) the pH of the fluid,¹¹ (b) contamination by the rubber tubing through which the fluid is administered,¹² (c) the temperature of the injected fluid¹³ and (d) the speed of the injection.¹⁴

Accordingly, the pH of the fluid was taken before and after filtration, the rubber tubings used were 2 foot lengths of gum tubing which had previously been used

⁹ Seibert¹, Hort and Penfold.²
¹⁰ Owing to an error in labeling these filter pads were called Seitz EK filters in our preliminary communication (Co Tui, McCloskey, K L Schrift, M H, and Yates A L, Filtration Studies on Reactive Infusion Fluids, Proc Soc Exper Biol & Med 35: 297-300 [Nov.] 1936).

¹¹ Darrow, K E, A Review of the Causes of Reactions Following Intravenous Injections of Glucose and Normal Saline, Journal Lancet 54: 65-66 (Feb. 1) 1934. Falk, H C, Common Causes of Reactions Following Use of Intravenous Solutions and Their Prevention, New York State J. Med 35: 480-484 (May 1) 1935. Williams, J R, and Swett, Madeleine, Hydrogen Ion Concentration Studies on Distilled Water, Physiologic Sodium Chloride, Glucose and Other Solutions Used for Intravenous Medication, J A M A 78: 1024-1026 (April 8) 1922. Little, W D, Causes of Reaction with Chill Following Intravenous Administration of Normal Salt Solution, J Indiana M A 25: 344-345 (Aug.) 1932.

¹² Walter³, Co Tui, McCloskey, Schrift and Yates.¹⁰ Darrow,¹¹ Little.¹²

¹³ Darrow,¹¹ Little.¹²
¹⁴ Darrow,¹¹ Falk,¹¹ Little.¹²

repeatedly for other infusions and were thoroughly rinsed with sterile distilled water and autoclaved before each use, the fluid was maintained at 39 C throughout the injection, the speed of injection was in each case regulated by gravity or gravity plus air pressure to 0.5 cc per kilogram of body weight per minute, i.e., the equivalent of 900 cc every thirty minutes for a man weighing 60 Kg. The temperatures were taken at half-hour intervals for a period of five hours. Only two leukocyte counts were made as a rule, one before and the other forty-five minutes after injection.

Experiments 1 and 2 are the controls. It will be seen that 45 cc of the aquarium water produced more of a reaction than 130 cc of the tap water. Experiments 3 and 4, show that neither a Jena filter crucible nor a Berkefeld W filter, the finest obtainable, removes the febrile agent. This result confirms the observations of Hort and Penfold³ and of Seibert.¹ Filtration through a Seitz serum pad No. 3 removes it, however, as may be seen in experiments 5 and 6. Since Seitz filters act by adsorption, it is concluded that the pyrogen is adsorbable. Experiments 7 to 11 are attempts to determine the particle size of the pyrogen. Since it passes through a 42-second filter but is held back by a 200-second filter, it is concluded that the particles are larger than 50 millimicrons.¹⁵ A more exact study is now being made on the particle size by more precise methods of ultrafiltration.

Table 2 embodies five series of representative experiments on men out of a series of thirty-two pyrogenic fluids investigated. Twelve of these thirty-two were fluids made by local hospitals and fourteen were commercial fluids made by three manufacturers, all Council accepted, the rest were made in our own laboratory.

The first series dealt with a commercial 5 per cent dextrose in saline solution. This preparation is described by the manufacturer as "a solution containing in each 100 cc 5 Gm of anhydrous dextrose and 0.85 Gm of sodium chloride." The protocol of L. L. was taken from the hospital record. It will be seen that the temperature after the intravenous injection rose from 100.6 to 105.6 F and that the leukocyte count fell in forty-five minutes from 11,500 to 900. Five hundred cubic centimeters of the same fluid filtered through two Seitz serum No. 3 asbestos pads gave no fever in volunteer M. C. Series II deals with another batch of 5 per cent dextrose in saline solution which was biologically tested and rejected as pyrogenic by the same commercial house and submitted to this laboratory for investigation. Volunteer L. T. responded to an intravenous injection of 250 cc of this fluid by a temperature of 102.6 F. Four hundred cubic centimeters of the same solution was given to an 11 Kg dog, resulting in a marked temperature rise and leukopenia. One thousand cubic centimeters of the same fluid filtered through a 200-second Zsigmondy membrane filter gave no reaction to the patient. Through one layer of Seitz serum No. 3 filter, 600 cc still gave a slight fever but 1,000 cc after filtration through two layers of Seitz filter pads was followed by no rise in temperature.

Series III was performed with a commercial 10 per cent dextrose solution from another manufacturer. This solution labeled 10 per cent "dextrose solution" is described in the label as "a sterile solution of dextrose-glucose 10% in physiological saline." Series IV and V were saline solution and aquarium water used on the dogs in table 2. The toxicity of the aquarium water is shown in the experiment in which 40 cc in a human

being (A. P.) gave a temperature of 103.8 F and a fall of the leukocyte count of from 10,000 to 5,000. The lack of reaction when 1,000 cc each of the filtrate of the same water is injected after filtration through a 200-second Zsigmondy and through a Seitz serum No. 3 filter attests the high efficiency of these methods of filtration and confirms the observations made in dogs.

The leukopenia accompanying this reaction is invariably present in dogs, as may be seen in table 1, but less constant in human beings, although when the reaction is marked it is unmistakable, as in series I, in which the drop in the count reached a level as low as 900. This is a transient phenomenon, most marked in the first hour or two, with restoration to normal in a few hours. This phenomenon will be the primary subject of a subsequent study.

It will be seen from the p_H values recorded in tables 1 and 2 that they range from p_H 4.10 to 7.88 for reactive fluids and from 5.61 to 7.52 for nonreactive fluids. Under these conditions, then, the p_H value per se cannot be the cause of the reactions caused by these fluids.

COMMENT

The theoretical implication of this work is that the pyrogen found in infusion fluids is of a particulate nature, of a larger order of magnitude than 50 millimicrons but smaller than 1 micron. Whether it is of protein or of other composition, whether it acts as a particle per se or in some other way and whether other particulate substances of this dimension can reproduce this phenomenology remain to be investigated. This finding is not necessarily at variance with Seibert's. It is easily conceivable that the products of the "bacillus pyrogenes" could occur as particles of this size.

The practical result of this work is that there are now available two processes of filtration which effectively remove the reactive agent from infusion fluids. One is ultrafiltration, which, however useful it may be in the determination of particle size, is too slow and technically too difficult for clinical use. The other process is adsorptive filtration through two layers of Seitz serum No. 3 filter pads (compressed asbestos). This process is easy to manipulate and should be feasible for use in hospitals and commercial houses. The adsorptive filtration is really the core of the process, since neither distillation of the water nor a final sterilization by heat is essential, although both are recommended. The former, because on general principles it is best to use water free of chemicals other than those prescribed, the latter, to avoid bacterial contamination during bottling. This new process of infusion fluid preparation may be summarized by the schema

Distillation → addition of chemicals → adsorptive
filtration → sterilization

SUMMARY

In a study with infusion fluids known to be fever producing, it was shown that

1 The fever-producing agent is removable by filtration through an adsorptive filter and through a 200-second Zsigmondy filter.

2 The agent is of a particulate nature of a larger order of magnitude than 50 millimicrons but smaller than 1 micron.

3 A new method of infusion fluid preparation consists of passing the final fluid mixture through compressed asbestos filters of the Seitz serum No. 3 type.

477 First Avenue

THE VISUAL RAVAGES OF
TRACHOMA

HARRY S GRADLE, MD

CHICAGO
AND

WALTER DE FRANCOIS, MD

HARRISBURG, ILL

While the ravages and destructive influence of trachoma are well known, it would be difficult to say offhand how great percentally is the visual damage from that disease and how much that damage can be remedied by treatment. Therefore this analysis was made of the records of 2,713 consecutive cases of trachoma seen in the Southern Illinois Trachoma Clinics to answer that question. The U S Public Health Service¹ estimates that 4 per cent of patients with trachoma in any given community are blind. MacCallan² gives the statistics on the visual acuity of the inhabitants of the village of Bahtim. Forty-eight per cent of the 1,301 trachomatous individuals measured had vision of less than 6/18, while 5.5 per cent were blind in one eye and only 1 per cent blind in both eyes. The standard of blindness was the inability to count fingers at less than 1 meter. But, says MacCallan, "The causes of blindness in the great majority of cases were the results of acute conjunctivitis and ulceration of the cornea. There were many cases of primary glaucoma causing blindness and a comparatively small number of cases in which trachoma was the only cause without the help of acute conjunctivitis." More accurate figures are not available.

The patients in the series here reported were divided into several classes according to visual acuity for specific reasons. It is well known that ability to read fine type requires visual acuity of 20/50 at least. Consequently, vision of less than 20/50 implies difficulty in near vision. According to the definitions accepted by the American Medical Association in 1935, less than 20/200 constitutes industrial blindness. Thus there are clearly defined limits for the various classes which may be discussed under the following sections. It must be added that corrected vision was utilized when available, but, as these clinics are only for the treatment of trachoma in indigent patients, refractions could not be performed and the majority of glasses that were in the possession of patients were of the "five and ten cent store" variety. But every patient was examined ophthalmoscopically and the refractive error estimated roughly. Any complicating factors that could have an influence on the vision were noted and we were thus able to state definitely whether or not the decreased visual acuity was due to trachoma and its complications.

A Vision better than 20/50. In the total number of 2,713 patients there were seventeen with unilateral anophthalmos from one cause or another. Therefore we are dealing with 5,409 eyes. Of that number 2,889, or 53.5 per cent, had visual acuity of better than 20/50 and consequently are not considered in this article.

B Vision between 20/50 and 20/200. Of the total number of 5,409 eyes 1,596, or 29.5 per cent, had visual acuity between 20/50 and 20/200. The reduction in

vision was due to trachoma in 653 of that number, or 40.9 per cent. Under treatment, 250, or 39.8 per cent, improved to vision of better than 20/50.

C Vision less than 20/200. Of the total number of 5,409 eyes 924, or 17.0 per cent, had vision of less than 20/200. The reduction in vision was due to trachoma in 566, or 61.1 per cent. Under treatment, 177, or 31.2 per cent, improved to vision of better than 20/200.

D So far we have spoken of individual eyes so now let us speak of patients. Of the 2,713 patients 211, or 7.8 per cent, had suffered a reduction in vision in the better eye as the result of trachoma to less than 20/200 (industrial blindness). Under treatment fifty-five, or 26.1 per cent, of that number improved to vision of better than 20/200.

It is fully realized that these figures are not universally applicable, for trachoma varies in severity in various localities according to the character of the population and the degree of sanitation, according to the climate, the temperature, and the amount of humidity, and above all according to that indefinite factor known as racial resistance. The patients in these clinics are Caucasians who have been more or less inbred for more than a century, who are mostly country dwellers, and whose ideas of sanitation are very rudimentary.

SUMMARY

1 In the Trachoma Clinics of Southern Illinois, 7.8 per cent of the patients are industrially blind as the result of trachoma and its complications.

2 More than one fourth of these can be restored to useful vision by treatment.

3 Of the individual trachomatous eyes, about 30 per cent have a reduction in vision that interferes with satisfactory reading, about two fifths of the reduction being due to trachoma.

4 Of the individual trachomatous eyes, 17 per cent are industrially blind, about three fifths of the reduction being due to trachoma.

5 Vision can be restored to the useful point in from one fourth to one third of the eyes, the percentage varying according to the degree of loss and the length of time it has existed.

58 East Washington Street

ABSTRACT OF DISCUSSION

DR C E RICE, Washington, D C. Two years ago I visited some of these trachoma clinics in southern Illinois. Dr Gradle is to be congratulated on the way this work has been organized. It is a fine example of a public health enterprise. In a study of 1,600 case records of trachoma patients hospitalized in Missouri, it was found that there were 82 blind eyes to each hundred cases of trachoma. That would figure out slightly more than 4 per cent of the patients blind if the two eyes were always affected to the same degree. Fortunately, that is not always true. These blind eyes were those with light perception. Of about 4,000 case records studied (not all patients hospitalized) there were 12.5 per cent with vision of 20/200 or less in the better eye, due to trachoma. Dr Gradle found 8 per cent of the patients with vision of 20/200 or less because of trachoma. It is of much interest that in Dr Gradle's study it was found that approximately one fourth of those persons blind from trachoma could have useful vision restored by proper treatment. The earliest case of severe trachoma I have seen was in a baby of 18 months. Pannus had already involved the greater part of both corneas. In this case, a bilateral canthotomy and grattage was done following two months of hospital care. The final result was excellent. This case is cited to illustrate that trachoma can be very severe early

From the Governor Horner Trachoma Clinics of Southern Illinois. Read before the Section on Ophthalmology at the Eighty Eighth Annual Session of the American Medical Association, Atlantic City, N J, June 9, 1937.

1 Rice, C E. Personal communication to the authors.
2 MacCallan, A F. Trachoma. London: Butterworth & Co. Ltd, 1936. p. 158.

in life. Another interesting point is that trachoma can remain unilateral. I have seen twelve patients with unilateral involvement to the extent that one eye of each patient was blind, while the other eye had normal visual acuity and no sign of a previous trachomatous infection. In Egypt it would appear that most of the blindness in trachoma sufferers may be due to complicating gonococcal infections of the conjunctiva. This is not true in the endemic trachoma area of this country. Trachoma produces blindness because of the transfer of the disease process or infection to the corneal tissue. This transfer occurs early. As to whether economic blindness will occur in the untreated case depends on the factors of (1) virulence of the infection and (2) individual resistance, and, as the authors say, there are apparently racial factors and possibly geographic factors.

GAS GANGRENE TREATED WITH SULFANILAMIDE

REPORT OF THREE CASES

HAROLD R. BOHLMAN, M.D.

Instructor in Orthopedic Surgery, Johns Hopkins University
School of Medicine
BALTIMORE

Search of the literature fails to reveal the use of sulfanilamide¹ heretofore in the treatment of gas gangrene. It appears to be a valuable adjunct in this respect and offers great promise with regard to saving of limb and life.

CASE 1—W. C., a Negro youth aged 15, admitted to Franklin Square Hospital Jan. 12, 1937, after being struck by an automobile while roller skating, suffered mild shock and concussion, a transverse fracture of the right femur in the mid third, and a compound fracture of the left femur in the lower third which extended longitudinally through the metaphysis and involved the outer half of the epiphyseal cartilage plate, the proximal fragment protruded through the lateral surface of the thigh above the knee. The wound area was treated, the compound fracture was reduced, dressings of dry gauze were applied, and both fractures were splinted, 1,500 units of tetanus antitoxin plus 10,000 units of combined gas bacillus antitoxin were given. His temperature rose to 102 F on the second day and fluctuated in an irregular manner.

When I saw him on the fifth day after injury his left leg was very much swollen, it was well splinted with a temporary arrangement, as was the right. Palpation of the right thigh revealed no abnormal swelling. He complained of pain in the left leg and when the dry, blood-stained dressings were removed, gas escaped with a loud hiss and continued to bubble from the wound, giving off a somewhat pungent odor. Gas crepitation could be felt over the lower part of the leg from 4 inches above the ankle, about the knee, and up the thigh to within 3 inches of the groin. This distention with gas had occurred with great rapidity—literally over night. The wound was discharging hemolyzed blood and necrotic material. There was no frank pus. The patient looked very ill. He was restless, talkative and apprehensive, with lapsing moments of quiet which suggested marked toxicity. The pulse was 140, temperature 101, respiration 24, leukocyte count 17,500.

A spica plaster splint was applied about the body, right hip and leg, holding the femoral fragments in good position. Hasty presurgical preparation was carried out, and nitrous oxide and oxygen were administered. An incision was made from just below the greater trochanter down the outer side of the left leg through the skin, subcutaneous tissue, and tensor fasciae femoris, extended through the wound site, where much necrotic material was encountered, and down the lower part of the leg to just above the ankle. In this long, widely gaping wound, only about twelve clamps and ties were necessary to

control hemorrhage. The tissues were edematous and pale with practically no capillary oozing. Scattered indiscriminately about the wound were four sharply delineated areas, each roughly 2 inches long by 1½ inches wide of black, gangrenous tissue. Crepitation persisted over much of the leg. No attempt at debridement was made. The long, wide wound was dressed with loosely applied gauze saturated with hydrogen peroxide and protected with petrolatum gauze. The patient was under anesthesia a very short time and then returned to his bed, where sand bags were used to fix the leg. Because of the great distention, extensive infection and the patient's toxicity, amputation seemed to offer little hope. His prognosis was very poor.

Sulfanilamide therapy was immediately instituted. Long suggested a dose of three tablets of 5 grains (0.3 Gm.) each every six hours. This dose was continued for two days, followed by two tablets every six hours for five days and then one tablet every three hours for an additional two days. Eighteen hours after the first dose of sulfanilamide the patient's temperature was normal, he had no toxic symptoms and he appeared quite well.

Excellent union occurred in the right femur. His general condition has remained good, there have been no subsequent toxic symptoms. The black, necrotic, gangrenous areas softened, sloughed, and were expelled in masses resembling dirty putty. The long, wide wound was allowed to granulate and epithelize. A low grade osteomyelitis subsequently developed, which is responding very well to treatment. A sequestrum of a portion of the metaphysis has been removed, union is excellent. At times, when dressings have been too infrequent or drainage not entirely free, he has exhibited a slight rise of temperature. At operation, smears of the wound revealed immense numbers of gas bacilli, morphologically *B. welchii*, also a few cocci in chains and tetrads. The laboratory reported only *Staphylococcus aureus* in culture, failing to obtain either streptococcus or gas bacillus growth.²

CASE 2—A. C., a Negro aged 42, was admitted to the same institution March 21, 1937, after being struck by an automobile. Aside from sundry bruises and contusions, he sustained extensive multiple, comminuted fractures of the left tibia and fibula, with similar injuries to the right lower leg and a compound wound about 1 inch by 2½ inches over the upper, anterior third of the tibia. Considerable soft tissue crushing and damage was evident, with no air or gas palpable in either leg. The patient was given a prophylactic dose of tetanus antitoxin and combined gas bacillus antitoxin.

His temperature on the third day was 100.4 F, with a pulse rate of 95, marked crepitation of gas could be felt about and above the wound, extending to the lateral side of the knee. The wound was discharging hemolyzed blood. The leukocyte count was 12,000.

Sulfanilamide therapy was started, five tablets every four hours. The patient received 25 grains (1.6 Gm.) the third day (the first day of this therapy), 75 grains (5 Gm.) the fourth day, 30 grains (2 Gm.) the fifth day and 45 grains (3 Gm.) the sixth day, after which it was discontinued.

His temperature ranged from normal to 99 plus until the tenth day and thereafter was normal. All toxic symptoms disappeared on the fourth day, that is, the second day of sulfanilamide therapy. The wound was not disturbed. One felt that he had sufficient drainage from the wide open compound wound, and after the experience with sulfanilamide in the first case it seemed worth while to depend on it entirely in this much earlier stage of gas gangrene.

Recovery was complicated by staphylococcal osteomyelitis of the upper end of the right tibia, which is responding to treatment.

No organisms were found on culture of the wound on the third day. This may have been due to much hemorrhage occurring before the culture was made. However, there was a sufficient quantity of gas in the tissues to warrant a presumptive diagnosis of infection with gas bacilli.

CASE 3—Miss M. C., aged 21 years, white, admitted to Union Memorial Hospital in a severe state of shock at 3:45 a. m. May 8, 1937, had been injured in an elevator accident in a hotel.

Physical examination revealed ecchymosis of the right eye, bruises and contusions of the arms, right breast and right thigh.

Dr. Perrin H. Long of the Johns Hopkins Hospital and Drs. T. Battaglia, S. S. Borssuck, M. J. Sodara and W. F. Feidler of the house staff of the Franklin Square Hospital cooperated in the treatment and care of cases 1 and 2 and Dr. Arthur J. Weinberg treated case 3.
1 Sulfanilamide (The Council Name for Para Aminobenzene Sulfonamide) J. A. M. A. 108:1340 (April 17) 1937. Sulfanilamide and Related Compounds ibid. 108:1888 (May 29) 1937.

2 Long, Perrin H. Personal communication to the author.
3 Momentary difficulties in the laboratory prevented proper culture.

laceration of the right scapula, and a compound comminuted fracture of the lower third of the right femur with severe crushing of the soft tissues. As soon as her condition warranted, she was taken to the operating room and a guillotine amputation of the right leg was done under cyclopropane anesthesia at the upper third of the thigh, after thorough clean-up with green soap, physiologic solution of sodium chloride and iodine, the wound of the shoulder was sutured. Amputation was performed above the fracture area, the stump was closed in the usual manner with two cigaret drains. She was immediately given prophylactic doses of tetanus antitoxin and combined gas bacillus antitoxin.

Her temperature on admission was 99.3, rose to 102.2 the second day, and was 103.3 the third day, with a pulse of 140 per minute. A culture of the wound revealed *B. welchii*. The leukocyte count was 18,000. Hemoglobin was 70 per cent.

Sulfanilamide was administered four tablets of 5 grains (0.3 Gm.) each with 10 grains (0.65 Gm.) of sodium bicarbonate every four hours totaling 60 grains (4 Gm.) the first day, 85 grains (5.5 Gm.) the second day, 65 grains (4.3 Gm.) the third day, 40 grains (2.6 Gm.) the fourth day, 60 grains (4 Gm.) the fifth day and 40 grains (2.6 Gm.) the sixth day, after which it was discontinued. Her temperature remained elevated until the seventh day, when it dropped to 98 and ranged to 99.5, being normal after the twenty-fifth day. Her pulse remained around 100 to the minute. X-ray examination of the stump on the second day revealed gas pockets. The urine on the second day showed albumin 2 plus sugar 1 plus and numerous hyaline casts but thereafter was normal.

Quantitative determination of sulfanilamide in the blood on the fourth day revealed 8.4 mg. per hundred cubic centimeters.

As soon as gas bacilli were discovered in the discharge on the second day, the sutures in the stump were removed, there has been some necrosis and sloughing. The wound is at present granulating and the patient is progressing well toward complete recovery.

Marked clinical improvement was noted in all three cases, especially cases 1 and 3 within twenty-four hours after sulfanilamide therapy was instituted.

SULFANILAMIDE

Borssuck⁴ first called my attention to the use of sulfanilamide and to the work of Domagk,⁵ who demonstrated its selective action on streptococcal infection in mice.

Long and Bliss⁶ called attention to the clinical value of sulfanilamide in a preliminary report and later made further observations,⁷ which included the proper dosage for oral administration. They suggest decreasing rapidly the amount of chemical administered following prompt improvement, with a longer period of administration in a mild, chronic infection. They note that toxic manifestations are apparently infrequent and may be associated with sulfhemoglobinemia, they reiterate the chemotherapeutic effect of this chemical in the treatment of infections produced by beta hemolytic streptococci.

I have used this product in such cases and in mixed infections of streptococci and hemolytic staphylococci, also in one case of *Staphylococcus aureus* infection, all with excellent results.

Marshall, Emerson and Cutting⁸ have reported on the excretion of this chemical and they comment that the mechanism of its action is not yet clear, that the curative effect is exerted by maintaining a high concentration in the blood and tissues for several days, that adequate

concentration can be as quickly obtained by oral administration as by injection, and they note various factors influencing concentration. They suggest that the daily dose be divided in order to maintain as nearly uniform concentration in blood and tissues as possible. A four hour interval between doses is indicated, and they suggest a large single initial dose. They state that no advantage is gained by subcutaneous injections as compared to oral administration. They found that by establishing equilibrium between intake and output nearly 100 per cent of the drug was recovered from the urine. Excretion is slowed by impaired renal function and they suggest caution in cases of this type.

GAS GANGRENE

The literature is replete with articles on various phases of gas gangrene and anaerobic infection. Many authors call attention to the incidence of gas gangrene in compound fractures. Ghormley⁹ calls attention to the value of antitoxin. In my experience it has been extremely disappointing. Each of my three patients received prophylactic doses of 10,000 units of combined gas antitoxin. Ghormley also calls attention to the mixed type of infection often present in these wounds.

Millar¹⁰ lists a series of 607 cases occurring in civil life, not including obstetric infections, in which *B. welchii* was associated with streptococci and staphylococci in six, with cocci in three and with miscellaneous bacteria in nineteen. He remarks that gas gangrene is not listed as a cause of death in the Bureau of Census mortality tables of the registration area in the continental United States.

The surgeon general's¹¹ report calls attention to symbiosis of various aerobes and anaerobes. In Base Hospital No. 15, A. E. F., in seventy-three cases of gas gangrene with death, activity of the gas bacilli was self limiting and practically confined to the first week after the wound was received, with a drop in anaerobes from 38 to 7 per cent during the first seven days, as the common pyogens streptococcus and staphylococcus accumulated rapidly in the wound. The symbiotic effect was particularly prominent in fatal wounds. Infections with anaerobes alone showed a high death rate but a short period of danger to life. A streptococcal bacteremia was by far the most important cause of death, especially in patients living beyond the first week, which was roughly established as a self-limiting period of gangrenous process and "many deaths attributed to the anaerobes were in reality deaths due to streptococcus in the process of replacing them." In Evacuation Hospital No. 8, A. E. F., between Sept. 10 and Nov. 13, 1918, 4,741 wounded were admitted to the hospital. Of these, 4,683 required surgical treatment, 206 of the wounded required amputation, and of the 206, ninety-six, or 46.6 per cent, were for gas gangrene. The total number of deaths was 363, of which sixty-one, or 17 per cent, were due to gas gangrene, the second most important cause of death. "Of 890 wound cultures 478, or 53 per cent, contained anaerobic bacilli. Of these 478 wounds, 321, or 67 per cent, at no time showed clinical evidence of gas gangrene infection.

Of the remainder of the gas gangrene cases, sixteen, or 3 per cent, developed gas gangrene after debridement, while in 141 cases, or 29 per cent, gas gangrene was clinically evident at the time the wound culture

⁴ Borssuck, S. S. (graduate of Tübingen, Württemberg, February 1936). Personal communication to the author.

⁵ Domagk, Gerhard. *Deutsche med. Wochenschr.* 61: 250 (Feb. 15) 1935.

⁶ Long, P. H. and Bliss, Eleanor A. *Para-Aminobenzene Sulfonamide and Its Derivatives*. J. A. M. A. 108: 32 (Jan. 2) 1937.

⁷ Long, P. H. and Bliss, Eleanor A. *Para-Aminobenzene Sulfonamide and Its Derivatives*. *Arch. Surg.* 34: 351 (Feb.) 1937.

⁸ Marshall, E. K., Jr., Emerson, Kendall Jr. and Cutting, W. C. *Para-Aminobenzene Sulfonamide*. J. A. M. A. 108: 953 (March 20) 1937.

⁹ Ghormley, R. K. *J. Bone & Joint Surg.* 17: 907 (Oct.) 1935.

¹⁰ Millar, W. M. *Surg., Gynec. & Obst.* 54: 232 (Feb.) 1932.

¹¹ Surgeon General's Report. U. S. Army. 12: 407, 1929.

was made. It is thus seen that more than two thirds of the severe, nontransportable wounds contaminated by anaerobic bacilli failed to develop gangrene, all of these cases being under observation at least five days, and many of them as long as two weeks. This fact involves a very important pathological principle. These bacteria are incapable of producing gas gangrene by their presence alone and must be accompanied by the failure of circulation, the extensive cellular damage of large quantities of muscle, and in all probability by constantly progressive increase of this series of factors."

Experimentally, injection of large quantities of washed *B. welchii* failed to produce lesions in laboratory animals, but lesions would develop if either acid or powdered glass was injected with the bacilli or if slight injury to the muscles preceded the injection. "In other words, the Welch bacillus is not a true parasite but a saprophyte that cannot grow in healthy tissue, it is able to thrive only if the body cells are first injured by some chemical or mechanical means. The lesions involve the muscles, the blood vessels, and the fat of the subcutaneous connective tissues."

Ghormley⁹ gives 42.5 per cent mortality, slightly lower than 53 per cent recorded in the surgeon general's report.¹¹ He states that 86 per cent of a series of thirty-three patients recovered with the use of antitoxin. Prophylactic dosage of combined gas bacillus antitoxin did not prevent infection in the three cases now reported. Millar¹⁰ found a mortality of 47.2 per cent, recovery in 48 per cent, and unknown outcome in 48 per cent in 607 cases.

Long¹² is at present conducting experiments with *B. welchii* to determine the effect of sulfanilamide on their growth and phagocytosis. He believes that phagocytosis is not inhibited or enhanced by this drug, that it acts directly to inhibit the growth or multiplication of these bacilli and that its mechanism of action on other bacteria is similar. He states that a prophylactic effect has been noted whenever it has been used therapeutically in experimentation. He suggests that prophylactic doses of two to three tablets every four hours with 10 grains of sodium bicarbonate be given in all severe or crushing injuries in which infection with streptococci or gas bacilli might subsequently occur.

Mellon, Gross and Cooper¹³ find that sulfanilamide does not affect phagocytosis or change the histologic response to streptococcal infections in mice.

SUMMARY

- 1 The first case represents an amazing, not to say dramatic, result in a desperate case of gas gangrene. Cases 2 and 3 are confirmatory.
- 2 Sensible, conservative surgical principles should be combined with the use of sulfanilamide.
- 3 No previous record has been found of its employment in this manner.
- 4 I am convinced it will be of great value in saving limb and life.
- 5 Sulfanilamide probably has a specific effect on gas bacilli, but the results may in part be due to checking symbiotic growth with the streptococcus.
- 6 The problem should have further study and experimentation.

101 West Read Street

12 Long P. H. Personal communication to the author.
13 Mellon R. R., Gross Paul and Cooper F. B. Experimental Studies with Sulfanilamide and with Protosil. *J. A. M. A.* 108: 1858 (May 29) 1937.

THE COMPARATIVE VALUE OF PURINE DERIVATIVES IN THE TREATMENT OF ANGINA PECTORIS

MORTON G. BROWN, M.D.
AND
JOSEPH E. F. RISEMAN, M.D.
BOSTON

During recent years theophylline with ethylenediamine (aminophylline) has enjoyed considerable popularity in the treatment of angina pectoris. This drug was introduced in 1908 by Dessauer¹ as a preparation which was more soluble, more effective and less likely to produce nausea than theophylline. More recently theophylline and theobromine have been linked chemically with other compounds in an attempt to imitate and improve on the properties of aminophylline. Each of these drugs has been used in angina pectoris with good results. Unfortunately, however, little exact information is available concerning the relative merits of these purine derivatives.

The available reports are based on clinical experience with the drugs.² It has been shown³ that clinical evaluation alone gives a false impression as to the efficacy of treatment in angina, for the administration of even inert medication may be followed by clinical improvement. The purpose of the present investigation is to determine the comparative efficacy of caffeine, theobromine and theophylline derivatives in the treatment of angina pectoris by using the usual clinical methods and also by measuring the amount of work under standardized conditions which patients can perform before heart pain develops.

METHODS

A detailed plan of the investigation has been published in previous communications.⁴ For the purpose of this investigation, seventeen patients who showed definite improvement following one or more of the purine derivatives were selected. So far as could be determined, they suffered from no disease other than coronary arteriosclerosis. The clinical course and the amount of work under standardized conditions which they could perform before cardiac pain developed were well known in each instance.

Each drug was given four times a day for one week at the end of which time the exercise tolerance and

This study was aided by a grant from the DeLamar Mobile Research Fund of the Harvard Medical School.

From the Medical Research Department of the Beth Israel Hospital and the Department of Medicine, Harvard Medical School.

The following pharmaceutical houses gave generous supplies of their products: Abbott Laboratories, theophylline with methyl glucamine; Bilbuler Knoll Corporation, theobromine with calcium salicylate and theophylline with calcium salicylate; Eli Lilly & Co., theophylline mono-ethanolamine and theophylline mono-ethanolamine with amylal; Winthrop Chemical Co., Inc., theobromine with phenobarbital and theophylline with sodium acetate.

1 Dessauer P. Euphyllin ein neues Diuretikum. *Therap. Monatschr.* 22: 401, 1908.

2 Dock William. The Use of Theobromine for Pain of Arteriosclerotic Origin. *California & West. Med.* 25: 636 (Nov.) 1926. Askansky S. Klinisches ucher Diuretin. *Deutsches Arch. f. klin. Med.* 56: 269.

1895. Musser J. H. Theophyllin Ethylenediamine in Heart Disease. Associated with Pain. *J. A. M. A.* 91: 1242 (Oct. 27) 1928. Gilbert N. C. and Kerr J. A. Clinic Results in Treatment of Angina Pectoris with Purine Base Diuretics. *ibid.* 92: 201 (Jan. 19) 1929. Smith F. M.

Rathe H. W. and Paul W. D. Theophylline in the Treatment of Disease of the Coronary Arteries. *Arch. Int. Med.* 56: 1250 (Dec.) 1931. Coogan T. J. Uses of Theophyllin Calcium Salicylate. *Tr. Am. Therap. Soc.* 34: 137, 1934.

3 Evans W. and Hoyle Clifford. The Comparative Value of Drugs Used in Continuous Treatment of Angina Pectoris. *Quart. J. Med.* 2: 311 (July) 1933. Master A. M. Treatment of Coronary Thrombosis and Angina Pectoris. *M. Clin. North America* 19: 873 (Nov.) 1935. Riseman and Brown.

4 Riseman J. E. F. and Brown M. G. The Medicinal Treatment of Angina Pectoris. *Arch. Int. Med.* 60: 100 (July) 1937. Riseman J. E. F. and Stern Beatrice. A Standardized Exercise Tolerance Test for Patients with Angina Pectoris on Exertion. *Am. J. M. Sc.* 188: 646 (Nov.) 1934.

the frequency of attacks during the preceding week were determined independently by two observers. When there was evidence that the medication had benefited the patient, tablets of sodium bicarbonate were substituted until the effect of the specific medication disappeared. At a later date the efficacy of the effective medication was again determined without the patient's knowledge.

Because of occasional spontaneous changes in the clinical condition of the patients⁵ it was impossible to administer every drug to each of the seventeen patients. Seven of the eleven preparations were used in from fifteen to seventeen cases, four were used in from eleven to thirteen cases.

In general the amount of work under standardized conditions which a patient with angina pectoris can do is an accurate index of the response to therapy and affords a means of checking the clinical impression. Medication that resulted in an increase in exercise tolerance of 50 per cent or more usually caused a striking diminution or complete absence of attacks in daily life. An increase of 20 per cent or less was accompanied by little or no clinical improvement obvious to the patient. For the purposes of simplicity in presentation, therefore, the results are presented in terms of increase in exercise tolerance.

TABLE 1—The Effect of Increasing the Dosage of Purine

Dose 4 Times Daily Grains	Patients Benefited per Cent	Frequency of Gastric Distress per Cent
Theophylline		
2	33	13
3	54	13
4	33	33
Theophylline with calcium salicylate		
4	46	0
8	67	27
12	43	86*

* In half of these patients the discomfort was so severe that they discontinued the medication.

The optimum dosage of each drug was determined by measuring the increase in exercise tolerance following different dosages and also by ascertaining the frequency of gastric distress.

RESULTS

The Optimum Dosage—In general the frequency and degree of improvement increased as the dosage was increased. All theobromine and theophylline derivatives, however, caused nausea or heartburn when given in sufficiently large amounts, and when this gastric distress became severe any improvement which had been induced by smaller doses disappeared. The optimum dosage for most patients was the maximum amount that could be given without causing severe gastric distress (table 1), in a few instances, however, equally satisfactory improvement could be obtained with somewhat smaller doses.

There is reason to believe that the available preparations are loose chemical mixtures. The soluble preparations probably break down in the stomach to give the free purine and the chemical compound which has been added to make the preparation more soluble. It is not surprising to find, therefore, that both the beneficial effects and the gastric distress increase roughly in proportion to the amount of theobromine or theophylline present in the doses administered. The calcium

salicylate mixtures are less soluble, larger doses of theobromine or theophylline can be given before gastric distress becomes evident.

Theophylline Derivatives—Six theophylline preparations were used. Two were relatively insoluble (theophylline, 3 grains [0.2 Gm.] and theophylline with

TABLE 2—The Comparative Value and Cost of Purine Derivatives

Preparation and Dosage*	Total Patients Benefited per Cent	Patients Showing 50 100% Increase in Exercise Tolerance, per Cent†	Frequency of Gastric Distress, per Cent‡	Cost per 1000 Doses Dollars
Theophylline with sodium acetate 2½ grains	80	27	13	26.25*
Theobromine with sodium acetate 7½ grains	77	24	18	5.00
Theophylline with calcium salicylate 8 grains	67	13	2	32.00§
Theophylline with ethylenediamine 3 grains	59	12	30	21.00§
Theobromine with calcium salicylate 15 grains	56	19	13	32.00§
Theophylline 3 grains	54	7	13	6.50
Theophylline mono-ethanolamine 3 grains	54	9	9	36.00§
Theophylline with methylglucamine 2½ grains	45	0	9	16.60§
Theobromine with sodium salicylate 7½ grains	34	0	7	3.60
Theobromine, 5 grains	31	13	6	3.16

* Each preparation was given four times a day on arising after lunch after supper and before retiring.

† Great improvement.

‡ The cost of these preparations is based on the prices published in the catalogues of the pharmaceutical houses.

§ These represent the cost per thousand doses of the medication in tablet or capsule form as prepared by the pharmaceutical houses. All other costs are based on the price per pound of powder plus the cost of manufacturing tablets.

calcium salicylate, 8 grains [0.5 Gm.]), the remaining four were more soluble (theophylline with sodium acetate 2½ grains [0.15 Gm.], theophylline with ethylenediamine 3 grains, theophylline mono-ethanolamine 3 grains, theophylline with methylglucamine 2½ grains [0.14 Gm.]). The most effective preparation was theophylline with sodium acetate (table 2). Patients who did not respond to this drug usually showed a good response to theophylline with calcium salicylate, which was the second best preparation.

The theophylline content of the effective dosages varied from 1½ to 3½ grains (0.08 to 0.25 Gm.). The effective dosage of theophylline with ethylenediamine and that of theophylline mono-ethanolamine apparently

TABLE 3—The Effect of Combining a Sedative with a Purine

Preparation and Dosage*	Patients Benefited per Cent	Frequency of Untoward Effects per Cent
A Theobromine 5 grains	31	6
Theobromine (5 grains) and phenobarbital (½ grain)	40	20
B Theophylline mono-ethanolamine 1½ grains	54	9
Theophylline mono-ethanolamine (3 grains) and amylal (¾ grain)	60	10

* All preparations were given four times daily.

† Theominal (Winthrop Chemical Co. Inc.).

‡ Theamin (Eli Lilly & Co.).

depended in large measure on the theophylline content. The addition of sodium acetate and methyl glucamine apparently enhanced the effect of theophylline, whereas the addition of calcium salicylate allowed more theophylline to be administered before gastric distress became evident.

Calcium salicylate and ethylenediamine hydrochloride were each administered to ten patients, in no instance was there any evidence of beneficial effect.

Theobromine Preparations—Theobromine with sodium acetate has received insufficient attention in the past. This drug in doses of $7\frac{1}{2}$ grains (0.5 Gm.) four times a day was far superior to all other preparations of theobromine and was as effective as the best of the theophylline compounds. Theobromine with calcium salicylate (15 grains [1 Gm.]) was also of considerable value and about equal to theophylline with ethylenediamine or theophylline. Theobromine 5 grains (0.35 Gm.) and theobromine with sodium salicylate $7\frac{1}{2}$ grains gave almost identical results and were distinctly less effective than other preparations (table 2).

Caffeine Derivatives—Caffeine citrate was the only preparation used. The drug is apparently of little value in angina pectoris, for only one patient showed questionable benefit from its use. No patient had more attacks while taking this drug, although clinical experience has shown that in an occasional individual pain may develop on drinking coffee.

Combinations of Sedatives with Purines—Two preparations were used, theobromine with phenobarbital (theominal) and theophylline mono-ethanolamine with amytal (theamin and amytal). The amount of work that patients could do after taking these preparations was essentially the same as after the use of the purine derivative without the added sedative (table 3). From the practical standpoint the use of sedatives is of distinct value in the treatment of angina pectoris, for it makes the pain easier to bear. It is inadvisable, however, to combine the two drugs in a single tablet or capsule, for the optimum dosage of each ingredient varies for different patients.

COST OF MEDICATION

In most patients the benefits of purine medication disappear soon after the drug is omitted. It is necessary therefore to administer the preparations for long periods and at least three or four times a day. Under such circumstances the cost of medication becomes an important factor. Theobromine with sodium acetate is the least expensive of the effective purine preparations. For hospital use the powder can be purchased from chemical houses in 5 pound lots⁶ and made into tablets resulting in a cost of approximately 16 cents for one week's supply (thirty doses) as compared to a cost of from 60 cents to \$1.14 for other preparations. In our experience the cost of 100 capsules of theobromine with sodium acetate on prescription usually retails for considerably less than other preparations.

SUMMARY AND CONCLUSIONS

1 The comparative value of six theophylline, four theobromine and one caffeine preparation in the treatment of angina pectoris was determined in seventeen patients by using the usual clinical methods and also by measuring the amount of work under standardized conditions which could be done before inducing heart pain.

2 The optimum dosage was usually the maximum amount that could be given without causing severe gastric distress.

3 Not all patients respond to purines. The sodium acetate derivatives of theophylline and theobromine were the most effective preparations. Patients who did not respond to these drugs usually showed a good response to theophylline with calcium salicylate, which was the next best preparation.

Theophylline, theophylline with ethylenediamine, theophylline mono-ethanolamine, theophylline with methyl glucamine and theobromine with calcium salicylate were about equally effective but were less so than the aforementioned preparations.

Theobromine and theobromine with sodium salicylate were distinctly less effective, while caffeine citrate was of little or no value.

4 Sedatives are of value in the treatment of patients with angina pectoris, but their combination with a purine does not result in an increased exercise tolerance.

5 Theobromine with sodium acetate is by far the least expensive of the effective purine preparations.

371 Commonwealth Avenue

TULAREMIA, PULMONIC FORM

REPORT OF FOUR RECOVERIES

MALCOLM D. WINTER, MD

MILES CITY, MONT.

BROWNLOW C. FARRAND, MD

JORDAN, MONT.

AND

HARRY J. HERMAN, MD

JERSEYVILLE, ILL.

It has been only fifteen years since Edward Francis¹ described tularemia, a new disease in man. Since that time it has been widely recognized in all parts of the country. The ulceroglandular form is quite common in eastern Montana where the wood tick *Dermacentor andersoni* and the jack rabbit are prevalent. We see relatively few cases due to the skinning of rabbits, since they are little used for food in this locality. Most of our cases are associated with tick bite or occur in the handling of tick-infested sheep. The incidence of infection varies greatly and seems to coincide with the rise and fall of the jack rabbit population. An epizootic of tularemia among the rabbits seems to kill off most of them and there is relative freedom from human tularemia for a few years until it develops in a new generation of rabbits.

The present report is based on a group of cases, all seen in the spring of 1933 during the lambing season. All were associated with handling sheep and with tick bites. It was thought that the unusually wet spring made the handling of the sheep more hazardous and that they were most likely due to contact with tick excreta in the wet wool. In none of these patients was there any history or sign of primary ulcer or glandular involvement.

REPORT OF CASES

CASE 1—*Tularemia pneumonia with meningitis*. D. C. F., aged 35, a sheep man, of excellent habits, married, the father of two children who are alive and well, had always been well except for a six months stay in a sanatorium in Scotland in 1907 for suspected pulmonary tuberculosis. No positive diagnosis was made. He had acute appendicitis and an appendectomy in 1926. He also was ill for a few days with mild influenza in 1932.

He went to a sheep camp for lambing operations May 1, 1933. During the following week he was exposed to much cold wet weather and loss of sleep. Rain made it necessary to handle most of the sheep. They were all moderately infested with both the sheep tick *Melophagus ovinus* and the wood tick *Dermacentor andersoni*. As is the custom, he skinned dead lambs.

Dr. Herman died April 15.
Assistance was rendered by the technician and staff of Holy Rosary Hospital.
¹ Francis Edward, Tularemia, a New Disease in Man. J. A. M. A. 78: 1015 (April 8) 1922.

⁶ The theobromine with sodium acetate used in this study was purchased from Merck & Co.

and tied the skins on the backs of orphan lambs that their foster mothers would own them. I am told that tularemia in sheep may cause stillbirths, hence these lambs may have been the source of his infection. He was bitten by a tick May 5. This occurred on the forehead and was not followed by any ulcerous or glandular involvement. He became ill May 10 at which time he had a shaking chill, high temperature, general aching and drenching sweats. He was seen by one of us on the third day of his illness and was thought to have influenza. He continued to do badly, however, severe pleuritic pain in the left side of the chest, bloody sputum and signs of beginning consolidation in the left apex developed on the sixth day of his illness. He was admitted to the hospital the next morning with a temperature of 104 F (40 C), pulse 110 and respirations 30.

On physical examination the patient was obviously very ill with anxious facies and grunting respiration. There was no mark or ulcer at the site of the tick bite or elsewhere. The lymph glands were nowhere enlarged or tender. The eyes, ears, nose and throat were normal. The expansion of the chest was limited on the left. The heart was not enlarged, and the heart tones were moderately rapid but of good quality. There were no murmurs. The blood pressure was 110 systolic, 80 diastolic. The lungs showed beginning dulness at the left apex with pleural friction in the left axilla. The breath sounds were

markedly somnolent. The tremor had become so bad that he could not hold anything in his hands and definite rigidity of the neck was noted for the first time. A lumbar puncture revealed a turbid spinal fluid with some increase in pressure. The cell count of this fluid was 670, globulin one plus, differential lymphocytes 96 per cent, polymorphonuclears 4 per cent. A fibrin web formed on standing. No organisms could be found. The spinal fluid sugar was 0.008 gram per hundred cubic centimeters. The Wassermann reaction was negative. The colloidal gold curve was 1122343000. We then did a daily spinal drainage for five days with marked clinical improvement. The cell count falling on successive days as follows: 500, 300, 232, 120, 60, 15. On this basis we made a diagnosis of meningo-encephalitis.

When first seen because of his exposure to ticks, blood was taken for tularemia tests. It was reported negative for tularemia May 18, the eighteenth day of illness, as well as negative for typhoid and undulant fever. A second test taken ten days later was reported by Dr Francis of the National Institute of Public Health as follows: Tularemia was positive by complete agglutination in dilutions of 1:160 and partial in dilutions of 1:320. Cross agglutination with *Brucella abortus* was present but serum was classed as tularemia by the agglutination absorption test and by the more rapid agglutination of *Bacterium tularensis*. A third test June 9 was identical. The urine remained



Fig. 1 (case 1)—Appearance (A) on admission showing involvement of the left upper lobe (B) fifteenth hospital day showing partial resolution of the left upper lobe and involvement of the right middle lobe (C) thirtieth hospital day showing complete resolution.

bronchovesicular at the left apex where there were many crackling rales. The abdomen was distended and tympanic. The spleen could not be felt though there was some tenderness in this region. The reflexes were negative. The neck was not stiff and there was no Kernig sign. Examination of the urine was negative and the white blood cell count was 8,150. X-ray examination of the chest showed a bandlike area of consolidation at the left apex (fig. 1A).

His temperature fell by lysis for the first three hospital days, then rose again as an irregular intermittent type, ranging from 99 to 105 for fifteen days, then falling by lysis reaching normal on the twenty-third day and remaining so until discharge (fig. 2). His pulse at first was relatively slow in relation to his temperature until the eleventh day, varying from 80 to 110 and later going as high as 136. It remained elevated to from 100 to 120 for two weeks following a normal temperature. The blood pressure remained low throughout the disease and the pulse was distinctly dicrotic. Pneumonia extended rather slowly, involving the greater portion of the left upper lobe and a portion of the right middle lobe (fig. 1B). The sputum was intermittently bloody with a slight odor until the twentieth day of the disease. Resolution also was very slow and the lungs, which were checked frequently by X-ray examination, were not reported as practically clear until the thirtieth day (fig. 1C).

On the twentieth day of the disease we noted that he seemed drowsy and had a rather marked coarse tremor of the hands. This became more marked and made it necessary to catheterize and feed him. The blood urea taken at this time was 75 mg per hundred cubic centimeters. Five days later there was more

normal throughout the course of the disease except for an occasional small amount of protein. The white blood cell count varied between 5,600 and 10,750, tending to rise late in the illness. The Schilling count, May 31, was as follows: band forms 18 per cent, segmented forms 47 per cent, lymphocytes 31 per cent, eosinophils 1 per cent, monocytes 3 per cent. The sputum was repeatedly negative for acid-fast bacilli. Inoculation of it into a guinea-pig done when the patient was practically well was negative. From the meningo-encephalitis he made a slow but rather uneventful recovery. He left the hospital on the thirty-ninth day of illness and when next seen September 1, had gained 20 pounds (9 Kg). He still, however, felt weak and noted palpitation of the heart and some dyspnea on exertion. He has continued to gain in strength and in January was only slightly dyspneic. X-ray examination of the chest was negative.

CASE 2—Tularemia pneumoniae ophthalmi stomatidis. J. E. P., a farmer, aged 37, married, of good habits was admitted to the hospital May 27, 1933, ten days after the admission of the first patient. His condition so closely simulated the first case that little difficulty was experienced in diagnosing it.

The patient's past health had always been good. The family history was negative for cancer and tuberculosis. He gave a history of having been bitten by ticks under the left arm and in the left groin twenty-four days previous to his admission to the hospital. A week later he became ill with high fever, cough and marked general aching. He was seen by another physician who thought he had influenza. He continued to feel

bad staying in bed most of the time. During this time headache and tinnitus were very troublesome. His temperature was apparently quite irregular, though no records were kept. He was first seen by us on his admission to the hospital. He had been ill seventeen days and was complaining of pain in the right side of the chest, which was worse when he breathed. He was extremely weak and dizzy. He coughed frequently, raising

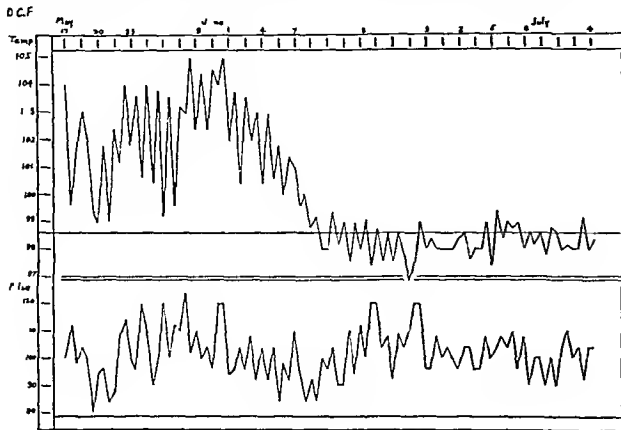


Fig. 2—Temperature and pulse in case 1

a tenacious bloody sputum with slight odor. The temperature was 103.4 F (39.6 C), pulse 110, respiration rate 32. The eyes, ears, nose and throat were normal except for moderate pyorrhea and moderate deafness, which he said was made worse by his illness. The latter was of the conduction type. There was no evidence of tick bite, nor were any of the superficial lymph glands enlarged. The chest was emphysematous in type. The lungs showed dullness on percussion over the left upper and right middle lobes. The breath sounds over these areas were bronchovesicular and there were many moist rales. The

reported positive for tularemia in dilutions of 1:1,280 and negative for undulant fever. The urine remained normal except for an occasional trace of protein. The sputum was repeatedly negative for acid-fast bacilli. June 13 a marked aphthous stomatitis developed, which gave him considerable trouble for about a week. Guinea-pig inoculation of the sputum June 17 was negative. He was discharged, July 10, after a stay of forty-four days in the hospital. A roentgenogram of the chest taken a few days before dismissal still showed considerable involvement (fig. 3C) even though the pulse and temperature had been normal for ten days. After returning home he continued to gain slowly, except for a fever of six days duration that forced him to stay in bed. He was last seen in the office on August 14, when he was feeling fine, though still weak. He had gained 20 pounds (9 Kg). An x-ray film taken on this date showed almost complete clearing except for a rather marked fibrosis over the areas that had been involved.

CASE 3—Tularemia pneumonia. D. O., a white man, aged 50, single, a sheep herder, admitted to the hospital May 5, 1933, complained of pain in the chest, headache, loss of appetite and strength and moderate cough. He stated that he had been well until a week before admission, at which time headache, malaise and general aching developed and he thought he had the 'flu'. He had no chill but felt feverish. After two days he was forced to go to bed. He was alone in the sheep camp and had to care for himself. He had been bitten by ticks several times in the preceding weeks but none of the bites festered or gave any trouble, and he had not noticed any swollen glands.

The patient was well developed and weighed 175 pounds (79 Kg). His face was flushed and he seemed dull and apathetic. There was occasional coughing, with scanty tenacious sputum. The temperature was 101 F (38.3 C), pulse 90, respiration rate 18. The tongue was clean and moist. The tonsils were not enlarged. The neck was flexible. The thyroid was not palpable. There were no enlarged glands. The heart was not enlarged. There were no murmurs. The blood pressure was 110 systolic, 80 diastolic. The lungs were resonant throughout on percussion. At the right base the breath sounds were

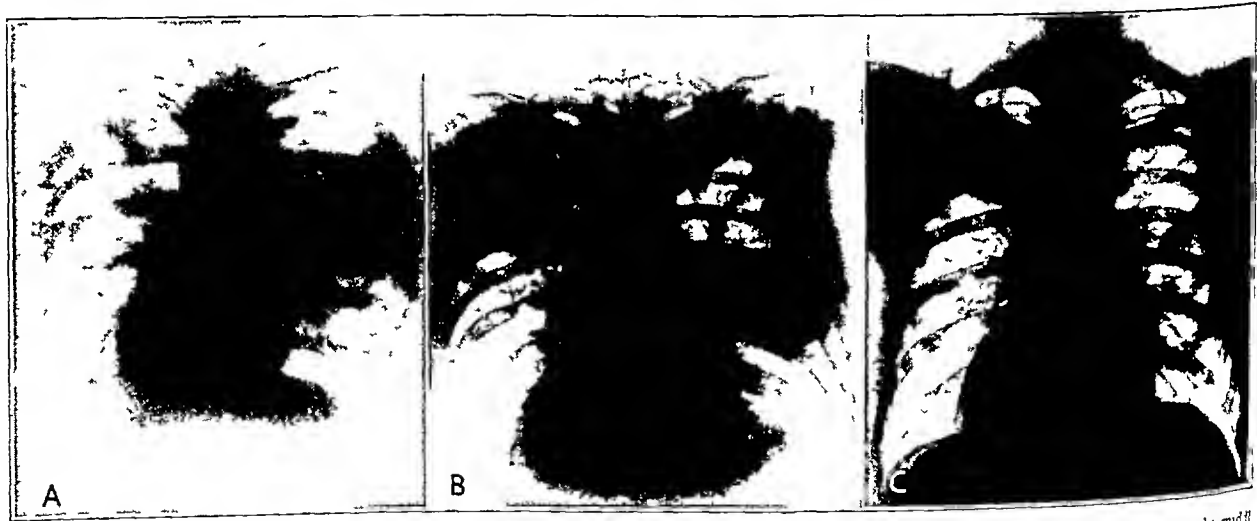


Fig. 3 (case 2)—Appearance (A) on admission the seventeenth day of illness showing extensive involvement of the left upper and right middle lobe (B) thirtieth day of illness (C) on discharge the sixty-second day of illness

heart was not enlarged; its tones were of good quality and there were no murmurs. The blood pressure was 110 systolic, 80 diastolic. The abdomen was soft. The spleen was not palpable or tender. The reflexes and sensations were reported as normal.

X-ray films of the chest showed a picture very similar to that of the previous patient. Figure 3 shows quite well the evolution of the pneumonia. As will be noted by the dates of the pictures, his condition changed very slowly. While never so desperately ill as patient 1, he was ill longer. Figure 4 shows the temperature and pulse curves.

The white blood cell count taken May 27 was 9,000 and again on June 18 it was 8,950. The Schilling count was small lymphocytes 22 per cent, segmented forms 31 per cent, band forms 38 per cent, eosinophils 3 per cent, juveniles 6 per cent. Blood taken on the day of his admission to the hospital was

increased but not definitely tubular. Over this area there were many moist rales. The abdomen was distended and tympanic and there was slight generalized tenderness throughout. The reflexes were physiologic and there was no stiff neck or Kernig sign. Careful inspection of the skin showed no ulceration or marks from tick bite, and the lymph glands were nowhere enlarged. The white blood cell count was 10,800. The urine was normal.

The patient remained in the hospital from May 5 to June 1. During the first two weeks of his stay he had an irregular temperature varying from 101 F (38.3 C) to 104 F (40 C), the pulse ranging between 90 and 110 and the respiration rate from 18 to 38. The area at the right base developed slowly until definite consolidation with pleural friction was present. No x-ray films were taken. After two weeks he slowly improved.

Because of the atypical course of the pneumonia and the history of possible exposure to tularemia, blood was sent to the Montana State Board of Health and was reported positive for tularemia in dilutions of 1 320

After discharge from the hospital, he gradually gained strength but when last seen, two months later still felt a bit weak and a little breathless on exertion

CASE 4—*Tularemic bronchitis with small pleural effusion*
L H, a man aged 31, single, a rancher regarded himself as perfectly well until the onset of his present illness His family history was negative for tuberculosis His personal habits were good He gave a history of pneumonia in childhood and again in 1927

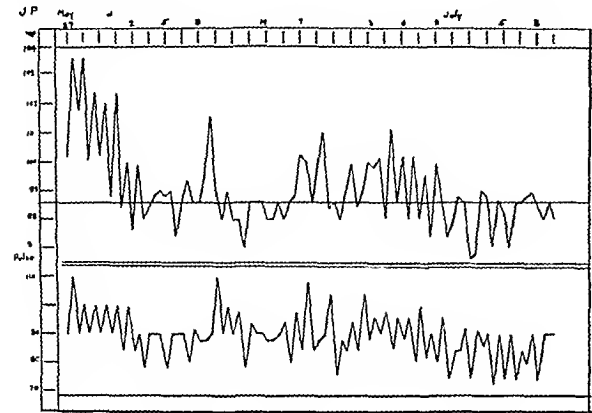


Fig 4—Temperature and pulse in case 2

He had been caring for sheep during the lambing season and stated that he had been bitten by ticks almost daily removing from four to five from his body each day since March 28 Some of these bites festered a little but there was no definite ulcer anywhere nor had he noted any enlarged or tender glands He began to feel weak and lame May 10 but continued to work until the 18th, when he felt feverish and had a bad headache During this time he had had a severe cough with streaks of

Scattered through both bases were many dry and whistling rales, especially on coughing These seemed more numerous on the right A friction rub could not be detected The heart was not enlarged and there were no murmurs The blood pressure was 112 systolic 84 diastolic The abdomen was scaphoid There was no tenderness and the spleen could not be felt There was evidence of an old compression fracture of the first lumbar vertebra The reflexes were normal X-ray films of the chest showed increased bronchial markings on the right with a small amount of pleural effusion (fig 5) The white blood cell count was 6,500 and the urine was normal Blood taken May 29 was positive for tularemia in dilutions of 1 160 and negative



Fig 5 (case 4)—Tularemic bronchitis with pleural effusion

for undulant fever A second sample taken June 9 was reported by Dr Francis of the National Institute of Health as follows positive agglutination for *B tularensis* in a dilution of 1 320, positive for *Brucella abortus* in a dilution of 1 320 The serum was classed as tularemia because of faster agglutination and because of the agglutinin absorption test

He remained in the hospital only four days During his hospital stay, the temperature fell to about 100 F and was normal when he was discharged

In a month the patient was well

COMMENT

A search of the literature reveals only twenty patients who have recovered from tularemic pneu-

Tularemic Pneumonia

	Fatal	Recovered	Source	Ulceroglandular Onset
Verbruycke J R Jr J A M A 84 1577 (May 17) 1924	1	0	Rabbit	Yes
Simpson W M Arch Path 6 533 (Oct) 1928	1	0	Rabbit	Yes
Barbon Richard and Berdez George J A M A 90 1369 (April 25) 1928	1	0	Rabbit	Yes
Bunker C W O and Smith F E U S Naval M Bull 3 901 (Oct) 1928	1	0	Rabbit	Yes
Francis Edward J A M A 91 1135 (Oct 20) 1928	3	0	Fly bite rabbit rabbit	Yes yes yes
Fernar H H and MacIsachlan W W G Ann Int Med 3 687 (Dec) 1931	1	0	Rabbit	No
Saate L R Am J Roentgenol 25 24 (Feb) 1931	0	1	?	No
Massee J C J M A Georgia 20 66 (Feb) 1931	1	0	Rabbit	Yes
Turen L J A M A 99 1501 (Oct 29) 1932	0	1	Rabbit	Yes
Kouger Margaret Glazer A M and Foshay Lee J A M A 98 941 (March 19) 1932	1	0	Rabbit	Yes
Gudger J R J A M A 101 1148 (Oct 7) 1933	1	0	Rabbit	No
Gudger L P and Warren C G Aon Int Med 7 837 (Jan) 1934	1	0	Rabbit	Yes
Bernstein Alan Arch Int Med 56 1117 (Dec) 1933	3	0	1 ? 2 and 3 rabbit	Skin and gland in 2
Pflan L B Delaware State M J 7 219 (Nov) 1933	0	1	Not given Foshay serum used	Yes
Kavanaugh C N Arch Int Med 77 71 (Jan) 1933	4	12	Rabbits	Yes 9 no 7
Blackford S D J A M A 104 591 (March 10) 1933	3	4	Rabbit 3 ? 2 squirrel 1 oppossum 1	Yes 2 no 5
Sloan L H Freedberg A S and Ehrlich J C J A M A 107 117 (July 11) 1936	0	1	Rabbit	No
	22	20		

Nervous System Involvement					
		Source	Involvement		
Hartman F W Am J Path 5 57 (Jan) 1932	1	0	Rabbit	Encephalitis	Yes
Bryant A R and Hirsch E F Arch Path 12 917 (Dec) 1931	1	0	Rabbit	Leptomeningitis	Yes
Halpiz J O and O Neil A E J A M A 97 704 (Sept 5) 1931	1	0	Rabbit	Meningitis	Yes
Francis Edward Tularemia in Cecil R L Textbook of Medicine Philadelphia W B Saunders Company	3	—	?	Severe meningeal symptoms	?
	8	0			

blood in the sputum, which was scanty There was slight pain in the right axilla on breathing

On examination the patient was moderately ill, with frequent cough and marked weakness The temperature was 101.2 F, pulse 96 respiration rate 20 The tonsils had been cleanly removed The eyes, nose and throat were otherwise normal The chest expansion was limited on the right The lungs were resonant throughout except at the right base where there was a narrow band of flatness The breath sounds were vesicular

monia We add the records of three more, one of which was complicated by involvement of the central nervous system This complication has resulted in a fatal outcome in all the previous reports that we have seen

The treatment received by these patients was largely symptomatic with the addition of intravenous injections twice a day of sodium salicylate 12 Gm, dissolved in

30 cc of distilled water. Whether this therapy had anything to do with our mortality we are not prepared to say, but it was our impression that this measure seemed to make our patients less toxic.

In case 1, daily spinal drainage was carried out after meningeal symptoms developed until the spinal fluid was clear. This measure we feel sure was definitely beneficial. After each tap the patient became mentally much more alert.

Dyspnea on exertion and general weakness predominated for some months after recovery and would lead one to believe that a toxic myocarditis was the usual sequela.

Our experience as to the frequency of clinical pulmonary involvement in ulceroglandular tularemia does not coincide with that of Blackford,² as pulmonary complications were not present in any of our cases of the ulceroglandular type, nor was either ulcer or glandular involvement present in any of our pulmonic cases.

We do feel that the portal of entry in these cases was most likely through the skin, although it is possible that the patients may have eaten food contaminated by the fingers, the damp wet weather making inhalation of infected material very unlikely.

Any atypical pneumonia with a relatively low white blood cell count and slow evolution of lung changes should cause one to suspect tularemia. It must also be considered in pleurisy with effusion.

SUMMARY

Three patients recovered from tularemic pneumonia, one case was complicated by encephalomeningitis. One patient with tularemic bronchitis with small pleural effusion also recovered.

CORONARY THROMBOSIS VS DISSECTING ANEURYSM IN DIFFERENTIAL DIAGNOSIS

L. MINOR BLACKFORD, M.D.

AND

CARTER SMITH, M.D.

ATLANTA, GA.

The clinical study of coronary thrombosis is one of the achievements of American medicine. First described by Herrick¹ in 1912, this condition has received so much attention in the past ten years that the diagnosis is probably rarely missed nowadays.

On the other hand, although dissecting aneurysm of the aorta was described more than 200 years ago, it is not a condition with which the average clinician is sufficiently familiar. Peery² has recently reported four cases, with a good discussion of the pathology. Interest in this subject has been active in Atlanta in recent years. Agnor³ has made a careful review of the literature and McGeachy and Paullin⁴ have published a clinical paper. According to these authors, about 500 cases have been reported but only nine were diagnosed during life. McGeachy and Paullin added three cases in which they recognized the condition at Grady Hospital.

² Blackford, S. D. Pulmonary Manifestations in the Human Aortic Study. J. A. M. A. 104: 891 (March 16) 1935.
From the Emory University School of Medicine.
¹ Herrick, J. B. Clinical Features of Sudden Obstruction of the Coronary Arteries. J. A. M. A. 59: 2015 (Dec. 7) 1912.
² Peery, T. M. Dissecting Aneurysms of the Aorta. Am. Heart J. 12: 650 (Dec.) 1936.
³ Agnor, E. B. Dissecting Aneurysm. J. M. A. Georgia 26: 108 (March) 1937.
⁴ McGeachy, T. E. and Paullin, J. E. Dissecting Aneurysm of the Aorta. J. A. M. A. 108: 1690 (May 15) 1937.

REPORT OF CASE

A fat lawyer, aged 61, who had lived hard and worked hard, eaten hard and drunk hard, was sitting before an open fire after breakfast reading his Sunday paper. He was seized with a sudden severe pain, which caused him to cry out that something had "broken loose inside." The pain, it seems, began in the lower right quadrant of the abdomen, jumped to the lower

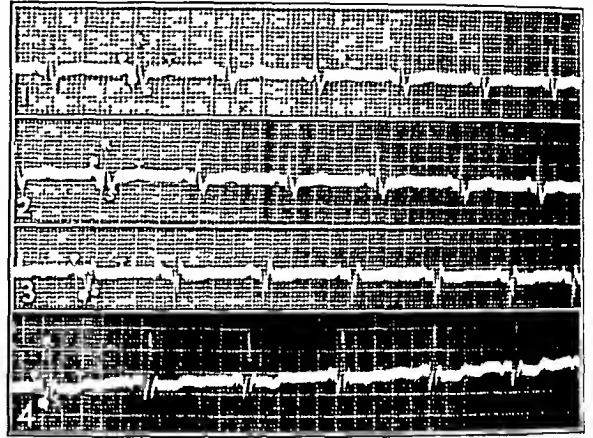


Fig. 1.—Tracing taken about two hours after the onset of pain. Although there are definite signs of myocardial damage there is nothing to suggest coronary thrombosis.

dorsal vertebrae and then settled over the xiphoid process. From this point it radiated up over the sternum to the base of the neck on each side. There was loss of sight in the right eye but this was transitory. One of us arrived within an hour of the first pain.

The patient was yelling with pain and presented a picture of moderate shock. The area of cardiac dullness was not enlarged and no retromammary dullness was made out. There was a harsh to and fro murmur over the base. The right hand was blue, and blood pressure could not be obtained in that arm. In the left arm the systolic pressure was 108 and the diastolic pressure 90. The pulse was 66. An opiate was administered at once. Although the first thought was of coronary thrombosis, the absence of a pulse in the right arm suggested an embolus to the right subclavian artery. The absence of pain in the right clavicular region and arm, however, made this seem improbable. The next thought was of aneurysm or of dissecting aneurysm. The patient was carried to his bed but he was in such agony that he refused to have his clothes removed.

In the early morning hours his wife had been awakened by a nightmare, and this had disturbed his rest. He had taken a large dose of salts, which resulted in a number of watery stools. He had not been to sleep since. It was learned that he had had a systolic blood pressure of over 200 and a diastolic of about 140 for several years. About fifteen months earlier he had been sick in another city with "acute indigestion," though his attending physician thought this was "heart trouble." He had been able to keep him in bed only two weeks. In recent months he had had several profuse hemorrhages from the nose.

Although he had been under the care of a physician at times for some years, he had never had any treatment for syphilis. His wife had never had a miscarriage and had borne him two healthy sons. This information and the absence of local signs rendered syphilitic aneurysm improbable.

After being placed in bed he complained of nausea and general abdominal distress in addition to the serious pain under the lower part of the sternum. He demanded ice water constantly and vomited at frequent intervals. Attempts at giving medicine by mouth were futile, and soluble phenobarbital, 5 grains (0.3 Gm.), was given by hypodermic. About two hours after the accident the blood pressure in the right arm was 84/64 and in the left arm 134/60. The pulse was still 66. By this time the diagnosis had been narrowed down to coronary thrombosis or dissecting aneurysm. He did not present a good picture of coronary thrombosis and yet the rarity of dissecting aneurysm caused us to favor the diagnosis of cardiac infarction.

An electrocardiogram was taken about two hours after the onset of pain. This showed marked slurring of the S wave.

in leads 1 and 2, with a low T wave in all three leads. There was a deep Q wave in lead 3, with a marked splitting of the QRS. The QRS in lead 4 was also slurred and the T wave was biphasic. This was interpreted as evidence of an incomplete bundle branch block with considerable myocardial damage, probably the result of the preceding hypertension. There was nothing in the tracings to indicate coronary thrombosis. Although in some cases it is several hours after the infarction before definite signs of coronary thrombosis appear in the electrocardiogram, when the onset is as sudden and severe as in this case signs of myocardial anoxemia at least should be present two hours later. Of course too coronary thrombosis could not interfere with circulation to the right arm. We therefore concluded that the diagnosis was dissecting aneurysm.

Ammophylline, 1 Gm., given twice intravenously was without effect. N-methyl-cyclohexyl-methyl-malonyleurea, also given intravenously, in small amounts put him to sleep with stertorous respiration, but only for a few minutes at a time. At 2:20 p. m., oxygen by nasal catheter was started. The restlessness and constant retching demanded extreme measures. At 4:45 Dr. Edgar D. Shanks, who had been called in consultation, advised dilaudid hydrochloride one-eighth grain

abdominal distress but it was difficult to limit the ice water. The second day the patient had been more comfortable than the first and we thought that perhaps he would recover. He had received great relief from the first enema and, the abdomen being tense and tympanic, we advised another. Just as this was started he gasped, and the face and neck turned purple. When examined a few moments later the heart sounds



Fig 2—The final rupture into the pericardium is emphasized by the finger. The irregular rupture into the media on the under surface of the arch is visible as well as the dissection of the innominate and right common carotid.

(0.008 Gm.), with atropine $\frac{1}{15}$ grain (0.0009 Gm.) by hypodermic injection. At this time blood pressure in the left arm was 130/88. At 7:20 respiration being only 10, 25 per cent solution of pyridine betacarboxylic acid diethylamide was given by hypodermic injection. This was repeated three hours later, when the respiration rate dropped to 8. He was awake again within an hour complaining of severe pain in the epigastrium.

At 1 a. m. dilaudid hydrochloride $\frac{1}{12}$ grain (0.002 Gm.), was repeated. In spite of this he woke up several times complaining of pain. The abdomen became greatly distended with gas. At 8:50 the blood pressure in the right arm was 120/80 and in the left arm 170/100. At this time the temperature was 100.4 and the pulse which had been slow before midnight, was up to 100. He was very nervous and restless, coughing frequently during the morning and vomiting occasionally. At 2:30 p. m. the blood pressure in the right arm was 144/104 and in the left arm 180/126. In contrast to the excruciating pain of the first day, he was relatively comfortable and it seemed that if the nausea, vomiting and 'gas' could be controlled he would be much better. A small enema resulted in the expulsion of a large amount of flatus. After this he began to perspire freely and to complain of epigastric pain. The pulse varied from 100 to 112.

At 4:45 p. m. the blood pressure in the right arm was 136/108 and in the left 176/96. It seemed that the large amounts of ice water he had been drinking might have contributed to the



Fig 3—The ascending aorta has been opened to show the inner aspect of the initial rupture.

were maudible. The oxygen tube was still in the nasopharynx and bubbles of gas escaped from his lips, a 25 per cent solution of pyridine betacarboxylic acid diethylamide was injected several times, twice into the heart but without effect.

Although improvement the second day had caused us to waver a little in the diagnosis of dissecting aneurysm the nature of the death convinced us that this diagnosis had been correct and that a second rupture had occurred.

AUTOPSY

The postmortem was performed two and a half hours after death. The contents of the abdomen were without interest.

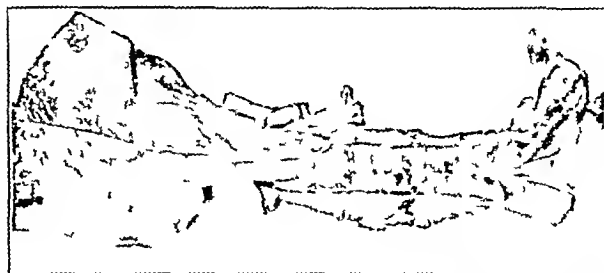


Fig 4—Posterior view of the abdominal aorta showing the clean dissection of the media of almost the entire vessel below the level of the superior mesenteric trunk. It then extends partly down the left common iliac and all the way down the right common iliac.

except that the intestine was greatly distended with gas. When the pericardium was nicked bloody fluid gushed up several inches. A blood clot formed a cast of the heart. The heart though covered with fat was not enlarged and the coronary arteries looked normal. On the under surface of the arch of the aorta there was a transverse rupture into the media about 2 cm. in length. The dissection of the media had progressed so

that the thoracic aorta was practically a tube within a tube, and the final rupture was through a slit 8 mm long into the pericardium. The dissection extended up the right common carotid artery as far as we could follow it. The superior mesenteric trunk was also dissected down to where it was cut off and the dissection of the descending aorta went down the back of the aorta to its bifurcation, extending down 3 cm on the posterior surface of the right common iliac and below where the left common iliac was cut. Microscopic examination by Dr Warren B Matthews confirmed the diagnosis of medial necrosis.

COMMENT

The long history of hypertension, the agonizing, tearing pain as though something had been "torn loose inside," the temporary loss of vision, the nausea, the vomiting, the shock, the murmurs at the aortic region and the absence of pulsation in one extremity, the period of relative comfort with the dramatic death on slight effort, and the rupture into the pericardium in this case were all typical of dissecting aneurysm of the aorta, as McGeachy and Paullin have recently pointed out.

The diagnosis of dissecting aneurysm of the aorta should be made without difficulty, in most cases at any rate, if it is taken into consideration in differential diagnosis. It is important to make this diagnosis, for example, at the January meeting of the Southern Section of the Otological, Rhinological and Laryngological Society two cases were reported in which bronchoscopic examination had been done to determine the cause of dyspnea in cases of dissecting aneurysm with resultant rupture into the trachea. Although it would appear that the condition is rapidly fatal in perhaps 99 per cent of cases that come to autopsy, unquestionably it is not necessarily fatal; it may well be that recovery occurs much more often than this but because there is no autopsy in the case when death occurs years later, the diagnosis is lost. The most widely known case of recovery after dissecting aneurysm is that so beautifully pictured in successive editions of MacCallum's Text-Book of Pathology,* in this case a second rupture at a lower level from the pathologic lumen back into the aorta allowed the blood to be carried in two channels, and the second one was lined with endothelium at the time of death from an independent cause some years after the original accident. In spite of the rarity of the condition, therefore, it is exceedingly important to make the diagnosis to prevent too much being done and to keep the patient as comfortable and quiet as possible in the hope that he will recover with a double-barreled aorta.

SUMMARY

Dissecting aneurysm of the aorta occurred in a high-strung, hypertensive, fat man, aged 61, the diagnosis was definitely made before autopsy. Death occurred from rupture of the dissecting aneurysm into the pericardium thirty-six hours after the original break through the intima.

The diagnosis of dissecting aneurysm can be made and should be made in order to improve the patient's very slim chance of recovery.⁶

104 Ponce de Leon Avenue, N E—384 Peachtree Street, N E

5 MacCallum W G A Text Book of Pathology Philadelphia W B Saunders Company

6 Since this paper was submitted several more correct clinical diagnoses have been reported. We wish to append additional references.

Glendy R E Castleman Benjamin and White P D Dissecting Aneurysm of the Aorta A Clinical and Anatomical Analysis of Nineteen Cases (Thirteen Acute) with Notes on the Differential Diagnosis Am Heart J 13: 129 (Feb.) 1937
Roessler Hugo Gifford U G and Betts W Dissecting Aneurysm of the Aorta Correctly Diagnosed with Description of a Sign Heretofore Not Mentioned Am Heart J 13: 426 (April) 1937

Clinical Notes, Suggestions and New Instruments

ROENTGEN STUDY OF A NONFATAL CASE OF BILATERAL TULAREMIC PNEUMONIA TREATED WITH SPECIFIC SERUM

STAIGE D BLACKFORD M D AND VINCENT W ARCHER M D
UNIVERSITY VA

The clinical and roentgenologic aspects of the pulmonary manifestations of tularemia have been discussed by us in previous communications.¹ In our series of thirty five unselected cases of tularemia, four of the seven patients with proved consolidation survived the illness. Tularemic pneumonia seemed more frequent and less fatal than previously recorded. However, the process has been unilateral in the nonfatal cases reported. In the present instance the patient recovered from bilateral tularemic pneumonia after administration of anti-tularemic serum. The pulmonary changes in this case have been studied over a period of two years by twenty nine roentgenograms.



Fig 1—Appearance Nov. 2, 1934, fifteenth day after onset of tularemia.

REPORT OF CASE

A Negro, aged 43, a gardener, was admitted to the hospital Nov. 1, 1934, in the afternoon in a semicomatose condition.

He had been well until about two weeks previously, when a severe continuous headache, a cough and a high fever had suddenly developed. About four days before admission he had become drowsy and irrational. The patient on examination was unusually well developed and somewhat obese. No abrasion of the skin or adenopathy was found. The only abnormality noted

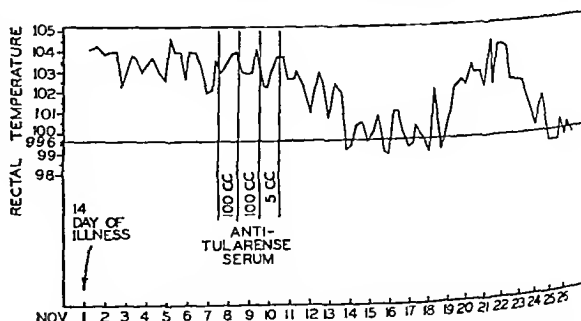


Fig 2—Temperature curve with relation to anti-tularemic serum.

was the presence of numerous fine rales in the left apex anteriorly without other physical signs. The rectal temperature was 103.4 F and the pulse was 110 per minute. The urine contained a trace of albumin and from 3 to 5 red and from 3 to 5 white blood cells per high power field. The blood urea was normal. There was no anemia and the leukocyte count was

From the Departments of Internal Medicine and Roentgenology University of Virginia Hospital.

1 (a) Blackford S D Pulmonary Manifestations in Human Tularemia A Clinical Study Based on Thirty Five Unselected Cases J A M A 104: 891 (March 16) 1935. (b) Archer V W Blackford S D and Wissler J E Pulmonary Manifestations in Human Tularemia A Roentgenologic Study Based on Thirty Four Unselected Cases ibid page 895.

6,500 per cubic millimeter. Spinal fluid examination was negative. The diagnoses considered were (1) pneumonia of the left upper lobe, (2) tuberculosis of the left upper lobe and (3) typhoid.

The following morning stereoscopic films of the chest (fig 1) revealed a diffuse haziness over almost the entire left side of the chest. The density was much greater in the central portion than at either the apex or the base of the lung. On the right side of the chest there was much peribronchial thickening with



Fig 3—Appearance November 6



Fig 4—Appearance December 18

increased density at the hilus. The costophrenic angle was slightly hazy on both sides and there was some elevation of the left diaphragm. In a lateral view the density on the left side was seen to be centrally located extending anteriorly almost to the sternum. A diagnosis of a pneumonic process in the left lung was made and the roentgenologic report contained the suggestion that tularemia be considered as a possible cause of the consolidation.

On admission blood had been taken as a routine for culture for a Widal test and for agglutinations against *Brucella abortus*, *Bacillus proteus*, *Salmonella* and *Bacterium tularense*. Except for a three plus agglutination against *Bacterium tularense* in dilutions up to 1:20, these tests were negative when subsequently reported. After the roentgen study and agglutinations, it was ascertained that the patient had skinned a rabbit a few days prior to the onset of his illness. The antitularense agglutination reached a maximum titer of 1:640 two weeks later, but no ulcer or abnormal glands were ever found.

The only physical signs of consolidation were found in a small area of the left posterior portion of the chest for a few days shortly after admission. The temperature record during the febrile phase in the hospital is presented with relation to the specific therapy in figure 2. As soon as the fever disappeared the patient made a good convalescence clinically, gaining strength and weight. He was not allowed up, however, until three weeks later, and he was not discharged until he had been afebrile for four weeks because of the persistence of roentgenologic signs in the left lung. His subsequent progress was followed by outpatient visits Jan 2, Feb 16 and March 18, 1935, during which interval he gained much more strength and 26 pounds (12 Kg). He resumed light work March 26 and returned by request Dec 29, 1936 for roentgen study. He reported that for more than a year he had been feeling as well as ever.

To follow the course of the pulmonary changes roentgenograms of the chest were made almost daily during the febrile stage of the disease twice a week during the rest of the period

of hospitalization and on each subsequent outpatient visit. The original film Nov 2, 1934 (fig 1), has been discussed. A definitive pneumonic process in the right side of the chest was discernible November 6 (fig 3). Then the right side of the chest cleared gradually and the density on the left decreased, but even on December 18 (fig 4) there was still much haziness on the left side simulating a tuberculous pneumonia. In the films taken March 18, 1935 (fig 5), the left side of the chest was very much clearer. When the patient returned two years after discharge Dec 29, 1936 (fig 6), the stereoscopic films were thought to be within normal limits except for some questionable peribronchial thickening.

COMMENT

The contact history, the clinical course and the agglutinations substantiate the diagnosis of tularemia in this case. The absence of ulcers and abnormal glands is but further evidence in favor of Gudger's contention² that pulmonary lesions are apt to be prominent in the typhoidal type of the disease.

The most striking fact in this case is that the patient survived bilateral tularemic pneumonia following the administration of antitularense serum (Foshay). Recovery might have taken place in any event, but the gradual and prolonged decline in the temperature curve after the use of the serum certainly suggests that it was of value. Since the fever in tularemia is ordinarily sustained, its recurrence before final disappearance would seem

to indicate that its first decline was not spontaneous but rather due to serum therapy. The pulmonary changes could not have been followed accurately by the physical signs but were demonstrated satisfactorily by the serial films. The entire course of the pneumonic process on the right and the very slow resolution of the pneumonia already developed on the left were observed. There was a gradual but final complete absorption without marked residual change. At certain stages the appearance of the left lung was indistinguishable from that of a tuberculous consolidation.



Fig 5—Appearance March 18, 1935



Fig 6—Appearance Dec 29, 1936

SUMMARY

A patient with bilateral tularemic pneumonia treated with antitularense serum made a complete clinical recovery. The major radiologic changes in the chest were followed over a period of two years by serial roentgenograms. The extensive roentgenologic signs disappeared much more slowly than did the clinical symptoms.

University of Virginia Hospital

AN UNUSUAL CASE OF A NEEDLE FOUND IN
THE HEART AT NECROPSYCHARLES REA M.D. AND PHILIP A. HOOVER M.D.
YORK, PA.

Although descriptions of foreign bodies in the heart are not common, neither are they unique. The literature contains reports of articles such as toothpicks, pins, needles, fish bones, bullets, shell fragments and in one case of a pipe stem¹ being lodged in the cardiac structure.

Bullets, especially in the post-war literature, are the foreign bodies most often reported. Keith² records eight cases in which fibrin-covered bullets were found free in the left ventricle.

Needles rank second in prevalence. We reviewed at least a dozen cases in the English literature, and Cope³ described a case in which the needle was successfully removed.

A recent death caused by a needle in the heart presents several interesting features. There was no definite history of the

On physical examination the patient was markedly dyspneic and apparently acutely ill. We have recorded only the positive physical changes. The blood pressure was 144 systolic, 80 diastolic. The temperature was 100.6 F, pulse rate 130 and respiration rate 40. The left anterolateral portion of the neck and upper part of the chest revealed crepitation on palpation.

The left lower lobe was dull to percussion and almost silent on auscultation. Bubbling rales could be heard at the upper margin of the area of dullness. Over the left upper lobe breath sounds were exaggerated and the percussion note was hyperresonant. No cardiac abnormalities were noted, although the heart sounds were poor.

Blood studies revealed red blood cells 4,210,000, hemoglobin 75 per cent, white blood cells 19,450. The Kahn reaction was negative. The urine showed a heavy trace of albumin.

By the fourth day after admission the interstitial emphysema was disappearing. A thoracentesis on the sixth day yielded no fluid. Bronchoscopy did not reveal a malignant condition of the lung. On the seventh day the heart action became very irregular. Digitalis was given and the rhythm improved.

On the eleventh day the chest was roentgenographed. The roentgenologist reported interstitial emphysema throughout the tissues of the neck and chest wall, left pleural effusion and displacement of the cardiac shadow to the left suggesting atelectasis of the left lung. He observed that increased radiopacity at the periphery of the lung field suggested slight pneumothorax.

The following day the patient was obviously sinking. The temperature rose and the heart rate and respiration rate increased. Death occurred on the evening of the fifteenth day.

Autopsy showed that the left pleural cavity contained 3½ cc. of blood. No puncture wound was found on the pleural surface nor in the fibromuscular tissues of the thoracic wall.

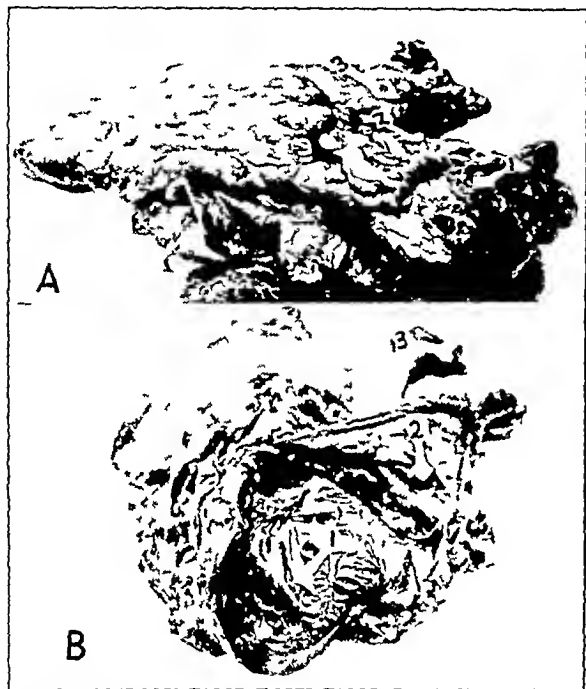
The left lung presented an aerated upper lobe except for a small V-shaped area, about 8 mm wide, at the lower margin of the upper lobe, which overrode the pericardium. This V-shaped area consisted of pleura presenting a perforation from 2 to 3 mm long, occurring at the margin of angulation with collapse and retraction of the underlying alveolar structure. A mechanism for production of the interstitial emphysema noted clinically here was seen. The parietal pleura covering the pericardium at a point opposite this defect presented an area of hemorrhage of approximately 6 mm, to which area thin fibrous strands were attached. The left lower lobe was extensively collapsed.

The parietal pericardium, opposite the area of hemorrhage on the parietal pleura, was covered with coagulated blood. In the midst of the mass adherent to the visceral pericardium which similarly was covered with coagulated blood, the end of a hard sharp object, such as that of a needle, could be palpated. This occurred at a point 5 cm from the apex of the heart and was in general alignment with the perforation of the visceral pleural and pericardial lesions. Close inspection revealed the end of the hard object to be the broken eye end of a thin needle, now black. On dissection, the point of the needle with approximately 1 cm of its length was found projecting into the cavity of the left ventricle after transversing the interventricular septum. The needle was 1 mm thick and 34 mm long.

COMMENT

On the basis of the autopsy and a subsequent history obtained from the patient's widow, it is possible to reconstruct a mod operandi which fits the clinical picture fairly well.

The widow states that the patient stepped on a sharp object in the dark with his left foot in 1932. No foreign object could be discerned in the morning although there was some pain and tenderness of the plantar surface for some days. It would appear probable that this was the point of entrance of the needle which gradually worked its way upward penetrating the pleura and lodging in the heart, the pleural tear caused the interstitial emphysema, while the point in the clinical history at which the heart became irregular probably marked the beginning entrance of the needle into the cardiac structure. The fact that the needle only recently penetrated the pleural pericardial surface was confirmed by the necropsy. It must be considered, however, that the needle may have been driven into the chest recently during one of the falls incident to the patient's vertigo.



Needle in position in the heart exactly as found at autopsy. A1 shows the needle extending through the outer wall of the left ventricle and outlined against the tip of the white arrow. B1 demonstrates the other end of the needle in the inner wall of the left ventricle. A2 represents the blood clot on the parietal pericardium and marks the point at which the needle transversed that tissue. B2 demonstrates the same point on the visceral pericardium. A3 and B3 both represent the small pleural tear that provided a mechanism for the subcutaneous emphysema noted clinically. These points together mark the course of the needle as it entered the heart.

entrance of a needle into the body, an interstitial emphysema involving the neck and chest was the presenting symptom. Pneumothorax and lung collapse followed. The needle was discovered at autopsy. We have not found an identical case in the literature.

A white man aged 70, admitted to the York Hospital, Oct. 28, 1936, had suffered from severe cough and vertigo for four years. For three weeks past there was severe pain in the left side of the chest when he coughed. Dyspnea developed October 26, coughing ceased but the pain in the chest became worse. A physician, called October 28, noted interstitial emphysema involving the left anterolateral surface of the neck and the upper part of the chest anteriorly.

From the York Hospital

1 Hunter W. C., Staub R. R. and Lunsford W. B. Penetration of Heart by an Aluminum Pipe Stem. Arch. Path. 6: 807 (Nov.) 1928.

2 Keith Arthur. Loose Bullets and Foreign Bodies in the Heart. Brit. M. J. 1: 278, 1917.

3 Cope Zachary. Extraction of a Sewing Needle from the Heart. Lancet 1: 813 (April 10) 1920.

NASAL TUBE GASTRIC SUCTION RESULTING IN
ALKALOSIS AND DEATH

FREDERIC W. TAYLOR, M.D., INDIANAPOLIS

The universal acceptance and use of the constant suction gastric or duodenal tube clearly indicate the desirability and simplicity of this procedure in cases of intestinal obstruction. This life-saving measure has been a greater boon to surgery than any other recent development.

Because of the obvious benefits and the rational use of this apparatus, the dangers and complications of this therapy are apt to be overlooked. In the great majority of cases there is no occasion for fearing any complication. This has given a false sense of security to the routine and indiscriminate use of constant gastric suction. At least this seems to be the case in most surgical services.

In the occasional case this procedure presents a distinct hazard which will not allow its unguarded use. Examples of this danger are illustrated in the following two cases. In retrospect the errors in handling these cases are glaring. Nevertheless, they resulted from routine procedures used in surgical wards countless times with no untoward results.

Errors in the use of gastric suction have not been adequately emphasized in recent literature. Particularly is this true when one is dealing with a patient who has been receiving alkali for peptic ulcer. Because of this the following brief account seems justified.

CASE 1—A man, aged 47, was referred to the Indianapolis City Hospital by Dr. T. P. Rogers Jan. 1, 1937, with a board-like abdomen, epigastric pain and vomiting. A history of peptic ulcer of three years' duration was given. During the past six months the patient had been on a strict ulcer diet (milk, crackers and alkalis). Considerable epigastric discomfort had been present for two weeks before admission, terminating abruptly with an excruciating epigastric pain seven hours before the patient was brought to the hospital.

The temperature was 103 F., white blood cells numbered 15,100 and the urine contained a few pus and epithelial cells but was otherwise normal.

A diagnosis of perforated peptic ulcer was made. Intravenous dextrose solution was started and continued throughout the operation, which was done nine hours after perforation.

Through an upper right rectus incision a perforation 1 cm. in diameter was found in the anterior surface of the duodenum just distal to the pylorus. A simple overlapping of the anterior gastric wall was effected with interrupted silk sutures. Some 400 cc. of turbid fluid and shreds of coagulated milk was aspirated from the right lumbar gutter and pelvis. The abdomen was closed with drainage of the subcutaneous tissue. Considerable difficulty was experienced with the ether anesthesia. The patient's respirations were shallow and would cease entirely for half a minute at a time. This resulted in extreme cyanosis. Because of this only light anesthesia was given. This added to the operative time, which was slightly over one hour. (The full significance of this apnea during anesthesia was not appreciated until later when the patient went into alkalosis.)

When he was sent to the ward, continuous nasal gastric suction was instituted. The patient was allowed to have sips of water by mouth as long as the suction apparatus was working. This practice may be perfectly safe in the usual case but was distinctly harmful in this instance. Various members of his family as well as the nursing staff gave him water. The result was a more or less constant gastric lavage. On the third postoperative day the aspirated fluid reached the extraordinary amount of nearly 9 liters. Following this all gastric aspiration was discontinued.

The patient received 3,000 cc. of dextrose and saline solution daily. These were practically all isotonic and always consisted of at least a liter of saline solution.

The temperature immediately after operation was 103 F. This gradually came down to 99 on the fourth day. From there it rose rapidly to 105.6 shortly before death on the fifth day. The immediate postoperative course was uneventful. There was moderate distention the first day, which was completely controlled with enemas.

On the second postoperative day, a slight cyanosis was noted. This became very marked on the third day. Nothing was found on physical examination to account for the degree of cyanosis that was present. There was no change in the heart, no mediastinal shift or change in auscultation with the exception of a few moist rales at the right base. The patient felt fine and certainly did not share the concern of his attending physicians. The abdomen was scaphoid and the temperature was coming down.

The morning of the fourth day the patient was deeply cyanotic, apathetic and disoriented. He was having tetanic seizures with carpopedal spasm. Ankle clonus and extremely active deep reflexes were present. The respirations were decreased to nine shallow excursions a minute. It was at this time that a chloride deficiency and alkalosis was even considered as being responsible for the patient's condition.

Dr. Paul J. Fouts of the medical service was asked to see the patient and ordered immediate determinations of the blood chloride and carbon dioxide combining power. These confirmed the diagnosis of alkalosis, with values for the blood chloride of 306.5 mg. (sodium chloride in plasma) and for the carbon dioxide combining power of 123 volumes per cent.

The urinary output, which had been ample up to this time, diminished to 100 cc. for twenty-four hours.

Following the laboratory examinations, massive amounts of fluid were given intravenously. This totaled 7,600 cc. for the next twenty-four hours and contained approximately 90 Gm. of sodium chloride. Two liters of these fluids was given in the form of Hartman's solution and one contained 5 per cent dextrose. Ammonium chloride, 6 Gm., was given twice by rectum.

The following day (fifth postoperative) the patient seemed generally weaker and still was deeply cyanotic, though respirations were normal in rate and depth. The plasma sodium chloride was 533 mg. and the carbon dioxide combining power was 87 volumes per cent. The patient's temperature rose to 104 and many rales were heard throughout both lung bases. The urinary output for the previous twenty-four hours was 70 cc. The patient was given 100 cc. of 50 per cent dextrose intravenously. This caused no change in condition and resulted in no urinary output. During a second administration of dextrose later in the day the patient died.

Unfortunately a blood urea determination was not done. That it was markedly elevated there can be no doubt, since this is a characteristic feature of alkalosis and since the urinary output was so markedly diminished.

Permission for autopsy was obtained and revealed marked congestion and edema of the lungs with hypostatic bronchopneumonia at the bases. A local fibrinous peritonitis was found about the area of perforation and in the pelvis. A moderate amount of turbid fluid was present in the general peritoneal cavity. The ulcer repair was still tightly sealed. Microscopic changes in the kidneys included interstitial scarring, edema and round cell infiltration. There were a few hyalinized glomeruli and moderate degenerative changes in the convoluted tubules. Cellular debris and many casts were found in these and in the straight tubules.

There was insufficient evidence in the autopsy in case 1 to account for death, with the exception of the terminal hypostatic pneumonia. The alkalosis apparently was not a final deciding factor, as evidenced by the improvement shown by laboratory examination and lack of tetany and apnea during the last day. It is assumed then that, though the patient lived for thirty hours after alkalosis was diagnosed, too much renal damage had taken place in an already inferior renal tissue to allow recovery.

The association of renal insufficiency developing in alkalosis is well known. Also the frequency with which mild or even severe alkalosis may develop in ulcer patients receiving alkali has been frequently discussed and needs no elaboration here.

Cyanosis as a sign in alkalosis is not well understood or appreciated. This relationship was discussed by Koehler¹ in reporting cases in which alkalosis developed as a result of alkali therapy. Koehler felt that cyanosis resulted from a disturbance in the shift of the chlorine ion between plasma and red

¹ Koehler, A. E. Acid Base Equilibrium. *Arch. Int. Med.* 31: 590 (April) 1923.

blood corpuscle. This was thought to interfere with the formation of oxyhemoglobin. Partial confirmation of this view is found in the work of Morris². Whatever the mechanism, it must have persisted after the alkalosis came under control in the case under discussion. This is evidenced by the fact that the cyanosis continued unchanged even with the elevation of the blood chlorides and the decrease in carbon dioxide combining power.

If the same problem should arise again it is difficult to say how the therapy should be changed. Possibly the sodium chloride was given too rapidly. Cooke³ is of the opinion that acidotic drugs (ammonium chloride in this instance) do not hasten recovery and in large doses may actually be dangerous. The real therapy consists in anticipation and prevention of alkalosis.

CASE 2—A youth, aged 18, occupied a bed adjacent to the patient just discussed. He had been operated on for a perforated peptic ulcer just two days before the operation in case 1. There was no previous history of ulcer and perforation occurred while the stomach was empty. Repair was effected in an identical manner as in case 1 four hours after perforation. The boy was making a nice, uneventful recovery. The nasal gastric suction apparatus, which was started immediately after operation, was removed on the fifth day. Water and fruit juices were allowed by mouth.

Because of considerable gastric retention, aspiration of the stomach was done night and morning. This resulted in the removal of amounts of fluid varying between 800 and 1,200 cc.

The patient complained slightly of a light-headed sensation. He was also unduly anxious about his condition for one of his age. This was especially true in view of the fact that his wound was healing nicely, the abdomen was scaphoid and soft, and he had no fever. On the morning following the death of the first patient, the boy was more carefully examined. Nothing was found except a slight but definite cyanosis of the lips. Because of this, blood chloride and carbon dioxide studies were ordered. The blood chloride reported as sodium chloride in the plasma was 348.5 mg., while the carbon dioxide combining power was 84.6 volumes per cent.

The diagnosis of alkalosis was made and the patient was given 2,000 cc. physiologic solution of sodium chloride intravenously. The periodic aspirations of the stomach were stopped. Cyanosis was not noted the following day (eighth post-operative day) and the patient seemed much improved mentally. Laboratory studies gave blood chloride 415 mg. and carbon dioxide combining power 90.5 volumes per cent. The slight rise in the latter figure over that of the previous day remains unexplained.

The patient received more intravenous salt solution and was put on a frequent feeding soft diet. From this time on his convalescence was uneventful.

COMMENT

From these experiences several precautionary measures are suggested in the use of nasal gastric suction.

1. Ulcer patients receiving alkalis are frequently in mild alkalosis as a result of this therapy. They therefore demand particular care.

2. These patients are poor anesthetic risks.⁴ When possible, alkalis should be stopped several days prior to an elective operation. Water and salt should be forced during this period.

3. The association of renal insufficiencies and alkalosis in treatment of peptic ulcer is a frequent occurrence.

4. The routine and indiscriminate use of the nasal gastric suction apparatus is extremely hazardous in the occasional case. This is particularly true when used for peptic ulcer.

5. The amount of drainage by this route should be measured daily and this amount added to the patient's fluid requirement. The quantity of chloride thus removed must be fully covered with intravenous saline solution.

6. There is a real danger in allowing sips of water by mouth to the patient with gastric suction. In excess (case 1) this acts as a constant gastric lavage adding to the chloride loss.

7. Cyanosis is suggestive evidence of alkalosis as well as tetany, hyperactive reflexes, nervousness, introspective attitude, headache and the like.

8. A case of alkalosis here reported resulted in death following the routine and uncontrolled use of the nasal gastric suction apparatus.

614 Hume Mansur Building

Special Article

THE PHARMACOPEIA AND THE PHYSICIAN

THE USE OF EXPECTORANTS

CHARLES L. BROWN, M.D.

PHILADELPHIA

This is one of a series of articles written by eminent authorities for the purpose of extending information concerning the official medicines. The twenty-four articles in this series have been planned and developed through the cooperation of the U. S. Pharmacopeial Committee of Revision and THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.—Ed

An expectorant may be defined as a medicine which aids in the removal of mucus or exudate from the lungs, bronchi and trachea. This action may be accomplished by causing a more active secretion, or by making the sputum more liquid or less tenacious. Another means of removal of sputum would be to stimulate the act of coughing, but this is seldom necessary or wise except in unusual states of debility in which large accumulations of sputum may actually imperil the patient. Often such a method would result in an expenditure of precious energy, and if possible aspiration should be employed instead. Coughing is nature's most efficient method of raising and ejecting sputum, and in some instances in which coughing is excessive, therapy must aim at controlling this act to allow the patient physical and mental rest and allow coughing at a time when it can be most efficacious.

To cough is to expel air, mucus or exudate from the lungs or air passages in a noisy, violent manner. When the respiratory mucosa is irritated by congestion, exudate or for some other reason, the nerve fibers transmit the impulse to the respiratory center and the rather complex act of coughing is excited. Deep inspiration occurs, the glottis closes, and forced expiration is made. When the pressure becomes great enough to open the glottis, the sudden change in pressure is attended by the expulsion of a blast of air which characterizes the cough. If mucus or exudate is present in the lower respiratory tract it may be ejected with the air and the cough is "productive." If little or no exudate is present, or no sputum can be raised because of tenaciousness or for other reasons, the cough is said to be "dry" or "unproductive."

In respiratory tract disease in which bronchial obstruction, diffuse or localized, is a part of the picture there is a derangement of intrapulmonic and intrapleural pressures, the extreme of which is found in

² Morris, N. Anoxemia and the Increased Electrical Excitability of the Neuron. *Brit. J. Exper. Path.* 3: 101 (April) 1922.

³ Cooke, A. M. Alkalosis Occurring in Alkaline Treatment of Peptic Ulcers. *Quart. J. Med.* 1: S27 (Oct.) 1932.

⁴ Gatewood, W. E., Gachler, O. H., Muntwyler, Edward and Myers, V. C. Alkalosis in Patients with Peptic Ulcer. *Arch. Int. Med.* 42: 79 (July) 1928.

From the Department of Medicine, Temple University Medical School and Hospital.

pulmonary emphysema Mucus or exudate may cause partial bronchial obstruction to both inspiration and expiration The forces of expiration are not as great as those of inspiration, and emphysema results from the accumulation of air in the alveoli and overdistention of their walls Efforts to inspire air past the obstruction may be attended by increased negative intrapleural pressure, but if expiration is impeded greatly, as in obstructive emphysema, intrapleural pressure becomes elevated positively In coughing, the forced expiration is accompanied by increased intrapulmonary pressure and elevated intrapleural pressure, simulating transiently the pressure changes found in emphysema, and, therefore, frequent prolonged unproductive coughing may be harmful Since obstruction due to bronchial spasm or accumulation of sputum may respond to medication, these factors should be carefully evaluated in the selection of expectorants

Indications for expectorants most often arise in inflammatory conditions of the lungs and larger air passages, and since the same expectorant may not be efficient or advisable in the different stages of the disease, the proper selection depends on a thorough understanding of the underlying pathologic condition In allergic manifestations, as bronchial asthma and asthmatic bronchitis, the degree of bronchial spasm and the character of the accumulated secretion serve as excellent guides in the choice of therapy The clinical interpretation of the pathologic process is aided greatly by the close observation of the type of cough and expectoration Furthermore, the art and science of the prescribing of expectorants is dependent on appraisal of the type of cough, the character of the sputum, and the correlation with the stages and clinical features of the causative disease Four rather distinct types of cough may be recognized the hacking, irritative unproductive cough, the "tight" cough with scanty or tenacious sputum, the wheezy, squeaking cough, which may be either dry or productive, and the "loose" cough with abundant sputum In consideration of the subject under discussion, sputum has three main constituents, water, mucus and purulent exudate, and in the individual case it is necessary to evaluate the relative proportions of these components In the early congestive stage of acute tracheitis, and bronchitis, the cough is of the hacking, irritative, unproductive type After a few hours or even as much as from one to three days later it may become a "tight" cough with scanty or tenacious mucoid sputum In some cases of acute bronchitis, the squeaking, wheezing cough develops Later in the disease the sputum becomes more abundant and mucopurulent and the cough loose Bronchopneumonia may provide a similar change in the cough and sputum Lobar pneumonia often has a type of cough and sputum characteristic of the disease, but generally the early stage has a tight grunting cough with a scanty, more tenacious mucopurulent and rusty sputum, while in the later stages the cough is loose and there is abundant, more purulent, sputum Chronic bronchitis produces a thicker mucopurulent sputum, which at times is tight, at other times loose, depending on the abundance of the sputum, on the relative amounts of pus and mucus, and on associated bronchial spasm, and at times the cough may have a wheezy character The cough of congestive heart failure is often rather unproductive until secondary infection in the bronchi or lungs appears, then it simulates that of

chronic bronchitis If pulmonary edema occurs, the sputum is abundant, watery and frothy, and may be blood tinged The wheezing, squeaking cough is characteristic of bronchial obstruction and is the type found in asthma and asthmatic bronchitis, and here the sputum is scant at first, later more abundant, and is tenacious and contains varying amounts of mucus and pus, depending on an associated bronchitis In chronic pulmonary disease a loose cough with abundant purulent sputum usually means pulmonary suppuration with cavity, such as lung abscess, suppurative pneumonitis or bronchiectasis In the latter conditions, coughing occurs when the exudate reaches the irritable level in the air passages, since the deeper portions of the lungs are rather insensitive to stimulation, thus the reason for postural drainage in such cases The odor of the sputum may be a very good index as to the prolonged retention in the suppurating area Although older writings have described a characteristic cough and sputum of tuberculosis, it is now recognized that almost any of the types mentioned may be found in pulmonary tuberculosis, depending on the type of pathologic process present As a general rule the appearance of gross blood in the sputum of chronic pulmonary disease calls for pulmonary rest

Since the beginning of medicine the patient with a cough has expected and often demanded a "cough medicine" as part of the treatment A review of old authoritative works on therapeutics reveals numerous drugs of one kind and another used for this purpose, a great many of them now obsolete, and provides an interesting historical background in therapy Indeed, it would seem that the use of expectorants has been more of an art than a science

Usually an expectorant is classified as "stimulant" or "sedative," and Sollmann¹ has included a third group, the "anodyne expectorants" Perhaps such a classification serves some useful purpose, although it is difficult to list accurately the expectorant drugs under these three headings There is some confusion in the definition of these terms, for example, one medical dictionary² defines a stimulant expectorant as one "used to expel secretions already formed", one textbook on therapeutics³ refers to stimulant expectorants as those "which are largely excreted in the bronchial mucus and which check the secretion or modify its character in some obscure way", Fantus⁴ defines this class of expectorants as "aromatic bodies that owe their virtue to elimination from the bronchial mucous membrane Given in sufficient dosage, they possibly tend to favor healing by producing a curative hyperemia" Bethea, referring to Sollmann's classification, gives a practical correlation and clinical guidance as follows

Sedative Expectorants They are intended to soothe the acute inflammation mainly by stimulating the secretion of protective mucus They may be nauseants as ipecac, demulcents, as acacia or glycyrrhiza, salines, as ammonium chloride, alkalis, as ammonium carbonate **Irritant (stimulant) Expectorants** These are intended to irritate the mucous membranes in such a way as to stimulate repair They also tend to diminish excessive secretion Some of these are also called aromatic expectorants Typical of this group are terpin hydrate and creosote

1 Sollmann Torald A Manual of Pharmacology ed 4 Philadelphia W B Saunders Company 1932

2 American Illustrated Medical Dictionary ed 16 1932

3 Solis Cohen Solomon and Githens T S Pharmacotherapeutics New York D Appleton & Co 1928

4 Fantus Bernard The Therapy of the Cook County Hospital Coughs J A M A 106 375 (Feb 1) 1936

5 Bethea O W Cough—Some Problems in Therapy Internat M Digest 25 178 (Sept) 1934

Anodyne Expectorants These are intended to depress the excessive cough reflex. These tend usually to diminish secretion. Codeine is typical.

Accordingly, the expectorant drugs official in the U. S. Pharmacopeia XI may be listed as in the accompanying table.

Expectorant Drugs

Sedative Expectorants	Calci Creosotas
Ammonii Chloridum	Guaiacol
Ammonii Carbonas	Eucalyptol
Liquor Ammonii Acetatis	Oleum Eucalypti
Potassii Acetas	Oleum Picis Rectificatum (Oil of Tar)
Potassii Citras	Syrupus Picis Pini
Sodii Citras	Oleum Terebinthinæ
Syrupus Acidi Hydriodici	Terebenthinum
Potassii Iodidum	Terpini Hydras
Calci Iodobehenas	Oleum Pini Pumilionis
Antimonii et Potassii Tartras	Syrupus Scillæ
Apomorphinæ Hydrochloridum	
Syrupus Ipecacuanhæ	
Mistura Opii et Glycyrrhizæ	Anodynes
Composita (Brown Mixture)	Morphinæ Sulfas
	Codeinæ Sulfas
Stimulant Expectorants	Codeinæ Phosphas
Creosotum	Aethylmorphinæ Hydrochloridum
Creosoti Carbonas	

Ammonium Chloride—Ammonium chloride causes the sputum to be more fluid and less tenacious and may increase the quantity. Therefore, it is useful in the "tight" cough accompanied by scanty or tenacious sputum, and this is most often seen in the acute and subacute inflammatory conditions (bronchitis and pneumonia) and asthma. Ammonium chloride is not indicated in the chronic stages when the sputum has become more abundant and easy to raise. Its effect does not last long and it should therefore be given at frequent intervals, perhaps as often as every two hours, and usually the dose of 5 grains (0.3 Gm.) is satisfactory. It should not be prescribed with alkali hydroxides or carbonates. The following vehicles are especially suitable for ammonium chloride: syrup of citric acid, syrup of cherry, syrup of wild cherry, syrup of acacia, syrup of tolu balsam and elixir of glycyrrhiza.

Ammonium Carbonate—This drug has much the same indications as does ammonium chloride, although it is more irritating to the throat and stomach and in large doses may act as a nauseant. With regard to dosage and frequency of administration, it should be used in much the same way as ammonium chloride. It is incompatible with acids and should not be prescribed with the syrups of acid reaction, such as those of citric acid, squill and ipecac. Although carbonates precipitate free alkaloids from aqueous solutions of most alkaloidal salts, codeine and atropine are not precipitated by ammonium carbonate.

Suitable vehicles for ammonium carbonate are syrup of acacia, elixir of glycyrrhiza and syrup of tolu balsam. Additional flavoring may be helpful in disguising the unpleasant taste, and for this purpose anise water, peppermint water and compound tincture of cardamom may be used.

Citrates and Acetates—Although some of the citrates and acetates have been used in the acute respiratory infections for their diuretic and indirect alkalinizing effect, they have been listed also among the expectorants, especially in larger doses by many physicians. Representative of this group of drugs are sodium and potassium citrates and solution of ammonium acetate and potassium acetate. When the citrates are to be used, the sodium citrate is commonly chosen and should be given in doses of 15 grains (1 Gm.) every two hours, taken with at least 3 ounces (90 cc.) of water.

Either the sodium or the potassium citrate may be nicely prescribed in the syrup of citric acid or the syrup of orange. The acetates are somewhat less palatable and two common representatives of this group are solution of ammonium acetate and potassium acetate. The solution of ammonium acetate (liquor ammonii acetatis) is made from ammonium carbonate and acetic acid and should be used only when freshly prepared. The average dose is one-half ounce (15 cc.) and is best given in one of the aromatic waters and flavored syrups. Peppermint is especially recommended as a flavor. If acetates are to be prescribed, potassium acetate in 1 to 30 grain (1 to 2 Gm.) doses in one of the aromatic waters and flavoring syrups is recommended.

Iodides—Fantus¹ states that "iodide is the most powerful agent available for producing hyperemia and exciting secretion of the respiratory mucous membrane," and "therefore it is contraindicated in acute bronchitis." By the same reasoning it is contraindicated in other acute forms of respiratory infection, such as the early stages of pneumonia. When the pathologic process is older and the sputum more tenacious, or in asthma or asthmatic bronchitis, the iodides may be very helpful. They are used against a thick sputum. Three official forms may be mentioned: potassium iodide, syrup of hydriodic acid, and calcium iodobehenate. The average doses given for these drugs are potassium iodide 5 grains (0.3 Gm.), syrup of hydriodic acid, 4 cc., calcium iodobehenate 8 grains (0.5 Gm.). If one considers only the iodine content in these drugs in the doses given, the amount of iodine is not comparable, the potassium iodide containing the most, the calcium iodobehenate being next, and the syrup of hydriodic acid containing the least. Potassium iodide is the simplest and most efficient form to prescribe if the iodide effect is desired. As saturated solution it may be given in five drop doses in milk after meals, or it may be prescribed in syrup of tolu balsam, syrup of orange, syrup of cherry or syrup of wild cherry, and syrup of pine tar. Syrup of hydriodic acid, in drachm (4 cc.) doses every three or four hours, is prescribed ordinarily as such. The calcium iodobehenate is especially useful in cases in which potassium iodide causes gastric irritation and may be prescribed in its pure form without any vehicle.

Iodide should not be used in any case suspected of tuberculosis because of the danger of its increasing the activity of the disease.

Among the expectorants which are effective because of their nauseant action are ipecac, antimony and apomorphine. This group is indicated in acute respiratory infection in the early congestive stage when there is a "dry" cough. The official preparations have been listed. Of these ipecac probably is the most used now and is especially employed in the acute laryngeal, tracheal and bronchial inflammations in children. The syrup of ipecac may be prescribed as such, the dose being from 5 to 12 minims (0.3 to 0.7 cc.), or it may be combined with some other expectorant indicated in the early inflammatory stage. Syrup of orange and syrup of tolu balsam are suitable vehicles for ipecac. Antimony in some form was formerly used widely as an expectorant but has become less popular. Antimony and potassium tartrate is commonly employed, the dose ranging from $\frac{1}{60}$ to $\frac{1}{20}$ grain (1 to 3 mg.), and syrup of glycyrrhiza, of orange or of tolu balsam make satisfactory vehicle. A large part of the expectorant action of the compound mixture of glycyrrhiza (brown

mixture) may be attributed to its antimony content. Apomorphine hydrochloride is most often given subcutaneously, the average dose being $\frac{1}{60}$ gram (1 mg), although a satisfactory effect may be obtained by mouth.

The stimulant sedatives are most useful in the chronic inflammatory conditions. They tend to lessen the mucus and exudate and the hyperemia caused by them may aid the healing process. They should not be used in the acute stage because of the tendency to produce hyperemia. Creosote compounds and terpin hydrate, both aromatic, are the representatives of this group which will be discussed here. Both calcium creosotate and creosote carbonate are satisfactory preparations and are used much the same. The average dose of calcium creosotate is 8 grains (0.5 Gm) and of creosote carbonate 15 grains (1 Gm). Doses should be smaller at first. Usually an interval of four hours between doses is satisfactory. These drugs are especially useful when the sputum is abundant, as in lung abscess, bronchiectasis and suppurative pneumonitis. Many patients indicate that the sputum becomes less objectionable in taste and odor after taking these. Calcium creosotate is best given in tablets. Creosote carbonate, in ascending (drop) doses, should be shaken up with milk.

Terpin hydrate is indicated in the chronic cough with abundant sputum and is said to be helpful especially against an excessive liquid sputum. It is commonly used in the form of elixir of terpin hydrate, which contains an insufficient quantity of terpin hydrate to give the best effect. For the full effect it is better to give terpin hydrate in capsules containing from 2 to 5 grains (0.13 to 0.3 Gm) three or four times a day. Elixir of terpin hydrate serves as a suitable vehicle for codeine.

Squill, not an aromatic but classified as a stimulant expectorant, has been used considerably in acute bronchial inflammation of children and in "spasmodic croup," as the syrup of squill, usually in doses of from 15 to 30 minims (1 to 2 cc). At one time it was also said to be helpful in the "winter bronchitis" of the aged. In the latter instance its good effect no doubt was related to the cardiac element in the so-called bronchitis. The syrup contains sufficient squill, if given in frequent doses, to produce some "digitalis-like" effect and this should be kept in mind in its usage. The syrups mentioned are suitable vehicles, and other expectorants are sometimes added. Ammonium carbonate should not be put in syrup of squill.

The anodyne expectorants, so called, hardly need any comment, except to caution against their use in cases in which there is abundant purulent sputum. The purpose of the cough is to get rid of this exudate, and suppression of the cough reflex may be hazardous. Nevertheless, they are useful in giving the patient rest if coughing in such cases has tended to cause exhaustion. These drugs act by allaying the cough reflex, and the dose and frequency of administration are an individual problem. Codeine sulfate or phosphate are ones of choice, morphine should be avoided in treatment of the chronic cough because of the danger of addiction. However, there are occasions when good clinical judgment may dictate its use for temporary relief.

Diffuse partial bronchial obstruction as exemplified in bronchial asthma and asthmatic bronchitis presents a special problem in the use of expectorants. Both

bronchial constriction and plugging by tenacious mucus enter into this mechanism. Solution of epinephrine 1:1,000, in doses of from 3 to 12 minims (0.2 to 0.7 cc) given intramuscularly, is the most effective remedy for the bronchial spasm. Ephedrine hydrochloride and sulfate have a more prolonged effect and have the advantage of oral administration but are less certain to give relief. The ephedrine compounds in capsules are satisfactory, although they may be put in liquid preparations. Stramonium and belladonna, usually given as the tincture in a vehicle and often combined with some other expectorant, tend to diminish the quantity of the bronchial secretions. Potassium iodide is helpful in combating tenaciousness of sputum.

The availability of so many expectorants may cause difficulty in choice for a particular case. Most of the

PRESCRIPTION 1—For Acute Bronchitis or Pneumonia

R	Ammonium chloride	10 Gm
	Elixir of glycyrrhiza	60 cc
	Syrup of acacia	to make 120 cc
M S	One teaspoonful in half a glass of water every two hours	

PRESCRIPTION 2—For Acute Bronchitis or Pneumonia

R	Ammonium chloride	10 Gm
	Syrup of citric acid	to make 120 cc
M S	One teaspoonful in half a glass of water every two hours	

PRESCRIPTION 3—For Acute Bronchitis or Pneumonia

R	Ammonium carbonate	10 Gm
	Compound tincture of cardamom	30 cc
	Syrup of tolu balsam	to make 120 cc
M S	One teaspoonful in half a glass of water every two hours	

PRESCRIPTION 4—For Subacute or Chronic Conditions

R	Potassium iodide	10 Gm
	Syrup of tolu balsam	to make 120 cc
M S	One teaspoonful three times a day after meals	

PRESCRIPTION 5—For Asthma or Asthmatic Bronchitis

R	Potassium iodide	15 Gm
	Tincture of stramonium	20 cc
	Syrup of tolu balsam	to make 120 cc
M S	One teaspoonful three times a day after meals	

PRESCRIPTION 6—For Children

R	Syrup of ipecac	5 cc
	Syrup of orange	to make 60 cc
M S	One teaspoonful every three hours as necessary for cough	

PRESCRIPTION 7—For Acute Conditions

R	Compound mixture of opium and glycyrrhiza	120 cc
S	One teaspoonful every three hours as necessary for cough	

therapeutic demands can be satisfied by skilful employment of a few representative drugs such as ammonium chloride, potassium iodide, syrup of ipecac, calcium creosotate, terpin hydrate, codeine phosphate, epinephrine, ephedrine sulfate and tincture of belladonna. The selection of a suitable vehicle may be of no little importance in commanding the respect and cooperation of the patient. Syrups of acacia, tolu balsam, cherry, wild cherry and citric acid and elixir of glycyrrhiza furnish a fairly adequate choice.

Of the accompanying typical prescriptions, 1, 2 and 3 are to be used in acute or subacute inflammatory conditions (acute bronchitis, pneumonia) at a time when the cough is "tight" and the sputum is scanty.

Prescriptions 4 and 5 are to be used in subacute or chronic inflammatory conditions when the sputum is thick, tenacious and more abundant. (Caution: Not to be used in tuberculosis.)

Prescriptions 6 and 7 are to be used in acute inflammatory conditions when the cough is dry or the sputum scanty.

Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT
HOWARD A. CARTER Secretary

FISCHERTHERM SHORT WAVE DIATHERMY UNIT MODEL 104-B ACCEPTABLE

Manufacturer The Fischer Corporation, Glendale, Calif
The Fischertherm Model 104-B is recommended for medical and surgical use. In construction it is essentially the same as the Fischertherm previously accepted by the Council.¹ The chief difference is that the new machine is arranged for an "inductance cable." The wavelength, checked by an absorption wave meter, was found to remain within 0.5 meter of rated value of 15 meters when working varying loads. The maximum input is said to be 900 watts. Since there is no acceptable method for measuring the output power of short wave machines, this value is not given.



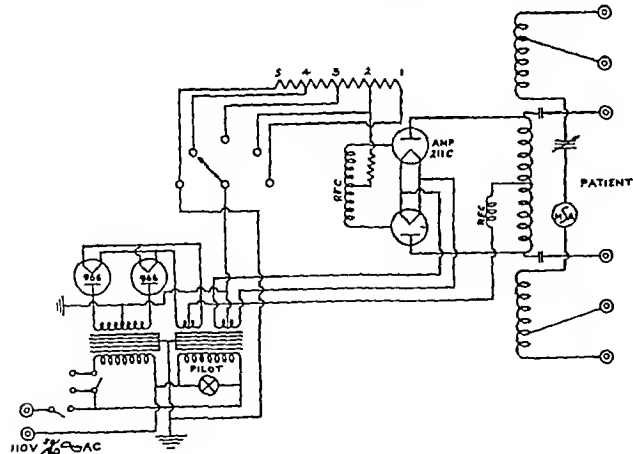
Fischertherm
Short Wave
Diathermy Unit
Model 104-B

The firm was asked to furnish evidence to substantiate the efficacy of the "inductance cable" method of application. A reliable investigator compared heating efficiency of this technique with conventional diathermy. The temperature observations were made on reliable and carefully calibrated equipment, which had been accurately checked by a competent physicist.

Twelve observations were made on each machine. Six healthy male medical students were used for subjects. Experiments were conducted on the left and right thigh alternately.

Temperature measurements were observed with the thermocouple in the anterior portion of the thigh at depths of one-eighth inch, three-fourths inch, 2 inches or against the bone. These depths were measured from the skin straight in—that is, normal to the surface of the skin.

For the conventional diathermy treatments, block tin electrodes were placed on the medial and lateral aspects of the thigh and held firmly in contact with bandaging. In applying the



Schematic Diagram of Circuit

inductive cable approximately one inch of bath toweling was wrapped round the thigh and it was held in place by approximately four wraps of the inductive cable. Room temperature throughout the day remained between 74 and 78 F and the wet bulb temperature varied from 60 to 66 F.

Each item given in the accompanying tables is an average of twelve observations, application by the inductance cable in the first table and by block tin electrodes in the second.

The temperature rise of the transformer, after the machine was operated at full load for two hours, came within the limits of safety prescribed by the Council. The total shipping weight

is about 85 pounds. Burns may be produced but can be avoided by taking proper precautions when applying the applicators.

The Fischertherm was referred to a clinic acceptable to the Council for investigation and found to give satisfaction in actual practice.

In view of the foregoing favorable report, based on the performance of the unit with the inductance cable, and the

TABLE 1—Average Temperatures of Twelve Observations, Coil Technique

Deep Muscle		Subcutaneous		Oral (6 Observations)	
Initial	Final	Initial	Final	Initial	Final
100.1	104.2	98.0	105.1	98.3	99.0

TABLE 2—Average Temperatures of Twelve Observations, Block Tin Electrodes

Deep Muscle		Subcutaneous		Oral (6 Observations)	
Initial	Final	Initial	Final	Initial	Final
99.6	102.5	97.5	101.5	98.0	98.6

evidence previously submitted on cuff electrodes and surgical electrodes, the Council on Physical Therapy voted to include the Fischertherm, Model 104-B, Short Wave Unit, in its list of accepted devices.

Council on Pharmacy and Chemistry

REPORT OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT
PAUL NICHOLAS LEECH, Secretary

EDWENIL NOT ACCEPTABLE FOR N N R (II)

In 1933 the Council declared Edwenil unacceptable for inclusion in New and Nonofficial Remedies because it was apparently an unscientific preparation of semisecret composition, marketed under an uninformative name with unwarranted and possibly dangerous therapeutic claims (THE JOURNAL, Oct 7, 1933, p 1154). As brought out at that time, Edwenil is a product proposed for nonspecific immune therapy, marketed in the United States by Spicer and Company of Glendale, Calif. It has been variously designated "antibacterin," "a polyvalent antibacterial agent," "the biochemical successor to vaccine," "natural antibody," "a therapeutic active immunizing agent." According to the Council's report of 1933 the complexity of the composition of Edwenil was indicated by the following excerpts from the advertising:

Edwenil is the result of fifteen years work representing an effort to produce natural immunity or a polyvalent natural antibody. It is a calcic protein compound consisting of three elements as follows:
CALCIUM in the form of the bicarbonate, which is apparently the form in which calcium is required for utilization by the immune body precursors.

A CALCIUM VEHICLE in the form of a nucleoprotein.
AN UNATTACHED GLOBULIN ELEMENT obtained from serum.
EDWENIL is a complex organic colloid formed by a linkage of some of the alkali denatured protein derivatives of normal serum and muscle in the presence of a normal saline containing calcium and magnesium salts.

More recent advertising contains the following statement concerning the composition of the preparation:

Edwenil is a deproteinized flocculus (protein 0.02 per cent) obtained by fractionation from an extract of beef muscle and normal horse serum. It is a potent polyvalent nontoxic lysinogen, or antibody stimulating agent which accelerates the mobilization of the potential defenses of the body against endotoxic bacteria.

The number of conditions for which it is recommended are legion and the claims made in the firm's advertising are most extravagant.

In 1935 two very instructive articles on nonspecific prophylactic therapy were published, prepared for the Council by Dr.

Cecil and Hektoen Following publication of these articles the Council inquired of Dr Cecil if he would have an investigation made to check some of the claims advanced by Spicer and Company for Edwenil Dr Cecil obtained the cooperation of Dr Stainsby and Miss Shultz The report of their work is reproduced herewith No beneficial effects were observed from the use of Edwenil¹ in animals infected with pneumococci or staphylococci The results of this study fail to confirm in any particular claims advanced by Spicer and Company for Edwenil

The Council reaffirmed its previous decision that Edwenil be declared unacceptable for inclusion in New and Nonofficial Remedies because it is an unscientific preparation of semisecret composition, marketed under a noninformative name with unwarranted therapeutic claims

In authorizing publication of the appended report, the Council expresses its appreciation to Drs Cecil and Stainsby and Miss Shultz for their cooperation

ANIMAL EXPERIMENTS WITH EDWENIL²

By WENDELL J STAINSBY, M D, AND
SELMA M SHULTZ, M A

Edwenil has been widely advertised as an effective therapeutic agent for controlling endotoxic infections in general and has been specifically recommended for a large number of diseases³

Spicer and Company, however, state in recent advertising⁶ that "Edwenil is a deproteinized flocculus (protein 0.02 per cent) obtained by fractionation from an extract of beef muscle and normal horse serum"

In the present study we have attempted to repeat the most promising animal experiments on which the wide claims for Edwenil have been based In doing this, careful attention has been paid to small details, such as the breed of animals, the amount and virulence of infecting organisms, and the size and number of the injections of Edwenil As a result of this, large doses of Edwenil, similar to those recommended for human beings, have been used in treating our animals

The strain of *Staphylococcus aureus* used in the study produced hemolysis on blood agar plates and was originally obtained from a patient infected with it The strain of pneumococcus type I used was a laboratory strain originally obtained from a patient suffering from lobar pneumonia

EFFECT OF EDWENIL IN PROTECTING INFECTED LABORATORY ANIMALS FROM DEATH

The first experiments were designed to determine whether Edwenil would protect albino mice infected with type I pneumococci As a preliminary test, it was desirable to know whether the drug itself is poisonous to these animals if injected either intraperitoneally or subcutaneously in large doses Five mice

TABLE 1—Effect of Edwenil on Mice Infected with *Pneumococcus Type I*

Control Animals			Treated Animals		
No of Organisms Injected	No of Animals	Result	No of Animals	Treatment with Edwenil	Result
50 000	5	Died in 48 hrs	1	Two 1 cc doses intraperitoneally during infection	Died in 30 hrs
			1	Two 1 cc doses intraperitoneally during infection	Died in 48 hrs
			3	Three 1 cc doses subcutaneously during infection	Died in 48 hrs
23 000	5	Died in 48 hrs	2	{One 0.25 cc dose subcutaneously before infection One 0.25 cc dose subcutaneously during infection	Died in 24 hrs
			3	{One 0.25 cc dose subcutaneously before infection Two 0.25 cc doses subcutaneously during infection	Died in 48 hrs
300	5	Died in 48 hrs	0	Three 0.25 cc doses subcutaneously during infection	Died in 48 hrs
100	0	Died in 48 hrs	3	Two 0.5 cc doses subcutaneously during infection	Died in 30 hrs
			2	Two 0.5 cc doses subcutaneously during infection	Died in 48 hrs
			2	{One 0.5 cc dose subcutaneously before infection One 0.5 cc dose subcutaneously during infection	Died in 30 hrs
			3	{One 0.5 cc dose subcutaneously before infection One 0.5 cc dose subcutaneously during infection	Died in 48 hrs
10	2	Died in 24 hrs	3	Two 0.5 cc doses subcutaneously during infection	Died in 30 hrs
	3	Died in 48 hrs	2	Two 0.5 cc doses subcutaneously during infection	Died in 48 hrs
			5	{One 0.5 cc dose subcutaneously before infection One 0.5 cc dose subcutaneously during infection	Died in 48 hrs

including furunculosis, acne tonsillitis and quinsy, leukorrhea drainage after operation, puerperal sepsis, bronchitis, bronchiectasis, bronchial asthma, lobar pneumonia, influenza, the common cold, rheumatoid arthritis, early osteo arthritis, sciatica, tuberculosis, rheumatic fever, measles, mumps, whooping cough scarlet fever, chronic pyelitis and cystitis and other febrile conditions These wide claims for Edwenil as a therapeutic agent are based on clinical observations and animal experimentation The clinical studies are totally unconvincing The animal studies, however, as reported in pamphlets⁴ circulated by the marketers, or in small almost inaccessible publications,⁵ indicate that Edwenil protects laboratory animals against lethal doses of certain pathogenic micro-organisms and increases the immunity of these animals to such an extent that it can be readily demonstrated by the usual laboratory procedures

The exact composition of Edwenil, as far as we have been able to determine, has not been made public The marketers,

were injected intraperitoneally with 1 cc of Edwenil All of them developed a chill immediately after the injection and appeared ill After approximately two hours' time, four of the five animals recovered and remained well The remaining animal died two hours after the injection Five other mice were injected with 0.5 cc of Edwenil subcutaneously These animals did not develop any symptoms and remained well From these experiments it is apparent that Edwenil is toxic to mice when injected intraperitoneally in the doses mentioned but not when injected with a smaller dose subcutaneously It seems quite probable that these toxic effects were due to the preservative in the preparation

With the foregoing experiment as a basis, the work outlined in table 1 was carried out Attention is called to the fact that in some of the experiments Edwenil was injected prior to infection as well as during infection in order that no question could arise as to whether the drug was administered early enough The minimal lethal dose of the strain of pneumococcus was determined and found to be from one to ten pairs of pneumococci The number of organisms injected varied from a dosage comparable to the one implied by the published experimental work down to the minimal lethal dose of our organisms No difference whatever could be observed between the treated and the control animals The mice injected with pneumococci whether treated with Edwenil or not died within forty-eight hours

1 The Edwenil used in this investigation was purchased on the open market

2 From the New York Hospital and the Department of Medicine Cornell University Medical College

3 Edwenil (A Polyvalent Antibacterial Agent) in Endotoxic Infections an undated pamphlet issued by Spicer and Company

4 The Edwenil Contact a pamphlet published bimonthly by Spicer and Company 5 48 50 (March) 1937 The Edwenil Contact (supplement) No 38 February 1936 p 8

5 Kimball T S Changes in the Blood Picture Following Edwenil Therapy Oakmont Papers on Immunology 1935 pp 25 28 Coddington H W Observations on the White Blood Count Phagocytosis and Other Bacteriocidal Powers of Whole Blood ibid pp 29 45 Animal Experiments with Edwenil The Endotoxic Infections and Their Control with Edwenil Spicer and Company 1936 pp 33 53

6 Undated pamphlet on Edwenil issued by Spicer and Company

In table 2 is presented an outline of experiments carried out on rabbits infected with either the strain of *Staphylococcus aureus* or the strain of pneumococcus. Care was taken to select rabbits of similar weights and ages for the treated and control groups. The organisms were injected intravenously in the amounts indicated after preliminary experiments had been completed to determine the lethal doses of the organisms. It should be noted that, with one group of animals, two separate injections of the pneumococcus were given. Edwenil was given in each case at daily intervals.

Altogether eighteen rabbits, nine of which were kept as controls, were infected with the pneumococcus. Two of the treated animals recovered, while three of the controls recovered. Of the animals that died, the average duration of life for the controls was four days, while for the treated animals it was eleven and a half days.

Twelve rabbits, six of which were kept as controls, were infected with *Staphylococcus aureus*. One of the controls and two of the treated animals recovered. Of those that died the average length of life for the controls was seventeen days and for the treated fifteen days.

were employed and the normal total white cell count was taken on three successive days. After the normal cell count was thus carefully determined, three of the rabbits were injected with 1 cc of Edwenil subcutaneously for three successive days while the other three were injected in a similar manner with physiologic solution of sodium chloride. Unnecessary trauma was eliminated. Total white cell counts were made each day on these animals while they were injected and on the day after the last injection. The results of this experiment appear in table 3, and it can be readily seen that leukocytosis did not occur in either the Edwenil treated group of animals or in the controls, which indicates that the leukocytosis occurring in the first experiments on healthy animals was due to some factor other than the Edwenil, probably the trauma. From these studies we conclude that Edwenil injected subcutaneously in healthy rabbits does not produce a leukocytosis.

EFFECTS OF EDWENIL ON THE TOTAL WHITE CELL COUNT OF INFECTED RABBITS

All the rabbits listed in table 2 were followed with total white cell counts until they died from infection or recovered.

TABLE 2—Effect of Edwenil on Infected Rabbits

Control Animals			Treated Animals		
No. of Organisms Injected	No. of Animals	Result	No. of Animals	Treatment with Edwenil	Result
Rabbits—Pneumococcus					
46 000 (in saline solution)	2	Recovered	1	Five 1 cc doses subcutaneously during infection	Recovered
			1	Four 1 cc doses subcutaneously during infection	Died in 3 days
120 000 (in saline solution)	1	Died in 48 hrs	1	{Four 1 cc doses subcutaneously before infection	Died in 8 days
				{Four 1 cc doses subcutaneously during infection	
	1	Died in 4 days	1	{Four 1 cc doses subcutaneously before infection	Died in 4 1/2 hr
				{Three 1 cc doses subcutaneously during infection	
	1	Recovered	1	{Four 1 cc doses subcutaneously before infection	Recovered
				{Five 1 cc doses subcutaneously during infection	
{300 000 (in saline solution)	1	Died in 6 days	1	{Four 1 cc doses subcutaneously before infection	Died in 16 days
{180 000 (in broth)				{Six 1 cc doses subcutaneously during infection	
		Died in 5 days	1	{Four 1 cc doses subcutaneously before infection	Died in 18 days
				{Eight 1 cc doses subcutaneously during infection	
80 000 (in broth)	1	Died in 4 days	1	{Three 1 cc doses subcutaneously before infection	Died in 16 days
				{Three 1 cc doses subcutaneously during infection	
	1	Died in 3 days	1	{Three 1 cc doses subcutaneously before infection	Died in 17 days
				{Three 1 cc doses subcutaneously during infection	
Rabbits—Staphylococcus Aureus					
160 000 000 (in broth)	1	Died in 19 days	1	{Five 1 cc doses subcutaneously before infection	Recovered
				{Five 1 cc doses subcutaneously during infection	
	1	Died in 9 days	1	{Five 1 cc doses subcutaneously before infection	Died in 11 days
				{Five 1 cc doses subcutaneously during infection	
270 000 000 (in broth)	1	Recovered	1	Six 1 cc doses subcutaneously during infection	Died in 20 days
	1	Died in 25 days	1	Seven 1 cc doses subcutaneously during infection	Recovered
800 000 000 (in broth)	1	Died in 20 days	1	Six 1 cc doses subcutaneously during infection	Died in 11 days
	1	Died in 13 days	1	Three 1 cc doses subcutaneously during infection	Died in 8 days

Considerable experimental work in infecting guinea-pigs with strains of pneumococci was carried out. As is well known, the guinea-pig is particularly resistant to infection with pneumococci. Although several stock and freshly isolated strains were used, we were unable to obtain an organism of sufficient virulence for guinea-pigs to carry out experiments with this animal.

However, the experimental work with mice and rabbits, as reported by us, fails to provide any evidence that Edwenil protects these animals against death by infection with either pneumococci or staphylococci regardless of whether Edwenil was administered during infection or before infection as well.

EFFECT OF EDWENIL ON THE TOTAL WHITE CELL COUNT OF HEALTHY RABBITS

The normal white cell count was determined on nine healthy white rabbits and was found to average 8,156 cells. Each of these animals was injected with 1 cc of Edwenil subcutaneously for three, four or five successive days. During the period of the injection, venipunctures were made from the ear on several occasions for various other studies. On the day after the last injection of Edwenil, the total white cell count on these rabbits was found to average 15,233, a distinct increase. The question then arose as to whether the increased cell count was due to Edwenil or to the trauma occasioned by the injections and the venipunctures. To determine this point, six similar rabbits

from it. Altogether there were fifteen animals treated with Edwenil and fifteen controls, of which four recovered in the treated group and four in the controls. Counts were made daily for the first three or four days and thereafter at less frequent intervals. The intervals between counts on the control animals were similar to those on the treated animals. Altogether 183 total white cell determinations were made, and for brevity only the average counts are listed in table 4. From the table it is readily seen that a mild leukocytosis was present in the animals from the first day following infection, and that this became more marked after the eighth day. The white cell count on the animals infected with the staphylococcus was generally higher than that obtained on animals infected with the pneumococcus, but no differences were noted as between the Edwenil treated group and the controls. In addition, careful studies of the figures were made as regards the animals that recovered, as distinct from those that died, and regardless of how the figures were studied, no evidence was found that Edwenil increased the leukocytosis in rabbits infected with either the pneumococcus or the staphylococcus.

EFFECT OF EDWENIL ON THE DIFFERENTIAL WHITE CELL COUNT OF INFECTED RABBITS

The thirty rabbits listed in table 2 were also followed through out the course of their infection with differential white cell counts. For the first few days these counts were made daily.

and thereafter at somewhat longer intervals. All the smears for study were stained by Wright's technic and 100 cells were counted.

Although the rabbits infected with the staphylococcus developed a greater leukocytosis than those infected with the pneumococcus, the results of the differential counts were grouped together, as no appreciable relative increase of any type

Likewise when differential white cell counts of the rabbits that recovered from their infections were studied, no important differences were noted between the treated and the control animals. We are forced to conclude, therefore, that Edwenil did not influence in any way the differential cell count of rabbits infected with either the staphylococcus or the pneumococcus.

ADDITIONAL STUDIES CARRIED OUT WITH EDWENIL

The thirty rabbits outlined in table 2 were also followed during the course of their illness with blood cultures, agglutination tests and phagocytosis studies, and comparisons were made with similar tests carried out before the animals were infected. The results are as follows:

Blood Cultures—Blood cultures were carried out daily on each of the thirty animals for the first few days and at longer intervals thereafter. Some of the animals eliminated the organisms from the blood stream very rapidly, while others continued to have positive blood cultures either throughout the course of the disease or for several days after infection. No significant difference in this respect was noted between those treated with Edwenil and those kept as controls. Likewise, the number of organisms per cubic centimeter found in the blood cultures was similar for the treated and the untreated groups of animals.

Agglutination Studies—Agglutination tests between the rabbits' serum and the infective organism were carried out at frequent intervals throughout the course of the disease. While most of the rabbits infected with the pneumococcus did not live long enough to develop demonstrable agglutinins, two treated animals did develop them, one to a titer of 1:160 on the eighth day and one to a titer of 1:80 on the fifteenth day. Both of these animals later died from the infection. None of the controls in the group developed any demonstrable agglutinins.

Among the animals infected with the staphylococcus, two of the treated animals developed agglutinins, one to a titer of 1:40 on the forty-fourth day and the other to 1:160 on the eighth day. The first animal recovered and the second one died of the infection. In the control group that was infected with the staphylococcus one developed agglutinins to a titer of 1:40 on the forty-fourth day and the other to a titer of 1:40 on the eighth day. The first of these died of the infection while the second recovered.

From this study, no evidence was obtained that Edwenil increased the capacity of the animals to form agglutinins for the organisms with which they were infected.

Phagocytosis—Throughout the course of the disease, the thirty rabbits were followed frequently for the ability of their polymorphonuclear neutrophils to ingest the organisms with which the animals were infected. The method used was that

TABLE 3—Effect of Edwenil on Total White Blood Cell Count of Healthy Rabbits

Rabbits	Normal Counts	Time of White Cell Count After First Injection			
		24 Hrs	48 Hrs	3d Day	4th Day
102	10,200 13,300 13,500	12,700	10,800	12,100	10,700
109	12,100 11,400 10,500	9,600	10,200	10,300	9,700
111	7,300 9,200 9,300	8,100	9,000	7,000	10,900
Controls					
104	10,600 14,600 14,500	9,200	11,700	16,600	10,500
110	12,300 11,900 9,000	10,500	7,500	8,200	7,400
112	7,000 10,000 8,400	13,000	10,300	8,400	7,600

TABLE 4—Average Total White Blood Cell Counts of Infected Rabbits Treated with Edwenil and Controls

	Treated (10 Rabbits)	Controls (10 Rabbits)
Average normal count	9,143	7,477
24 hours after infection	11,463	9,096
48 hours after infection	11,669	12,141
3d day after infection	11,038	10,240
4th day after infection	9,966	11,725
5th to 8th day after infection	12,216	15,563
9th day or later	23,147	23,631

of cell was found in either group of animals. A summary is presented in table 5. As will be seen from this table, there was a marked increase in the immature polymorphonuclear neutrophils and in general a decrease in the mature neutrophils and lymphocytes throughout the course of disease in these animals. The results of the differential white cell counts are slightly

TABLE 5—Average Differential White Blood Cell Counts of Infected Rabbits Treated with Edwenil and Controls

Normal	Immature Neutrophils 3.9		Mature Neutrophils 2.6		Lymphocytes 28.2		Eosinophils 0.9		Basophils 2.2		Monocytes 4.5	
	Treated	Controls	Treated	Control	Treated	Controls	Treated	Controls	Treated	Controls	Treated	Controls
24 hours after infection	26.5	23.3	24.2	30.6	41.1	31.8	0.2	0.7	4.2	3.1	3.6	6.5
48 hours after infection	23.2	19.6	22.6	27.8	42.2	39.3	0.5	0.3	5.3	6.6	6.2	6.3
3-4 days after infection	26.0	24.1	22.1	27.1	43.4	39.0	0.7	0.7	3.2	4.8	4.0	4.3
5-8 days after infection	20.9	18.1	25.0	27.5	46.3	33.8	0.1	0.1	2.7	14.6	4.6	5.8
9th day or later	27.3	23.0	21.2	31.5	35.1	29.5	1.0	0.0	2.9	1.9	6.4	7.6

different in the treated group than in the controls, but the differences are too small to be of any importance.

It is generally recognized that the subsidence of an acute infection manifests itself in the differential white cell count by a decrease in the immature polymorphonuclear cells and a marked, even if transitory, rise in the monocytes while convalescence is characterized by a normal immature polymorphonuclear count and a marked rise in lymphocytes. It would be expected, therefore, that if Edwenil favorably modified the course of the disease, some of the characteristics in the differential count which indicate recovery from infection would manifest themselves. In the summary of the differential white cell study presented in table 5, no important differences were noted between the rabbits treated with Edwenil and the controls.

advocated by Wright. Considerable variation was noted among the animals infected with the same organism. Phagocytosis was much more marked in the staphylococcus infected group than in the pneumococcus infected group, and in both groups of animals this capacity increased during the course of the disease. However, there was not the slightest evidence that Edwenil increased phagocytosis in any way.

COMMENT

Through pamphlets circulated by the marketers and small medical publications, wide claims have been made for Edwenil as a therapeutic agent based on experiments with infected laboratory animals. We have attempted to repeat the most promising of these experiments and have been unable to find any evidence whatever for the claim that Edwenil protects

infected laboratory animals from lethal doses of *Staphylococcus aureus* and of pneumococcus type I. In addition, our rabbits were studied intensively throughout the course of their disease by white cell counts, blood cultures, agglutination tests and studies on phagocytosis, and we were unable to find the slightest evidence that Edwenil increased the immunologic responses of these animals.

CONCLUSIONS

- 1 Studies of the effects of Edwenil on mice and rabbits infected with pneumococci or staphylococci were carried out.
- 2 The course of infection and mortality of these animals were not affected by injections of Edwenil.
- 3 During extensive immunologic studies on the infected animals, no beneficial effects were observed from the use of this substance.

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLE HAS BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEECH, Secretary

KINNEY'S YEAST EXTRACT CONTAINING VITAMIN B COMPLEX—A mixture of the water soluble extractive of dried brewers' yeast preserved by the addition of $\frac{1}{2}$ volume of glycerin-U S P and $\frac{1}{2}$ volume of simple syrup-U S P. It is biologically assayed to contain in each cubic centimeter 25 international units of vitamin B₁ and 10 Sherman-Borquin units of vitamin G.

Actions and Uses—Kinney's yeast extract containing vitamin B complex is proposed for prophylaxis and treatment of conditions arising from deficiency of the vitamin B complex in the diet (see general article *Vitamins and Vitamin Preparations for Prophylactic and Therapeutic Use*, N N R, 1937, p 446, under Vitamin B).

Dosage—Infants 2 cc ($\frac{1}{2}$ fluidrachm), adults 8 cc (2 fluidrachms) daily.

Manufactured by Scientific Sugars Co Indianapolis. No U S patent or trademark.

Kinney's vitamin B extract is prepared by extracting especially cultured dried brewers' yeast in an aqueous medium under proper conditions of pH control. The extract is concentrated, clarified and preserved with equal parts of glycerin U S P and simple syrup U S P.

The vitamin B₁ content is determined by comparison with the International Standard according to the Cowgill Pigeon Weight Maintenance Technic as outlined in *The Vitamin B Requirement of Man* by Cowgill chapter IV. At regular intervals samples are also compared with the International Standard according to the rat growth method of Sherman and Spohn as outlined in *The Vitamins* by Sherman and Smith edition 2 page 99.

The vitamin G content is determined by the Sherman Borquin Method as outlined in *The Vitamins* by Sherman and Smith edition 2 page 133.

The glycerin content is estimated according to the method described in *Methods of Analysis* A O A C 1930 page 302 chapter XVIII paragraph 55.

CORRECTION

Through error in the descriptions of several capsules and tablets of digitalis prepared by the McNeil Laboratories (*THE JOURNAL*, April 24, 1937, p 1410) the potency is given in "cat units." The products are standardized by the frog and the guinea-pig methods and not by the cat method. The description should therefore read:

DIGITALIS (See New and Nonofficial Remedies, 1937 p 180)

The following dosage forms have been accepted:

Tablets Digitalis Duo Test McNeil $\frac{1}{2}$ grain ($\frac{1}{2}$ U S P Digitalis unit) Dispensed in plain tablets.

Tablets Digitalis Duo Test McNeil 1 grain ($\frac{1}{2}$ U S P Digitalis unit) Dispensed in plain and enteric coated tablets. The enteric coated tablets are first coated with a wax salol mixture and then sugar coated green.

Tablets Digitalis Duo Test McNeil $1\frac{1}{2}$ grains (1 U S P Digitalis unit) Dispensed in plain and enteric coated tablets. The enteric coated tablets are first coated with a wax salol mixture and then sugar coated green.

Capsules Digitalis Duo-Test McNeil $1\frac{1}{2}$ grains (1 U S P Digitalis unit) Dispensed in black capsules.

Prepared by the McNeil Laboratories Inc Philadelphia

Council on Foods

THE COUNCIL ON FOODS HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT
FRANKLIN C BING, Secretary

FLEISCHMANN'S YEAST NOT ELIGIBLE FOR THE LIST OF ACCEPTED FOODS

Fleischmann's Yeast is distributed by Standard Brands Incorporated, New York. The fresh, compressed yeast is sold in small packages called "cakes." Each cake, weighing about 125 Gm, is wrapped in tin foil. The product consists essentially of a viable strain of yeast and is used for various culinary purposes. In 1922 E M Bailey, Helen C Cannon and H J Fisher at the Connecticut Agricultural Experimental Station reported the approximate composition of the product to be moisture 65.4 per cent, ash 2.83 per cent, total nitrogen 1.15 per cent, water soluble nitrogen 0.37 per cent, water insoluble nitrogen 0.87 per cent, starch present. The average weight of the fresh cakes examined was 138 Gm. The Connecticut investigators at that time reported Fleischmann's Yeast to be a poor source of vitamin B (complex) as compared with dried brewers' yeast even though allowance was made for the moisture content of the fresh product. It is now generally recognized that the vitamin B content of yeast depends to a large extent on the substrate on which the yeast cells are cultured and there is no doubt that Fleischmann's Yeast could be a better source of vitamins B₁ and G in 1937 than it was in 1922.

Label—If one examines the label of the product in search of more recent information about the vitamin content, there is little information to be found. The label on the small cakes states merely that the product supplies vitamins A, B, D and G and that cereal or tapioca flour and primary vitamin A are added. The label bears the additional information, in red letters, to "Eat 3 cakes daily—before meals."

The Council on Foods has classed fresh compressed yeast among the so called special purpose foods. The vitamin B₁ and vitamin G potency of acceptable brands of yeast must be determined by biologic assay and the number of units of each vitamin that one could expect to find in the product is required to be declared prominently on the label. One looks in vain for any label statement regarding the number of vitamin units that could reasonably be expected to be derived from Fleischmann's Yeast. It is stated only that the product supplies vitamins A, B, D and G. There are a number of other foods of which it could be stated truthfully that they supply these same vitamins although one would have to know the amount present before deciding whether the quantity is sufficient to warrant mention in advertising. But quantitative information is lacking on the label of Fleischmann's Yeast. The product could be extremely variable and still be in accord with the present vague label declaration. There is lacking the assurance that a truly informative label might give that the potency of the product will be maintained irrespective of fluctuations in the cost of the primary vitamin A which is added or of the food substances on which the yeast cells are grown. Indeed, the label does not even indicate how much "filler" in the form of starch or cereal is added. Are small amounts of other ingredients added? How much vitamin D is present, and what is its source? These questions are not answered on the label.

DISCUSSION OF CLAIMS

Although the label of Fleischmann's Yeast bears little specific information, the advertising copy claims a great deal. The newer trend in advertising of this culinary product appears to be along nutritional lines. Claims are made for each of the vitamins and for the mixture said to be present in Fleischmann's Yeast. Comments on advertising that has appeared in recent numbers of popular magazines and newspapers may be divided for convenience into a discussion of the claims made for each of the vitamins and for the product as a whole.

Vitamin A—Advertising emphasis has been placed on the supposed relationship between vitamin A and the frequency of

colds Illustrations of a man in the act of sneezing are accompanied by the suggestion that the reader should let Fleischmann's Yeast help increase his daily supply of vitamin A and so help decrease the frequency of colds The Cooperative Committee on Vitamins reviewed the evidence available in 1936 and said

It [vitamin A] certainly has not been shown to be specific in the prevention of colds influenza and such infections nor has it been demonstrated that the ingestion of vitamin A far in excess of that necessary for normal body function and readily obtained from a properly selected diet is an aid in preventing various types of infection

It is misleading to the public, therefore to assert or imply that products containing vitamin A will aid in the prevention of colds

Vitamin B—If you have a "sagging stomach" poor digestion and "sluggish intestines" you are urged to add Fleischmann's Yeast to your regular diet to increase your supply of vitamin B There is no adequate basis for such statements and the Council does not recognize these claims

Vitamin D—Reference is made in some recent advertising to the work that has been done on the role of vitamin D in tooth formation and in the maintenance of normal tooth structure The Council takes no objection to such statements of fact provided the claim is not made that adequate vitamin D intake will insure normal tooth structure or will prevent dental caries

Vitamin G—One particularly objectionable claim that has appeared in recent advertising is concerned with statements made for vitamin G One illustration shows a thin round-shouldered, undernourished child with the caption "Too little vitamin G means poor growth" For contrast the picture of a taller, apparently well nourished child, standing erect and looking alert is presented with the heading "Diet ample in vitamin G" The explanatory text states that Fleischmann's Yeast is very rich in vitamin G, that children from 5 to 12 years of age can be given one to two cakes daily The obvious implication is that a thin, underweight child—perhaps one reported by a school physician as "malnourished," perhaps a tuberculous child not seen by a physician—can be made well and strong by eating Fleischmann's Yeast It is the opinion of the Council that a poorly nourished child requires the attention of a family doctor rather than the dietary advice of the Fleischmann Yeast Company

Claims for the Mixture of Substances That Comprise Fleischmann's Yeast—Dietary advice of dubious accuracy appears to be an important feature of some of the current advertising for Fleischmann's Yeast An advertisement which appeared in a recent number of a national woman's magazine has for a heading "You can't count on meals alone for vitamins you need" Another advertisement has for a heading "Many diets short in vitamins" The thesis that one cannot depend on meals alone for vitamins depends on the foods chosen A proper selection of the diet will insure a sufficient intake of all the vitamins that an adult requires Infants and small children need some vitamin D other than can be supplied in ordinary foods and there is available a variety of acceptable preparations which declare the unitage of vitamin D and thus enable the required dosage for the individual infant or child to be prescribed

Fleischmann's Yeast is said to be "the only natural food that furnishes such an abundant supply of all four of these vitamins (A, B, D and G) at once" The meaning of the expression "natural food" is certainly not clear when applied as it is here to a mixture of yeast cells treated to give a vitamin D activity, cereal or tapioca flour and carotene

Illustrations of athletes are presented with the comment that their sturdy build shows they are abundantly supplied with "the four important health-building vitamins A, B, D and G" The use of the phrase "the four important health-building vitamins" would seem to imply that nothing else need be considered in the diet No mention is made of vitamin C nor is any mention made of calories or protein or other dietary essentials or the countless other factors involved in the maintenance of good health in addition to the four vitamins A, B, D and G

For some time Fleischmann's Yeast has been promoted with the claim that its ingestion would sweep out poisons from the blood

Eat it regularly, says Dr. R. E. Lee, well known physician and Fleischmann's Yeast will help clear up adolescent pimples

Pimples put an end to popularity for many girls and boys after the start of adolescence—from about 13 to 25 or even longer Fleischmann's Fresh Yeast is helpful in clearing up a pimply skin because it clears these skin irritants out of the blood Eat three cakes every day—one or two cakes cannot do the work

As far as the Council on Foods is aware there is no adequate evidence in support of the claim that eating Fleischmann's Yeast will "help clear up adolescent pimples," and the Council does not recognize any therapeutic claim of this nature for any brand of fresh yeast

SUMMARY

There are now available on the open market a number of fresh and dehydrated yeast preparations which are advertised conservatively with claims based on the actual composition of the product Fleischmann's Yeast in contrast is sold with grossly exaggerated or unwarranted claims The Council on Foods voted, therefore, that Fleischmann's Fresh Compressed Yeast be declared ineligible for the list of accepted foods because it is inadequately labeled and is promoted with exaggerated or misleading claims

ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COUNCIL ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION AND WILL BE LISTED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED

FRANKLIN C. BING, Secretary

CHOC-LADE DAIRY DRINK POWDER

Manufacturer—Siren Mills Corporation, Chicago

Description—Powdered mixture of cocoa starch-free powdered cane sugar, vegetable emulsifying agent, salt and vanilla flavoring

Manufacture—The ingredients in formula proportions are mechanically mixed for forty-five minutes and packaged

Analysis (submitted by manufacturer)—Moisture 0.0%, ash 2.1%, fat 9.2%, protein (N \times 6.25) 9.2%, sucrose 27.9%, crude fiber, 2.6%, carbohydrates other than crude fiber (by difference) 76.9%, caffeine and theobromine 0.94%

Calories—4.27 per gram, 121 per ounce

Claims of Manufacturer—For preparation of special Choc-Lade beverages in accordance with specific license contracts and conditions of preparation

FORT WESTERN BRAND HAWAIIAN PINE-APPLE, SLICED, CRUSHED AND DAINTY SECTIONS

Distributor—Holmes-Swift Company, Augusta, Maine

Packer—Hawaiian Pineapple Company, San Francisco

Description—Canned pineapple packed in concentrated pineapple juice with added sucrose, the same as Dole Hawaiian canned pineapple products (THE JOURNAL, April 8, 1933, p. 1106, April 29, 1933, p. 1338, and April 4, 1936, p. 1166)

COLONIAL FLOUR, PHOSPHATE ADDED

Distributor—C. B. Ragland Company, Nashville, Tenn.

Manufacturer—Bliss Milling Company, Seymour, Ind.

Description—An "all purpose" "short patent" flour milled from soft wheat, bleached, phosphate added, the same as Colonial Flour, Phosphate Added (THE JOURNAL, May 22, 1937, p. 1801)

FI-NA-ST BRAND TOMATO JUICE

Distributor—First National Stores, Inc., Boston

Packer—Curtice Brothers Company, Inc., Rochester, N. Y.

Description—Canned tomato juice seasoned with salt retaining in high degree the natural vitamins The same as Blue Label Tomato Juice (THE JOURNAL, April 24, 1937, p. 1410)

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SATURDAY, JULY 24, 1937

FURUNCLE OF THE FACE

The problem of proper therapy of the facial furuncle is apparently far from settled. Recent contributions to the subject resort to the time honored custom of proving the case by statistics. Among the fallacies of the statistical method, none is more apparent than the comparing of results obtained in treatment by dissimilar groups. Ayres, Anderson and Foster¹ report the results of a questionnaire sent to 250 dermatologists and to an equal number of surgeons. Dermatologists, it seems, tend toward conservatism in the treatment of carbuncles, whereas surgeons are more inclined to use radical procedures. The majority of surgeons employ crucial incisions or cautery excisions of carbuncles, whereas the majority of dermatologists employ conservative methods, including x-rays, vaccines, bacteriophage and topical applications. The mortality from carbuncles is low in both groups, but it is more than three times as great under surgical as under dermatologic treatment. Cases of infection of the face coming to the surgical clinic, however, are usually of a more severe type than those seen by the dermatologist.

Most infections about the lip and face heal spontaneously under any type of treatment. There is, however, the potential danger of grave and even fatal complications. Infections of that portion of the face which includes the lips, nose, chin, lids and forehead are regarded as most likely to give rise to grave complications. Among these, furuncles of the upper lips and the nares give the highest percentage of fatal complications. The common etiology of a furuncle is the combination of lack of cleanliness with irritation and the ever present staphylococcus. The spreading potentialities of the facial carbuncle are due to the anatomic and physiologic peculiarities of the soft tissues of the face. The skin of the central portion of the face differs functionally from the rest of the skin in that it participates in facial mimicry. The particular anatomic

arrangement consists in the muscles of expression taking their origin from the bones of the face and inserting directly into the deep portions of the skin. The facile play of these muscles is further aided by the fact that they are not enclosed within stiff fascial sheaths. They are, instead, surrounded by loose subcutaneous tissue. The absence of fascial partitions and the almost constant movement of the overlying skin are potent factors in aiding the spread of an infection by continuity. Underlying these muscles of expression and mastication is a rich network of veins, likewise surrounded by loose connective tissue. These veins, according to Collier and Yglesias,² present certain structural anomalies such as the absence of valves and the relative rigidity of their walls. The inflammatory process involves the veins by compression and formation within them of septic thrombi. The thrombophlebitic process of the central portion of the face can extend in two directions: (1) by way of the nasal veins, the superior labial, the angular vein and its anastomosis with the superior and inferior ophthalmic veins into the cavernous sinus or (2) by way of the anterior facial vein, the common facial and the internal jugular vein into the general circulation. The resulting cavernous sinus thrombosis, meningitis, brain abscess or septicopyemia are almost always fatal.

Consensus of dermatologists and surgeons alike favors the conservative plan of treatment of at least the early and the benign infections of the face. Infectious lesions of the face, particularly those about the upper lip and the nose, should not be traumatized. The temptation to squeeze a pimple or to destroy it by a chemical substance may easily lead to the spread of infection, first by continuity and next by way of the blood stream. The principles underlying the conservative treatment may be summarized in (1) rest and (2) stimulation of the local and general defense mechanisms. The patient is put to bed in a hospital and speech is interdicted. He is fed fluids, preferably by gavage, so as to eliminate the process of chewing. Appropriate sedatives, analgesics and hypnotics are indicated to control the pain and insure rest and sleep. Specific immunization is best accomplished by intravenous administration of autogenous vaccines. Neither the method of autohemotherapy advocated by Bier nor that of Laeven of injecting blood into the healthy tissue about the carbuncle has gained much favor in this country. Roentgen irradiation appears to be capable of aborting many of the early infections and of promoting the breaking down and localization of the more advanced lesions. The roentgen rays are not in themselves bactericidal. The favorable action is believed to be due to the breaking down of certain radio sensitive cells and the consequent liberation of powerful antitoxic substances. Hot, wet applications, the old fashioned hot flaxseed poultices, tend to relieve pain

¹ Ayres Samuel Jr, Anderson N P and Foster P D. *Dermatologic versus Surgical Treatment of Carbuncles and Furuncles*. J A M A 108 858 (March 13) 1937

² Collier F A and Yglesias Luis. *Infections of the Lip and Face*. Surg Gynec & Obst 60 277 (Feb 15) 1935

and to limit the infection. The tendency is not to incise the early lesions but to wait until the infection "comes to a head", in other words, until the pus comes to the surface of the skin, or until there is fluctuation. This is perhaps the most widely accepted plan despite the few objectors. Foote,³ for example, does not consider the furuncle of the face as being different from that in any other location. He insists that a prompt incision offers the best chance to check the infection locally and to limit its spread.

In a fortunately small percentage of the cases, infection is fulminant from the very beginning or may take on a grave form after an apparently mild initial course. It is manifested by advancing edema, increasing induration about the furuncle, tenderness along the dilated larger venous trunks, increase in pain, fever and signs of general intoxication. Among the many surgical interventions advocated for the treatment of these complications may be mentioned crucial incisions with the cautery knife and undercutting of the edges, wide excision of the carbuncle with an electrocautery knife, ligation of the angular vein to prevent extension of the septic thrombosis into the cavernous sinus and, finally, the exposure and evacuation of the contents of the cavernous sinus in the presence of symptoms suggesting its development. In view of the rich venous anastomosis, ligation of the angular vein appears to be of doubtful value. Lexer advises ligation of the internal jugular vein as the first step in the treatment of a malignant infection of the lower lip and the chin. The prophylactic injunction not to squeeze or prick a pimple, no matter how small, together with prompt institution of the conservative treatment, will probably limit the number of grave cases to a minimum.

IRON METABOLISM IN EARLY INFANCY

Iron is essential for the growth and development of the human infant. At birth, considerable amounts of iron are stored in the liver¹ and to a lesser extent in other tissues, to insure an adequate supply of this element for the formation of new hemoglobin and body tissues during the period of nursing. If a sufficient store of iron is lacking, severe anemia develops far in excess of the "physiologic anemia" usually found during the first year of life. Such a condition is sometimes observed in premature infants in whom the amount of reserve iron is deficient because of the shortened period of access to the maternal supply of iron, and in full term infants whose reserve supply of iron is low because of a deficiency of this element in the maternal organism during gestation.

The liver has been generally regarded, heretofore as the chief site for the storage of iron during the fetal period. Recently, however, evidence has been pro-

duced indicating that this is not the case.² A study of data in the literature on the nonhemoglobin iron content of the liver of the human infant at birth shows that the amount of this element stored is not as large as might be expected, the quantity varying from a negligible trace, if the diet of the mother has been low in iron, to a maximum of possibly 60 mg. By 6 months of age the amount of reserve iron in the liver appears to be reduced to approximately 15 mg, thus indicating that 45 mg has been utilized. However, the average amount of new hemoglobin formed during this period would require by itself, exclusive of the iron needed for muscle and tissue growth, at least 80 mg. The amount of iron stored in other tissues could not meet this need and it could not be supplied from an exclusive milk diet. Indeed, balance studies made on infants during the first two months of life² show that there is a negative iron balance, the total average excretion of the element exceeding by 50 to 75 mg the dietary intake. During the next four months the infant remains practically in iron equilibrium.³ Thus it is necessary to account for at least 130 to 155 mg of iron needed during the first six months of life, and of this amount no more than 45 mg is supplied by the liver.

The question appears to be reasonably answered by hematologic studies made on infants during early infancy.² The hemoglobin content of the blood of the human infant at birth is exceedingly high, averaging from 22 to 23 Gm per hundred cubic centimeters, and during the first few weeks of life there is a rapid decrease in the value, a 'physiologic anemia' developing. A level of from 10 to 12 Gm of hemoglobin per hundred cubic centimeters of blood is usually observed by the sixth to the eighth week after birth. The amount of iron released by the destruction of hemoglobin during this period has been calculated and has been found to be approximately 250 to 300 mg. Since, as was pointed out, only 50 to 75 mg of "extra" iron is lost in the excreta during this period, it is obvious that the iron from the destroyed hemoglobin is efficiently conserved and that this iron, rather than stored liver iron, forms the major reserve supply of this element in the human infant.

Although the conservation of iron from excess hemoglobin destroyed during the first few weeks of life is relatively efficient, the fact that the average total loss of iron, in excess of the intake, is from 50 to 75 mg during the first two months of life cannot be disregarded. In the cases of infants fed cow's milk, who frequently show a negative iron balance during the entire first six months of life, infants whose mother's diet has been deficient in iron during gestation, and premature infants, it would seem desirable to supply some additional source of dietary iron at an early age preferably well before the infant is 6 months old.

³ Foote E M. Local Surgical Treatment of Infections of the Face. *Am J Surg* 6: 438 (April) 1929.

¹ Iron in Nutrition. White House Conference Reports. New York: Century Company, 1932. part III. Nutrition. p. 223.

² Stearns Genevieve and McKinley J B. The Conservation of Blood Iron During the Period of Physiological Hemoglobin Destruction in Early Infancy. *J Nutrition* 13: 143 (Feb.) 1937.

³ Stearns Genevieve and Stinger Dorothy. Iron Retention in Infancy. *J Nutrition* 13: 127 (Feb.) 1937.

Current Comment

THE TRUTH ABOUT EDWENIL

For several years THE JOURNAL has had many inquiries about Edwenil. The almost unlimited claims made in advertising broadcast by the distributor, Spicer & Co., aroused the curiosity of physicians. In 1933 the Council on Pharmacy and Chemistry rejected the product but has recently given it reconsideration. The report of the Council's latest consideration appears on page 272 of this issue. The reaffirmation of the Council's rejection is sustained by the excellent paper of Dr Stainsby and his associate, which is appended to its report. Based as it is on a complete and scientifically conducted refutation of the bulk of evidence offered for Edwenil, the Stainsby report reduces the propaganda of the distributor to the level of quackery at worst or of extreme overoptimism at best. It is possible definitely to class most of the claims for Edwenil as false, unwarranted or unsupported. The authors were unable to find the slightest evidence that Edwenil increased the immunologic response of the animals used in their studies.

IMPROVED POLLEN ANTIGENS

Relatively inert aqueous pollen extracts can be changed to highly efficient vaccines by alcohol precipitation, according to the unconventional conclusion reported by Manteufel and Kuhne¹ of the Hygienic Institute, Dusseldorf. From the previous failures to sensitize or immunize guinea-pigs or rabbits by the use of native aqueous pollen extracts van Leeuwen and others² concluded that pollen allergy is not a clinical phenomenon similar to experimental anaphylaxis in laboratory animals. Recently, however, Haag,³ of Dr Manteufel's laboratory, showed that an occasional guinea-pig can be actively sensitized to native aqueous pollen extracts if sufficiently large doses and sufficiently long incubation periods are adopted. Haag found that this borderline antigenicity of native pollen extracts could not be increased by concentration of the aqueous extract by partial evaporation. These immunologists also studied the effects of concentration (or fractionation) of aqueous extract by alcohol precipitation. The precipitate thus formed was taken up as a colloidal suspension in sodium chloride solution. The suspension contained no macroscopically visible particles. Repeated intraperitoneal injections of 0.5 cc of the resulting 0.2 per cent precipitate suspension invariably sensitized guinea-pigs to homologous pollens. When reinjected eight weeks later with homologous antigens, approximately a third of the animals reacted with typical fatal anaphylaxis. The remaining two thirds showed from mild to severe typical nonfatal shock. Control groups of guinea-pigs injected with native (or undenatured) aqueous pollen extracts were not demonstrably sensitized. The authors found that the incubation period for sensitization to precipitated antigen is

approximately two months. Maximum sensitivity was not reached till the sixth to the eighth month. In their hands sensitivity thus conferred was not serologically transferable and all attempts to produce classic passive anaphylaxis gave negative results. Young born to mothers sensitized from four to five months previously, however, were invariably highly hypersensitive. The authors predict that similar methods of alcoholic fractionation (or purification) will become applicable to the preparation of some bacterial vaccines.

TYPHOID LEUKOCIDIN

According to Dennis and Senekjian¹ of the department of bacteriology at the American University of Beirut School of Medicine, Lebanon, the typhoid bacillus forms or secretes a powerful enzymic factor having a selective toxic action on neutrophilic granulocytes. In their opinion this newly discovered leukocidin may be responsible for the characteristic leukopenia in typhoid fevers, for depletion of myelopoietic elements in the bone marrow and for the absence of cellular infiltration about foci of typhoid infection. To demonstrate leukocidic activity of typhoid bacilli the Beirut investigators mixed heparinized rabbit and nonimmune human blood with an equal volume of varying dilutions of the filtrate from twenty-four hour veal infusion broth cultures of *Eberthella typhi* and incubated the resulting mixtures at 37°C in a rotating box for sixty minutes. Toxic or lytic action was demonstrated in the incubated mixtures by routine differential blood counts. Lytic action was deduced from observed reductions in the total number of leukocytes per cubic millimeter and by visible degeneration changes in nonlysed cells. When a potent typhoid filtrate was tested a 50 per cent reduction in the total leukocyte count was usually noted by the end of sixty minutes, as compared with control mixtures of veal infusion broth and human or rabbit blood. The neutrophilic granulocyte was the only cell type thus reduced. Differential counts showed neutrophilic lysis in dilutions as high as 1:1,000 of typhoid filtrate, with destructive activity in dilutions as high as 1:10,000. The typhoid leukocidin is reduced 50 per cent in potency by heating to 85 per cent for sixty minutes and completely inactivated by heating to 100°C for two hours. The active principle readily passes the Berkefeld, Chamberland and Sertz filters. The active lytic principle may be precipitated from a typhoid filtrate by the addition of three volumes of 95 per cent alcohol in the cold. This is the conventional method for precipitation and concentration of streptococcal fibrinolysin and numerous other bacterial enzymes. The dried precipitate thus obtained can be kept for at least a year without appreciable loss of potency. The lytic factor is neutralized *in vitro* by specific antityphoid sera. A good antiserum may contain as many as 50,000 arbitrary neutralizing units per cubic centimeter. The authors found no qualitative or quantitative differences between the leukolytic activity of different strains of typhoid bacilli, filtrates from paratyphoid A and B, however, showed relatively little leukocidal activity.

¹ Manteufel P and Kuhne G. *Ztschr f Immunitätsforsch* 89: 362 (Dec. 7) 1936.

² Van Leeuwen W S, Bien Z and Varkamp H. *Ztschr f Immunitätsforsch* 37: 77 (1933).

³ Haag F E. *Klin Wchnschr* 14: 264 (Feb 23) 1935.

¹ Dennis E W and Senekjian H. *Proc Soc Exper Biol & Med* 36: 61 (Feb) 1937.

² Tillett W S and Garner R L. *J Exper Med* 58: 43 (Oct) 1933.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES NEW HOSPITALS EDUCATION AND PUBLIC HEALTH)

ALABAMA

Medical Talks at Howard College—A series of talks on public health was instituted June 28, in a forum on contemporary problems at Howard College, Birmingham. The first lecture was given by Dr James N Baker, Montgomery, state health officer, on "Public Health Administration." Other lecturers included

Reuben T Crawford DDS Montgomery, chief division of oral hygiene state department of health Oral Hygiene in the State Health Program

Dr Judson D Dowling Birmingham health officer of Jefferson County Disease Control

Dr George A Denison Birmingham director Jefferson County public health laboratories Public Health Laboratories

Dr John A Keyton Dothan Ear Eye Nose and Throat Surgery in Relation to Public Health

James L Brakefield PhD, professor of biology Howard College Birmingham The Layman in Public Health

ARKANSAS

Society News—At a recent meeting of the Randolph-Lawrence County Medical Society in Black Rock, Dr Matthias A Blatz, Pocahontas, discussed "Endocrine Troubles Peculiar to the Female," and Dr Franklin A Gray, Batesville, "Precancerous Conditions."—A symposium on diseases of the gall-bladder was recently presented before the Pope-Yell County Medical Society in Russellville by Drs Roy I Millard, Robert H Hood and Louis M Smith.—Speakers before the Tri-county Clinical Society at Hope, recently were Drs Theodore M Oxford, Shreveport, on "Fracture of the Hip", Robert T Lucas, Shreveport, "Diarrhea," and James G Martindale, Hope, "Addison's Disease, Atrophic Type" (case report).—The Miller County Medical Society was addressed, May 26, by Drs William A Hutchinson, Texarkana, on "Endocrinological Treatment of Dysmenorrhea" and Thomas F Kittrell, Texarkana, "Treatment of Appendicitis and Peritonitis."—At a meeting of the Benton County Medical Society in Bentonville, June 10, Dr Burleigh E De Tar discussed "Intestinal Obstruction", Otto T Blanke, "Allergy in General Practice," and Marvin C Davis, "The More Common Communicable Diseases in Children" all are of Joplin Mo

CALIFORNIA

Hospital News—The new La Vina Sanatorium was dedicated, June 4, in Pasadena, as a memorial to Dr Henry B Stehman, who established the institution in 1909. The old sanatorium was destroyed by fire in October 1935.

Personal—Mills College, Oakland, conferred the honorary degree of doctor of science on Dr Olga L Bridgman, professor of psychology and pediatrics, University of California Medical School, San Francisco.—Dr John C Sharp, San Jose, has been appointed director of public health of Monterey County.

DELAWARE

Dr Shands Appointed Chief of Staff—With the appointment of Dr Alfred R. Shands Jr, associate professor of surgery in charge of orthopedics Duke University School of Medicine Durham N C as chief of the medical staff of the proposed Nemours Foundation actual organization activities have begun newspapers have reported. The foundation was provided for in the will of the late Alfred I Du Pont to establish a hospital and home for crippled children. It will also give aid to children suffering from other diseases. The first unit of the institution will cost about \$1,000,000 and be situated on the Du Pont estate near Blue Ball on the Concord Pike. The will further provided that a certain amount of care be given to aged persons and that the bulk of the estate be used to maintain the foundation and research activities. Headquarters of the foundation will be in Jacksonville, Fla where Mr Du Pont died April 29 1935. The entire resources of the foundation comprising about \$600,000 will be used for the treatment and care of crippled children. Dr Shands, a native of Washington D C and a graduate of the University of Virginia Department of Medicine Charlottesville, in 1922 has been granted an indefinite leave of absence from Duke

IDAHO

New Director of Public Health—Dr James W Hawkins, formerly of Coeur d'Alene and recently head of the Twin Falls County health unit, has been appointed director of public health of Idaho, it is reported, succeeding Dr Jay D Dunshee. According to the Boise News, Dr Dunshee, who was appointed to the position when it was created in March was not qualified because he was not a legal resident of the state at the time he took office. He went to Idaho in December 1935 as medical adviser.

ILLINOIS

Changes in Hospital Superintendents—Dr Arthur K Drake has resigned as medical director of the Elmgrove Sanatorium, Bushnell, on account of ill health.—Dr William J Bryan superintendent of the Missouri State Sanatorium, Mount Vernon, Mo, has been appointed superintendent of the Rockford Municipal Sanatorium, succeeding Dr Robinson Bosworth, who resigned recently to take charge of the St Clair County Sanatorium now under construction at East St Louis.

Chicago

Personal—Paul N Leech, PhD, Secretary, Council on Pharmacy and Chemistry, American Medical Association, gave the commencement address at the Philadelphia College of Pharmacy and Science, June 9, his subject was "Intelligent Questioning."—Leslie B Arey, PhD Robert Laughlin Rea professor of anatomy, Northwestern University Medical School, received the honorary degree of doctor of science from Colby College, Waterville, Maine, at its one hundred and sixteenth commencement.

Society News—Sewall Wright, Sc D, professor of zoology, University of Chicago, will address a joint meeting of the Institute of Medicine of Chicago and the Chicago Society of Internal Medicine, October 25 on "The Hereditary Factor in Abnormal Development."—The Chicago State Hospital was host to the Irving Park Branch of the Chicago Medical Society recently. In addition to Dr Edward F Dombrowski managing officer other speakers included Drs Frank S Rankin on "Sleep Induced by Sodium Amytal in Psychotic Patients", Hyman H Goldstein "Traumatic Psychoses" and the late Barnet Lemchen "Brain Pathology and Mental Alienation".

INDIANA

Dr Page Joins Hospital Staff—Dr Irvine H Page, associate Hospital of the Rockefeller Institute for Medical Research, New York, will assume charge of the research department of the Indianapolis City Hospital, September 15, according to the Indianapolis Star. He will be retained for the post by Eli Lilly & Co, which cooperates with the hospital in laboratory and research work. Dr Page was born in Indianapolis, and is an alumnus of Cornell University Medical College, New York.

IOWA

Rocky Mountain Spotted Fever—During June ten cases of Rocky Mountain spotted fever with three deaths were reported to the state department of health. Three cases occurred in Clark County, one in Jackson County and six among Indians at the Sac and Fox reservation in Tama County.

Society News—A recent meeting of the Pottawattamie and Woodbury county medical societies, Council Bluffs, was addressed by Drs Archibald F O'Donoghue on "Modern Concepts in Treatment of Hip Fractures", James E Reeder, "Uses of High Frequency Audiometer" and Raymond J Harrington, "Electrocardiography in Relation to Clinical Heart Disease." The speakers are all of Sioux City.—Dr James H O'Donoghue, Storm Lake, was elected president of the Twin Lakes District Medical Society at its fifteenth annual assembly in Rockwell City, June 17, and Dr Paul W Van Metre, Rockwell City, was reelected secretary-treasurer.—A symposium on the clinical, gastroscopic and roentgenologic features of gastritis was presented before the Buchanan County Medical Society in Independence June 17, by Drs Byrl R Kirklin, Andrew B Rivers and Herman J Moersch, all of Rochester, Minn.

KENTUCKY

Society News—Drs Morris M Weiss and Aaron A Shapero, Louisville, addressed the Jefferson County Medical Society, June 21, on "Syncope and 'The Common Cold'" respectively.—Dr Claude S Eddleman addressed the Louisville Urological Society June 15, on "Treatment of Calculi of Upper Urinary Tract."—Drs William R Davidson and William Donald Davidson, Evansville, Ind, addressed the

Christian County Medical Society, Hopkinsville, June 29, on "Emergency Treatment of Fractures" and "Recent Developments in Treatment of Fractures" respectively

Dinner to Dr Abell—The Jefferson County Medical Society sponsored a testimonial dinner in honor of Dr Irvin Abell, Louisville, President-Elect of the American Medical Association, July 1, at the Pendennis Club, Louisville. The speakers included Drs William Barnett Owen, Louisville, president of the county society, James D Northcutt, Covington, president of the Kentucky State Medical Association, Arthur T McCormack, Louisville, secretary of the state association and state health officer, and William D Haggard, Nashville, Tenn, former President of the American Medical Association. About 275 physicians of Indiana, Kentucky and Tennessee attended.

LOUISIANA

Dr Cohn Joins Louisiana State Faculty—Dr Isidore Cohn, professor and head of the department of surgery, Graduate School of Medicine, Tulane University, New Orleans, has resigned to become professor of surgery and associate director of the department at the Graduate School of Medicine, Louisiana State University, New Orleans. A graduate of Tulane, 1907, Dr Cohn has been associated with his alma mater since 1909. In 1935 he succeeded Dr Rudolph Matas as chief of the department of surgery at Touro Infirmary, New Orleans.

MASSACHUSETTS

Honorary Degrees—Amherst College, Amherst, conferred the honorary degree of doctor of science on Dr Stephen Rushmore, Boston, recently, and Colby College, Waterville, Maine, a similar degree on Dr Harris P Mosher, also of Boston. Lieut-Col James S Simmons, Boston, received the degree of doctor of science from Davidson College, N C, at its centennial exercises, June 8.

Funds Needed for Medical School—A campaign is under way to create a \$5,000,000 fund for Tufts College Medical School according to the New York Times. The first step is to raise a fund of \$2,000,000 for improvements in the medical school. The report stated that a surgical unit of from fifty to sixty beds is urgently needed to complete the New England Medical Center group which is composed of the Boston Dispensary, the Boston Floating Hospital and the medical school.

MINNESOTA

Society News—Dr Francis S Smyth, San Francisco, addressed the annual meeting of the Northwestern Pediatric Society, Minneapolis, May 17, on "Clinical Studies in Bone Salt Metabolism."—Dr Higinio Joaquim dos Santos, professor of surgery, University of Lisbon, Portugal, lectured at the Mayo Clinic, Rochester, June 24, on "Arteriographic Changes in Vascular Diseases, Arthritis and Tumors of the Extremities."

New Director of Hygiene—Dr Malvin Nydahl has been appointed director of hygiene of Minneapolis schools, succeeding Dr Francis E Harrington, city health commissioner. Dr Nydahl will also be director of health education in the schools. Dr Harrington resigned the post because of his added duties as acting superintendent of the General Hospital, it is reported. Dr Nydahl graduated from the University of Minnesota Medical School in 1935.

MISSISSIPPI

Society News—Dr Paul H Harmon, Chicago, addressed a joint meeting of the faculty of the University of Mississippi School of Medicine, the staffs of the Oxford hospitals and the Northern Mississippi Valley Medical Society at Oxford, May 21, on poliomyelitis. Dr Harmon also showed a motion picture illustrating positions for convalescent treatment and surgical treatment of the disease.

MISSOURI

Dr Johns Goes to Maryland—Dr George A Johns who recently resigned as superintendent of the St Louis Training School has accepted an appointment as superintendent of the Rosewood State Training School Owings Mills Md. In 1924 Dr Johns resigned as superintendent of the City Sanitarium to become state health supervisor in charge of eleemosynary institutions. He later served as superintendent of the state hospital number 3 Nevada and of the state hospital number 2 St Joseph, and again of the City Sanitarium St Louis.

Personal—Dr Leon Paul Forgrave St Joseph, has been appointed a member of the state board of health, succeeding Dr William T Elam, St Joseph, whose term recently expired.—Dr Charles S Austin, Carrollton, observed his completion

of fifty years in the practice of medicine, May 1.—Dr Joseph Erlanger, professor of physiology at Washington University School of Medicine, St Louis, was awarded the honorar degree of doctor of science at the one hundredth annual commencement exercises of the University of Michigan.

MONTANA

Society News—Dr Thomas F Walker, Great Falls, discussed "Myelogenous Leukemia" before the Silver Bow County Medical Society, June 1. The society was addressed at an earlier meeting by Dr Harvey Lee Casebeer Butte, who read a paper written by Dr Peter Potter on "The Reticulo-Endothelial System."—Dr E Martin Larson, Great Falls, was recently elected president of the Montana Tuberculosis Association at its meeting in Helena.—The North Central District Medical Association of Montana was organized in May. The officers are Drs Paul O Neraal, Cut Bank, president, Herman F Schrader, Browning, vice president, and Walter L DuBois Conrad, secretary-treasurer.

NEBRASKA

Clinical Meeting in Omaha—The fifth annual assembly of the Omaha Mid-West Clinical Society will be held in Omaha, October 17-22, with headquarters at the Hotel Paxton. The following guest speakers have been announced: Dr William L Benedict, Rochester, Minn., Willis D Gatch Indianapolis, Arthur Bruce Gill, Jacob P Schaeffer and Edward A Schumann, Philadelphia, Luther Emmett Holt Jr Baltimore, Thomas Leon Howard, Denver, William J Kerr and Hans Lisser, San Francisco, Thomas Parran, surgeon general, U S Public Health Service, Washington, D C, Hans H F Reese, Madison, and Owen H Wangersten, Minneapolis. There will also be lectures by members of the faculties of Creighton University and the University of Nebraska schools of medicine, clinics and scientific exhibits.

NEW JERSEY

Society News—Dr Charles H de Turck Shivers Atlantic City, addressed the Cumberland County Medical Society, Bridgeton, June 15, on diseases of the urinary tract.—Dr Emanuel D Friedman, New York, addressed the Bergen County Medical Society, Hackensack, June 15, on "Trauma and the Nervous System."—Dr John A Brooke, Philadelphia, addressed the Cape May County Medical Society, Ocean City, May 20, on "Fracture of the Neck of the Femur."

NEW YORK

Dr Cunningham Appointed Dean at Albany—Dr Robert Sydney Cunningham, professor of anatomy at Vanderbilt University School of Medicine, Nashville, Tenn, has been appointed dean of Albany Medical College, Albany, to succeed Dr Thomas Ordway. Dr Cunningham is a native of South Carolina and graduated from Johns Hopkins University School of Medicine, Baltimore, in 1915. He was a member of the faculty of Johns Hopkins from 1915 to 1925, when he went to Vanderbilt as professor of anatomy. He will also hold a professorship of anatomy at Albany.

Three Outbreaks of Food Poisoning—Three outbreaks of illness caused by contaminated food have been traced to a bakery in Troy since April 1936. At that time six cases occurred in persons who had eaten chocolate eclairs. In May of this year there were six cases of gastro enteric disturbance in Troy and five in Rensselaer, all attributed to eating cream pies from this bakery. The third outbreak comprised twelve cases in Troy in June, attributed to the eating of strawberry cream pie. Investigation disclosed that the cream filled pastries supplied by the bakery in question were not subjected to refrigeration. The plant was found to be in satisfactory sanitary condition and no evidence was found of illness or skin lesions among the employees. The laboratory investigation had not been completed at the time of the report in *Health News*.

New York City

City Hospitals on Eight Hour Day—The entire work force of the Department of Hospitals, except administrative officers, physicians and superintendents of nurses, was placed on an eight hour day July 1. The new arrangement changes the hours for nurses, attendants, cooks, household and kitchen helpers and ambulance drivers, some employees have been working on this schedule for some time. The change is made possible by an appropriation of \$1,500,000 by the board of estimate. The department will require 2,793 additional personnel, including 1,281 graduate nurses and 349 hospital attendants or nurses' aids.

Knickerbocker Hospital Seventy-Five Years Old—Knickerbocker Hospital celebrated the seventy-fifth anniversary of its founding at a luncheon at the Hotel Astor May 20, with Nicholas Murray Butler, Ph D, president of Columbia University, as the principal speaker. Congratulatory messages from President Roosevelt and Governor Lehman were read. The hospital had its beginning in a tent set up by a young physician in 1862 to care for wounded and sick Union soldiers home from the Civil War. In May of that year the number of patients had grown so much that the Manhattan Dispensary was founded to care for them. The dispensary grew into a general hospital, known for many years as the J. Hood Wright Memorial Hospital and since 1913 as Knickerbocker Hospital according to an account in the *New York Times*. It now has 175 beds.

NORTH CAROLINA

University Changes—Evan W. McChesney, Ph D, associate professor of biological chemistry, University of North Carolina School of Medicine, Chapel Hill, recently resigned to join the faculty of Baylor University College of Medicine, Dallas, Texas, with the same title. Dr. Augustus S. Rose, associate professor of anatomy, resigned to become assistant in neurology at Massachusetts General Hospital, Boston.

New Health Officers—Dr. Sigma A. Lewis, Roxboro, has been appointed health officer of a district including Washington, Tyrrell and Hyde counties. Dr. Zack P. Mitchell, Bryson City, recently assistant health officer of Swain County, has been appointed health officer of a district comprised of Cherokee, Clay and Graham counties. Dr. Philip G. Padgett, Forest City, succeeded Dr. Mitchell in Swain County.

OHIO

Personal—Dr. C. J. Altmaier, Marion, has been appointed a trustee of Ohio State University for a term of seven years. Dr. Lorin Kerr Jr., Toledo, has been appointed head of the bureau of medical relief and superintendent of the Municipal Hospital for Contagious Diseases in Toledo. Dr. Marion A. Blankenhorn, Gordon and Helen Hughes Taylor professor of medicine, University of Cincinnati College of Medicine, received the honorary degree of doctor of science from Wooster College, Wooster, recently. Dr. David F. Gerber, Middletown, received the alumni medal "for meritorious service to humanity" at the recent commencement of Miami University, Oxford. Dr. Carlyle W. Dewey, Conneaut, has been appointed a member of the state medical board. Dr. Howard T. Karsner, director of the Institute of Pathology, Western Reserve University School of Medicine, Cleveland, has been elected a member of the medical advisory board of the Leonard Wood Memorial (American Leprosy Foundation).

Society News—Dr. James K. Nealon, Newark, addressed the Carroll County Medical Society, Carrollton, June 3, on "Significance of Pus in the Urine." Dr. John H. Skavlem, Cincinnati, addressed the Clermont County Medical Society, June 3, in Loveland, on "Chronic Nontuberculous Lung Infections." At a meeting of the Clinton County Medical Society, Sabina, June 1, Dr. William L. Wead, Sabina, presented a paper on diseases of the arteries. Dr. Carl V. Moore, Columbus, addressed the Miami and Shelby County Medical Society, Sidney, June 3, on "Anemia, Its Etiology and Treatment." Dr. Harve M. Clodfelter, Columbus, spoke on "Gallbladder and Associated Gastric and Intestinal Diseases" before the Marion Academy of Medicine, June 1. Drs. Thomas L. Ramsey and Edward J. McCormick, Toledo, addressed the Seneca County Medical Society, June 16 in Fostoria, on pathology and surgery, respectively, of carcinoma. Dr. John L. Stifel, Toledo, addressed the Wood County Medical Society, Bowling Green, June 17, on "Peripheral Vascular Disease." Dr. David Steel, Cleveland, addressed the Lorain County Medical Society, Lorain, June 8, on "Roentgen Ray Treatment of Malignancies." At a meeting of the Columbus Academy of Medicine, June 14, the speakers were Drs. Earl H. Baxter and Leslie L. Bigelow on the medical and surgical aspects respectively, of abdominal pain in childhood, and Dr. Ralph I. Fried, on treatment of congenital syphilis.

PENNSYLVANIA

Society News—Dr. Joseph H. Barach, Pittsburgh, addressed the Cambria County Medical Society, Johnstown, July 8, on "Clinical Application of Protamine Insulin." Speakers at a meeting of the Lycoming County Medical Society, Williamsport, July 9 were Drs. John Moore Campbell Jr., Harrisburg, on "The New Tuberculosis Program of the State Department of Health," Reynold M. Grieco, "Newer Method of Diagnosis and Treatment of Pathologic Conditions of the Rectum," and Lloyd E. Wurster, "Deep Roentgen Ther-

apy in Carcinoma of the Prostate and Its Metastasis."—Drs. Edgar S. Everhart and John R. Heller Jr. of the U. S. Public Health Service, and Albert F. Doyle, all associated with the state department of health, Harrisburg, presented a symposium on syphilis at a meeting of the Mifflin County Medical Society, Lewistown, June 3, and of the Blair County Medical Society, Altoona, June 22.

RHODE ISLAND

Society News—At a meeting of the Providence Medical Association, June 7, Drs. Hugh E. Kiene and William M. Muncy spoke on "Survey of Seven Years Treatment at the Chapin Hospital" and "Eye Manifestations for Trypanosomid Reactions" respectively. Dr. Charles L. Farrell, Pawtucket, addressed the Washington County Medical Society, Westerly, July 14, on "State Medicine."

Personal—Dr. Ernest A. Charon, Manville, has been appointed health officer of Lincoln, succeeding the late Dr. Harry A. Manchester. Dr. Francis V. Corrigan, Providence, assistant chief of the bureau of child hygiene in the state department of health for the past sixteen months, has been appointed chief succeeding Dr. Marion L. A. Gleason, who retired. Dr. Gleason has served since 1923. Dr. Michael J. O'Neil, Providence, has been appointed medical director of the state unemployment relief commission. He succeeds Dr. Henry J. Hoye.

SOUTH DAKOTA

Food Handlers to Be Examined—A plan for examination of food handlers in Sioux Falls was recently instituted by the city health officer. Examinations are to be made every six months and are voluntary on the part of proprietors. Restaurants, groceries and meat markets that cooperate will receive cards certifying that all food handlers have certificates of health.

TENNESSEE

Tennessee Valley Association Meeting—Dr. Elbert G. Wood, Knoxville, was chosen president-elect of the Tennessee Valley Medical Association at its meeting in Knoxville, June 23-25. Vice presidents elected are Drs. Ancil A. Richardson, Williamsburg, Ky.; Glenn T. Foust, Norton, Va.; and James Frank Pate, Canton, N. C. Dr. Jesse C. Hill, Knoxville, was reelected secretary. Dr. Edward A. Gwynes, Knoxville, was installed as president. Among the speakers were Drs. George W. Crile, Cleveland; Hugh H. Young, Baltimore; Virgil E. Simpson, Louisville, Ky.; Willis C. Campbell, Memphis; Francis T. Hunter, Boston; James E. Paullin, Atlanta, Ga.; and Leon J. Menville, New Orleans.

TEXAS

Hospital Head Appointed—Dr. Edgar M. Dunstan, medical director of Baylor Hospital, Dallas, was recently appointed superintendent of the Dallas city and county hospital system to succeed Dr. James H. Stephenson, who became superintendent of the Jefferson Davis Hospital, Houston. Dr. Dunstan will have charge of Parkland General Hospital and the Woodlawn tuberculosis unit in Dallas and the Convalescent Hospital at Hutchins.

Premedical Fraternity Dinner—The Texas Alpha chapter of Alpha Epsilon Delta, honorary premedical fraternity, recently gave a dinner at the University of Texas, Austin, for all Texas premedical students. More than 300 students and faculty members from eight Texas colleges and universities were present. Harry Y. Benedict, LL.D., president of the University of Texas, Austin, was toastmaster and guest speakers included Drs. Calvin R. Hanna, Dallas, president of the State Medical Association of Texas; Walter H. Moursund, dean, Baylor University College of Medicine, Dallas; and Edward H. Carv, Dallas, past president of the American Medical Association.

UTAH

Commonwealth Fund to Build Hospital—The Commonwealth Fund of New York has awarded to Provo the tenth of its hospitals for rural areas, and will contribute \$200,000 while the city will be required to raise about \$75,000 for the hospital.

WASHINGTON

Personal—Dr. John W. Adams, Waterville, has resigned as health officer of Douglas County. Dr. John N. Alley, superintendent of Tacoma Hospital, Tacoma, operated by the U. S. Department of the Interior, has retired from that position and has been appointed to the staff of the Eastern State Hospital, Medical Lake. Dr. Lawrence E. C. Joers, Tacoma, has been appointed health officer of Pierce County to succeed Dr. Hinton D. Jonez.

Rabies Quarantine in King County—The increase of rabies in recent months led the state director of agriculture to establish quarantine regulations for dogs in King County, according to *Northwest Medicine*. Regulations require that dogs be vaccinated annually with rabies vaccine or else be confined on their owners' premises. Vaccinated dogs may be allowed freedom twenty-one days after their vaccination and they must wear metal tags to indicate to enforcement officers that they have been immunized. Dogs being removed from the county must be accompanied by certificates of vaccination. Any dog that has been bitten by a rabid dog must have the Pasteur treatment or be destroyed. If he has the treatment he must be kept in quarantine for ninety days. The quarantine is to remain in effect until June 30, 1939.

WEST VIRGINIA

Refresher Courses—The state health department in cooperation with the West Virginia State Medical Association has provided refresher courses in obstetrics, pediatrics and venereal diseases in fifteen towns of the state. The series began July 12 and one meeting will be held in each location once a week for seven weeks. Drs. William J. Dieckmann and Morris Edward Davis, Chicago, and Everett D. Plass, Iowa City, are giving the lectures on obstetrics; Drs. Edwards A. Park, Baltimore, and George M. Lyon, Huntington, those on pediatrics. The lecturers on venereal disease had not been selected at the time of the announcement.

WISCONSIN

Personal—Dr. Harold H. Fechtner, Wausau, has resigned as director of the Marathon County health unit established in 1936, to resume private practice.—Dr. George Van Ingen Brown, Milwaukee, professor of plastic surgery, University of Wisconsin Medical School, Madison, has retired.

Bardeen Lecture—The Charles R. Bardeen Memorial Lecture honoring the late dean of the University of Wisconsin Medical School, Madison, was presented May 24 at the university under the auspices of the Phi Chi fraternity. Dr. Jacob Arnold, Bergen, Rochester, Minn., gave the lecture on "Recent Advances in Studies on Intestinal Disorders in Europe and America. Personal Observations."

PHILIPPINE ISLANDS

Hospital News—The late Dr. Gregorio Singian left 350 mg. of radium, valued at \$100,000, to the San Juan de Dios Hospital, Manila.—Dr. Gervasio Santos Cuyugan, for twelve years director of the Tayabas Provincial Hospital, has retired to enter private practice in Manila.

GENERAL

Examinations in Pediatrics—The American Board of Pediatrics will hold fall examinations on the following dates:

- Chicago, Sunday, October 17, following the meeting of region III of the American Academy of Pediatrics.
- Los Angeles, Sunday, November 7, following the meeting of region IV.
- Boston, Sunday, November 14, following the meeting of region I.
- New Orleans, Tuesday, November 30, following the joint meeting of region III with the Southern Medical Association.

Obstetrics Board Examinations—The American Board of Obstetrics and Gynecology announces that the next written examination and review of case histories of group B applicants will be held in various cities in the United States and Canada, November 6. The next general examination for all candidates will be in San Francisco, June 13-14, 1938, immediately before the meeting of the American Medical Association. Application blanks and booklets of information may be obtained from Dr. Paul Titus, secretary of the board, 1015 Highland Building, Pittsburgh. Applications must be filed not later than sixty days prior to the examination dates.

Society News—Dr. Edgar G. Ballenger, Atlanta, Ga., was chosen president-elect of the American Urological Association at its annual meeting in Minneapolis, June 30, and Dr. David W. MacKenzie, Montreal, was installed as president. Dr. Clyde L. Deming, New Haven, was reelected secretary.—Dr. Alphonse McMahon, St. Louis, was elected president of the American Therapeutic Society at the annual meeting in Atlantic City, in June.—The fifth annual meeting of the Western Orthopedic Association will be held in Seattle, July 28-30, with headquarters at the Washington Athletic Club.—The third annual meeting of the Mississippi Valley Medical Society will be held in Quincy, Ill., September 29-October 1.

Dr. Young Awarded Medal—Dr. Hugh H. Young, professor of urology, Johns Hopkins University School of Medicine, Baltimore, was presented with the Keyes gold medal of the American Association of Genito-Urinary Surgeons during

its recent annual meeting in Quebec. In bas relief on one side of the medal is a portrait of Dr. Edward L. Keyes, who died in 1924, and the other side carries the inscription "for contributions to the advancement of urology." Dr. Young graduated from the University of Virginia Medical Department in 1894 and has been associated with Johns Hopkins since 1895. He was president of the American Association of Genito-Urinary Surgeons and the American Urological Association in 1909 of the Medical and Chirurgical Faculty of Maryland in 1911, 1912, and of the International Congress of Urology in 1917. Dr. Young has written several volumes on urology and is the founder and editor of the *Journal of Urology*.

Bequests and Donations—The following bequests and donations have recently been announced:

- White Plains Hospital, White Plains, N. Y., \$75,000 from an anonymous donor as a memorial to the late Dr. Henry Ernest Schmid.
- The following hospitals in New York received bequests from the late R. Bleecker Rathbone: White Plains, St. Luke's Hospital, \$65,000; St. Mary's Hospital for Children, New York, Orthopedic Dispensary and Hospital, New York, Nursery and Child's Hospital, Hospital for Ruptured and Crippled, Home for Incurables and Babies, Hospital House of Rest at Sprain Ridge, Yonkers, \$15,000 each.
- A trust fund of \$200,000 was established in the will of the late Howard B. Magruder to establish and maintain a hospital at Port Clinton, Ohio. Dr. Carl J. Yeisley, Port Clinton, is chairman of a board of trustees appointed to administer the fund.
- Montgomery Hospital, Norristown, Pa., \$5,000 by the will of Miss Mary Fornace.
- Ahington Memorial Hospital, Ahington, Pa., \$20,000 from the annual June fête given by the woman's auxiliary.
- The will of Anne T. Fischer provided the following bequests: St. Francis Hospital and St. Joseph's Hospital for Consumptives, \$10,000 each; Misericordia Hospital, \$5,000; and St. Rose's Free Home for Incurable Cancer, \$2,000. All are in New York.
- New York Foundling, St. Vincent's and Mount Sinai hospitals, New York, \$1,000 each from the estate of Morgan O'Brien.

Estimate of Life Earnings—A study of life earnings in sixteen occupations placed medicine at the top of the list with \$108,000 for a working span of forty-two years, according to a report in the *New York Times*, July 14. Prof. Harold F. Clark, in charge of educational economics at Teachers College, Columbia University, New York, and a staff of research work-

Life Earnings in Sixteen Occupations

Occupation	Working Life Span	Present Value of Average Earnings for a Working Lifetime
Medicine	42	\$108,000
Law	43	105,000
Dentistry	45	95,400
Engineering	43	93,300
Architecture	43	82,500
College teaching	44	69,300
Social work	45	51,000
Journalism	46	41,500
Ministry	44	41,000
Library work	46	35,000
Public school teaching	45	29,700
Skilled trades	44	28,600
Nursing	40	23,300
Unskilled labor	44	15,200
Farming	51	12,500
Farm labor	51	10,400

ers spent eight years in the study with results shown in the accompanying table. In explanation of the purpose of the study, Dr. Clark said that occupational guidance is being given in disregard or ignorance of wages in the different occupations. He declared that income is the best measure of the relative need in all socially desirable occupations. "Although the professions may seem to be very badly crowded, in the light of the incomes of unskilled labor, farming and even of skilled labor there is no doubt that by and large the professions need many people in them," he observed. "Professional service is a type of service that people are willing to pay more for because it is scarce."

FOREIGN

World Conference on Leprosy—The fourth International Conference on Leprosy will be held in Cairo, Egypt, beginning March 21, 1938, under the auspices of the International Leprosy Association, formed in 1931. The three previous conferences were held at Berlin in 1897, Bergen in 1909 and Strassbourg in 1923. The Egyptian government is inviting all countries concerned to send official delegates and in addition, physicians and others interested in the subject are invited to be present. Full information may be obtained from the secretary of the International Leprosy Association, 131 Baker Street, London W. 1.

Sesquicentennial of Purkinje—A jubilee celebration of the one hundred and fiftieth anniversary of the birth of Jan Purkinje, the physiologist, is being arranged in Prague for September under the patronage of Eduard Benes, president of the Republic of Czechoslovakia. Purkinje was born Dec 17 1787, in Libochovice in northwestern Bohemia and studied medicine at Charles University in Prague. After his graduation he was first appointed assistant in anatomy at his alma mater and later became professor of pathology at Breslau, Germany, at the age of 33. At Breslau in 1842 he established what is said to have been the first separate department of physiology in Europe. In 1850 he established a department of physiology at his alma mater in Prague, where he died July 28, 1869.

International Tuberculosis Meeting—The tenth conference of the International Union Against Tuberculosis, postponed from 1936, will be held in Lisbon, Portugal, September 5-9, under the chairmanship of Prof Lopo de Carvalho. Topics of discussion will be: Radiological aspects of the pulmonary hilus and their interpretations; primary tuberculous infection in the adolescent and the adult, the open case of tuberculosis in relation to family and domestic associates. The speakers from the United States will include Drs Charles J Hatfield, Philadelphia, secretary of the National Tuberculosis Association, Henry C Sweany, Chicago, and Robert E Plunkett of the New York State Department of Health, Albany. Information concerning the program and other details may be obtained from the National Tuberculosis Association, 50 West Fiftieth Street, New York.

Deaths in Other Countries

Dr Felix de Lapersonne, French ophthalmologist at one time president of the International Association for the Prevention of Blindness, in 1934 received the Leslie Dana Medal awarded by the National Society for the Prevention of Blindness of the United States in cooperation with the St Louis Society for the Blind, died July 5, aged 84.

Government Services

Dr McCoy Studies Leprosy

Dr George W McCoy, former director of the National Institute of Health, Washington, D C, has been assigned by the U S Public Health Service to make a study of leprosy in continental United States and the island possessions, according to the *New York Times*. It was stated that the American Mission to Lepers, of which Dr McCoy has been for many years an honorary vice president, will place at his disposal its facilities for contact with the 200 leper colonies and clinics of Protestant churches throughout the world.

Maryland Free from Bovine Tuberculosis

Maryland became a modified accredited area July 1 the forty-fourth state to eradicate bovine tuberculosis. Three other states were successful in tuberculin-testing work during June. California reported the following counties for modified accreditation: El Dorado, Lake Sacramento and Yuba. New York reported the necessary progress in Chenango, Delaware, Lewis and Otsego, while South Dakota reported Brown, Hyde, Jerauld, Moody and Spink. Seven municipalities were accredited in Puerto Rico.

Examinations for Army Medical Corps

The War Department announces that an examination will be held September 13-17 for the purpose of qualifying candidates for appointment as first lieutenants in the Medical Corps, U S Army, to fill vacancies occurring during the fiscal year 1938. The examination is open to all male graduates of recognized medical schools who have completed one year's internship in an approved hospital and who will not be over 32 years old at the time it is possible to tender a commission. The examination will be conducted by boards in various parts of the United States and will consist of a written examination in professional subjects, a physical examination, and a determination of the candidate's adaptability for military service. Full information and application blanks may be obtained from the Adjutant General, War Department, Washington, D C. Applications must be received before August 31.

Foreign Letters

LONDON

(From Our Regular Correspondent)

June 26, 1937

The Treatment of Pleural Effusion

In a discussion at the Royal Society of Medicine, Dr Burton Wood said that the commonest cause today of pleural effusion in the tuberculous was trauma. Better than treating a pleural effusion was not to provoke one to remember that a blunt needle will lacerate the pleura, that a drop of alcohol left on a needle may cause intense irritation, that cold air injected into a warm pleural cavity may provoke reaction, or a positive pressure lead to effusion by the stretching of or tearing of adhesions. The man who cannot use his needle as an artist should turn to less delicate work. Any pleural puncture may be the first step toward thoracoplasty.

Many pleural effusions do not require active treatment. They are benign and may be protective in effect if not in intention. Thus a pleural effusion is the commonest manifestation of intrathoracic tuberculosis in childhood and appears to be analogous to other reactions of allergic type seen in child contacts. Such effusions have little effect on health, sometimes disappear very rapidly, and are rarely followed by parenchymatous disease. Some of the adolescent pleurisies are of similar type. Hence a young person with a "simple" pleural effusion, who is possibly in a hypersensitive state, should not be exposed to the risk of further infection, e g, by sharing a sanatorium cubicle with a patient with "open" pulmonary tuberculosis.

Dr Wood asked: What is the after-history of patients whose lungs are apparently otherwise sound at the time of the effusion? We have been taught that the expectation of subsequent phthisis is from 40 to 50 per cent, but recent Scandinavian figures suggest that 90 per cent make a lasting recovery. In a series of thirty cases occurring in young persons (from 15 to 35 years of age) Dr Wood found during an average observation period of five years that twenty-seven remained well and that the remaining three who died were all examples of bilateral pleurisy.

Before the advent of radiology the condition of the lung underlying the effusion was often in doubt. If effusion is suspected, x-ray examination should precede exploration. Blind tapping is justifiable only for the relief of urgent symptoms. If the disease runs a favorable course, the fluid will be spontaneously absorbed, but if it is of less benign type, aspiration will only lead to fresh outpouring of fluid, which will thicken as aspirations are repeated. The end result will be empyema. It is true that fluid, if left, will ultimately cause pleural thickening, but this is a conservative process. Fibrosis begins where tuberculosis ends.

The presence of a tuberculous focus in the underlying lung is sometimes assumed, and this has given rise to the practice of air replacement. This treatment is based on speculation, unless the effusion is known to cover diseased lung. But when the large size of an effusion causes mediastinal displacement or distress, air or oxygen replacement is necessary, but it is useless to try to prevent reaccumulation by pneumothorax. If hectic fever persists, an aspiration will sometimes be followed by a fall of temperature. It is justifiable to try this, with or without replacement, but repeated aspirations are undesirable.

Many of the effusions complicating pneumothorax are benign in their effect. An incomplete collapse is sometimes thus converted into a complete one and a cavity held out by adhesions closed. If an effusion rapidly fills the pleural space, it is tempting to replace it by air in the hope of maintaining a controlled collapse, but the result is usually reaccumulation, and recurrent aspirations bring the risk of empyema.

As intrapleural pneumolysis increases the risk of pleural effusion, Dr Wood questions the increasing practice of dividing adhesions in the early weeks of a pneumothorax before its efficacy can be fairly judged. When a serous effusion is followed by tuberculous empyema, anxiety is inevitable, though it may remain latent for years and not appear to affect the patient's health. Repeated aspirations then involve the grave risk of secondary infection. Conservative treatment is the best in most cases, especially in the young.

In cases of infected tuberculous effusion the need for action is urgent, but in the less virulent cases gelatinothorax should be tried before instituting closed drainage by intercostal catheter and negative suction.

Recognition of Opticians for Sight Testing

Surprise and dissatisfaction have been widely expressed in the medical profession by the proposal of the Ministry of Health to recognize opticians for sight testing in the regulations for the provision of spectacles under the national health insurance act. The *British Medical Journal* terms the proposal "profoundly disturbing" and points out that it is considerable advance in the direction of statutory registration of sight-testing opticians, which has not only been vigorously opposed by the British Medical Association during the past thirty years but has been reported on unfavorably by governmental departmental committees. In a letter to the *Times*, Dr G. C. Anderson, medical secretary of the association, says that the regulation is contrary to the whole weight of expert opinion. An analysis of 30,000 consecutive cases of ocular disturbances showed that in 27.6 per cent these were due to causes other than errors of refraction, while in 7 per cent there were similar disturbances without any error of refraction. Opticians, ignorant of diseases of the eye, will in most cases prescribe glasses for all sorts of trouble. In a letter to the *Times*, Sir John Parsons, past president of the Royal Ophthalmological Society, states that it is by no means infrequent for the ophthalmic surgeon to see cases of grave loss of vision which has resulted from sight-testing opticians failing to recognize disease conditions. He has had patients suffering from chronic glaucoma thus overlooked and in one case from malignant intra-ocular tumor. Mr Malcolm Hepburn, honorary secretary of the Council of British Ophthalmologists, points out that there are a great many varieties of the normal which, to the improperly educated observer, may simulate disease conditions of the eye, and it often requires all the medical training of the ophthalmic surgeon to decide whether they are of importance or not. When the sight-testing optician observes them he advises the patient to seek medical opinion, thereby creating fear of danger to the sight, which it is sometimes very difficult for the ophthalmic surgeon to dispel. Had he been consulted in the first instance, this would have been avoided. Secondly, the optician seems to have little idea regarding the relation between errors of refraction and eye diseases, and this leads him to order glasses "to prevent loss of sight." Thus the patient is frightened into wearing glasses that may be entirely unnecessary.

Increase in Court Claims for Dermatitis

The Wholesale Textile Association is exercised by the frequency with which claims are made for dermatitis said to be produced by articles of clothing and has held a conference to discuss what steps should be taken to resist unjustified claims. Originally claims of this kind arose in respect to furs and dermatitis was generally supposed to be due to the wearing of furs which had been treated with inferior dyes. Recently, however, claims have arisen with regard to every type of clothing, including gloves, dresses and underwear. Apart from people who endeavor, the association alleges, to make a living out of dermatitis claims, there are a certain number of persons among the general public suffering from an idiosyncrasy to dermatitis. In this case the fault may be said to be with

the person and not with the garment. It is on these persons that the responsibility rests not to wear apparel that is irritant to them but harmless to the general public.

Claims for dermatitis frequently arise in connection with the use of hair dyes, particularly paraphenylenediamine. A case has just been heard in which heavy damages were awarded at Manchester. A woman sued "Oloxo Limited," London, and a local hairdresser for negligence. She alleged that after the application of a hair dye called "Oloxo" she suffered from dermatitis and her face became so swollen that she could not see for three days and went through an agonizing time. The hairdresser claimed an indemnity from "Oloxo" on the ground that she was assured that "Oloxo" was harmless. The judge said that "Oloxo" was not as warranted. It was not safe for application to the head—the purpose for which it was sold. The makers knew this, for the manager had said that he regarded it as dangerous to use without a skin test. Yet they gave a warranty that it was safe. The judge awarded £2,600 damages.

PARIS

(From Our Regular Correspondent)

June 17, 1937

The Paris Exposition

In the special exposition number of the *Presse médicale* June 26, is a description of the exhibits illustrating the progress that has been made in medicine, surgery and microbiology. Prof. G. Roussy, dean of the local medical school, and Dr. Justin-Besançon, also of Paris, were in charge of assembling the exhibits for the section on internal medicine. There are five large booths in which the principal discoveries made in the different branches are presented in a manner that will make it easy for the public to understand, without sacrifice of the essential scientific aspects of the subjects. The various steps in medical discoveries from the beginning of the nineteenth century to the work of Pasteur are well shown. The army medical and public health services have exhibits that do credit to their splendid organization in France. One booth is devoted to clinical thermometry and calorimetry, with demonstrations of how the basal metabolic rate is determined. The various physical methods (roentgenography, roentgen therapy, radium therapy, ultraviolet therapy and pyrotherapy) are well illustrated. In the Claude Bernard section, recent advances in diseases of nutrition and of the alimentary tract receive a good deal of attention. A chart illustrating the location and function of the endocrine glands makes this subject easy to understand.

In hematology, special stress is laid on the treatment of anemias and leukemias. In neurology, numerous sections and diagrams attempt to show the progress in this field. The wax models from the museum of the St. Louis Hospital, which are familiar to every syphilologist and dermatologist who has ever visited Paris, form an important part of the exhibit at the Grand Palais.

The surgical portion was organized by Prof. A. Gosset and Dr. Fredet. The dominant idea was to concentrate on three subjects: anesthesia, asepsis and transfusion. In the first named the exhibit was arranged by Dr. Robert Monod and in the last by Dr. M. Tzanck. The anesthesia exhibit consists of a series of units showing the various anesthetic agents employed at present. The various types of apparatus for general (inhalation) anesthesia, the method of using carbon dioxide as an adjuvant, intravenous administration of barbiturates for general anesthesia, and spinal, local and rectal technique are all shown in a way to make them easy for visiting physicians to understand. With the aid of Mr. Walter, an experienced hospital architect, the various methods of obtaining aseptic operating conditions are shown in a series of models of sterilizing and operating rooms. In the transfusion exhibit, the technique of blood grouping and of giving transfusions are well shown.

The section of microbiology is dedicated to the work of Pasteur and its results. The description of the exhibit is written

by Pasteur Vallery-Radot, Pasteur's grandson, an eminent clinician here. The various discoveries of Pasteur are arranged in chronological order. In addition, photographs of Pasteur and his co-workers, laboratory notes, letters and reproduction of autographs will be of great interest to visiting bacteriologists. The results of Pasteur's discoveries are shown under the headings of serums and serotherapy, use of toxoids (anatoxins) and associated vaccinations.

THE HYGIENE BUILDING

Medical visitors to the exposition will find that the building which has been constructed under the supervision of Professor Tanon contains many exhibits of great interest. Diagrams and models illustrate every problem relating to hygiene of large agglomerations, such as garbage disposal control of infections, disinfection, antepartum clinics, vaccination services, and diagnostic laboratories for syphilis, tuberculosis and cancer. There are many films devoted to social hygiene problems. One exhibit shows how an insanitary dwelling can be changed so as to make it habitable. The methods of obtaining a good water supply and the disposal of sewage are well illustrated in another stand. Food inspection is given a prominent place. The development of the individual from birth and the efforts which preventive medicine is making to reduce mortality are shown in an excellent manner. Social medicine is represented by exhibits of the work of antituberculosis and syphilis dispensaries, and that of anticancer centers.

MEDICAL MEETINGS DURING THE EXPOSITION

American physicians who intend to visit the Paris Exposition this summer and fall may find the following schedule of meetings of interest:

July 1	10	Daily programs for those interested in public health
	3	5 National Hospital Congress
	4	Meteorological and Biometeorological meeting
	4	11 National Dental Congress
	5	11 International Hospital Congress
	6	Special meeting of Academy of Medicine devoted to colonial medicine
	7	Aeronautic medicine
	8	11 General Council of International Association of Physicians
	8	10 International neurologic reunion
	11	17 International Congress of Medicine Applied to Sports and Physician Education
	12	13 International Congress of Public Health Works
	12	17 International Sanatorium and Private Hospital Congress
	16	18 International Psychotherapy and Comparative Psychology Congress
	19	21 International Congress for Protection of Children
	19	25 International Mental Hygiene Congress
24 Aug	1	International Infantile Psychiatry Congress
	25	31 International Psychology Congress
September	5	9 Conference of International Union Against Tuberculosis
	13	15 Congress of International Gastro Enterologic Society
	29	Oct 2 International Congress of Blood Transfusion
	30	Oct 2 French Gynecologic and Obstetric Congress
October	4	9 French Surgical Congress
	4	9 French Urologic Congress
	7	9 Orthopedics daily conferences
	7	9 International Scientific Press Association Congress
	7	14 Medical Photographic and Cinematographic Congress
	9	Conference (International) on Rheumatology
	14	17 Tourism Thermalism and Climatism (International) Congress
	17	French Society for Esophagoscopy and Bronchoscopy
	18	20 French Otorhinolaryngologic Congress
	18	20 French Hygiene Congress
	20	21 International Public Health Officers Congress
	25	28 International Food Congress

During the exposition, special graduate courses will be given in the various public hospitals of Paris. Information may be obtained by writing to Mlle Hure, Salle Beclard, 12 rue de l'Ecole de medecine, Paris.

International Congress on Rheumatism

The French Antirheumatism League will hold a meeting October 9 next in Paris in which a number of papers will be read on the use of radioactive preparations in rheumatism. A clinic will be given by Professor Loeper in the morning at the Hopital Saint-Antoine, and the afternoon session will be devoted

to papers on radioactive medication, emanotherapy, the radio-activity of waters at certain health resorts, and allied subjects. These papers will appear in the October issue of the *Revue du rhumatisme*.

French Otorhinolaryngologic Congress

The forty-second annual session of the French Otorhinolaryngologic Congress will be held in Paris, October 18-20. The subjects chosen for special reports are indications and results of intracranial operations on the auditory nerve, by Aubry and Ombredanne of Paris, and acute inflammation of the larynx and hypopharynx in children by Le Mee, Bloch and Bouchet. Information can be obtained through M. Raumont, Office medical, 17 rue de Bucy, Paris.

BERLIN

(From Our Regular Correspondent)

June 5, 1937

New Developments in Genetics

The German Society of Genetics held its convention recently at Frankfurt-on-the-Main. Johannes Lange, Breslau psychiatrist, spoke on "The Limits of Environmental Influence on Inherited Characters in Man." The special difficulties of this problem can be solved only by research on twins, he believes. In a study of two pairs (one male pair and one female pair) of enzygotic twins, it was observed that one member of each pair showed a physical defect: harelip in one and oxycephaly in the other. There were other marked dissimilarities between the normal and the afflicted twin in each instance. Serologic variations were also frequently observed in twins of discordant development. Differences in thyroid activity were observed in new-born enzygotic twins, the weaker twin often had the larger thyroid. Frequently the "concordance" of enzygotic twins is far from complete. The tendency may be termed concordant, but differences can exist in the degree to which it manifests itself. It would seem that phylogenetically "restless" traits are apt to be unstable, the vertebral column is an example. The occasionally abnormally low weight of twins at birth shortens their expectation of life. Infants who are weak at birth are further endangered by nutritional disturbances, and the sexual development of twins of unequal weight can also assume divergent form. If the twins are underweight, there will be a corresponding retardation of mental development. Whatever developmental process has been completed in utero can be changed later only by violent means and here too the variability of pathologic predispositions appears greater than that of normal predispositions. In any case the evaluation of the post-partum environmental influences is most uncertain. Thus twins affected with diabetes mellitus cannot be changed in this respect. In allergies the circumstances of concordant manifestation vary, thus, certain allergies seem to bar the way to others. Emotional experiences or protracted unemployment may lead to manifestations of serious illness in one of a pair of twins, while the other remains healthy. Discordances to manic depressive insanity have been recorded, the twin possessing the more melancholy temperament is more likely to become insane. The etiology of the frequently wide difference in temperament itself appears to lie in an antenatal sensitivity of the temperamental bases. Lange also believes that schizophrenia may arise from a developmentally unstable predisposition and that epilepsy may originate in developmental defects with a hereditary basis.

In the discussion that followed the reading of Lange's report, Prof. Otmar von Verschuer emphasized that today in contrast to former times the stress is increasingly on the discordances, one should remember, however, that in research on twins a maximal opportunity to observe environmental influence is assured. Prof. Eugen Fischer, anatomist, believed that the discordance in enzygotic twins is no greater than the difference between the right and left sides of an individual human body.

There is, for example, no right and left vertebral column. Since the hereditary predispositions are identical for right and for left, the variations must be conditioned by development alone. Therefore the differences between enzygotic twins cannot be regarded as of decisive importance.

A report by W. Lehmann of Breslau dealt with the hereditary pathology of hyperthyreoses. Besides definite exophthalmic goiter there may be a number of transitional states in which the sum of hereditary predispositions assumes a pathogenic role. Environment must also be granted importance. Of ten pairs of twins studied, two pairs of enzygotic twins were found to be concordant and one pair discordant, whereas, of seven pairs of dizygotic twins, six were discordant. Extensive investigations of families disclosed a wide distribution of both severe and mild symptoms of thyroid disease. This was cited as demonstrating that quantitative differences exist between the various forms of exophthalmic goiter. Women are more subject to this disorder than men.

Extensive investigations of "The Question of Heredity in Rheumatic Disorders," by Ferdinand Claussen of Frankfurt-on-the-Main led him to conclude that chronic rheumatism is inextricably bound up with heredity. He found that, of twenty-five pairs of enzygotic twins, eighteen showed pathologic concordance, whereas of thirteen dizygotic pairs only five showed such concordance. It was noteworthy that talipes valgus and other forms of clubfoot were almost always constant in rheumatic persons. More than 50 per cent of rheumatic persons belong to the asthenic-hypoplastic group.

The Relation of Vitamin C to Infection

"Vitamin C and Defense against Infection" is the title of a paper in the *Klinische Wochenschrift* by Dr. S. Thaddeus, assistant at the university clinic. Although the action of cevitamic acid has been investigated, little has been known of its role in the infections. Clinical medicine, however, has shown a growing interest in the destiny of cevitamic acid in the intoxications and infections. Experimental and clinical tests have demonstrated the decisive role of the adrenal glands in the defense of the organism against infection. Changes in the adrenals are present in acute infections together with clinical symptoms indicative of cortical dysfunction. Normally the adrenal cortex is of all parts of the body the richest in vitamin C. Favorable results can be obtained in diphtheria toxin intoxication and in infectious diseases by enriching the cevitamic acid content of the adrenal cortex. In experimentation with diphtheria intoxication of guinea-pigs, the percentage of survivals among animals which had received the vitamin treatment was greater than among the control animals. The adrenals and liver of treated animals were observed to be completely normal, whereas these organs in the control animals showed marked changes due to the inflammation and, in addition, an obvious deficiency in vitamin C content. In experimental tuberculosis of guinea-pigs, the loss in weight of the experimental animals is arrested and the life span lengthened. In pneumococcal sepsis of the white mouse, too, the typical picture is less pronounced and the liver suffers less damage if the animal has received preliminary treatment. Thus there is experimental evidence indicating that the administration of vitamin C leads to a remarkably strengthened resistance to various intoxications and infections, while further organic changes take place only in slight degree or are entirely lacking.

From a clinical standpoint these experiments demonstrate that the elimination of vitamin C in the urine at the height of acute infection or in the more severe febrile types of pulmonary tuberculosis may be especially low. Obviously there exist certain connections between the height of the fever and the excretion of cevitamic acid. Experimentation with intravenous injection of cevitamic acid has demonstrated that acute infectious diseases and exudative types of pulmonary tuberculosis are accompanied by an increased demand for vitamin C. In con-

trast to healthy subjects, persons suffering from infectious disease retain a greater part of the administered cevitamic acid in order to replenish the depleted vitamin C reserve. Conversely, persons affected with sclerotic forms of tuberculosis fail to present any demonstrable deficit in vitamin C. In tuberculous pulmonary hemorrhages too the vitamin C excretion is manifestly lowered, but after the bleeding has stopped the values rise again to normal. In acute infections and in the exudative and cavernous type of tuberculosis, the cerebrospinal fluid undergoes great depreciation of the vitamin C values. Administration of cevitamic acid raises the C level in the spinal fluid. The success of many tuberculosis diets, that of Gerson, Sauerbruch-Herrmannsdorfer, for example, may depend not alone on the exclusion of sodium chloride but in great measure on a rich supply of vitamins, especially vitamin C.

Developments in the Antivenereal Disease Campaign

By the terms of the law of June 1, 1933, the granting of small loans to couples who wed is contingent on the results of an official medical examination. No loan is granted to any applicant who is suffering from a venereal disease which carries with it the danger of contagion. Practically, this mandatory examination was the basis for a refusal of subsidies to 9,065 (27 per cent) of 333,776 applicants during the latter half of 1934 and the first half of 1935. The rejection of 547 applications was based on the existence of a contagious venereal disease: syphilis in 422 instances and gonorrhea in 125 instances. In addition, 209 rejections were made on the grounds of sterility and incapacity for child-bearing, conditions which also may be traced in great measure to some venereal infection.

The law of Oct. 18, 1935, stipulates that a marriage cannot be contracted if one of the betrothed is affected with a contagious disease that might endanger the health of the marriage partner or of the offspring. An engaged couple must obtain from the bureau of health a certification to the effect that no such impediment to marriage is present. The German Anti-venereal Disease Society under the presidency of Professor Spiethoff has formulated the following guiding principles with respect to potential contagion. Syphilis is generally considered contagious for four years subsequent to infection. Syphilis is considered as no longer transmissible if four years has elapsed since infection and if after an adequate therapy no symptoms have been manifested for two years. The foregoing periods may be shortened on the basis of scientifically established cure. In gonorrhea in the male patient the urine and prostatic secretion must be negative for gonococci (even for threads) during at least one examination weekly over a period of three months. It is mandatory that these follow-ups be based on recognized scientific provocative tests. If the data so warrant, a shorter period of observation will be deemed sufficient. In the case of a woman gonorrhea patient, it is stipulated that after completion of treatment three months should elapse during which no gonococci are demonstrable (in the urethra, cervix, gland of Bartholin or rectum) at follow-ups conducted at least once each week. As in the case of the man, proper provocative tests are compulsory. Examination before, during and immediately after menstruation is particularly conclusive. Here too the period of observation may be shortened on the basis of satisfactory scientific proof of cure. The record, only just made public, of violations of the antivenereal disease law during 1933 is as follows. In all, 346 defendants were convicted, almost exactly the same number as in 1932. Of these 346 persons, 196 were sentenced for indulging in coitus while afflicted with a venereal disease, two for contracting marriage while afflicted with a venereal disease and failure to inform the partner of the illness, 13 for unauthorized treatment of venereal disease and offers to perform such treatment, twelve for attempting to sell appliances alleged to cure or palliate venereal disease and there was one conviction for violation of the clause which prohibits the suckling of infants by venereal disease sufferers.

JAPAN

(From Our Regular Correspondent)

May 31, 1937

The National Health

In the present session of the imperial diet, Mr Hasama, chief of the board of health, discussed the health of the nation. The present inclination of the birth rate is slightly downward but it is high in comparison to that of other countries, being 30 per thousand of population. The higher rates are found in the northern provinces and the lower rates in the larger cities and the middle parts of the country. The death rate was 18.1 per thousand in 1934. More than 130,000 persons died of tuberculosis in 1934, the rate being 19.3 per 10,000 of population including more than 96,000 persons who died of pulmonary tuberculosis. There were about 49,000 cases of dysentery in 1935, 7 per 10,000 of population, and more than 15,000 deaths. According to the investigation made by the home office of 152,050 villagers who were examined by the official experts 118,000, about 78 per cent, had infestation with some kind of parasite. There are reported to be more than 7,000,000 cases of trachoma throughout the country. The number of insane increased and was greater than 83,000 in 1935. Venereal diseases also increased. The physical examinations of conscripts revealed that the number of those who fail the medical tests are regularly increasing every year throughout the country. The cause, however, is not clear. The home office has planned to establish this year as many health centers as possible in all parts of the country.

Decrease in Beriberi

It has been almost positively proved that the chief cause of human beriberi is a deficiency of vitamin B₁. Among the poorer classes, however, whose economic condition prevents them from taking sufficient nourishment, there are still many cases of this disease. Dr Yanagi of the Izumibashi Charity Hospital reports that he found 126 cases of beriberi (14.2 per cent) among 888 patients who came to his department recently to consult him. The percentage of cases of beriberi has shown no change in his hospital in the past ten years. Ten per cent of the patients were suffering from this disease every year. The number of male and female patients has remained almost the same. The greater number are between 15 and 20 years old. Among the women, many are from 25 to 30 years of age, the condition probably being due to pregnancy. Beriberi is on the decrease except among the poorer, and if they could have sufficient vitamin B₁, it could easily be prevented among them.

Physical Examinations at Schools

The general tendency, seen in the physical examination for conscription, that young men are becoming constitutionally weaker every year, has attracted much attention. At the Tokyo Imperial University it has been announced that the physical examination of the students henceforth will be done differently from that of former days. What it needs is not the recording of physical development but guidance of students to better health. Students were formerly examined with the stethoscope only but now they will also, if necessary, be roentgenographed.

The Association of Hematology

The *Journal of Pathologic Haematology* which has been issued for the last six years under the supervision of Prof Dr Katsunuma of the Nagoya Medical College has been instrumental in organizing the Japanese Society of Hematology. The society decided to hold its annual meeting as a branch of the Japan Medical Conference, which is to hold its general meeting in the spring. The title of the Journal will hereafter be *Japanese Haematology* and it will be published bimonthly and will contain original reports of researches on the blood. Drs Kiyono of Kyoto, Mitamura and Sato, of Tokyo, Sugiyama of Kanazawa and Katsunuma of Nagoya are on the board of directors.

Deaths

Dr S Endo died April 20 at his home in Tokyo, at the age of 68. He was very modest and known by few even in this country, but "Endo's Medium" is almost universally recognized. While working in the Kitazato Research Institute in Tokyo, he succeeded in 1903 in inventing this culture medium, using Japanese isinglass. By means of Endo's medium it is easy to distinguish the typhoid bacillus from the colon bacillus.

Dr J Shimazono, honorary professor at Tokyo Imperial University, died April 27 of pneumonia, aged 60. He was born in 1877 in the city of Wakayama and in 1904 graduated from the medical college of the Tokyo Imperial University. He went to Germany in 1909 to study for three years. On returning, he was appointed professor at the Okayama Medical College, was given the degree of "Igakuhakushi" the next year, and three years afterward went to Kyoto Imperial University. In 1924 when his name had come to be widely known, he was transferred to Tokyo Imperial University as successor to the late Dr Kinnosuke Miura. In 1929 he went to Germany as an exchange professor, lecturing one year at Berlin University. His investigations on the cause of beriberi are famous. He was the director of the hospital attached to the university, and also of the Izumibashi Charity Hospital.

NETHERLANDS

(From Our Regular Correspondent)

April 27, 1937

The Fight Against Bovine Tuberculosis

Since 1920 the fight against the spread of tuberculosis among cattle has gone forward relentlessly in Friesland, but it has been effective only where the individual farmer is a constant active participant. According to statistics compiled by the antituberculosis society, the number of reactive animals has greatly diminished since 1923. During 1935 declines were reported of from 15 to 3 per cent in certain regions, elsewhere the drop was from 28 to 7 per cent, from 37 to 6 per cent and from 39 to 11.8 per cent. Not a single case of tuberculosis has been reported for two years among the cattle on the island of Ameland. Two important procedures of the campaign are the isolation of cattle infected with open tuberculosis and the periodic examination of specimens of milk. The country folk have become convinced that open tuberculosis constitutes the greatest danger to stock raising. The separation of reactive from nonreactive cattle is of great difficulty and a favorable result can be attained only after a regular inspection has been instituted. Certain tuberculous animals are submitted to monthly, in some instances quarterly, examinations, the results have been gratifying from both a clinical and a bacteriologic point of view.

Regulation of Dilutions of Diphtheria Toxin

Special conditions to which the dilution of diphtheria toxin must comply have been stipulated by the minister of social service. Diphtheria toxin cannot be administered save in the form of dilution susceptible of being used for intracutaneous injections in the Schick test. The diphtheria toxin content of this dilution or "Schick fluid" cannot, per cubic centimeter of dilution, exceed 0.1 of the quantity of toxin that would prove lethal to a guinea-pig weighing 250 Gm within a period of four days, 0.2 cc of this dilution, namely, 0.02 of the minimum lethal dose is considered to be a "trial dose" for the Schick reaction.

The dilution of diphtheria toxin designed to induce the Schick reaction must in addition comply with the following conditions: 1. Ten cubic centimeters injected, immediately after heating to a temperature of 37°C, intracutaneously into a guinea pig should kill the animal within a period between three times twenty-four hours and five times twenty-four hours. 2. One twenty-fifth of the trial dose if it contains 0.2 cc of a dilution

to 0.04 of the Schick fluid, when inoculated into the skin of a guinea-pig ought not to provoke any characteristic reaction. 3 One tenth of the trial dose, if it is 2 cc of a dilution to 0.1 of Schick fluid, inoculated into the skin of a guinea-pig ought to provoke a positive Schick reaction. 4 The trial dose mixed with 0.001 of an international unit of diphtheria antitoxin, inoculated into the skin of a guinea-pig, should provoke no reaction.

For the control reaction, the Schick fluid ought to be heated for at least ten minutes at 70 C in order to destroy specific toxin.

Ampules, bottles and other receptacles in which dilutions of diphtheria toxin for use in the Schick test are stored, transported or imported, together with their wrappers, must bear the plainly visible legend "Fluid for the Schick test, 0.2 cc for intracutaneous injections." In addition there must be set forth the date on which the fluid was supplied and the duration of its effectiveness. The latter must not exceed seven days from the date of supply. Moreover, explicit directions for use must appear either on the outside of each package or on an accompanying loose sheet. Further analogous regulatory measures have been promulgated which concern the preparations for active immunization against diphtheria.

BUCHAREST

(From Our Regular Correspondent)

June 25 1937

Endemic and Sporadic Gorter

At a recent meeting of the Rumanian Scientific Academy, Dr. Danelopolu read a paper on his observations based on 40,000 cases of endemic and sporadic gorter. Accompanied by eight physicians and three veterinary surgeons, he visited some endemic districts of Rumania, namely, Sibiu, Storojinet (Bukovina), Tarnava Mare, the valley of Moldovita (Bukovina) and Alba. His observations led to the conclusion that economic circumstances predispose to the occurrence of endemic gorter. The condition cannot develop unless the diet is qualitatively and quantitatively insufficient. Endemic gorter develops in many cases under the influence of puberty and pregnancy. Women are more predisposed than men, for physiologic reasons. Danelopolu and his assistants usually found that the right lobe is attacked. They found different types of gorter: unilobar, either on the right or on the left side, bilobar, and special forms: cystic, vascular and lobular. Danelopolu also studied the hereditary background during his tour. According to his experience inheritance is not an important factor in the production of gorter.

Scarlet Fever in Children

The chief medical officer of health of the city of Cluj, the capital of Transylvania, publishes a statistical report on 645 children with scarlet fever. Of these 160 received complete inoculations and twenty-nine only single inoculations, while 456 received none at all. The mortality rate of the noninoculated children was twice as high as that of the inoculated ones: 8.9 and 3.7 per cent respectively. Complications were rather frequent among the noninoculated but strikingly infrequent among the inoculated. Milder forms of scarlet fever are encountered much more often in inoculated children than in those who are not inoculated; conversely, severer cases are more frequent among the noninoculated. The fact that rather severe cases of scarlet fever very infrequently occur in inoculated children less than 6 years old, while the disease is fairly frequent in the noninoculated ones, and beyond 6 years rather frequent even in the inoculated ones, allows the conclusion that antiscarlatina inoculations are more efficacious in early childhood. If it is admitted that inoculations do not influence greatly the morbidity of scarlatina, it is at any rate true that the mortality rate is less among the inoculated and the course of the

disease is milder. Drs. Vlad and Gaynal, city medical officers, of health in Cluj, suggest that systematic inoculations be made in children from 1 to 3 years of age, when these are most efficacious.

Tetanus Following Abortion

Drs. Mironescu and Bals report the following two cases. 1 A married woman, aged 31, developed tetanus fourteen days subsequent to septic abortion. She was admitted to the hospital on the seventh day after the onset of the first symptom with generalized tetanus, from twenty to twenty-five crises occurring hourly. She received antitetanic serum, antiscarlatinal serum and antigangrenous serum. After the tetanus serum had been administered daily for eight days, the symptoms of tetanus disappeared. 2 In a married woman, aged 29, the first signs of tetanus appeared fifteen days after abortion. She was admitted to the hospital on the tenth day with generalized symptoms. She received 3,400,000 units of antitoxin, whereupon the symptoms disappeared on the tenth day. Both patients made uncomplicated recoveries.

Epinephrine in Treatment of Chronic Malaria

There are still many cases of malaria in the proximity of the swamps, especially in the Dobruja district. Some prominent health officials suggested the introduction of the Ascoli therapy, which in Italy proved to be efficacious. The essentials of this treatment consist in daily injections of epinephrine beginning with 0.01 mg. and rising to from 0.05 to 0.1 mg. Either 0.05 or 0.1 mg. is usually repeated twenty times. This way of administration ensures that the organism tolerates this quantity of epinephrine well, so that in the majority of cases the treatment runs smoothly without the least disturbance. In instances of malarial splenomegaly with a spleen index of 4, a small increase in the dose of epinephrine is necessary of course only if it is well borne. Treatment with epinephrine is an important auxiliary in the treatment of chronic malaria, malarial splenomegaly, malarial anemia and cachexia.

Quinine as a Prophylactic Against Influenza

According to Dr. Winkel of Budapest, quinine was administered as a preventive of influenza fifty years ago, and, while it came into disrepute, attention has again been directed toward it. One of the Berlin children's homes that suffered often from influenza epidemics made a trial of quinine prophylaxis in January 1933 with a daily dose of 0.05 Gm. of quinine sulfate. Among 126 children, nine refused to take the drug, and six of these nine contracted influenza, while of the other 118 eight contracted influenza the first week, and no more cases supervened. At that time influenza raged in Berlin. The six children who refused to take quinine had severe influenza, while the others had only mild attacks.

More convincing are the results at the Graz clinic, where the prophylactic use of quinine has been tested on 173 nurses. Prior to the introduction of prophylaxis, 22 per cent of the nurses contracted influenza. After the administration of quinine (quinine hydrochloride and sodium salicylate, 0.25 Gm. of each), only 5 per cent fell ill.

Congress of the Latin Nations on Otorhinolaryngology

The Otorhinolaryngologic Congress of the Latin nations will be held in Bucharest September 16-19, under the presidency of Dr. Nicolai Metjanu, professor of otolaryngology at the University of Bucharest. The chief theme to be discussed will be Indications for Operation in Cases of Acute or Chronic Otomastoiditis. The general meeting of the Society of Bronchoesophagoscopy of the Latin nations will be held at the same time. Also the Rumanian Society of Otorhinolaryngology will hold its annual meeting. The organization of the congress has been entrusted to a committee of fourteen members, directed by Dr. Metjanu. Information may be had from Dr. I. Teodorescu, Bucharest, Strada Diomisie No. 50, Rumania.

Dr Ulmeanu Awarded Prize

The Parisian Academy of Medicine conferred a great distinction on a Rumanian physician, Florian Ulmeanu. The Boullard prize of 1,800 francs was accorded him for his treatise on Voluntary Movements and Chronaxia. Dr Ulmeanu is a distinguished scholar of the medical faculty of the Bucharest university and presently will become assistant of the Superior Institute of Physical Education. His prize-winning work was done under the direction of Professors Lapicque and Laugier, both of the Faculte des sciences in Paris.

ITALY

(From Our Regular Correspondent)

June 15, 1937

Meeting of Dermatologists

The Societa di Dermatologia e Sifilografia met recently at Pisa under the chairmanship of Prof Agostino Crosti. Prof Cosimo Lombardo reported results of staining leprosy and tubercle bacilli in living organisms, by means of direct injection of methylene blue in the skin. The method is of practical value and gives better results than are obtained by intravenous injections.

Professor Pinetti of Sienna reported results of the clinical and histologic study of a typical case of lupus pernio of Besnier-Tennesson type. The patient suffered from infiltration of the skin of the face and of the right arm as well as of the parenchyma and hilus of the lung. Roentgenograms of the hands showed pseudocystic rarefaction of some of the epiphyses of the phalanges. According to the speaker, the causation of the disease is unknown. His patient has no special taints nor does he suffer from tuberculosis or syphilis.

Prof Pietro Negri of Perugia reported a case of reticulohistiocytoma with sarcomatous degeneration. The biopsy done at different points of the tumor showed that the latter was diffuse, on the upper part of the back and associated with large spots of erythematous infiltration. During the last three months, metastases developed at the cervical and axillary lymph nodes and around the tumor. The histologic structure of the tumor is that of sarcoma with small round cells. Intensive roentgen treatment controlled the evolution of the tumor only temporarily. Transplantation of neoplastic tissues at the skin of the patient failed to take.

Professor Lisi discussed the filtrability of the syphilitic virus. He reviewed Levaditi's theories on the existence of an invisible granular phase of *Spirochaeta pallida*. The speaker made experiments on rabbits and attempted to detect latent infection by means of the serial passages through the inguinal lymph nodes and the systematic serologic examinations. Starting from scrotal syphiloma of rabbits, the filtration was done through a Chamberland filter No. 2, 3, 5 and 7 and a Berkefeld N filter. Even after four passages through the inguinal lymph nodes in a group of nine rabbits, a scrotal syphilomatous reaction did not take place. Only in two cases out of a group of eight rabbits did the serologic examination give slight positive results, which, on account of the proportion of nonspecific results (15 per cent) in normal rabbits, seem to be of no value. The speaker stated that the results of his experiments do not support the theory of the existence of a filtrable invisible virus of syphilis.

Romer Test

Professor Malesani of Padua, in a paper recently read before the Societa medica of that city, reported results of experiments on the influence of cholesterol and lecithin on Romer's test. The mixtures, intradermally given, were made up with 0.4, 0.5 or 1 cc of the toxin and the same amount of an ether solution which contained 4, 10, 16 or 20 mg of either fat. The dose for each injection was 0.1 cc of the mixture. The intramuscular injections were given in a mixture of a minimal lethal dose of diphtheria toxin, 0.3 Gm of cholesterol and 0.72 Gm of lecithin for each 250 Gm of the body weight

of the animal. The speaker concluded that the local toxic action of diphtheria toxin is neutralized by cholesterol in the proportion of 0.01 Gm of the fat for each thirtieth of the minimal lethal dose of diphtheria toxin or by lecithin in the proportion of one sixth of the fat for each forty-eighth part of the minimal lethal dose of the fat. Cholesterol and lecithin injected intramuscularly in the proportion of 0.3 Gm and 0.72 Gm respectively for each 250 Gm of body weight of the animal neutralize a minimal lethal dose of diphtheria toxin. Control animals that are given an injection of diphtheria toxin die with the signs and symptoms of diphtheria intoxication.

Statistics on Social Work

The Istituto di previdenza sociale, a center of social work, has reported on the work done. The center is concerned with providing insurance for invalidism, old age, tuberculosis, maternity and unemployment and also in financing social work of importance for the public. According to the latest statistics, 462,776 pensions for invalidism and old age are paid every year, the cost of which amounts to 401,495,000 lire (about \$20,074,750). The center maintains six hospitals for convalescents, ten bathing places and fifty-two dispensaries for treating patients with trachoma. The tuberculosis center has given attention to 287,000 persons from January 1929 to December 1936. There are now about 3,000,000 insured workers, including farmers. The center maintains forty-one institutions for the treatment of the disease. About twenty-two new centers for the care and treatment of insured tuberculous patients are in construction. The center for maternity insurance has seventeen clinics in function. Aside from medical care, the insured women are given certain amounts of money for other expenses in labor or abortion.

International Congress for Protecting Children

The second International Congress for Protecting Children will be at Rome, October 4-8. The first one was held at Paris in 1933. The welfare of children will be discussed in separate sections from social, forensic, hygienic and sanitary points of view. The topic for discussion at the hygienic and sanitary sections will be prevention of infant mortality due to nutritional diseases, establishment of climatic colonies for children of preschool age, care of the health of European children living in colonies, physical education of children attending grammar schools, and prevention of inferiority of health of illegitimate children. The general secretary to the congress is Prof G. B. Allaria of the pediatric clinic of Turin. Shortly before the congress takes place, the fourth International Congress of Pediatrics will be held in Rome.

Marriages

THORBORN S. MCGOWAN, Assistant Surg., U. S. Public Health Service, New London, Conn., to Miss Isabel Morrison West Jackson of Pittsfield, Mass., April 17.

SAMUEL E. WAY, Rocky Mount, N. C., to Miss Lilhan Pauline Dixon of Winston-Salem, in Nashville, April 14.

ROBERT MABRY DACUS JR., to Miss Bina La Verne Valentine, both of Greenville, S. C., in Pinckneyville, Ill., April 19.

WILLIAM P. HIXON, Birmingham, Ala., to Miss Roberta Mims Knowles in Atlanta, Ga., in April.

WILLIAM GARDNER MORGAN BENSON, N. C., to Miss Mary Virginia Neal of Bessemer, Ala., recently.

JACOB H. BROTMAN, Savanna, Ill., to Miss Sarah Paley of Clinton, Iowa, in Morrison, April 16.

WILLIAM BLOUNT NORWENT to Miss Katherine Williams, both of Greensboro, N. C., April 27.

BENAGER COLUMBUS TEASLEY JR., Atlanta, Ga., to Miss Mary Brooks of Robinson, Ill., April 13.

FRANK P. FIGUATARO Marlboro, N. J., to Miss Mary E. De Maria of Red Bank, April 22.

Deaths

Frank Kirkwood Hallock ♂ Cromwell, Conn College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1885, member of the American Neurological Association and the Association for Research in Nervous and Mental Disease, past president of the Connecticut State Medical Society, and the Boston Society for Psychiatry and Neurology, formerly bank president and president of the Cromwell Library Association member of the board of trustees of Wesleyan University, Middletown, an original incorporator and consultant in neurology to the Middlesex Hospital, Middletown, medical director of the Cromwell Hall, aged 76, died, April 29, of arteriosclerotic heart disease and cerebral thrombosis

John Blair Spencer, Gloucester, Va., University College of Medicine, Richmond, 1904, member of the Medical Society of Virginia and the American Academy of Pediatrics, at one time on the staffs of the Providence and Garfield hospitals, Washington, D C., surgeon in the U S Navy from 1916 to 1919, assistant director of public welfare for the city of Philadelphia, 1919-1920, director of all tuberculosis activities in the city of Philadelphia in 1921, associate director of public welfare for Philadelphia in 1922, director of public health for Philadelphia, 1923-1924, aged 54, died, April 30, of cardiovascular renal disease

Elmer Leslie Eggleston ♂ Battle Creek, Mich., American Medical Missionary College, Chicago, 1900, member of the American Gastro-Enterological Association, past president of the Calhoun County Medical Society, fellow of the American College of Physicians, formerly professor of chemistry and secretary at his alma mater, at one time instructor of pharmacology and therapeutics at the Detroit College of Medicine on the staff of the Battle Creek Sanitarium, member of the editorial council of the *American Journal of Digestive Diseases and Nutrition* aged 62, died, July 7, of coronary thrombosis

Edgar Bronson Smith ♂ Providence, R I., College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1880 fellow of the American College of Surgeons, member of the New England Surgical Society consulting surgeon to the Rhode Island, Providence Lying-in and Butler hospitals, Providence Rhode Island State Sanatorium, Wallum Lake, Memorial Hospital, Pawtucket, and the South County Hospital, Wakefield, aged 83, died, April 9 in Orlando, Fla., of coronary thrombosis

Alphonso James McLaughlin, Sioux City, Iowa, Kentucky School of Medicine, Louisville, 1898, member of the Iowa State Medical Society, and the American Urological Association, served in the U S Public Health Service during the World War, fellow of the American College of Surgeons, member of the staff and head of the genito-urinary section of St Joseph's Mercy Hospital, aged 60, died, April 18, of cerebral arteriosclerosis

Everett Mingus, Marshfield, Ore., University of Pennsylvania Department of Medicine, Philadelphia, 1892, past president of the Coos-Curry Counties Medical Society, fellow of the American College of Surgeons, city health officer and coroner for many years, served during the World War, on the staff of the Keizer Brothers Hospital and Mercy Hospital, North Bend, aged 69, died, April 22, of coronary thrombosis

Carl William Shaffer ♂ Major, U S Army retired Alexandria, Va., University of Virginia Department of Medicine, Charlottesville, 1915, also a pharmacist, fellow of the American College of Surgeons, served during the World War entered the medical corps of the regular army in 1920 and retired in 1933 for disability in line of duty, aged 50, was found dead, April 13, of a self-inflicted bullet wound

Charles Wesley Rook ♂ Montrose, Calif., University of Michigan Department of Medicine and Surgery, Ann Arbor, 1883, secretary of the Adams County (Ill.) Medical Society, 1887-1893, vice president 1893-1894 and president, 1894-1895, formerly professor of obstetrics at the Quincy (Ill.) College of Medicine, aged 78, died, April 15, of hypostatic bronchopneumonia, arteriosclerosis and hypertension

Winfield Ayres, New York, Bellevue Hospital Medical College, New York, 1893, formerly adjunct professor of genito-urinary surgery at the New York Post-Graduate Medical School, and chief of the clinic for genito-urinary diseases and demonstrator of anatomy at his alma mater, aged 72, died, April 12, in the New Milford (Conn.) Hospital, of carcinoma of the colon

Isaac Surnamer ♂ Paterson N J New York University Medical College, New York, 1896, fellow of the American

College of Physicians, consulting neurologist to the Paterson General Hospital, Hackensack (N J) Hospital, Paterson City Hospital and the Valley View Sanatorium, aged 64, died, April 23, of cerebral hemorrhage and arteriosclerosis

Joseph Malcolm Short ♂ Portland, Ore Detroit College of Medicine, 1896, assistant clinical professor of medicine at the University of Oregon Medical School fellow of the American College of Surgeons, aged 65, on the staffs of the Multnomah County Hospital and the Good Samaritan Hospital, where he died, April 30, of cerebral embolus

Gershom Franklin White, Washington, D C., George Washington University School of Medicine, Washington, 1909, served during the World War, aged 63, senior pathologist of the bureau of entomology and plant quarantine, U S Department of Agriculture, stationed at Moorestown, N J, where he died suddenly, April 27, of heart disease

James A Sherbondy ♂ Youngstown, Ohio Western Reserve University Medical Department Cleveland 1902 fellow of the American College of Surgeons, served during the World War, consulting surgeon to the Youngstown Hospital, aged 59, died, April 24, of hypertensive cerebral hemorrhage

Walter Reynolds, Atlantic City, N J University of Pennsylvania Department of Medicine, Philadelphia 1894 at one time city health officer, past president of the Atlantic County Medical Society, formerly vice president of the city board of education, aged 71, died, April 18, of coronary occlusion

Paul H Rupp, Wauwatosa, Wis Milwaukee Medical College, 1905, member of the American Psychiatric Association, medical superintendent of the Milwaukee Asylum for Chronic Insane, aged 55, died, April 6, in the Milwaukee County General Hospital, of septicemia and perirectal abscess

James Arthur Wigley, Mulberry Ark University of Arkansas School of Medicine, Little Rock 1912 member of the Arkansas Medical Society, past president of the Crawford County Medical Society and the Tenth Council District Medical Society, aged 64, died April 4, of angina pectoris

Samuel Pierson ♂ Stamford, Conn College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1881, fellow of the American College of Surgeons, chief of staff and surgeon to the Stamford Hospital, aged 79, died, April 22, of arteriosclerosis and auricular fibrillation

Walter Rupert Weiser, Daytona Beach Fla., University of Pennsylvania Department of Medicine, Philadelphia, 1897 served during the World War, formerly on the staff of the Mercy Hospital, Springfield, Mass., and the Springfield (Mass.) Hospital, aged 67, died, April 13, of heart disease

Claude V Young, Lebanon, Tenn., Vanderbilt University School of Medicine, Nashville, 1893, member of the Tennessee State Medical Association, past president of the Wilson County Medical Society, health officer of Lebanon, aged 69, died, April 28, in a hospital at Nashville, of uremia

Joseph Emmitt Galvin, Fort Dodge, Iowa, St Louis University School of Medicine, 1918, member of the Iowa State Medical Society, aged 46, formerly city physician, on the staff of St Joseph Mercy Hospital, where he died, April 18, of coronary occlusion and mesenteric thrombosis

William Downing Stickley ♂ Fairfield, Ala., Tulane University of Louisiana School of Medicine, New Orleans, 1923 aged 38, on the staff of the Employees Hospital of the Tennessee Coal, Iron and Railroad Company, where he died, April 12, of spinal meningitis

Howard Milton Smith, Kansas City Mo., Long Island College Hospital Brooklyn, 1905, physician in the children's hygiene division of the city health department formerly superintendent of the Kansas City General Hospital No 2, aged 37, died, April 13, of pneumonia

George Ernest Peterson ♂ Waukesha Wis Milwaukee Medical College, 1901 member of the Radiological Society of North America, formerly public health commissioner aged 67, on the staff of the Municipal Hospital where he died April 21, of coronary sclerosis

Frank Edmund Shipman, Chicago College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1912, served during the World War aged 49 died, April 8, in the Veterans Administration Facility, North Chicago, of cellulitis

George Livesey Van Deursen, Lowell, Mass Harvard Medical College and Hospital of Philadelphia 1896 also a dentist, member of the Massachusetts Medical Society aged 70, formerly on the staff of the Lowell General Hospital where he died April 15

Benjamin Franklin Sturgis Jr, Salem, Mass., Medical School of Maine, Portland, 1898, on the staff of the Salem Hospital, member of the exemption board during the World War, aged 62, died, April 29, of cerebral arteriosclerosis and encephalomalacia

Frank W Emery, Wichita, Kan., University Medical College of Kansas City, Mo., 1895, member of the Kansas Medical Society, member of the medical board of examiners for recruits during the World War, aged 73, died, April 9, of myocarditis

William Lee McClain, Scottsburg, Ind., University of Nashville (Tenn.) Medical Department, 1898, county health officer and formerly secretary of the county board of health, aged 68, died, April 10, of chronic myocarditis and arteriosclerosis

Frank Adam Hohenschuh Ⓢ Clinton Iowa State University of Iowa College of Medicine, Iowa City, 1900, city health officer, aged 62, on the staff of St Joseph Mercy Hospital where he died, April 28, of coronary occlusion and fracture of the hip

Charles C Shotts Ⓢ Poteet, Texas Memphis (Tenn.) Hospital Medical College 1902 secretary and past president of the Atacosa County Medical Society owner of the Shotts Hospital and Clinic, aged 58, died, April 26, of angina pectoris

Henry Thomas Sparks, Olive Hill, Ky., University of Louisville Medical Department, 1909 member of the Kentucky State Medical Association, aged 52 died, April 4, in the Stovall Memorial Hospital, Grayson, of cerebral hemorrhage

Harry Walter Woodruff, Joliet, Ill., Harvard University Medical School Boston 1933 resident in ophthalmology at the St Louis (Mo.) City Hospital, aged 29, disappeared, Dec 29 1936, and was found dead, April 27, near St James, Mo

John Wesley Muir, East Las Vegas, N M., Drake University College of Medicine, Des Moines, 1903, member of the New Mexico Medical Society, served during the World War, aged 61, died, April 30, of cerebral hemorrhage

Lewis Ellwood Davis, Pittsburgh Jefferson Medical College of Philadelphia 1881, member of the Medical Society of the State of Pennsylvania, aged 82 died, April 26 of cerebral hemorrhage and cardiovascular degeneration

Richard Wickham Sharpe, New York Medical College of Virginia, Richmond, 1936 served during the World War aged 43, intern at the Bellevue Hospital where he died, April 7, of scarlet fever contracted from a patient

Ernest Irving Woodbury, Burlington, Iowa Chicago Homeopathic Medical College 1894 member of the Iowa State Medical Society served during the World War aged 66 died suddenly, April 9 of coronary thrombosis

Alexander Ridgway, South Haven Minn Minneapolis College of Physicians and Surgeons 1894 member of the Minnesota State Medical Association, aged 81 died, April 3 of mitral insufficiency and arteriosclerosis

James Gregg McAlvin Ⓢ Waterloo, Iowa, State University of Iowa College of Medicine, Iowa City, 1897, aged 67, died, April 14, in St Francis Hospital, of an infection of the arm complicated by diabetes mellitus

Ernest Colpitt Steeves, Essex, Mass., Dartmouth Medical School, Hanover, N H, 1905, member of the Massachusetts Medical Society, a member of the board of health and school committee, aged 69, died, April 10

John Lewis Elwood, Maupin Ore Ensworth Medical College, St Joseph, Mo 1892, member of the Oregon State Medical Society, aged 66, died, April 6 at The Dalles, of cardiovascular renal disease

Victor Sheldon-Smith, Menlo Park Calif Kansas Medical College, Medical Department of Washburn College Topeka 1911, aged 56, died, April 17 in the University of California Hospital, San Francisco

John David Leonard Ⓢ Wagoner Okla Chattanooga (Tenn.) Medical College, 1909 served during the World War formerly health officer of Muskogee County aged 53 died April 24 of hypertension

Joseph Newton McCoy, Spokane, Wash., College of Physicians and Surgeons, Keokuk, Iowa, 1882 member of the Washington State Medical Association, aged 78 died, April 19, of cerebral hemorrhage

George E Youmans, Adrian Ga., University of Georgia Medical Department, Augusta, 1900 for many years postmaster, aged 60, died, April 9, in the Veterans Administration Facility, Augusta

Alvin G Tillotson, Michigan City, Ind Bennett College of Eclectic Medicine and Surgery Chicago 1870, formerly county coroner, aged 90 died April 29 in the Clinic Hospital of pneumonia

Jacob J Weaver Jr, Umontown, Md., University of Maryland School of Medicine, Baltimore, 1870, bank president, aged 88 died, April 10, in the Homeopathic Hospital, Washington, D C

Viola Elizada Shaw Terwilliger, Bradford Ill., Northwestern University Woman's Medical School, Chicago, 1898, aged 65, died April 21, in the Methodist Hospital, Peoria, of pneumonia

Richard Jessup Scofield, New York University of the City of New York Medical Department, 1890, member of the Medical Society of the State of New York, aged 82, died, April 11

Albert B Walker Ⓢ Wyandotte Mich., Detroit College of Medicine, 1899 aged 64 on the staff of the Wyandotte General Hospital, where he died, April 11, of carcinoma of the intestine

Charles Sumner Wiseman, Union Mills Ind., Fort Wayne College of Medicine 1905 formerly county health officer served during the World War aged 58 died, April 25 of uremia

Charles W Horton, Hiwasse, Ark Barnes Medical College, St Louis, 1900, member of the Arkansas Medical Society, aged 65, died, April 28, of acute dilatation of the heart

Frank Ware Smith, St Thomas, Ont, Canada, M B, University of Toronto Faculty of Medicine, 1894 and, M D, Trinity Medical College, Toronto, 1894, aged 66, died, April 24

Burdett Sheridan Adams, New Haven, Conn Hahnemann Medical College and Hospital of Philadelphia, 1898, aged 64, died, April 2, of cerebral hemorrhage and arteriosclerosis

James Arthur Clement, Dillsburg, Pa., Southern Homeopathic Medical College, Baltimore, 1894, aged 65, died, April 30, of cerebral hemorrhage, and arteriosclerosis

Robert F Strayer, Pittsburgh, Hahnemann Medical College of Philadelphia 1881, aged 76, died, April 28, in the Homeopathic Hospital, of coronary thrombosis

Archibald Rowan McCracken, Seattle Detroit College of Medicine, 1901 aged 67, died, April 24, as the result of injuries suffered in a fall several months ago

Edmund Peaslee Douglass Ⓢ Gales Ferry, Conn University of the City of New York Medical Department, 1889, aged 71, died April 9, of lethargic encephalitis

Frank Deming Solley Ⓢ Bethel, Conn., Columbia University College of Physicians and Surgeons, New York, 1905, aged 69, died, April 24, of pneumonia

David Stevens, Okmulgee Okla., College of Physicians and Surgeons, Keokuk, Iowa, 1880, aged 83, died, April 12, of arterial hypertension and uremia

Robert R Walker, Oklahoma City, Tulane University of Louisiana Medical Department New Orleans 1885 aged 72 died, April 24, of angina pectoris

Walter C Welch, Caddo Mills Texas Texas Medical College and Hospital, Galveston, 1881, justice of the peace, aged 78, died, April 11

Robert Arthur Thomas, Magdalena, N M., Louisville (Ky.) Medical College, 1904, aged 58, was killed, April 24, in an automobile accident

Lars Thomas Wendelboe, Newark, N J Baltimore Medical College, 1895, aged 70, died, April 23, of carcinoma of the sigmoid

Adolph Carl Adam Gaul Ⓢ Olympia Wash Rusch Medical College, Chicago 1900 aged 77 died April 26 of pneumonia

Hiram H Wirt, Santa Monica, Calif., University of Wooster Medical Department Cleveland 1872, aged 87 died April 3

William Ridgely Stone Ⓢ New York Johns Hopkins University School of Medicine, Baltimore, 1899, aged 63, died April 5

James Benson Whitely, Goderich Ont Canada Victoria University Medical Department Coburg 1882, died April 12

John Wesley Ward, Titusville Fla College of Physicians and Surgeons Keokuk, Iowa, 1880, aged 83, died, April 9

S W Stiles, Atlanta Ga Atlanta Medical College, 1885, aged 78 died, April 12 of cardiovascular renal disease

Frank Joseph Woitishek, Los Angeles, Chicago Medical College 1890 aged 72 died April 19

Correspondence

"THE CLINICIAN AND THE SEROLOGIC TEST FOR SYPHILIS"

To the Editor—In the editorial "The Clinician and the Serologic Test for Syphilis" (*THE JOURNAL*, July 10, p 134) appears the following sentence "If the tests are negative there is a 95 per cent chance that the patient does not have syphilis (in the absence of previous treatment), but a negative result does not exclude the diagnosis." This statement as given in the editorial may be somewhat misleading. The incidence of syphilis in the general population ranges from 1 to 20 per cent depending on the race, and social and economic conditions. In the average white population taken at random, the incidence of syphilis is about 5 per cent. Hence the chance that any white individual, taken at random, does not have syphilis is 95 per cent.

As is pointed out in the editorial, "in untreated syphilis the range of positivity of the five tests named is from 90 to 95 per cent in all stages of the infection." Hence only about 5 per cent of syphilitic individuals in the general population (excluding treated cases) will give negative results, so that 5 per cent of 5 per cent, or only 0.25 per cent of the people in the general population giving negative reactions, will have syphilis. Hence if the tests are negative there is a 99.75 per cent chance that the patient does not have syphilis, not a 95 per cent chance, as is stated in the editorial.

Of course, these calculations are based on hypothetical percentages which have been assumed for purposes of illustration.

A S WIENER, M.D., Brooklyn

REMOVING ADHESIVE TAPE

To the Editor—Your recent editorial on methods of removing adhesive plaster from the skin, and rumors of a damage suit for injuries attributed to violent removal, lead us to suggest oil of wintergreen as a simple, painless and highly efficient means. The oil should be applied with a very small cotton swab only to the point of separation of the adhesive from the skin. If it is applied to the external surface of the plaster the fabric will come away, leaving the adhesive material adhering to the epidermis.

CHEVALIER JACKSON, M.D.

CHEVALIER LAWRENCE JACKSON, M.D.,
Philadelphia

TOXIC DRUGS

To the Editor—With regard to the article in *THE JOURNAL* on "Dinitrophenol and Desiccated Thyroid in the Treatment of Obesity," by Dr. Samuel Simkins (June 19, p 2110, June 26, p 2193), I wish to express my appreciation of the high quality of the reprint. In the concluding paragraph in the summary the recommendation is made that "the indiscriminate clinical use of dinitrophenol should be discontinued until the vexing problem of cataracts complicating dinitrophenol therapy is solved." I would suggest that at the present time the profession follow it, omitting the adjective "indiscriminate." The great trouble is that we are not able to discriminate. Is it not enough to know that the drug is extremely toxic and that we should not employ it in the treatment of obesity?

Recently an article appeared in a Mayo Clinic publication stating that the authors used cinchophen in the treatment of gout. Of course, they use careful liver function tests before prescribing the drug, but the point that I wish to make is that the average physician may take a chance without making the test for liver function. The question of the toxicity of the drug appears to be clearly answered in the article by Palmer and Woodall in the Sept 5, 1936, issue of *THE JOURNAL*.

Certainly enough incriminating evidence has accumulated in the literature to exclude this drug from the pharmacopeia.

Phenolphthalein is a drug that is largely used as a habitual laxative. Its popularity is due to the fact that it acts and is usually prepared in convenient palatable form. In certain individuals the drug is extremely toxic, producing skin eruptions and other evidences of toxemia. I make it a rule in my practice to examine the feces carefully in every case that comes to the clinic. The patients who have taken this drug for any length of time present evidence of chronic catarrhal enterocolitis. The drug belongs to the class of cathartics that produce local irritation. Many of the manufacturers of agar and oil mixtures slip in a dose of phenolphthalein to make the preparation more active, thereby deluding the doctor, who believes that he is prescribing a nonirritant mixture.

HORACE W. SOPER, M.D., St. Louis.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

TEST FOR ALCOHOL IN BLOOD AND BODY FLUIDS

To the Editor—In a recent issue of *THE JOURNAL* appeared an inquiry regarding the test for alcohol in the blood or other body fluids. This was answered but not with sufficient detail. You mention potassium dichromate change of color test. Can you supply information as to the strength of the solution and the conduct of the test?

J. B. DONALDSON, M.D., Lorain, Ohio.

ANSWER—A great variety of tests for alcohol in the blood and other fluids are described in the literature, and the majority of them depend on the color change produced in potassium dichromate solution when reduced with alcohol. Abels (*Pr. Soc. Exper. Biol. & Med.* 34:346 [April] 1936) has described a simple modification of the Widmark test that is sufficiently accurate for clinical purposes. The technique is as follows:

One cubic centimeter of 0.33 per cent potassium dichromate solution in sulfuric acid (made by dissolving 333 mg. of potassium dichromate in 1 cc. of water and diluting to 100 cc. with concentrated sulfuric acid) is spread on the bottom of a 50 cc. Erlenmeyer flask. Five-tenths cubic centimeter of blood or other fluid supposed to contain alcohol is pipetted onto a specially prepared bit of filter paper and suspended over the potassium dichromate-sulfuric acid mixture. The flask is heated at 100 C. for from fifteen to thirty minutes. After cooling, the contents of the flask are made up to 3 cc. with distilled water. This will require about 17 cc. of water (1 cc. of the potassium dichromate-sulfuric acid solution + about 0.3 cc. extracted from the unknown solution + about 17 cc. of distilled water). This mixture is placed in a test tube (6 inches by one-half inch) and is compared with the standards.

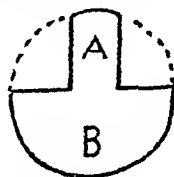


Fig. 1—Piece of filter paper cut out



Fig. 2—Portion B rolled & secured by tying

The standards are prepared as follows. In each of five test tubes (6 inches by one-half inch) is placed 1 cc. of the potassium dichromate-sulfuric acid solution. In the first of these tubes is added 2 cc. of distilled water. In the second is added sufficient alcohol to represent a concentration of 0.05 per cent. In the third enough alcohol to represent a concentration of 0.10 per cent. In the fourth, a concentration of 0.15 per cent, and so on, until the last tube represents a concentration of 0.5 per cent. All the standards are brought up to a total of 3 cc. each by the addition of distilled water. The standard tube is now heated to 100 C. for ten minutes. Now by comparing the color of the unknown solution with the standards, the con-

tration of alcohol in the unknown may be determined. The standards, if well sealed and protected from light, will remain accurate for two weeks. The first standard tube will represent a concentration of 0 per cent alcohol and the last a concentration of 0.7 per cent, with 0.05 per cent gradations lying between.

An ordinary piece of filter paper is cut out as shown in figure 1. Portion B is rolled up as shown in figure 2 and secured by tying. The fluid to be examined is pipetted onto portion B. The paper is inserted into the flask so that portion B is suspended over the potassium dichromate-sulfuric acid solution and held in position by securing portion A between the side of the flask and the stopper.

DIAGNOSIS AND TREATMENT OF CONVULSIONS IN INFANCY

To the Editor—A boy aged 15 months with threatened convulsions of which he has had twelve attacks within the past six months is unconscious. The eyes are closed. There are occasional twitches of the arms and legs. The most alarming symptoms are the slow and irregular respiration with evident expiratory effort. Mucus collects at the lips and larynx. There is no cyanosis. First cousins are said to have had convulsions and to have outgrown them. For infantile convulsions Holt recommends cold to the head and counterirritation to the skin and in addition chloroform chloral by rectum and morphine and magnesium sulfate subcutaneously. In such a case as described would the chloroform and other drugs be indicated?

H A HASKELL MD Windsor Calif

ANSWER—From the description furnished in the query it is evident that the slow and irregular respiration, with expiratory effort, indicates increased cerebral pressure associated with convulsive seizures. It is obvious that a careful neurologic examination is indicated. Various clinical tests should be made to exclude a possible tetany. The eyegrounds should be examined in order to detect a possible choked disk or optic atrophy. The reflexes and nerve signs should be examined so far as possible in a child of this age. In view of the diminished respiratory rate, a lumbar puncture would seem to be indicated during the attack, not only for the purpose of relieving intracranial pressure but also for the information that might be obtained by a chemical and microscopic examination of the cerebrospinal fluid.

As far as the use of chloroform is concerned the hazard is so great and the effect of such short duration that one would hesitate to administer it. In an infant who presents alarming symptoms on account of slow and irregular respirations, one would consider that the use of morphine might further depress respiratory movements and, on theoretical grounds at least, the morphine would seem to be contraindicated.

Magnesium sulfate subcutaneously is particularly indicated in the convulsive seizures associated with tetany. On the other hand, it is also supposed to act by dehydrating the brain and diminishing cerebral edema. While chloral hydrate acts slowly, it is relatively safe if given by mouth or rectum in proper dosage. Would it not be better to try to prevent the occurrence of the attacks by giving small doses of phenobarbital or bromide in the interval between the seizures for a prolonged period?

ISOLATION HOSPITAL FOR CONTAGIOUS DISEASE

To the Editor—As chairman of a committee of the Uniontown Hospital Staff to investigate the advisability of establishing an isolation unit for contagious diseases I am writing you for some information. I should like to know if this type of unit in a town of 20,000 with one hospital with a bed capacity of 225 is usually part of that type of hospital. Is this type of unit where it does exist supported by the hospital as a unit of the hospital or by the city or county? What is the number of beds advised for this size hospital and city? Do you have any plans for this type of unit that we could inspect? I would appreciate your giving me this information and any other information that you feel would be of value to us along the line of this survey. Any plans, reprints or outlines that you might have will be carefully handled and returned if sent to us.

JOHN D. STURGEON JR., Uniontown Pa

ANSWER—The question of establishing an isolation unit for contagious diseases in a relatively small city is always a difficult one to settle. There are times when availability of beds for contagious diseases seems absolutely essential and yet there are other times when a hospital, which would be inadequate during an epidemic would be a white elephant because it would be empty and would be piling up overhead costs to no good purpose. Flexibility is the quality in contagious disease bed capacity which is most to be desired. This is difficult in a separate hospital unit which requires all the administrative facilities including laundry, kitchens, cleaning, supervision and other items of overhead. It is most easily achieved in connection with a general hospital where the supervisory and service department can be extended to cover the contagious disease

unit. It has been demonstrated that it is quite possible to conduct a contagious disease unit as a part of a general hospital, provided the necessary isolation of personnel and equipment is carried out completely. Such affiliation with the general hospital affords many advantages, including not only the extension of supervisory and service departments of the hospital, through the service of the contagious disease unit, but also the consultation facilities of the hospital staff and the ability to run the contagious disease unit in such a way that physicians sending patients to the contagious disease hospital will not be compelled to turn them over to the care of staff physicians but will be able to care for their own patients themselves, to the greater satisfaction of the family, the patient and the physician. The number of beds advised for the city in question would be difficult to estimate. As stated, there might be times when 100 beds would be needed and other times when none would be needed. A hospital of fifty beds has proved ample for a city of 70,000 population. This, however, was a city hospital and no patients from outside were taken except under unusual circumstances. In estimating the needs, one would probably want to consider not only the population of the town but the population also of the surrounding country from which the general hospital draws its clientele. If arrangements could be made so that there would ordinarily be available from ten to fifteen beds, this would serve most needs except during epidemics. One would, of course, have to draw the line against hospitalizing certain cases such as measles, whooping cough, chickenpox and minor contagious diseases unless complicated by conditions which in themselves demand hospitalization. One would also have to make separate provision for smallpox, since this disease is difficult, if not impossible, to house in connection with a general hospital. As for plans the only thing we can suggest is that a hospital must be planned to meet the needs of the community after a careful study of those needs. We would not advise the adoption of any ready-made plans any more than we would advise the adoption of a plan out of a magazine for a house for one's own personal residence. Satisfaction in building a hospital can be expected only under the immediate supervision of a competent hospital architect who will give careful personal attention to the needs of the situation and will then make his plans to meet those needs.

TREATMENT OF CLIMACTERIC

To the Editor—My wife aged 48 is having a hard time going through the menopause. She is depressed, cries easily, is irritable, has days when she feels fine and others when she is suspicious, is quarrelsome and feels that the whole world is antagonistic. I have been giving her injections of theelin in oil 2,000 units about once weekly. She has to take sedatives almost every night to sleep. I am wondering whether you have any suggestions or if there is anything new which I might use to help this trying period and make it easier for her. Would x-ray treatment of the ovaries be of any benefit or would it be harmful? I would appreciate any information you may have on the mental disturbances of the menopause. Please omit name.

MD Oklahoma

ANSWER—The age of the patient and her symptoms are typical of the menopause. There are about eighteen or twenty symptoms that are complained of at this period in life. They are classified as nervous, circulatory and general. The subjective nervousness, depression and hot flushes are the ones that cause the most discomfort. It is well to remember that cessation of menstruation is not the end of this condition but that it is only a visible evidence that disturbance of function of the endocrine glands is present which involves especially the ovaries, the anterior pituitary, the thyroid and the adrenals which disturbance in turn involves the delicate equilibrium that normally exists between the two divisions of the autonomic nervous system. The object of treatment is to assist in maintaining a more normal endocrine balance until such time as a normal glandular adjustment will occur.

The duration of the climacteric may vary from a few months to five or six years and the severity of the symptoms from practically none to involutional melancholia.

The patient has some moderate psychotic symptoms which, if they become worse, must be classified as involutional melancholic.

Treatment should consist of theelin or other equally potent estrogen in oil 2,000 international units every other day until she shows definite improvement (absence of depression and psychosis), then give 1,000 international units intramuscularly three times a week for from one to two months and if improvement continues gradually taper off the dosage. If symptoms should recur some time after the cessation of treatment it should be reinstituted. Along with injections it is well to give the patient effective dosages of mild sedatives four times a day, such as chloral hydrate elixir of phenobarbital and sodium

bromide, to quiet the nervous system, until the endocrine treatment becomes effective. Some hypnotic tablet may be given at bedtime for sleep for the same reason.

Röntgen treatment of the ovaries to inhibit or destroy their function is unnecessary, for the ovaries are hypofunctioning at present and there is a possibility that the ovaries might have some other activity besides graafian follicle development and ovulation.

Be patient and persistent with the treatment and considerate of the patient, for she is physiologically ill.

One must be sure that there are no other ailments, for the patient must be treated as a whole and not as an aggregation of glands.

PROGRESSIVE ANKYLOSING SPONDYLITIS

To the Editor—Since April 1936 I have had under observation a case which has caused me considerable concern. A man aged 27 married 5 feet 10 inches (178 cm) in height weighing 140 pounds (63.5 Kg) originally complained of pain in the sacro-iliac region with associated sciatica, with a possible history of injury some three years previously. The teeth and tonsils had been removed, the nose ears and eyes were normal, there was no evidence of infections in the sinuses or abdomen, the prostate was negative to special examination. A flocculation test was negative. The urine was normal. The sedimentation rate at one hour was 99 mm. X-ray examination of the chest was negative. X-ray examination of the spine showed a slight dorsal scoliosis with a marked hypertrophic change in the sacro-iliac region with complete obliteration of the right joint and partial obliteration of the left. The heart and lungs were normal. The entire physical examination was negative with the exception of some restriction of motion in the sacro-iliac region. The neurologic examination was entirely negative. Hemoglobin was 85 per cent, white blood cells numbered 16,000, red blood cells 4,500,000. The differential count was normal. The Wassermann and Kahn reactions were negative. The Widal test was negative. Agglutination tests for *Bacillus paratyphosus* A and B, *Brucella melitensis* and *Bacterium tularensis* were all negative. A course of Clossen and Wetherby's vaccine was given without any benefit. A sacro-iliac belt gave moderate relief for a time. A Baer manipulation was attempted for relief of the sciatica and was moderately successful. Later the patient developed severe muscle cramps in the abdominal muscles as well as in the muscles of the chest and the legs and thighs. He was given ten injections of 10 cc of 10 per cent calcium gluconate which gave considerable relief to the cramping of the muscles. He was examined by the Mayo Clinic and a course of intravenous injections was suggested. He had a slight chill from the first injection and about two hours quiet sleep from the remainder of the injections. His hemoglobin had dropped to 52 per cent at this time and he was given a three weeks course of ventriculin and iron and the various vitamin concentrates, which increased the hemoglobin to 75 per cent. After the treatment was stopped it immediately dropped in a few days to 52 per cent with white blood cells 16,000, red blood cells 4,500,000 and differential negative. At this point he was started on a course of Compolon injections and has had two of them to date. At present his neck is stiff and he stoops forward about 10 degrees although x-ray examination of the cervical spine is negative. My diagnosis of chronic infectious spondylitis was confirmed by the Mayo Clinic. Any suggestions that you can offer as to where I might find the foci of infection in this case or any therapy you may suggest as offering some hope for keeping up the hemoglobin or something that might offer some relief from the constant pain and spasms would be greatly appreciated. At no time has he been disabled from work of a clerical type although I marvel at how he can continue it in his present condition. His best friend as he puts it is Empirin Compound which he takes on an average of 30 grains (2 Gm) daily for the partial relief of pain. Any suggestions you may offer will be greatly appreciated.

C KENNETH COOK M.D. St Paul

ANSWER—This detailed description of the symptoms and signs of progressive ankylosing spondylitis in a young white man is compatible with a diagnosis of Strumpell-Marie's disease. This author called the condition rhizomelic spondylitis because of the characteristic progressive involvement of the spine (including the sacro-iliac joints) and one or more "root" joints (hip or shoulder) and comparative to complete freedom in other appendicular articulations. Both Strumpell-Marie and later contributors on this subject have thought that a low grade infection was the etiologic factor, but this has never been proved to be true. The gonococcus was early under the greatest suspicion, but this hypothesis remains unconfirmed, if not actually disproved. Typhoid carriers (the gallbladder is usually then the focus) have been known to develop a similar progressive ankylosing spondylitis. Treatment has been varied and has included everything ever suggested by those who treat arthritis. Neither removal of all possible foci nor any therapy has been successful in arresting the progress of the disease. The prognosis, if the diagnostic impression proves to be correct, is always ankylosis of the spine and sacro-iliac joints, probably of one or both hips and possibly of one or both shoulders. The average course of the disease is about five years. When ankylosis is complete and the disease has "burned itself out" there will be little if any pain and the degree of disability will not only depend on the number of joints ankylosed but will also determine the effectiveness of orthopedic measures,

which should always be carried out during the active phase of the disease. These measures are undertaken to hold the spine in the erect position and the root joints that may be involved splinted in a position to make possible maximum function when and if ankylosis occurs.

In addition to the therapy outlined for the anemia, a high caloric diet having a high content of milk or milk products should be given, reinforced with concentrates containing vitamins A, B, C and D.

X RAY DOSAGE

To the Editor—With a 30 milliamperage radiator type Coolidge tube at 12 inches distance without filter 3 milliamperes is used for three minutes. What part of an erythema or skin unit dose is developed considering the skin to be normal? In terms of milliamperage time what is considered an erythema dose? Please omit name.

M D Iowa

ANSWER—The question, as asked, is unanswerable, for the correspondent does not give any of the voltage factors. Unless one uses a recording roentgen dosimeter, one must know and use the following factors in determining x-ray dosage: voltage, milliamperage, distance, filter and time. The omission of any of these factors makes it impossible to calculate the dosage.

Assuming that the voltage used is 100,000, a test was made at this voltage with a currently employed Snook machine a 30 milliamperage tube, at 12 inches distance from focus of tube to skin, using 3 milliamperes for three minutes. The dosage (in air) delivered was 180 roentgens, which is about 60 per cent of an erythema dose if delivered at one sitting, the skin assumed to be normal.

Unless an instrument has been carefully calibrated by a competent scientist with proper measuring instruments, it is unscientific and dangerous to attempt to state an erythema dose in milliamperage-minutes.

ACUTE ORCHITIS

To the Editor—A white boy aged 15 years who is perfectly sound physically and normal in all respects had a swelling of the right testicle Nov. 11, 1936 when I first saw him. The testicle was about 25 per cent larger than the left testicle. The involvement apparently was not in the epididymis but distributed throughout the testicle. He had a temperature ranging between 100 and 103 F for five days at which time the swelling in the testicle had subsided and the temperature was normal. The boy had been playing football and I assumed that he had been injured in this testicle. However the same thing occurred in the left testicle on December 18. The clinical course was about the same as with the right side. The vas was not enlarged or tender. The prostate was normal. The seminal vesicles were equal in size and at no time was pus found in the urine. The white blood cell count on two occasions was 9,000 with a normal percentage of neutrophils. Jan. 4, 1937 the left testicle again began swelling and he was found to have a temperature of 101 F. The physical condition was the same as has been outlined before. January 8 the swelling had subsided and the temperature was normal. I would appreciate any information that you might give me in making the diagnosis in this case. Please omit name.

M D Georgia

ANSWER—The correspondent has apparently ruled out any involvement of the epididymis. The discussion can be limited to the acute lesions of the testis proper. Of these the first to be discussed will be acute orchitis.

Acute orchitis may be either an ascending type of infection from the posterior urethra by way of the lumen of the vas through the epididymis—epididymo-orchitis—or metastatic and as such is not an uncommon complication of many acute infectious diseases. Of these the one that most frequently produces orchitis is mumps. Acute orchitis also has been noted in typhoid as well as in paratyphoid fever, influenza, diphtheria, scarlet fever, acute tonsillitis, and many others. On the other hand, an attack of acute orchitis may be due to the presence of a focus of infection in other parts of the body, such as an abscessed tooth, an infected sinus or furunculosis. The correspondent does not state whether or not the patient recently had one of the acute infectious diseases, which may have preceded the acute involvement of the testicle, and this is important, of course. Perhaps the patient had some transient infection that was not recognized and in an epidemic of influenza such as the recent one epididymitis, pyelitis and prostatitis have followed in the wake.

Finally, it is necessary to direct attention to a condition that is frequently overlooked or not considered in the differential diagnosis—torsion of the testicle (or, more correctly, torsion of the spermatic cord), a condition caused by sudden twisting of the cord so that the blood supply to the testicle is shut off. This condition is often mistaken for acute orchitis and acute epididymitis. Although the cases are generally associated with a history of straining (football, baseball, wrestling, rough housing), cases have been recorded in which the torsion occurred

in the night while the patient was sound asleep. As a rule, cases of torsion are unilateral.

The absence of a history of trauma, especially preceding the involvement of the second testis, would lead one to suspect that the orchitis is metastatic in origin.

BILATERAL EDEMA OF ANKLES

To the Editor—What do you believe is the cause of bilateral edema of the ankles in a man of 72 whose heart is normal except for a mild mitral systolic apical murmur and extrasystoles at irregular intervals? The edema has been present for about four months being less in the mornings. The murmur, extrasystoles and rapid pulse (80) have been present to the patient's knowledge for at least thirty years. The blood pressure is 140 systolic 74 diastolic. There are a few varicose veins in both legs which have been injected with quinine hydrochloride urethane during the last month without any appreciable difference in the edema. Digitalis 1 cat unit daily has been used for five weeks in the hope that it may relieve the swelling of the ankles. The kidneys apparently are normal. There is no nocturia or abnormality in the urine. The edema at times extends up to the knees when the patient is on his feet a great deal. Physical examination is essentially negative otherwise. What else could be done in this case? Please omit name. MD, California

ANSWER—In making the following suggestions it is assumed that there is no mechanical obstruction to the return flow in the extremities. Such obstruction might be caused by an old thrombophlebitis, a lymphangitis with chronic induration or even the varicose veins. Apparently this is not a renal edema. At the age of 72, cardiac edema is by far the most common. With the details as given at hand one suspects a mild cardiac failure probably due to degenerative heart disease. Based on this assumption the following suggestions are offered.

Digitalis should reduce a cardiac edema unless the heart is incapable of responding. This does not seem likely in the present instance. One cat unit equals about 0.1 Gm. of powdered leaf. This is a rather small daily dose unless enough of the drug was given previously to insure the optimal digitalis effect. After the optimal response is obtained it may often be maintained with 1 cat unit daily. In this case the dose might be cautiously increased to 2 units (0.2 Gm.) or even 3 units (0.3 Gm.) daily for a time. In view of the frequent extrasystoles, careful watch should be maintained for signs of increased cardiac irritability.

The purine base diuretics theobromine and theophylline compounds are said to cause an improved cardiac action. Whether or not they have a local action on the kidney is a subject for argument, but at any rate they frequently cause a diuresis that is of value in reducing edema.

The acid base salts ammonium nitrate or ammonium chloride, 2 Gm. three or four times daily, will often bring about a considerable diuresis. They are not well tolerated by the stomach and should not be continued over too long a period.

The mercurial diuretics salyrgan or mercupurin given in doses of from 0.5 to 2 cc. intravenously or intramuscularly, frequently produce a profound diuresis. The mobilization of fluid is enhanced if the acid base salts are given for three or four days preceding the injection of the mercurial.

SCHILLER TEST FOR CANCER OF CERVIX

To the Editor—Will you be so kind as to inform me of the name of the test for cancer of the cervix by the topical application of iodine and give a brief outline of the procedure and reading of the test?

J. M. KERCHEVAL M.D., Wolcottville Ind.

ANSWER—The test for cancer of the cervix to which the correspondent refers is known as the Schiller test.

Schiller Walter. Early Diagnosis of Carcinoma of the Portio Uteri. *M. J.* 26: 269 (Nov.) 1934.
Zur Frühdiagnose des Karzinoms der Portio uteri. *Monatsschr. f. Krebsbekämpfung* 2: 7 (Jan.) 1934.

It is preferable to use Gram's solution, consisting of 1 Gm. of iodine and 2 Gm. of potassium iodide in 300 cc. of water. The use of this dilute aqueous solution of iodine results in sharper differentiations than does ordinary compound solution of iodine. The procedure for staining is as follows. After the cervix is fully visualized by means of a bivalve speculum it is thoroughly dried and inspected and from 20 to 30 cc. of Gram's solution is poured into the vagina. The excess solution is removed by means of a cotton pledget. The normal cervix should be stained evenly a dark brown. Pathologic lesions fail to take the stain and stand out as sharply demarcated yellowish areas.

The test depends on the affinity for iodine of glycogen present in the epithelium of the portio. The normal squamous epithelium of the cervix contains glycogen in varying amounts depending on estrogenic activity. Pathologic areas and par-

ticularly carcinoma cells do not contain glycogen and therefore fail to be stained by iodine. In evaluating the Schiller test, one must have some experience. About four out of five patients who present themselves for examination will have a negative test, in which case the entire surface of the cervix has stained evenly. These patients do not have carcinoma of the portio of the cervix. The areas that fail to stain may or may not represent early carcinoma. In practice it has been found that only 15 or 20 per cent of these areas are malignant. An erosion of the cervix will not stain with iodine and will remain slightly reddish. In the earliest stages an erosion consists largely of cervical epithelium, which is not affected by iodine. It is probably good practice and the safest procedure to take a biopsy and submit to microscopic examination bits of tissues from all areas that do not stain. Superficial areas can be best removed with a sharp spoon curet, but one must attempt to include the transition zone between normal and pathologic epithelium.

The Schiller test is of value only in squamous cell carcinoma of the cervix. The existence of adenocarcinoma of the cervical canal or of the corpus must not be overlooked. These must be ruled out by probing the cervical canal and by dilation, curettage and a microscopic examination of the curettings.

RABIES

To the Editor—Here in Louisiana we are experiencing the usual mad dog scare. Public officials of small cities including veterinarians supplemented with the propaganda of manufacturing firms find it to their interest to impress the public with their efficiency. Veterinarians not unlike doctors advise shots based only on hygienic reports of serum manufacturers and resort to oppressive measures to stamp out the so-called rabies epidemic. Right now in this county besides restrictions placed on dog owners by city officials the police jury of the parish (county) has passed an ordinance requiring all dog owners to take their animals to a public clinic to be held at various points in the county just as cattle owners are compelled to take their stock to public dipping vats for the cure of ticks. In such measures the small city or town newspapers cooperate with these officials with sensational headlines and stories of many dogs running amuck and biting children and stock. And yet a human case of hydrophobia is rarely heard of. In the last few weeks dogs heads have repeatedly been sent to the Parish Health Clinic and I have yet to hear of one that was not a reported positive for hydrophobia. What is the present scientific status of the one injection preventive and curative antirabies serum as applied to dogs? Is it not a fact that many dogs have developed rabies after one of these live virus single injections? Are Negri bodies on which the diagnosis of rabies in animals is dependent (the specific germ never having been isolated) now considered infallible proof of rabies? Are they sufficiently easy to discover as to make examinations by ordinary bacteriologists not specially skilled conclusive? Concerning Negri bodies Dorland's Medical Dictionary 1935 says: 'Oval or round bodies seen in protoplasm and sometimes (italics are mine) in nerve cells of animals dead of hydrophobia. The fact that the word sometimes is used would seem to indicate that bacteriologists are not always able to make a diagnosis even when competent and the animal has actually died of hydrophobia. I have been engaged in promoting and breeding a famous breed of dogs for forty years continuously and uninterruptedly in these four decades I have never passed a single year in which I did not exhibit the dogs as a gentleman's sport. In all this time I have never known or heard of a professional handler or exhibitor having hydrophobia from being bitten and many of these professional handlers who make the circuit of dog shows profitable in handling the animals of wealthy sportsmen do not believe there is any such disease as hydrophobia. Of necessity they are frequently bitten by dogs they have taken under their care. It is a fact that some able veterinarians deny the existence of this malady. I do not agree with this but I do doubt the safety and advisability of these single live virus injections. For years epidemics of running fits have been existent all over the dog world and the cause is unexplained. I have seen it go through my kennels repeatedly. Young high bred dogs under excitation or physical exertion suddenly run wild barking and yelping violently seeking some dark corner hole or cellar in which to hide. Within half an hour the malady subsides the animal is dull and stupid and recovers and in the next day or two the process may be repeated. This is sufficient to inspire the cry 'mad dog!' and for the newspapers and the small vested interests to do the rest.

FAYETTE C. EWING M.D. Alexandria La.

ANSWER—Rabies in dogs is subject to periodic waves of increase in different regions. Only recently an extensive outbreak occurred in Chicago. Many persons were bitten and deaths from human rabies occurred. In connection with this matter the following statement in the review for 1936 by the president of the Rockefeller Foundation is highly significant.

'In 1936 the Foundation began laboratory and field work in relation to rabies, which has become an increasing menace, particularly in some of the Southern states. Little has been done on this disease since Pasteur's day and it is hoped that a quicker and more positive test for rabies in animals may be developed and perhaps a less cumbersome method of vaccination.' The very best that can be said for the one injection of antirabies vaccine is that it is still no further than in the experimental stage. Whether many dogs have developed rabies after the injection of live viruses is extremely difficult to determine, but that possibility cannot be denied. Negri bodies

are sufficiently characteristic to be regarded safely as diagnostic, but the examination of suspected cases, like all examinations of such nature in general, are of course reliable only in competent hands

SPERMATORRHEA

To the Editor—A white man aged 21 single has noticed a "milky color to the urine intermittently for the past ten months. He experiences no pain on urination but is troubled with frequency during the daytime. These episodes of milky urine occur about twice a month. The urine is clear for a few moments on these occasions and suddenly the stream changes to a thick white color. There is no discharge present before or after these bouts. I have examined the urine on two of these occasions and found the milky fluid loaded with live sperm. No pus cells or any other organisms were present. Prostatic smears have been repeatedly negative as have the specimens of urine between the spells. The patient has never had gonorrhea or any other prostate disease. His physical examination is essentially normal. Blood Kahn and Hinton reactions are negative. The genitals appear normal in development. The condition has caused the patient a great deal of mental concern. I would appreciate any information as to the etiology of this unusual condition and also what measures I might take to overcome these episodes. Please omit name

MD Maine

ANSWER—The condition is occasionally seen in young persons who are not married, it is called spermatorrhea and as far as we know is of no clinical significance. In a certain few individuals there is an apparent laxness in the ejaculatory ducts, allowing an occasional emptying of the seminal vesicles into the prostatic urethra. As noted in the present case, the secretion gives a milky cast to the urine and on microscopic examination shows nothing more than vesicular secretion and live sperm cells. The condition has no clinical significance and as far as is known there is no indicated treatment. In almost all instances the spermatorrhea will disappear following the marriage of the individual, with regular emptying of the seminal vesicles. The only treatment is the reassurance of the patient

DISCOLORATION BY BLOOD IN PATHOLOGIC SPECIMENS

To the Editor—Kindly give me the best method for the removal of the discoloration caused by blood in specimens preserved in 10 per cent solution of formaldehyde. Is there any method or solution which may be used at first to obviate this discoloration? I have a number of fetuses which are very dark. Would it be possible to apply the Spalteholz method of clearing to such material? I have been unable to find any references in English to this method. Kindly omit name

MD Michigan

ANSWER—Much of the discoloration caused by blood in specimens preserved in solution of formaldehyde is due to reduction of blood pigments by the formaldehyde. Immersion of such specimens in solution of hydrogen peroxide, preferably in sunlight for from one to two days will remove much of the brown discoloration. If fetuses are preserved in Kaiserling solutions in the regular way and not left in Kaiserling I too long much discoloration will be prevented.

As part of the Spalteholz method of clearing involves the bleaching of specimens in peroxide, it is probable that Spalteholz's method of clearing will give good preservation even with discolored fetuses. A satisfactory method of utilizing the Spalteholz principles is the following

- 1 Fix in 10 per cent solution of formaldehyde
- 2 Bleach with solution of hydrogen peroxide in sunlight for two days
- 3 Dehydrate with 70 per cent ethyl alcohol one day, 95 per cent ethyl alcohol one day and 100 per cent ethyl alcohol one day
- 4 Place in benzene for one or two days
- 5 Place in methyl salicylate full strength
(There will be air bubbles at this stage, pump out in a vacuum for from two to three hours) Store in methyl salicylate

WORD BLINDNESS

To the Editor—Please give me some information about the latest treatment in word blindness

B M HOWLEY MD New Brunswick N J

ANSWER—The latest treatment in word blindness aims at overcoming the difficulties created by the perceptual peculiarities of the patient. In learning to read, emphasis is placed on auditory and kinesthetic types of stimulation. Phonetic rather than visual methods are used in the teaching of reading with such children. Kinesthetic methods involve the tracing of letters sometimes the use of letters cut out of wood so that actual contact can also be used in becoming familiar with shapes and forms of letters. Considerable effort at times must be expended in overcoming the tendency to reverse images. The

devices that aid the child in following the printed material in the proper direction are used. For some children, when disturbances in the eye movements can be demonstrated such mechanical devices as the mentronoscope are used to improve ocular coordination and to speed up the rate of reading. Often the psychologic problems produced by the disability are more difficult to overcome than the mechanical effect of the disability. The discouragement and anxiety that children develop on account of their inability to read may result in a tremendous resistance to learning to read at all. This may have to be overcome before progress can be made in teaching them the mechanics of reading.

See "Children Who Cannot Read," by Marian Monroe, University of Chicago Press, 1932

NEUROLOGIC SYMPTOMS DUE TO TRAUMA OR ARTERIOSCLEROSIS

To the Editor—Dec 5 1935, my patient was working on the county highway with a gang of men digging rock from the side of the road. A piece of earth weighing over 200 pounds fell on him pinning him to the ground. He sustained a fracture of both bones of the lower right leg just above the ankle. He was brought to the hospital where the parts were molded properly and a plaster cast applied. The man was in this cast for about ten weeks. The cast was removed frequently during the last weeks to massage and inspect. He got up on crutches and was able to go out as well as to the compensation board for examination. Suddenly he began to complain of pain in the lower part of the back, lack of strength and difficulty in getting about. He insisted that he could not use his crutches and had to go to bed. He was given massage for his back. He had slight secondary anemia. He had weak muscular coordination in the hands and legs slurring of speech intestinal cramps and impaired sensation of the skin. He was brought to the hospital about March 1 1936. He became progressively worse until about the last of July. Then he had to be taken to the state hospital because he was unmanageable in the local hospital. He died there after about two weeks. Could this man have had a marked accentuation of an admitted (arterio) sclerosis to such a degree that his spinal cord and nervous system degenerated so rapidly all on account of the accident he suffered in December three months before he started to show the spinal symptoms? Was the spinal breakdown directly caused by his injury? The Wassermann reaction of the blood was negative and the urine was normal. He had been a drinker to some degree but never to interfere with his working regularly. Have you any suggestions about trauma and spinal cord injury coming on late especially in relation to arteriosclerosis?

E L FINLEY MD Oneida N Y

ANSWER—It is quite possible that an injury as severe as the one described may have precipitated the symptoms resulting from a condition which prior to the accident had not yet reached a definite clinical stage. There is no evidence to show, however, that an accident of this type could in itself have been the sole etiologic factor in the bringing about of a generalized neurologic syndrome which involved speech, as well as muscular coordination in the hands and other regions far removed from the site of the injury to the spine or the spinal cord.

SYPHILIS IN PREGNANCY

To the Editor—I am treating a woman, aged 21 for congenital syphilis. Her chief symptoms were keratitis and cornea. At the onset of treatment in January 1936 the blood Wassermann reaction was plus 4 and the spinal fluid Wassermann reaction was negative. She was given three courses of bismuth in oil 120 mg ten eight and six doses with two intervening courses of nearsphenamine (maximum dosage 0.45 Gm) continuously. The cornea disappeared completely. The keratitis resolved to a point at which objects can now be discerned. Three months intervened. The blood Wassermann reaction went down to plus 2 after six months of treatment but was 4 plus at the end of the course. It is now plus 4. I am planning six months of treatment this year with bismuth in oil and nearsphenamine as before but in smaller dosage. Will you please criticize the treatment? I shall welcome any suggestions for the future. I have advised her that it is safe to have a baby but to have treatment during pregnancy.

MD Pennsylvania

ANSWER—There is little criticism to offer of the treatment given thus far. The two courses of bismuth planned for the year should be augmented by two more courses of nearsphenamine followed by several courses of bismuth injections a year for two or three years to come.

The advice with regard to the question of pregnancy is open to criticism or at least to discussion. The possibility of the girl's having an infected child is small (especially if treatment is started early and continued throughout the pregnancy). The effect of the pregnancy on the keratitis presents a considerable hazard. In congenitally syphilitic girls in whom the interstitial keratitis appears late, as in this young woman, pregnancy will frequently precipitate an attack of interstitial keratitis or will cause a recurrence of a previous attack. In view of her age, 21, it would seem advisable, therefore, to postpone the possibility of her becoming pregnant for at least five years at the end of which time the advisability of her having a child should be reconsidered.

LOW BACK STRAIN

To the Editor—A white man aged 35 complains of pain in the lower part of the back which he dates to a time when he stooped down and arose suddenly about four years ago. The pain is most severe when he bends forward or lifts. His occupation compels him to be on his feet all day. He is well developed is about 5 feet 9 inches (175 cm) in height and weighs about 165 pounds (75 kg). His posture is good and no abnormal curvature of the spine is apparent. Examination revealed nothing significant except a slightly enlarged prostate. There is no tenderness over the site of pain. Cystoscopic examination gave negative results. The urine, the blood count and the blood chemistry were normal. A roentgenogram of the spine revealed a small fragment of bone posterior to the spine of the fourth lumbar vertebra, it is oval and about 0.5 cm in its longest diameter. There is also cloudiness between the last lumbar vertebra and the sacrum. The rest of the roentgenograms are normal. After several consultations the patient was given a choice between surgical intervention and diathermy with the wearing of a plaster jacket. One surgeon advocated the removal of the fragment of bone, one a fusion operation and another the plaster jacket and diathermy. What is the wisest step?

M D New York

ANSWER—Unless there is tenderness on palpation at the site of the small fragment posterior to the spine of the fourth lumbar vertebra, there would seem to be little indication for its removal. The history and the objective observations suggest strain of the lower part of the back. Injury to the intervertebral disk between the fifth lumbar vertebra and the sacrum with displacement of some of the disk substance backward into the spinal canal should be considered, but such an injury is most commonly associated with pain along the course of the sciatic nerve. It should be possible by manipulative tests to determine whether or not the pain in the back is related specifically to the sacroiliac joints or to the lower lumbar section of the spine. It seems most inadvisable to plan an operative fusion until more conservative measures have been given a thorough trial.

A plaster cast, which should be followed after six or eight weeks with a good brace, diathermy and corrective exercises such as have been described by Goldthwaite, Williams and others, may be expected to lead to restoration of normal function in a majority of such cases. Should this program fail fusion of the joints in question might be necessary, but only if it was reasonably certain which joints were causing the trouble.

MOSQUITO REPELLENTS

To the Editor—Is there anything more effective than oil of citronella for keeping mosquitoes away from the body? If not is there something to put in the oil to keep it from evaporating so quickly?

LEONARD T CARLSON M D Minneapolis

ANSWER—All repellents directed against mosquitoes have one common drawback the most efficient ones are highly volatile and their effect rapidly wears off. A successful repellent, besides being obnoxious to the mosquito, should have the following requirements: it should have a base that will retard rapid volatilization of the active principle, it should spread readily, and it should have such a consistency that it will adhere to the exposed body surfaces. Of the large number available the most satisfactory formula is probably oil of citronella 15 cc (one half ounce), spirit of camphor 7.5 cc (one-fourth ounce), cedar wood oil 7.5 cc and white petrolatum 60 Gm (2 ounces). The use of a phenol soap for washing may be of aid. For lawn parties or open air gatherings frequent undertable sprayings with Flit or any of the antimosquito sprays insures comfort for a considerable time.

BRASS PLUMBING

To the Editor—My dwelling is equipped with a water system in which the water for drinking purposes and cooking purposes is supplied through brass pipes. These pipes conduct both hot and cold water for all domestic and family purposes. The chemical composition of these brass pipes as accurately as I can ascertain is 67 per cent copper and 33 per cent iron. The household water supply that flows through these pipes is known to contain a small percentage of lime, probably coming from some normal deposits in the earth. The thing I wish to know is whether the brass pipes will have any injurious effect on the water, and thus an injurious effect on the health of my family during future years. The pipes were installed with the understanding that they were more durable and satisfactory than iron but there has been some question raised by neighbors as to their long time effect on the health of the family and I would like a medical opinion on that point.

M D Maryland

ANSWER—This query refers to brass pipes as being composed of copper and iron. Properly, brass is composed of copper and zinc, although this term is applied to a large number of alloyed metals even those containing as high as 50 per cent of lead with copper. In any event, any brass will contain some lead as an impurity, but probably plumbing brass will not contain a quantity of lead beyond 1 per cent. If this possible source of lead poisoning together with lead connections within buildings and lead soldering of brass pipes is eliminated appre-

hension need not be felt as to the toxic properties from such metals as copper, zinc or iron in plumbing. The daily intake of the average adult is perhaps as high as 4 mg of copper. This is derived from food, drinks and occasionally drugs. Some copper seems to be necessary in normal human economy. It is therefore conceivable that the small amount of copper derived from brass plumbing conduits may serve a beneficial effect. It has been observed that copper is serviceable in the treatment of certain types of anemia.

EXCESSIVE SALIVATION FROM DENTURES

To the Editor—A man aged 53 has been wearing false teeth (upper and lower plates) for fourteen months. He takes them out at night. He complains of an excessive amount of salivation. There is a formation ofropy thick mucoid saliva that is a constant bother to him. It is making him nervous and he desires relief. He has tried a refitting of plates with no relief. His dentist is an expert at least one of the best in the state. A good number of dentists physicians and nose and throat specialists have nothing to offer. His work prevents him from going without his teeth for a period. WILLIAM A FRITZ M D, Hickory N C

ANSWER—We have been unable to find any specific cure for this condition. It is apt to be caused from some kind of irritation such as dentures improperly fitted, or it could be allergic the denture material itself causing the irritation. Diet might also enter into this picture. We would suggest reducing carbohydrates, giving an abundance of fruit juices and increasing the liquid intake. Aside from this there seems to be little known about the condition.

ALLERGY IN DISTRICT OF COLUMBIA

To the Editor—A white man aged 31 had an allergic attack of one month's duration twice in January and from Thanksgiving to Christmas of 1936. The attacks can best be described as an angioneurotic edema of the face with multiple synovial effusions and urticaria. The lesions shift from one locality to another leaving no permanent sequela. There is no response to the administration of epinephrine ephedrine or calcium salts intravenously each attack apparently running a thirty day course and spontaneously clearing up on its own accord. Skin tests with forty of the commoner antigens revealed four reactions graded two or three plus but not sufficiently positive to be diagnostic. There is no possibility of these attacks arising from a thermic sensitivity or from a change of living conditions in the cold weather likewise all possible foci of infections have been eliminated. The patient has become despondent and thinks that he is doomed to undergo a thirty day attack every winter. Would I be justified in subjecting the patient to the gamut of two or three thousand skin tests in an effort to find a specific antigen? Is there any plant emanation in the District of Columbia which gives rise to allergic attacks in the winter? Could you advise me of any other procedure for diagnosis or treatment? Kindly omit name. M D District of Columbia

ANSWER—If the correspondent is correct in the assumption that the symptoms of the patient are of allergic origin, exciting causes both from within and from without need to be investigated. There are no plants in bloom in the District of Columbia during the winter months. However, contact with the leaves and stems of house plants should be kept in mind and "patch tests" performed with them. Similar tests should also be performed with all materials which the patient handles in the course of his occupation.

A list of the articles that enter into his diet should be carefully kept and should serve as a basis for a complete series of skin tests. The possibility of drug idiosyncrasy should not be overlooked.

The lack of response to epinephrine or ephedrine raises some doubt about the allergic character of the attacks. A blood smear should be studied, and the question of worm infestation demands consideration.

USE OF DIPHTHERIA ALUM TOXOID

To the Editor—In the directions accompanying a vial of diphtheria alum toxoid the makers caution against its use in children after the age of 8 years but do not give their reasons. Why is this warning given and what should be done when this toxoid is used in older children?

M D Iowa

ANSWER—Above the age of 8 and more particularly after 12, severe reactions sometimes occur when the customary dose of toxoid or alum precipitated toxoid is injected. These reactions may be both local and constitutional.

In susceptible persons beyond the age of 8 it is sometimes well to inject 0.1 cc of toxoid or alum precipitated toxoid intracutaneously before administering any of the immunizing agent subcutaneously. In fact, it has been claimed that 0.1 cc of alum precipitated toxoid when injected intracutaneously is equivalent in its efficiency to 1 cc. given subcutaneously. Intracutaneous injections are practically devoid of constitutional reactions.

In some contagious disease hospitals, doctors and nurses with positive Schick tests are always immunized with toxoid. No

consideration is given to the age factor and comparatively few severe reactions are observed. Some physicians still prefer to use toxin-antitoxin for the purpose of establishing active immunity to diphtheria in older persons.

IODIZED SALT IN BOARDING SCHOOL

To the Editor—Kindly advise me as to the desirability of the routine use of iodized salt in a girl's boarding school with an age range of from 12 to 18. The incidence of thyroid disease, chiefly adenoma, is relatively high here. I have been impressed with the reports of Marine and Kimball but am a little uncertain on account of adverse reports by Lahey and others.

ALEX F ROBERTSON JR M D Staunton Va

ANSWER—It certainly would be desirable to carry out some method of prophylaxis against goiter in a girl's boarding school with an age range of from 12 to 18. The routine use of iodized salt, preferably one of the nationally advertised brands, would probably be desirable. This method is adequate, easiest of all to carry out and teaches the fundamental principle that goiter is one of the deficiency diseases. Because of the adverse reports mentioned the state health department of Michigan has been making a careful study since 1928, and it has never found a case in which there was the slightest suggestion of injury to children of this age due to the use of iodized salt.

DRUGS USED TO SHORTEN MENOPAUSE

To the Editor—One of my patients tells me that several months ago a physician in another state told her about a new medicine that is used to shorten the menopause. She did not take the treatment at that time but now feels that she would like to take it. Is there a medicine on the market that is useful for the purpose mentioned or is it likely that she has in mind some remedy to relieve the symptoms of the menopause? If there is a remedy that will shorten the menopause where can it be obtained?

BIRON E CRAWFORD M D, Chamberlain S D

ANSWER—There is no medicine that will shorten the menopause, unless the patient interpreted radiotherapy to be a form of medication. Likewise as surmised, the patient may have been told only about medicines that will alleviate the disagreeable symptoms of the change of life.

INTRAMUSCULAR INJECTION IN BUTTOCKS

To the Editor—On page 1134 of THE JOURNAL March 27 under the heading Intramuscular Injection in the Buttocks the statement is made: Give the injection in the upper and outer quadrant always. This question had presented itself on several previous occasions therefore I consulted Dr M B Parounagian who in response to a letter of June 25 1936 replied: Upper and inner quadrant because the patient does not sit on that region less blood vessels and away from the sciatic nerve causing less pain. I have followed Dr Parounagian's suggestion in directions for use of injectable aqueous colloidal bismuth. However I would appreciate your comment as I wish to distribute authoritative information concerning such matters.

HARRY NOONAN Long Island City N Y

ANSWER—In getting ready for an intramuscular injection in the buttocks, it is well to divide the buttock into quadrants, an invisible line may be dropped down the center of the buttock and a line at right angles to this across the middle transversely. The injection should be given in the outer quadrant at the inner angle. In this area there is the least danger of affecting nerve structures or large vessels, and of causing a deposit that will be irritated when the patient sits down.

TYPHOID VACCINE THERAPY IN NEUROSYPHILIS

To the Editor—Please send me information regarding the method of carrying out the Nelson technic of typhoid vaccine therapy in treatment of neurosyphilis.

M D Wisconsin

ANSWER—Nelson's article appeared in the *American Journal of Syphilis* 15 185 (April) 1931. The method was devised to produce higher body temperatures without the use of unreasonably large doses of vaccine. A single intravenous dose of from 15 million to 250 million, depending on how many previous injections had been given, will produce a temperature of about 102.5 F. In order to produce the desired 105 to 106 F it was necessary to give as much as from 3,000 million to 4,000 million. Nelson found that if two successive doses are given on the same day the desired temperature may be reached. At the height of the temperature produced by the first dose, usually from two to three hours after the injection, a second injection is given with the resulting elevation of the temperature to 105-106 F. All injections are given intravenously. The first dose varies from 15 million to 250 million and the second dose varies from 20 million to 300 million, depending on how many hyperpyrexial attacks have been produced previously.

GROWTH OF FUNGI IN FOODS

To the Editor—How many days can prepared foods stand in ordinary temperatures and not become a medium for the growth of fungi? Are common refrigerators free from fungi and a safeguard to our food from such infestations? We would not eat bread and biscuits that had stood for weeks or months. In a lesser degree are not crackers and wafers that stand for days weeks and months in our groceries infected with fungi? Is it possible for a sclerosed gastro-intestinal tract with little digestive juices not to become infected and mycosed by these long standing unsealed prepared foods?

M D Indiana

ANSWER—There is no clear-cut evidence to indicate that molds which commonly produce spoilage in food are pathogenic to man. Air and soil contain many mold spores which germinate and grow when they have suitable food moisture, temperature and time. Common refrigerators are not free from fungi.

ALLERGY TO COOKED ONIONS

To the Editor—A patient reacts allergically about the eyes to cooked onions but not to raw onions. It is the only food to his knowledge to which he is sensitive. How prevalent are onions as an allergin and why doesn't he react to them raw?

W EDWARD MCGARVEY M D Jackson Mich

ANSWER—Ordinarily raw foods are more antigenic than cooked foods. Examples of the reverse have not come to our attention. It is possible, however, that if the exposure is due to the volatile material from the onions by way of the respiratory tract the procedure of cooking would throw into the atmosphere much more of that material. Asthma due to the vapors of cooking foods have been described (Feinberg, S M, and Aries, P L. Asthma From Food Odors, THE JOURNAL, June 25, 1932, p 2280). Onion is a fairly common allergen.

PLASTIC INDURATION OF PENIS

To the Editor—A man aged 50 has chronic circumscribed inflammation of the corpora cavernosa sometimes called circumscribed fibrosis. The patient noticed this mass developing in the penis six months ago. It is gradually extending toward his symphysis. At present it is about 2 cm long. He has attended numerous physicians for the condition with no results. I would appreciate information on this condition as to treatment and prognosis. Please omit name.

M D Florida

ANSWER—This condition is known as plastic induration of the penis. It is usually a progressive condition, although roentgen treatment has been known to control it in some cases. However, care must be taken not to include the testes in the exposure to x-rays.

PROTAMINE IN IMMUNIZATION

To the Editor—Since protamine slows down the absorption of insulin I wonder whether it would be possible to combine protamine with antigens in order to lessen the danger of anaphylaxis and to avoid other untoward reactions. I have especially in mind the scarlet fever immunizing treatments and antiallergic therapy in general.

R R GUTSTEIN M D Kendallville Ind

ANSWER—This is an interesting suggestion, but only by experiment would it be possible to find out whether the combinations suggested can be effected with practical advantage in immunization.

FATALITY AFTER INJECTION OF VARICOSE VEINS

To the Editor—In your reply to the query entitled Fatality Following Injection of Varicose Vein (THE JOURNAL May 22 p 1872) you state that allergic reactions following injections of sodium morrhuate are uncommon. In our experience at the V V department of the North End Clinic at Detroit these reactions are rather common. We have a series of about fifteen such rather serious reactions although luckily no fatalities. These cases are to be reported soon in the literature by Dr Saul Rosenzweig and myself. In order to obviate these reactions or at least minimize their severity we worked out the following method of procedure.

The first injection of sodium morrhuate is always less than 0.5 cc of 5 per cent sodium morrhuate. If the patient shows no allergic manifestations after the first injection the dose is increased. If the patient does not get any injections for a period of one month or more on subsequent treatments we proceed as if it were a new patient and with even more caution because the patient may have become sensitized by the previous injections plus the intervening rest period.

It appears to me that the dose of 2.5 cc of 5 per cent sodium morrhuate given to the patient in the cited query was entirely too large considering the previous injections and the intervening rest period.

In concluding I want to call your attention to the fact that there is a sclerosing solution which is entirely free from allergic reactions. This is a 20 or 30 per cent of sodium chloride. The disadvantages of this sclerosant are two severe cramp for a few minutes following the injection and the danger of slough if even a few drops of the solution are injected outside the vein.

M J GLICK M D Detroit

Medical Examinations and Licensure

COMING EXAMINATIONS

STATE AND TERRITORIAL BOARDS

ALABAMA Montgomery June 28 Sec Dr J N Baker 519 Dexter Ave Montgomery

ALASKA Juneau Sept 13 Sec Dr W W Council Box 561 Juneau

ARIZONA *Basic Science* Tucson Sept 21 Sec Dr Robert L Nugent Science Hall University of Arizona Tucson

ARKANSAS *Basic Science* Little Rock Nov 1 Sec Mr Louis E Gebauer 701 Main St Little Rock *Medical (Electric)* Little Rock Dec 21 Sec Dr Clarence H Young 1415 Main St Little Rock

CALIFORNIA Sacramento Oct 18 21 Sec Dr Charles B Pinkham 420 State Office Building Sacramento

CONNECTICUT *Medical Endorsement* Hartford July 27 Sec Dr Thomas P Murdock 147 W Main St Meriden *Basic Science* New Haven Oct 9 *Prerequisite to license examination* Address State Board of Healing Arts 1895 Yale Station New Haven

DISTRICT OF COLUMBIA *Basic Science* Washington Dec 27 28 (probable dates) Sec, Commission on Licensure Dr George C Ruhlman 203 District Bldg Washington

FLORIDA Jacksonville Nov 15 16 Sec Dr William M Rowlett Box 786 Tampa

GEORGIA Atlanta Oct 12 13 Joint Sec State Examining Boards Mr R C Coleman 111 State Capitol Atlanta

IDAHO Boise Oct 5 Commissioner of Law Enforcement Hon J L Balderston 205 State House Boise

ILLINOIS Chicago Oct 19 21 Superintendent of Registration Department of Registration and Education Mr Homer J Byrd Springfield

KANSAS Topeka Dec 14 15 Sec Board of Medical Registration and Examination Dr J F Hassig 905 N 7th St Kansas City

KENTUCKY Louisville, Dec 7 9 Sec State Board of Health Dr A T McCormack 532 W Main St Louisville

MARYLAND *Medical (Regular)* Baltimore Dec 14 17 Sec Dr John T O Mara 1215 Cathedral St Baltimore *Medical (Homeopathic)* Baltimore Dec 14 15 Sec Dr John A Evans 612 W 40th St Baltimore

MICHIGAN Lansing Oct 13 15 Sec Board of Registration in Medicine Dr J Earl McIntyre 202 34 Hollister Bldg Lansing

MINNESOTA *Basic Science* Minneapolis Oct 5 6 Sec Dr J Charney McKinley 126 Millard Hall University of Minnesota Minneapolis *Medical* Minneapolis Oct 19 21 Sec Dr Julian F Du Bois 350 St Peter St St Paul

MISSISSIPPI Jackson Dec Asst Sec State Board of Health Dr R N Whitfield Jackson

MONTANA Helena Oct 5 6 Sec Dr S A Cooney 205 Power Block Helena

NEVADA *Reciprocity* Carson City August 2 Sec Dr John E Worden Carson City

NEW HAMPSHIRE Concord Sept 9 Sec Board of Registration in Medicine Dr Fred E Clow State House Concord

NEW JERSEY Oct 19 20 Sec Dr James J McGuire 28 W State St Trenton

NEW MEXICO Santa Fe Oct 11 12 Sec Dr Le Grand Ward Sena Plaza Santa Fe

NEW YORK Albany Buffalo New York and Syracuse Oct 4 7 Chief Professional Examinations Bureau Mr Herbert J Hamilton 315 Education Bldg Albany

OHIO Columbus Dec Sec State Medical Board Dr H M Platter 21 W Broad St Columbus

OKLAHOMA Oklahoma City Dec 8 Sec Dr James D Oshorn Jr Frederick

OREGON *Basic Science* Portland Nov 20 Sec State Board of Higher Education Mr Charles D Byrne University of Oregon Eugene

PUERTO RICO San Juan Sept 7 Sec Dr O Costa Mandry Box 536 San Juan

VERMONT Burlington Feb 8 Sec Board of Medical Registration Dr W Scott Nay Underhill

VIRGINIA Richmond Dec 8 10 Sec Dr J W Preston 28 1/2 Franklin Road Roanoke

WISCONSIN *Basic Science* Madison Sept 25 Sec Prof Robert N Bauer 3414 W Wisconsin Ave Milwaukee *Medical* Madison Jan 11 14 Sec Dr Henry J Cramling 2203 S Layton Blvd Milwaukee

WYOMING Cheyenne Oct 4 Sec Dr G M Anderson Capitol Bldg Cheyenne

NATIONAL BOARD OF MEDICAL EXAMINERS SPECIAL BOARDS

Examinations of the *National Board of Medical Examiners and Special Boards* were published in THE JOURNAL July 17 page 229

Arizona April Report

Dr J H Patterson, secretary, Arizona State Board of Medical Examiners, reports five physicians licensed by reciprocity and one physician licensed by endorsement at the meeting held in Phoenix, April 6-7, 1937 The following schools were represented

School	LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
College of Medical Evangelists		(1928)	California
Rush Medical College	(1926)	(1928)	California
Louisiana State University Medical Center		(1935)	Louisiana
University of Pennsylvania School of Medicine		(1934)	Penna

School	LICENSED BY ENDORSEMENT	Year Grad	Endorsement of
College of Medical Evangelists		(1935)	N B M Ex

Missouri Reciprocity and Endorsement Report

Dr Harry F Parker, State Health Commissioner, reports 12 physicians licensed by reciprocity and 2 physicians licensed by endorsement on June 2, 1937 The following schools were represented

School	LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
State University of Iowa College of Medicine		(1926)	Iowa
University of Kansas School of Medicine (1924)	(1924)	(1936 2)	Kansas
Washington University School of Medicine		(1934)	New York
Creighton University School of Medicine		(1930)	Kansas
New York Homeopathic Medical College and Flower Hospital		(1932)	New York
Meharry Medical College	(1932) Louisiana	(1935 2)	Tennessee
University of Tennessee College of Medicine		(1935)	Tennessee
University of Toronto Faculty of Medicine		(1911)	California

School	LICENSED BY ENDORSEMENT	Year Grad	Endorsement of
Columbia University College of Physicians and Surgeons		(1929)	N B M Ex
Meharry Medical College		(1934)	N B M Ex

Rhode Island April Examination

Mr Robert D Wholey, chief, Division of Examiners, reports the oral, written and practical examination held by the Board of Examiners in Medicine at Providence, April 1-2, 1937 Thirteen candidates were examined all of whom passed Two physicians were licensed by endorsement after an oral examination The following schools were represented

School	PASSED	Year Grad
Georgetown University School of Medicine		(1934)
Boston University School of Medicine		(1935 2)
Harvard University Medical School	(1930)	(1935)
Tufts College Medical School		(1932)
University of Minnesota Medical School		(1927)
St Louis University School of Medicine		(1927)
Columbia University College of Physicians and Surgeons		(1921)
Jefferson Medical College of Philadelphia		(1935 2)
University of Pennsylvania School of Medicine		(1928)
McGill University Faculty of Medicine		(1934)

School	LICENSED BY ENDORSEMENT	Year Grad	Endorsement of
Georgetown University School of Medicine		(1935)	N B M Ex
Harvard University Medical School		(1932)	N B M Ex

Iowa Reciprocity and Endorsement Report

Mr H W Grefe director, Division of Licensure and Registration, reports eight physicians licensed by reciprocity and two physicians licensed by endorsement from Jan 23 through May 21, 1937 The following schools were represented

School	LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
University of Minnesota Medical School	(1934)	(1937)	Minnesota
St Louis University School of Medicine		(1931)	California
Washington University School of Medicine		(1932)	Minnesota
Creighton University School of Medicine		(1924)	Minnesota
(1935) Nebraska			
University of Nebraska College of Medicine		(1930)	Nebraska
University of Virginia Department of Medicine		(1932)	Virginia

School	LICENSED BY ENDORSEMENT	Year Grad	Endorsement of
Woman's Medical College of Pennsylvania		(1930)	N B M Ex
McGill University Faculty of Medicine		(1934)	N B M Ex

New Hampshire March Examination

Dr Fred E Clow secretary, New Hampshire Board of Registration in Medicine reports the examination held at Concord March 11-12 1937 Six candidates were examined, all of whom passed The following schools were represented

School	PASSED	Year Grad
Howard University College of Medicine		(1935)
Harvard University Medical School		(1935)
Jefferson Medical College of Philadelphia	(1923)	(1936)
Laval University Faculty of Medicine		(1936)
McGill University Faculty of Medicine		(1936)

Twelve physicians were licensed by reciprocity and three physicians were licensed by endorsement from January 19 through March 22 The following schools were represented

School	LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
School of Medicine of the Division of the Biological Sciences		(1934)	Illinois
Johns Hopkins University School of Medicine		(1903)	Mass
Boston University School of Medicine		(1935)	Mass
Harvard University Medical School		(1929)	Mass

Washington University School of Medicine
New York University College of Medicine
University of Vermont College of Medicine
(1934) (1936) Vermont
Medical College of Virginia
Albert Ludwigs Universität Medizinische Fakultät
Freiburg
University of Edinburgh Faculty of Medicine

(1933) Missouri
(1935) New York
(1925) New York
(1928) Penna
(1914)* New York
(1925) Vermont
Year Endorsement
Grad of
(1934)N B M Ex
(1934)N B M Ex
(1934)N B M Ex

School LICENSED BY ENDORSEMENT
Yale University School of Medicine
Boston University School of Medicine
McGill University Faculty of Medicine

* Verification of graduation in process

Book Notices

The Diagnosis and Treatment of Diseases of the Liver and Biliary Tract By John Phillips Revised by Russell L. Haden M.D. Head of Department of Medicine The Cleveland Clinic Cleveland Ohio Henry A. Christian M.D. ScD LL.D. General Editor of the Series (Reprinted from Oxford Monographs on Diagnosis and Treatment) Cloth Price \$7.00 Pp 539 with 58 illustrations New York Oxford University Press 1936

This work, the manuscript of which was finished only a short time before the tragic death of Dr. Phillips, has been revised by his successor, Russell L. Haden. The book is divided into four parts. The first part begins with an interesting and adequate chapter on the embryology and anatomy of the liver, followed by an account of the physiology of the liver in which the essential features are presented succinctly and without unnecessary elaboration. The next chapter discusses the methods of examination of the liver and of the gallbladder, describing physical examination, examination by the x-rays and the chemical examination of the bile. The methods used in cholecystography are described in detail and the value and limitation of this new method of study are adequately considered. The first part closes with an excellent consideration of liver function tests. Here all the better known methods are discussed in detail and their technic and value considered. The second part of the book describes diseases of the liver. This section contains an excellent discussion of jaundice, cirrhosis, syphilis and certain other less common diseases. The bile ducts and their diseases occupy some forty pages, and this is an excellent section. The final section considers diseases of the gallbladder, with more than forty pages devoted to the discussion of gallstones. The book is readable, is well printed and contains a number of excellent illustrations. Each chapter is followed by a bibliography, which is both comprehensive and modern. The author, while obviously familiar with the literature on the physiology of the liver in its numerous aspects, has wisely restrained himself from discussing everything concerned with the various diseases portrayed. It is obvious to the reader that the author has had a wide experience in the treatment of diseases of the liver and also with the literature on the subject. All in all, the book is a clear and comprehensive discussion of the diseases of the liver and presents a satisfactory summary of the present state of our knowledge.

The Morphine Habit and Its Painless Treatment By G. Lughton Scott M.R.C.S. B.A. Second edition Cloth Price 5s Pp 105 London H. K. Lewis & Co. Ltd. 1937

The author has developed a method for the treatment of morphine and heroin addiction which in suitable cases, he believes, is so free from the distressing withdrawal symptoms that he speaks of it as 'the painless treatment'. He considers the word 'habit' misleading as applied to morphinism. 'A bad habit implies voluntary continuance in some asocial or antisocial practice, whereas the dependence of morphinism is as involuntary and relentless as thirst in the desert. It is unusual to meet the addict, however inveterate, whose dearest wish is not the desire to be cured.' In established addiction the stimulating effect of morphine is more pronounced than the narcotic. There is a 'kick' in each injection which rallies the addict's diminishing powers of mental application and enables him to work at increased pressure without fatigue. If the pulse is taken before and after a dose, its perceptible slowing and strengthening is invariable. The author considers this vagus stimulation, as evidenced by slowing of the pulse, as an important guide to the presence of tolerance. In a

normal person as minute a dose as 2 or 3 mg. produces a slowing of the pulse by several beats a minute, a feeling of euphoria and increased vigor. As tolerance develops, it takes progressively larger doses to produce this vagotonic effect. The author therefore regards the addict as one who has been accustomed to sustain an artificial vagal preponderance by means of this drug and that symptoms of too rapid withdrawal are due to diminution of the vagal control and to sympathetic overaction while sudden abstinence ushers in a "series of sympathetic explosions which may even endanger life." The author believes that during a gradual reduction treatment one can by the administration of atropine imitate the vagosympathetic relation which the morphine addict requires to be comfortable. The following simplified technic illustrates the principle of the method. Six-tenths mg. of atropine is dissolved in 48 cc. of physiologic solution of sodium chloride together with the full daily supply of the morphine. A dose of 4 cc. is injected every two hours while the patient is awake, but he is not to be aroused when he is asleep. Thus, the more he sleeps the fewer doses he needs and gets. The quantity of morphine actually consumed on the first day becomes the total amount introduced into the mixture for the second day, and so on, until the drug is entirely withdrawn. While the morphine is gradually cut down the atropine is gradually increased until as much as 0.3 mg. of atropine may be included in every dose. The aim is to maintain a slower than normal heart beat. The appearance of ocular symptoms is a sign that atropine is being increased too rapidly. Such a scheme is self-regulating and automatic allowance depends inversely on the length of time the patient sleeps. The author admits that this treatment is unsuited to the debilitated and that segregation, a tactful nurse and a consecrated physician are requisites for success. He reports about two dozen cases illustrative of his method, which is not as simple in its execution as the condensed presentation of principle might lead one to suppose.

Reading, Writing and Speech Problems in Children. A Presentation of Certain Types of Disorders in the Development of the Language Faculty By Samuel Torrey Orton M.D. Cloth Price \$9 Pp 115 with 24 illustrations New York W. W. Norton & Company Inc. 1937

This book contains the Thomas W. Salmon Memorial Lectures given at the Academy of Medicine in 1936 by Dr. Samuel Torrey Orton. In these lectures Dr. Orton presents the results of his research and studies in language disorders over a period of more than ten years. In the first chapter certain disturbances of language which follow injury to the brain in the adult are briefly reviewed and attention is called to the arresting fact that these disorders may follow a lesion in one hemisphere of the brain but only if it is the master half of the brain that is injured. The author further points out that our only guide to the master hemisphere in the adult is his laterality and observations in children are reported which indicate a wide range of variability in establishing a clear cut laterality as measured by tests and history of development of handedness, eyedness and footedness. 'In the second chapter five syndromes of delay or disorder in the acquisition of language were described—developmental alexia, special disability in writing, developmental word deafness, motor speech delay, and stuttering—and one other—developmental apraxia—which follows the same unilateral pattern of organization in the brain although it does not always interfere with language development. In all but one of these six disorders, viz., stuttering, it was pointed out that the symptoms observed are a very exact counterpart of those seen in the corresponding syndromes in the adults suggesting strongly that the determiner for these disabilities in childhood is very closely related physiologically to that which is disturbed by lesions in the critical cortices controlling language in the adult.'

The author finds one common factor in all the difficulties listed: that engrams (physiologic records of previous stimuli left in the brain or other nerve centers) exist in the nondominant hemisphere which, if not completely elided, may cause confusion in recognition and recall. There is a clear and suggestive discussion of the treatment of the language difficulties that are listed. Contrary to some of his followers, the author does not feel there is any one single method which can be used in each case nor does he believe that his methods can be standardized. He points out that the emotional factors in every case must be

carefully studied and personality disorders wherever found must be treated. He divides stutterers into two types—those who stutter from the time they first begin to talk and those whose speech is normal until the sixth to the eighth year. He says that in the younger group it is exceedingly important to determine whether a shift of handedness away from the natural inclination has taken place or is under way. Motor tests as well as careful inquiry into the history is essential here. It is well to emphasize the author's words about stuttering given in chapter 5. He says, with regard to the frequently heard statement that all stutterers should have been left-handed and ought to be so trained that this rests on a superficial comprehension of the complexities of the problem of cerebral dominance and of the potential sources of difficulty. It is frequently difficult to decide which hand should be used in writing. The book is clearly and interestingly written. The author is careful in drawing his conclusions and modest in his assumptions. It is unfortunate, however, that the book has no index.

This book is a milestone in the study of speech disorders, and no one who works in this field can afford to be without these stimulating and interesting lectures.

Laboratory Outline in Filterable Viruses. By Roscoe R. Hyde. Professor of Immunology and Director of the Laboratories of Immunology and Filterable Viruses, School of Hygiene and Public Health, The Johns Hopkins University. With the assistance of Raymond E. Gardner, Associate in Immunology. Cloth. Price \$1.50. Pp. 85 with 3 illustrations. New York: Macmillan Company, 1937.

In their small volume the authors have presented brief directions "planned to give the student a first-hand knowledge of the nature and behavior of a number of representative viruses" and "a more comprehensive experience with the pathology of a selected group of virus diseases ranging from necrosis to hyperplasia." The text has been evolved from laboratory notes used for a number of years in the teaching of courses at the School of Hygiene and Public Health at the Johns Hopkins University, where the late Charles E. Simon established the first university department of filtrable viruses in the United States. The exercises are designed as an introduction to the study of the filtrable viruses. In preparing them, the choice of viruses and methods has been governed by questions of suitability for class use. They are planned with the idea that the work can be completed within the time allocated for the laboratory period. The directions are stated briefly. It follows that the student will require frequent consultation with an instructor to supply technical details. To make intelligent use of the exercises, the student must have been well grounded in general science and must have received adequate training in bacteriology, immunology and pathology. Thus the volume will be most serviceable to the teacher confronted with the problem of giving a small number of well prepared students a practical introduction to the filtrable viruses. For the more advanced student and the research worker the volume will not be very helpful. A number of technical methods are described including filtration, the preparation and use of collodion membranes, electrophoresis, tissue culture and the making and staining of histologic preparations. The descriptions of these methods have been gathered from many sources for the convenience of the student. The viruses selected for study exemplify a number of types. They include the viruses of bacteriophage, tobacco mosaic, lymphocystic disease of fish, vaccinia and variola, fowlpox, herpes, rabies, Rous sarcoma, poliomyelitis and yellow fever. Selected references are given with a view to guiding the student to suitable reading material for use in connection with the laboratory work. This selection is rather arbitrary and inadequate.

Bolezni ukha, nosa i gorla. Rukovodstvo dlya vrachev. Pod redaktsiyey S. M. Kompaneysa i trekh tomakh Tom perry. Bolezni ukha. Pod redaktsiyey S. M. Kompaneysa i A. A. Skrypta. Chast pervaya. [Diseases of Ear, Nose and Throat. Handbook for Physicians. Volume I. Diseases of Ear. Part 1.] Cloth. Price 18 rubles. Pp. 638 with illustrations. Kiev: Gosudarstvennoye Meditsinskoye Izdatel'stvo, 1936.

This is the first half of volume I. It is intended as a guide for otorhinolaryngologists and not as a textbook for students. The contributions are from Soviet specialists. The volume contains an extensive contribution by A. M. Puchkovskiy dealing with the history of the development of otorhinolaryngology in former Russia and in the Union of Socialist Soviet Republics. This is followed by chapters on the anatomy, comparative

anatomy, histology, physiology and pathology of the ear, otoneurology, the technic of physiologic experiments on the ear, and on the methods of investigation of the organ of hearing. All the chapters are adequately treated. The illustrations, while lacking artistic appearance, are well selected and valuable when considered from the scientific point of view. Particularly valuable is the chapter on the relation of otology to neurology.

The Facial Neuralgias. By Wilfred Harris, M.D., F.R.C.P., Consulting Physician to St. Mary's Hospital, London. Cloth. Price \$2.75. Pp. 109 with 15 illustrations. New York & London: Oxford University Press, 1937.

This excellent treatise is another masterpiece by Wilfred Harris, the author who contributed the textbook of neuritis and neuralgia to the medical profession. The present work is a detailed compend attempting a classification and differential diagnosis of the many and baffling types of facial pain. Its contents include dental neuralgia, neuralgia from ocular causes, trigeminal tic, migrainous neuralgia, physiology of sensory conduction from the face, sympathetic sensory conduction, traumatic neuritis of the trigeminal and its branches, post herpetic trigeminal neuralgia, tumors of facial bones, nasopharynx or base of the skull, medullary sclerosis, geniculate neuralgia, facial psychalgia, headache and facial neuralgia in sinusitis, chronic neuralgia of the jaws, temple side of head and neck, and glossopharyngeal tic. The proved and the theoretical data are amply discussed. The author also has placed at the disposal of the readers his knowledge and experience gained in the treatment of trigeminal tic during the past twenty-eight years. There is an excellent bibliography. This book is the best treatise on facial neuralgias in medical literature today.

William Withering. The Introduction of Digitalis into Medical Practice. By Louis H. Roddis, M.D., Commander, Medical Corps, United States Navy. Reprinted with additions and corrections from *Annals of Medical History* (New Series, Vol. VIII, Nos. 2 and 3, March and May, 1936). Cloth. Price \$1.50. Pp. 131 with 8 illustrations. New York: Paul B. Hoeber, Inc., 1936.

This volume is uniform with some of the previously published monographs on great pathfinders in medical practice published by the Hoeber press. It is apparently the first formal biography in book form of William Withering, whose contribution to cardiology is everywhere recognized as epoch making. Withering was much interested in botany, mineralogy and other scientific subjects. He developed a considerable consultation practice. He first used foxglove in 1775. The manner in which it was first called to his attention is interesting. He says:

In the year 1775 my opinion was asked concerning a family recipe for the cure of dropsy. I was told that it had long been kept a secret by an old woman in Shropshire who had sometimes made cures after the more regular practitioners had failed. I was informed also that the effects produced were violent vomiting and purging for the diuretic effects seemed to have been overlooked. This medicine was composed of twenty or more different herbs, but it was not very difficult for one conversant in these subjects to perceive that the active herb could be no other than foxglove.

The book makes an interesting biographic story out of the life of a great physician. It is beautifully illustrated and has a fine bibliography.

Senile Cataract. Methods of Operating. By W. A. Fisher, M.D., F.A.C.S., Professor of Ophthalmology, Chicago Eye, Ear, Nose and Throat College. Third edition. Fabrikoid. Price \$2. Pp. 153 with 183 illustrations. Chicago: H. G. Adair Printing Company, 1937.

Ophthalmoscopy, Retinoscopy and Refraction with New Chapter on Orthoptics. By W. A. Fisher, M.D., F.A.C.S., Professor of Ophthalmology, Chicago Eye, Ear, Nose and Throat College. Fourth edition. Fabrikoid. Price \$2. Pp. 210 with 240 illustrations. Chicago: H. G. Adair Printing Company, 1937.

The book on cataract contains brief chapters by Fuchs (now dead), Wright, Barraquer, Holland and van Lint. On the whole the illustrations are poor except for the charming picture of two kittens, which furnish "ample, inexpensive and satisfactory material for practice." The appearance of the book is attractive. The material presented is too complex for the medical student insufficient for the beginning ophthalmologist, and inadequate for the experienced ophthalmic surgeon.

The second book has a new chapter on orthoptics but retains the same old Cleveland fundus plates which are perfectly unintelligible. Retinoscopy, refraction, ophthalmoscopy and orthoptics are discussed at wholly inadequate length.

Heart Disease By Paul Dudley White M.D. Lecturer in Medicine Harvard Medical School Second edition Cloth Price \$7.50 Pp 744 with 125 illustrations New York Macmillan Company 1937

The second edition of this deservedly popular book is a vast improvement over the first. The book has been entirely revised and many better illustrations have been provided. The extensive bibliography of the first edition has been abbreviated and brought down to date. Its utility has been greatly enhanced by placing the references at the end of each chapter instead of, as before, at the end of the book. Otherwise, the same plan has been employed as in the first edition, but the first section dealing with the cardiovascular examination has been considerably reduced. It is regrettable that in this reduction the chapter on symptoms seems to have been greatly shortened. The same saving in space could more suitably have been obtained if the chapter on auscultation had been reduced and some of the polygraph and apex beat tracings in the chapter on pulsations had been omitted. Considerable reduction in size could also have been obtained by reducing the repetitions, not all of which can be ascribed to the scheme of the presentation. It is unfortunate that the recent developments in the field of peripheral vascular disease were not given more consideration. The author has added two new appendices, the first is the classification of cardiac diagnoses approved by the American Heart Association with some of the author's criticisms, and the second is a chronological summary of the major contributions to our knowledge in the cardiovascular field. It would have been better if the last twenty-five years of this historical summary had been omitted from this survey, since it is obvious that historical judgment improves with lapse of time. These comments do not detract from the excellence of this book, which represents not only the personal experience of the author over many years in the practice of cardiology both among private and among service patients, but also the points of view that have developed in the field in the last quarter century. The medical student and general practitioner will find the book easy to digest and full of practical and useful data. The specialist will find a considered, mature assay of the developments in this field dealt with from the clinical view. This book will take its rightful place among the classics in the field of cardiology.

Operative Surgery By Alexander Miles M.D. LL.D. F.R.C.S. Consulting Surgeon Royal Infirmary Edinburgh and D.P.D. Wilkie M.D. F.R.C.S. Professor of Surgery University of Edinburgh Second edition Cloth Price 21s Pp 631 with 329 illustrations New York & London Oxford University Press 1936

In this edition the text has been completely revised, a number of old illustrations have been withdrawn and a greater number of new ones added. As the authors justly state, the scope of operative surgery has become so wide and the technic so complicated that it is impossible to deal with the whole subject adequately in a single volume of moderate proportions. The work is offered to undergraduates and resident surgeons as a description of the present-day practice in the Edinburgh school, the alternative methods have been discussed only in general outlines. From the purely theoretical point of view, it is beyond doubt that a medical student should be familiar with ligation of the common carotid or the iliac artery, however, when sixty-three pages is devoted to blood vessel surgery the question arises whether it is not wiser to allot less space to the description of such rare procedures and devote more to common operations. The compilative, concise yet comprehensive work is profusely illustrated for the Edinburgh student the book fulfils a distinct need for the American surgeon it will be of interest as it furnishes information as to methods popular in this prominent medical school.

Pediatric Nursing By John Zahorsky A.B. M.D. F.A.C.P. Professor of Pediatrics and Director of the Department of Pediatrics St. Louis University School of Medicine Assisted by Beryl E. Hamilton R.N. Graduate of St. Luke's Hospital St. Louis Cloth Price \$3 Pp 568 with 151 illustrations St. Louis C.V. Mosby Company 1936

Pediatrics has progressed as rapidly as any phase of medicine, consequently, pediatric nursing has also needed modification and study. The prevention of diseases has been increasingly emphasized, and proper nutrition to provide for normal growth has become one of the primary objects of child care. Almost daily, new technical procedures on the care of the sick infant are

presented. This book was written to supply the need for material describing the latest methods used in pediatric nursing. The first section of the book is devoted to the science of pediatrics, the second, to the technical methods of procedure. Profuse illustrations, although not always clear, may aid the nurse in understanding the methods described. While actual practice in a hospital is needed in the training of nurses, the use of a suitable textbook, such as this one, will aid greatly.

Atlas gisteroskopii v akusherstve [By] B. I. Litvak. Pod redaktsiev Prof. G. F. Plenskogo. Atlas de l'hystéroscope dans l'obstétrique. Cloth. Price 27 rubles 50 kopecks Pp 151 with 50 illustrations Kiev Gosmedizdat U.S.S.R. 1936

The author discusses the diagnostic value, the construction of the instrument and the technic of endoscopy of the uterus with the aid of the Miculicz-Radecki-Freund hysteroscope. The method enables the observer to recognize the various inflammatory and edematous states of the uterine mucosa, fetal remains and localization of the placenta. The author studied epithelization of the uterine cavity after artificial abortion and after normal labor. The results of the investigation are presented in fifty drawings. The author believes that endoscopy of the uterine cavity is a valuable aid in gynecologic and obstetric diagnosis and that it deserves further development.

The Nursery Years By Susan Isaacs M.A. D.Sc. Reprinted 1936 Cloth Price \$1.50 Pp 138 with one illustration New York Vanguard Press 1936

This guide book was originally published in April 1929. It describes the mental development of the infant until the age of 6 and includes chapters on the norms of development, some answers to problems, and playthings. On one page the author epitomizes fifteen important don'ts for parents. References are classified describing the general facts of development therapy and practice in education and biology. The language is simple and the material authoritative. This little volume lends itself well as an elementary textbook for child study groups and can be recommended for teachers and pediatricians interested in child development.

Textbook of Medicine By Various Authors Edited by J. J. Conybeare M.C. M.D. F.R.C.P. Physician to Guy's Hospital London Third edition Fabrikoid Price \$7 Pp 1027 with 49 illustrations Baillière Tindall & Co. 1936

The object of this book is to provide to the student and practitioner the essentials of medicine within as small a compass and at as low a price as possible. In the present edition the subject matter has been revised, in many places rewritten, and several additional contributors have been added. The sections on renal diseases, anemia, diabetes mellitus and the pituitary gland have been completely rewritten. A new article on coronary occlusion has been included. The material on arthritis has been rewritten to conform with the modern outlook toward this disease. Many prescriptions have been added which increase the value of the book for the practitioner. The author has accomplished in a large measure his purpose of including a large amount of material in a book of not excessive size.

Economic Problems of Modern Life By S. Howard Patterson A.M. Ph.D. Professor of Economics Wharton School of Finance and Commerce University of Pennsylvania and Karl W. H. Scholz A.M. Ph.D. Professor of Economics Wharton School of Finance and Commerce University of Pennsylvania Third edition Cloth Price \$4 Pp 813 with 35 illustrations New York & London McGraw-Hill Book Company Inc. 1937

The previous editions of this work were published in 1927 and in 1931. It is a first class textbook on economics, concerning itself with the organization of business exchange, public and private finance, capitalistic organization, labor problems and security. The final section is devoted to world problems of economic reorganization. The whole subject of public health is discussed under the heading of "Economic Insecurity and Social Insurance." Here the authors advocate some sort of sickness insurance for all workers.

Naris klinichnoi fermentologii [By] I. V. Bazilevich [Outline of Clinical Fermentology] Paper Price 9 rubles 6 kopecks Pp 314 Kiev Vidavnistvo Akademii Nauk U.S.S.R. 1936

This book, written in the Ukrainian, deals with the various ferments of the human body, the various tests for their recognition, their chemistry and their clinical significance.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Malpractice Liability of Physician for Negligence of Hospital Nurse—The plaintiff was suffering from a small dermoid cyst in the pelvic region and entered the Church of St. Matthew Mills Memorial Hospital to have it removed by a Dr. Prindle. The physician requested a nurse in charge of the operating room to prepare for a minor operation, informing her that he would use as a local anesthetic a 1 per cent solution of procaine. Through mistake, the nurse prepared a solution of formaldehyde which the physician, believing it to be procaine, started to inject into the plaintiff in the immediate vicinity of the cyst. The patient immediately gave evidence of suffering great pain and the physician, discovering the mistake, injected procaine and completed the operation by removing the cyst after excising the area affected by the formaldehyde. Thereafter the plaintiff sued the physician, the hospital and the nurse. In the first trial of the case, the trial court gave judgment for the defendants but the Supreme Court of California remanded the case for a retrial. *Hallman v Prindle* (Calif.), 29 P. (2d) 202, abstr. THE JOURNAL, Oct. 13, 1934, p. 1178. In the second trial the trial court gave judgment against the hospital and the nurse for the sum of \$12,500 and exonerated the physician from liability. The hospital, the nurse and the plaintiff appealed to the district court of appeal, first district, division 1, California.

The court could find nothing in the evidence to support the plaintiff's contention that the nurse, in preparing the tray for the operation, was the servant or employee or even the agent of the physician. While, said the court, if the physician were performing such an operation at the home of the patient, or in his office, without assistance, these preparations would necessarily devolve on him, there is nothing in their nature which renders it improper or even undesirable that they be undertaken by another person, qualified by training and experience, acting in cooperation with the physician. The nurse in performing her duties in the operating room is acting for her employer, the hospital, and not for the operating surgeon, and the latter cannot be held responsible for her negligent acts unless performed under conditions in which, in the exercise of ordinary care, he could have or should have been able to prevent their injurious effects and did not. The general rule is thus laid down in 48 Corpus Juris, sec. 144, p. 1137: "A physician is not liable for the negligence of hospital or other nurses, attendants or internes who are not his employees if he has no knowledge thereof, or has no connection therewith, or if it is not discoverable by him in the exercise of ordinary care, or unless he is negligent in permitting them to attend the patient." It was plain from the evidence, the court continued, that the acts of preparation performed by the nurse were not done under the special supervision and control of the physician. On the contrary, they were performed by her in his absence. That they were done at his request or direction has no significance, since she was merely attending to duties devolving on her as an employee of the hospital. Whether performed by her at the direction of an officer of the hospital made in pursuance of a previous notification by the physician or on the request of the physician made directly to her cannot affect the legal situation.

The trial court committed no error in admitting evidence of the custom of physicians and surgeons of good standing to accept instruments, medicines and drugs from a graduate trained nurse without making an examination thereof themselves. The jury was called on to decide whether the physician was chargeable with negligence in injecting into the body of the patient the liquid placed by the nurse in the medicine glass. The test of such negligence is whether or not an ordinarily prudent person would have acted as the physician did. Although jurors are presumed to know what an ordinarily prudent person would do under any and all circumstances, it is of assistance to them to be informed what the practice is of persons habitually called on to perform a given act, for it is obvious that such a practice is most likely to be that which

is suggested by ordinary prudence. While a negligent act, clearly shown to be such, cannot be justified on the ground of custom or usage, and evidence of such custom or usage is not generally admissible for that purpose, evidence that a person charged with negligence followed the custom of other persons in the same line of business will be received on the question as to whether he acted as a reasonably prudent man would have acted under the circumstances. The trial court committed no error in exonerating the physician.

With respect to the hospital, the court said, the evidence was clear that it was a nonprofit organization devoted to the care of the sick either without payment or at a charge which was less than the cost of such care. The hospital, being a charitable institution, was not liable for the negligence of the nurse, no lack of care having been shown in her selection and retention. The trial court erred, in the opinion of the district court of appeal, in allowing the verdict against the hospital to stand. With respect to the nurse, the court said, it could hardly be contended that she was not guilty of negligence. On the former appeal in this case, the Supreme Court held that the evidence conclusively established such negligence. The nurse accounted for her mistake by frankly admitting that she took no pains to read the label on the formaldehyde bottle before pouring part of its contents into the medicine glass. The court thought, however, that the amount of the judgment against the nurse was excessive by \$5,000.

For the reasons stated, the judgment in favor of the physician was affirmed, the judgment against the hospital was reversed and the judgment against the nurse was affirmed, subject to a reduction of \$5,000 if agreed to by the plaintiff. — *Hallman v Prindle* (Calif.), 62 P. (2d) 1075.

Medical Practice Acts Defective Charges in Revocation Proceedings—The Florida state board of medical examiners instituted proceedings to revoke Sbordy's license to practice medicine, charging that he "was guilty of fraud in the practice of medicine, or fraud or deceit in his admission to the practice of medicine." To substantiate this charge it was alleged that (1) he held a certificate of the board of eclectic medical examiners, dated April 6, 1915, "which said certificate is fraudulent and improper which fact is and has been well known" to him, and (2) he was not "a graduate of a legally incorporated medical college maintaining a standard satisfactory to the State Board of Medical Examiners of Florida." Prior to a hearing, Sbordy applied to the Supreme Court of Florida for a writ of prohibition to prevent the board from proceeding further.

The board questioned whether or not the desired remedy by prohibition was proper. The Supreme Court held that it was proper if the board was acting without jurisdiction or if it was exceeding its jurisdiction in not proceeding in accordance with the essential requirements of law. The court concluded that the board was exceeding its jurisdiction because the complaint on which the revocation proceedings were based did not sufficiently charge Sbordy with the commission of any act which constituted a ground for the revocation of his license to practice medicine. Charges before licensing boards, said the Supreme Court, need not be stated with the technical nicety or formal exactness required of pleadings in the courts yet the accused must be informed with reasonable certainty of the nature of the accusation against him and must be given reasonable opportunity to defend against the attempted proof of such charges. Proceedings in matters of this kind are summary in their nature but are not arbitrary or despotic, and the charges preferred must be specific.

The first charge, which accused Sbordy of being guilty of fraud in the practice of medicine, or fraud or deceit in his admission to the practice of medicine, because he held a certificate "which said certificate is fraudulent and improper which fact is and has been well known" to him, obviously failed to charge him in such fashion as to inform him, with reasonable certainty, of the nature and cause of the accusation against him. In what manner he had been guilty of fraud and why it was that the certificate granted him was fraudulent and improper did not appear from this charge. It failed to accuse him of being guilty of any acts which constituted grounds for the revocation of his license. The second charge against Sbordy failed also to state with reasonable certainty wherein

he was guilty of any fraud in his admission to practice, except that he was charged with not being a graduate of a legally incorporated medical college maintaining a standard satisfactory to the state board of medical examiners. But, said the court, the provisions of the act under which he obtained his license to practice as an eclectic required him to have only a certificate of graduation showing that he had taken not less than a two years course from some college of the eclectic school of medicine. The second charge, therefore, failed legally to charge the commission of any acts which constituted grounds for the revocation of Sbordy's license.

A permanent writ of prohibition was issued restraining the board of medical examiners from proceeding with the revocation matter—*State ex rel Sbordy v Rowlett (Fla)*, 170 So 311

Optometry Practice Acts Corporate Practice of Optometry in Missouri—A corporation operated a number of department stores in Missouri and leased to an optical company space for operation of optical departments in such stores. The company agreed to place graduate optometrists in charge of such optical departments, who were to be subject to all the rules and regulations of the corporation. Receipts from the operation of such optical departments were payable to the corporation, which after deducting 25 per cent of such receipts returned them to the optical company. The optical company furnished all the equipment, supplies and merchandise necessary for the conduct of the optical business, but all the advertising of such departments was in the name of the corporation. The attorney general of Missouri brought quo warranto proceedings, alleging that the corporation and the company were engaged in the practice of optometry without a license. The Supreme Court of Missouri, however, held that the defendants were not engaged unlawfully in the practice of optometry within the meaning of the optometry practice act and dismissed the proceedings—*State ex inf McKittick v Gate City Optical Co (Mo)*, 97 S W (2d) 89

Malpractice Inflammation of Bone Following Fracture—On February 11 the plaintiff, a young woman, suffered a comminuted fracture of the tibia of her right leg about 5 inches below the knee joint. She was taken to a clinic operated by the defendants, where, after roentgenograms of the injured leg had been studied, the fracture was reduced and a plaster-of-paris cast applied extending from above the knee to below the ankle. During the next fifteen days the plaintiff complained of pain in her leg and on several occasions the defendants opened the cast to relieve the pressure. Another roentgenogram, taken February 26, disclosed a slight overlapping of the bone. The plaintiff was hospitalized and a so-called "Brown splint" was applied. On March 16 the bones were found to be in apposition and another plaster-of-paris cast was put on the injured leg. The plaintiff continued to complain of pain in her leg and the defendants advised her to have diathermy treatments, which she did. Finally, the plaintiff consulted another physician, who took another roentgenogram. From this and her history of the case, he "inferred" that the pain with which she was suffering probably involved some inflammatory bone process and suggested that she consult a specialist in that field. This she did and a biopsy indicated that there was a chronic inflammation of the bone. No infection was found. Thereafter the plaintiff sued the defendants, claiming that they negligently failed to discover that she, while under their care, was suffering from inflammation of the bone. In the trial court the jury rendered a verdict for the plaintiff, and the defendants appealed to the Supreme Court of Minnesota.

The specialist testified that the inflammatory process in and about the injured bone was not caused by anything done or omitted to be done by the defendants. From his examination of the plaintiff and her history, he concluded that the case had been a complicated one, largely because of the fact that the plaintiff, in childhood, had infantile paralysis, which left her right leg somewhat crippled. The record, said the Supreme Court, was barren of expert testimony placing any blame on the defendants. Neither of the plaintiff's expert witnesses ventured any opinion as to when the inflammation, other than such as naturally and necessarily resulted from the fracture, commenced or as to what caused it. Obviously, the court said, this was a case wherein the testimony of competent medical

experts was necessary to establish liability. There must be proof of causal connection between the wrong complained of and the resulting injury. The burden of proving such negligent conduct rested on the plaintiff, and she failed to meet this burden. The trial court was directed, therefore, to enter judgment for the defendants notwithstanding the verdict—*Williamson v Andrews (Minn)*, 270 N W 6

Health Insurance "Permanent and Total Disability" Construed—The insured under a policy of health insurance brought suit against the defendant insurance company to recover certain benefits which the company promised to pay if the insured became permanently and totally disabled. From a judgment in favor of the insured, the insurance company appealed to the Court of Appeals of Kentucky.

The Court of Appeals was unable to agree with the insurance company's contention that the evidence relative to total and permanent disability had not warranted the submission of the case to the jury. The mere fact that the insured had occasionally done light work about his farm, had looked after his saw mill and had worked five days through a series of years in laying a pipe line was not conclusive on the question of permanent and total disability. The court pointed out that two physicians testified that he had tuberculosis and was unable to work, as manual work of any kind would be dangerous to his health and life. It was shown by the evidence that when ever he did work he expectorated blood and was confined to bed thereafter. Even the medical witness for the insurance company, continued the court, went no further than to state that the insured could do only light work. The court therefore held that it was proper for the lower court to submit the question of permanent and total disability to the jury.

The Court of Appeals, however, reversed the judgment in favor of the insured and remanded the case for a new trial because among other things the lower court in instructing the jury had submitted only the question of total disability and had neglected to charge that in order for the insured to recover he must also prove permanent disability—*Prudential Ins Co of America v Johnson (Ky)*, 97 S W (2d) 793

Compensation of Physicians Liability of Father for Services Rendered to Minor Child—The defendant's minor son fractured his arm in a high school basketball game and was sent by the coach to the physician plaintiff for medical attention. On the father's refusal to pay for the services rendered, the physician sued. From a judgment in favor of the physician, the defendant appealed to the court of appeals of Alabama.

A father, said the court of appeals, is under obligation, natural, moral and legal, to furnish necessities for his infant child. The term "necessaries," in this connection, contemplates and includes many things, and what are necessities is a mixed question of fact and law to be determined by the jury on the particular facts of each case. The court concluded that medical care is and always has been included among necessities and, when needed, medical care is a proper subject of recovery in a civil action. Accordingly, the court of appeals affirmed the judgment in favor of the physician—*Osborn v Weatherford (Ala)*, 170 So 95

Society Proceedings

COMING MEETINGS

American Hospital Association	Atlantic City	N J	Sept 13-18	Dr
Bert W Caldwell	18 East Division St	Chicago	Executive Secretary	
American Roentgen Ray Society	Chicago	Sept 13-17	Dr E. E. P.	
Pendergrass	3400 Spruce St	Philadelphia	Secretary	
Idaho State Medical Association	Boise	Aug 30-Sept 3	Dr Harold W.	
Stone	105 North Eighth St	Boise	Secretary	
Kentucky State Medical Association	Berea	Sept 6-9	Dr A. T.	
McCormack	532 West Main St	Louisville	Secretary	
National Medical Association	St Louis	Aug 15-20	Dr John T. Green.	
	1108 Church St	Norfolk Va	General Secretary	
Northern Minnesota Medical Association	Virginia	Aug 27-28	Dr J. F.	
Norman Crookston	Secretary			
Radiological Society of North America	Chicago	Sept 13-17	Dr D. Hall	
S Childs	607 Medical Arts Building	Syracuse N Y	Secretary	
Utah State Medical Association	Salt Lake City	Sept 2-4	Dr F. M.	
McHugh	17 Exchange Place	Salt Lake City	Secretary	
Wisconsin State Medical Society	Milwaukee	Sept 14-17	Mr J. G.	
Crownhart	119 East Washington Ave	Madison	Secretary	

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers in continental United States and Canada for a period of three days. Periodicals are available from 1926 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them. Titles marked with an asterisk (*) are abstracted below.

American Journal of Cancer, New York

30 1 218 (May) 1937

- *The Astrocytomas B J Alpers Philadelphia and S N Rowe Pitts burgh—p 1
Melanoblastosis and Melanoblastoma Primary and Secondary Involvement of the Brain Anatomic Study M M Kessler New York—p 19
Effect of Radiation on Reticulum in Squamous Cell Carcinoma of Uterine Cervix Zola K Cooper and M G Sealig St Louis—p 32
Intrinsic Factors in Etiology of Neoplasms C V Weller Ann Arbor Mich—p 39
Sex Hormones and Their Relation to Tumors L Ioeb E L Burns V Suntzeff and Marian Moskop St Louis—p 47
Effects of Certain Diets on Production of Tar Carcinoma in Mice A T Cameron and Sara Meltzer Winnipeg Manit—p 55
Production of Skin Carcinoma in White Rat by Ordinary Gas Works Tar A T Cameron and Sara Meltzer Winnipeg Manit—p 70
*Transmissible Leukemia in Mice with Atypical Cells W A Barnes and J Furth New York—p 75
Myeloid Infiltrations Occurring in Adrenals of Animals Bearing Certain Tumors Margaret Reed Lewis Baltimore—p 95
Primary Hemangio Endothelioma of the Heart Report of Case P Gross and C E Englehart Pittsburgh—p 102
Squamous Cell Epithelioma of Left Fourth Finger Case Report H Sigel New York—p 108
Intra Abdominal Fibroma in a Brown Trout L Kreyberg Oslo Norway—p 112
Neoplasm Studies III Organization of Cells of Human Tumors in Tissue Culture Gladys Cameron and R Chambers New York—p 115
Effect of Single and Divided Doses of High Intensity X Rays on Eggs of *Drosophila* C Packard New York—p 130

The Astrocytomas—Alpers and Rowe analyzed a large group of astrocytomas in an effort to classify them histologically and to correlate their histologic with their clinical features. The division of the astrocytomas into fibrillary (solid and cystic) giant cell and cellular groups indicates the great preponderance of the fibrillary group and makes possible in the majority of instances a safe prediction of the course which the tumor will take. In general tumors of the fibrillary and cystic groups grow slowly and have correspondingly slow clinical courses. The piloid group of fibrillary astrocytomas, while very benign histologically, seems to be less benign in clinical features. Tumors of the giant cell and cellular groups grow more rapidly and correspondingly follow a more rapid clinical course than the fibrillary astrocytomas. Most of the fibrillary astrocytomas are represented by the diffuse, interlacing neuroglial carpet, which simulates the neuroglial arrangement in the normal white matter. The reason for the difference in appearance of these slowly growing tumors must remain at present a matter of speculation. Granting that the preponderance of fibrils in fibrillary astrocytomas is due entirely to their formation by the cells, it is still not evident what the stimulus is for their heavy deposit in some tumors as compared with others, or why some fibrillary astrocytomas develop as diffuse types and others as piloid types all of them being the result presumably of the same cell, the fibrillary astrocyte. In all the fibrillary tumors it is possible to find protoplasmic types of astrocytes as well as immature forms. The cellular form of astrocytoma is in reality the protoplasmic type but even in these tumors there is some fibrillar formation. Since it is not clear whether the lack of fibrils is due to the presence of protoplasmic astrocytes or to immature cells, it is deemed best to refer to these tumors as cellular astrocytomas. Similarly there is little doubt that the giant cell astrocytomas constitute a group in themselves. In appearance and structure they are quite different from the other groups.

Transmissible Leukemia in Mice with Atypical Cells—Barnes and Furth describe a transmissible strain of leukemia in mice, the malignant cells of which are not typically lymphoid,

myeloid or monocytic in type. The cells are not phagocytic but form giant cells similar to megakaryocytes and the giant cells of Hodgkin's disease. Transmission of leukemia is accomplished with material containing living cells but fails with cell-free material. The length of life after inoculation is in inverse relation to the number of leukemic cells injected. The disease is readily transmitted to mice of the stock in which this leukemia originated. Unrelated mice may be rendered susceptible to this disease by massive repeated doses of X-rays, but not by a single irradiation. Leukemic tumor tissue slowly frozen to -70°C transmits the disease, while that rapidly frozen to -30°C is entirely inactive. Slowly frozen leukemic tissue kept at -70°C during thirty-two days produces the disease as readily as that kept at this temperature for thirty minutes. These studies indicate that successful inoculations with frozen material are due to a few cells that have escaped destruction.

American Journal of Pathology, Boston

13 325 496 (May) 1937

- Effect of Parathyroid Extract and Calciferol on Tissues of Nephrectomized Rat F A McJunkin W R Tweedy and E W McNamara Chicago—p 325
Phagocytic Activity of Circulating Cells in Various Types of Leukemia M M Struma Bryn Mawr Pa and F Boerner Philadelphia—p 335
The Paneth Cell A J Hertzog Minneapolis—p 351
Cultivation of Virus of St Louis Encephalitis R W Harrison and Elizabeth Moore St Louis—p 361
*Fibrosis of Bone Marrow (Myelofibrosis) Associated with Leukemoid Blood Picture Report of Two Cases S R Mettler and G Y Rusk San Francisco—p 377
*Aortic Commissural Lesion in Rheumatic Fever L Gross and Gertrude Silverman New York—p 389
Mineral Content of Various Cerebral Lesions as Demonstrated by Microincineration Method L Alexander and A Myerson with technical collaboration of D E Goldman Boston—p 405
Studies on Experimental Infection of Some Reptiles Amphibia and Fish with *Serratia Anolium* H J Clausen and F Duran Reynolds New York—p 441
Structure of Small Cerebral Arteries and Their Changes with Age A B Baker Minneapolis—p 453
Histopathology of Idiopathic Thrombocytopenic Purpura Haemorrhagica D A Nickerson and D A Sunderland Boston—p 463
New Method for Rapid Staining of Myelin Sheaths W K Smith and B Quigley Rochester N Y—p 491

Fibrosis of Bone Marrow Associated with Leukemoid Blood Picture—Mettler and Rusk cite two cases presenting leukemoid blood pictures and fibrosis of the bone marrow. The clinical observations in the two cases reported are similar only in the qualitative aspects of the so-called leukemoid blood pictures. The illness of the first patient was characterized by a hemorrhagic tendency, thrombocytopenia and severe anemia. Enlargement of the spleen occurred late in the course of illness. At the outset a leukopenia occurred and immature forms of leukocytes were found in the blood smear. Prior to death a leukocytosis developed and concomitantly there was a definite increase in the number of immature leukocytes. The second patient showed the classic signs of myelogenous leukemia when first seeking medical aid. There was splenomegaly and leukocytosis, and myelocytes were present in the blood film. As the course of illness approached termination myeloblasts appeared in the blood and the patient developed in addition a severe anemia. On postmortem examination the two cases presented a striking similarity in the structural changes of the long bones. The medullary cavities showed increased fibrosis and a few spicules of cancellous bone which partially obliterated the hematopoietic tissue. A careful study of the sinusoids of the liver and spleen in the two cases failed to reveal any erythrogenic foci. In the first case the blood picture was compatible with a diagnosis of aleukemic myelosis whereas in the second case the changes were those typical of myeloid leukemia.

Aortic Commissural Lesion in Rheumatic Fever—Gross and Silverman base their discussion on a study of seventy rheumatic hearts, together with fifty normal hearts. The rheumatic material was segregated into six groups representing the various clinical courses that the rheumatic process may take. A number of inflammatory changes are found in the aortic root, wedge annulus ring subaortic angle and pericardial mantle which are characteristic of rheumatic fever and, to some extent, reflect the clinical course of the disease. Even when healing takes place the histologic characteristics of the

commissural lesion afford additional stigmas, which are of value in discerning a past rheumatic process. From a discussion of the pathogenesis of this lesion it appears that, even though the original infection may reach the aortic ring through several routes, in most instances the inflammatory granulation tissue passes from the pericardial mantle through the aortic root, wedge and annulus to reach the aortic rings. The latter show a much more flagrant inflammatory process, which spreads into the valve leaflets and, probably with the additional factor of trauma caused by the systolic and diastolic movements of the cusps, eventually leads to their agglutination.

American Journal of Tropical Medicine, Baltimore

17 313 456 (May) 1937

- Epidemic of Jungle Yellow Fever on Planalto of Matto Grosso Brazil
A W Burke Entebbe Uganda Africa—p 313
- *Control of Yaws by an Intensive Treatment Method G M Saunders
Kingston Jamaica British West Indies—p 335
- Diendamoeba Fragilis Some Further Observations E G Hakansson
Panama Republic of Panama—p 349
- Investigation of Intestinal Parasitic Infections of Selected Population of
Oklahoma City W P N Canavan and H M Hefley Oklahoma
City—p 363
- *Incidence of Chagas Disease in Panama as Determined by Complement
Fixation Test C M Johnson and R A Kelser Panama Republic
of Panama—p 385
- Natural Host of Trypanosoma (Crithidia) Conorhini Donovan C Bonne
Batavia Java—p 393
- Observations on Relationship Between Leukocyte Picture and Crisis in
Parasite Number in Experimental Trypanosomiasis D F Gowe
New York—p 401
- Experiments in Cultivation of Avian Malaria Parasites R D Manwell
and R I Hewitt Syracuse N Y—p 407
- Survey of Malaria in Egypt M A Barber and J B Rice—p 413
- Consideration of Duration of Intrinsic Incubation Period in Vivax
Malaria in Relation to Certain Factors Affecting Parasites M F
Boyd and S F Kitchen Tallahassee Fla—p 437
- Studies on Oxyuriasis I Types of Anal Swabs and Scrapers with
Description of Improved Type of Swab M C Hall Washington
D C—p 445

Control of Yaws—Saunders points out that in Jamaica, British West Indies, an effort has been made to reduce the prevalence of yaws in an endemic zone by an intensive treatment method whereby a field unit attempts to locate all infectious or potentially infectious cases and treat them at regular intervals to render them noninfectious. This was accomplished between April 1933 and September 1934 in a territory (under control for three years) 7 by 15 miles in extent comprising nine adjacent areas with a total population of nearly 22,000. To satisfy the requirements necessary for yaws control, a semi-mobile field unit was organized. This consisted of a medical officer, a clerk, a dispenser and four sanitary inspectors. The program entailed survey and treatment in successively adjacent areas, with follow-up work spaced at more or less regular intervals. When a survey was completed in an area, a temporary clinic was established near the center of the territory. The two inspectors of the treatment team notified all persons who had been found to have lesions of yaws and all who had given a history of the disease within the past five years to report for examination and possible treatment. They checked up on all delinquents and kept the entire area under surveillance for new infections and for relapsing lesions among persons with the disease in latent form. In order to determine the relative effectiveness of nearsphenamine and bismuth salicylate in the control of yaws, the patients in each area were treated almost entirely with one or the other drug. Preliminary studies showed that six weekly injections of either preparation were sufficient to cause prompt healing of lesions in nearly all cases and to prevent relapses for a period of at least a year in 90 per cent of yaws patients treated with nearsphenamine and in 70 per cent of those treated with bismuth salicylate, the individual dosage being graded according to body weight. After the original treatment period, each area was visited again for a rapid resurvey at intervals of from four to eight months. An inspector was sent into the district about a month ahead of the treatment team to record the condition of all former patients and to arrange for their attendance at the clinic soon to be reopened. The inspector also visited all homes, searching for persons with new and relapsing yaws lesions, paying particular attention to persons exposed to infected individuals. Both the attack rate and the number of persons with yaws lesions were substantially reduced.

Greater success was gained in areas in which patients were treated with nearsphenamine, but satisfactory results followed the use of bismuth salicylate.

Chagas' Disease and the Complement Fixation Test.—Johnson and Kelser proposed to determine the degree of infection by *Trypanosoma cruzi* in a representative group of the population and to study further the reliability and usefulness of the complement fixation test. Out of 1,251 serums collected thus far from various places in Panama, thirty seven were positive to the test and eleven gave suggestive reactions, a combined rate of 3.83 per cent. The infection rate as determined by the test is low for children less than 15 years of age but rises sharply above this age. This may possibly be explained on the basis of a relatively high mortality from the disease in children. This possibility is strengthened by the few clinical observations that have been made in Panama. The complement fixation test is of distinct value not only in identifying active cases of Chagas' disease but in revealing the incidence of the infection, past and present. The survey indicates that the disease and human carriers of the organisms are more common than has been supposed.

Anatomical Record, Philadelphia

68 1 132 (April) 1937

- Normal Stages of Fundulus Heteroclitus Jane M Oppenheimer New Haven, Conn—p 1
- Development of Pars Intestinalis of Common Bile Duct in Human Fetus with Especial Reference to Origin of Ampulla of Vater and Sphincter of Oddi II Early Development of Musculus Propus R A Schwiegler Jr and E A Boyden, Minneapolis—p 17
- Studies on Innervation of Reproductive Organs of Macacus Rhesus, L R Wharton Baltimore—p 43
- Decrease in Number of Myelinated Fibers in Human Spinal Roots with Age K B Corbin and E D Gardner Palo Alto Calif—p 63
- Utriculo-Endolymphatic Valve and Duct and Its Relation to Endolymphatic and Saccular Ducts in Man and Guinea Pig T H Bast Madison Wis—p 75
- Endometrial and Myometrial Changes Including Fibromyomatous Nodules Induced in Uterus of Guinea Pig by Prolonged Administration of Estrogenic Hormone W O Nelson New Haven Conn—p 99
- Structure of Secreting and Retrogressing Mammary Gland in Guinea Pig Cora Hessberg and L Loeb St Louis—p 103
- Histologic Study of Renal Elimination of Ascorbic Acid A Giroud and C P Leblond New Haven Conn—p 113
- Speed of Travel of Ram Spermatozoa R W Phillips and F A Andrews Amherst Mass—p 127

Archives of Ophthalmology, Chicago

17 967 1168 (June) 1937

- Relation of Sympathetic Nervous System to Diseases of Eye with Regard to Surgical Procedures J E Weeks New York and Portland Ore—p 967
- Physiology of Disturbances of Ocular Motility W B Lauer Boston—p 983
- Lesions of Fundus in Essential Hypertension and in Arterial and Renal Diseases M Cohen New York—p 994
- New Method for Rebuilding a Lower Lid Report of Case W L Hughes Hempstead N Y—p 1008
- Naevus Flammeus Associated with Glaucoma Report of Case G H Mehney, Ann Arbor Mich—p 1018
- Significance of Retinal Fatigue in Study of General and Nervous Diseases S Bockoven and Blanche Wilcox, Washington D C—p 1024
- Glaucoma and Sympathetic Ophthalmia B Samuels New York—p 1031
- Experimental Hypertension IV Clinical and Pathologic Studies of Eyes Preliminary Report J E L Keyes and H Goldblatt Cleveland—p 1040
- Ocular Manifestations of Malignant Nasopharyngeal Tumors Report of Cases K Schluek New York—p 1055
- Repair of Rupture of Wound After Extraction of Cataract Report of Cases L Bothman Chicago—p 1073
- Diagnostic Significance of Epinephrine Instilled into Conjunctival Sac L Hubert New York—p 1076
- *Treatment of Dendritic Keratitis with Quinine Bisulfate E Seligson Chicago—p 1085

Treatment of Dendritic Keratitis with Quinine Bisulfate—In the last two years, Selinger treated eleven adults having moderately severe to severe dendritic keratitis with quinine bisulfate in addition to the usual treatment with compresses, atropine and bandages. An ophthalmic ointment containing 2 per cent quinine bisulfate was applied to the unanesthetized conjunctival sac twice a day by the patient. No massage was used. The subjective symptoms improved from the beginning and in most of the cases the corneal lesion healed within a week to ten days. In practically all the cases the eyeball was pale within one or two weeks. In no case did the disease last more than three weeks. Recurrences have not

been seen to date. Most of the patients had an accompanying or preceding infection of the upper respiratory tract. The good results obtained with local quinine therapy suggest a destructive action on the virus producing the disease. The same treatment was also tried in a case of herpes zoster with corneal involvement. The result was good, the corneal lesion going on to healing within three weeks.

Archives of Surgery, Chicago

34 977 1178 (June) 1937

- Autolysis of Tissue in Vivo Experimental Study with Its Clinical Application in the Problem of Trauma to Liver F F Boyce and Elizabeth M McTetridge New Orleans—p 977
- *Acute Phlegmonous Enteritis E Clark and A Wright New York—p 997
- Sclerosing Sarcoma of Bone D Lewis and C F Geschickter Baltimore—p 1010
- Torsion of Fallopian Tube in the Virgin Report of Case and Review of Literature L L Blum Terre Haute Ind and B E Sayre Chicago—p 1032
- Experimental Studies on Lymphatic Blockage A Blalock C S Robinson R S Cunningham and Mary E Gray Nashville Tenn—p 1049
- Arthroplasty in the Lower Extremity S Kleinberg New York—p 1072
- *Painful Coccyx G A Duncan Norfolk Va—p 1088
- Artificial Maintenance of Circulation During Experimental Occlusion of Pulmonary Artery J H Gibbon Jr Philadelphia—p 1105
- Effect of Vagotomy on Gastric Motor Mechanism of Man L E Barron New Haven Conn and G M Curtis with technical assistance of W T Haverfield and B Lauer Columbus Ohio—p 1132
- Scoliosis Functional Decompensation E Hauser Chicago—p 1159
- Effect of Cinchophen on Gastric Secretion Experimental Study L K Stalker, J L Bollman and F C Mann Rochester Minn—p 1172

Acute Phlegmonous Enteritis—Clark and Wright cite two cases of acute phlegmonous inflammation seen at necropsy at the Bellevue Hospital. In one the condition was limited to the jejunum and in the other to the ileum. The pathologic and clinical characteristics in forty-one similar case reports gathered from the literature are reviewed. It appears that acute phlegmonous enteritis is a well defined clinical and pathologic entity, and although it is most likely an infection of the wall of the intestine with pyogenic micro-organisms of enterogenous origin, a port of entry is only rarely demonstrated. The possible relationship of the acute phlegmonous lesion of the intestine to chronic nonspecific inflammatory lesions of the intestine is discussed, and a case is presented which suggests a transitional stage between the two.

Painful Coccyx—Duncan states that from 1924 to 1934 278 (97 per cent were women) patients were admitted to the outpatient department of the New York Orthopaedic Dispensary and Hospital with the complaint of pain in the coccyx. The average age was 34 years. The most common cause of the fall in this group of patients was slipping on an icy pavement and landing in the sitting position. The interval between the time of injury and the time of the patient's admission to the hospital for treatment varied from three days to six months. Nonoperative treatment consisted of improving the patient's posture, having her sit erect and pull the buttocks in under the trunk, thereby taking the superincumbent body weight off the coccyx and causing the soft parts surrounding the coccyx to act as a natural cushion. Hot sitz baths for from twenty to thirty minutes twice each day proved of value. Constipation, when present, was relieved by suitable laxatives. Local massage has proved beneficial to many of these patients. Steady but firm stretching of the coccyx posteriorly has been done on patients for several consecutive visits, with relief from pain. This is done to overcome the spasticity of the muscles having their insertion on the coccyx and to prevent the formation of adhesions and contractures in the sacrococcygeal joint and the surrounding coccygeal structures. Local injections of from 70 to 80 per cent alcohol, physiologic solution of sodium chloride or 2 per cent solution of procaine hydrochloride have given only transient relief or were entirely unsatisfactory. Of the 248 patients treated by nonoperative methods, fifty-four were examined from one to four years after the onset of their coccygeal pain. Only two continued to complain of a painful or tender coccyx. Fusion of the sacrococcygeal and intercoccygeal joints had taken place in a large number of the patients, and in the remainder there was limited motion. This limitation of motion in the coccygeal joints, coeval with cessation of pain, is additional evidence that the coccygeal pain was coming from a lesion of the joint.

Injection of alcohol about the coccyx may not cause degeneration of the coccygeal nerves, but by causing scar tissue to form it may so limit motion of the coccyx that the pain is diminished or cured. In the two patients who continued to complain of coccygeal pain, motion at the sacrococcygeal joint caused an identical pain. Relief from pain was experienced within one month after the injury by thirty-six of the fifty-four patients, by eleven within two months and by five within six months. The results seem to indicate that the nonoperative form of treatment should be tried for a period of six months before operative resection of the coccyx is resorted to.

Thirty of the patients in the total group had operative resection of the coccyx. The average duration of their symptoms before resection of the coccyx was eighteen months. Patients were followed on an average for two years after coccygectomy. Twenty-two of these patients were relieved completely of coccygeal pain, three had only partial relief from pain and five were unimproved.

Bulletin of Neurol Inst of New York, New York

6 1 162 (Jan) 1937

- Cytoplasmic Bodies in Case of Megalencephaly A Wolf and D Cowen Jr New York—p 1
- Etiology of Headache II Occurrence and Significance of Headache During Ventriculography E D Brewer—p 12
- Röntgen Treatment of Tumors of the Brain in Operating Room by Direct Radiation Through Open Wound C A Elsberg L M Davidoff and C G Dyke New York—p 19
- Prolonged Fever Following Removal of Large Tumors from Posterior Cranial Fossa W Eberich New York—p 33
- Acute Nontraumatic Encephalomalacia Complicating Neurosurgical Operations in Sitting Position A Wolf and J Siris New York—p 42
- Study of Sugar Tolerance Tests in 200 Patients with Convulsions H H Drewry New York—p 62
- Hypophysis Cerebri in Petromyzon Marinus Dorsatus Wilder F Tilney, New York—p 70
- The Sense of Smell XIV Relation of Cerebral Cortex to Olfactory Impulse and Areas of the Brain Involved in Fatigue of Sense of Smell C A Elsberg New York—p 118
- Id XV Note on Value of Tests of Olfactory Acuity for Diagnosis of Pituitary Tumor C A Elsberg and Jane Stewart New York—p 126
- Aphasia I Technique of Clinical Examinations E C Chesler New York—p 134
- Quantitative Measurement of Apperception of Passive Movement R W Laidlaw and Mary Alice Hamilton—p 145
- Effect of Pilocarpine on Neurogenic Urinary Retention J S Dean New York—p 154

Canadian Medical Association Journal, Montreal

36 561 668 (June) 1937

- *Control of Diabetes Mellitus with Protamine Zinc Insulin in Surgery Based on Study of Twenty Five Cases A F Fowler, E H Bensley and I M Rabinowitch Montreal—p 561
- Spontaneous Subarachnoid Hemorrhage and Brain Tumor Report of Three Cases C K Russel and J Kershman Montreal—p 568
- Practical Perimetry Construction and Operation of Tangent Screen A J McLean Portland Ore—p 578
- *Experimental Gas Embolism I Intravenous Air Embolism H F Richardson B C Coles and G E Hall Toronto—p 584
- Congenital Malformations of Vessels of the Brain and Spinal Cord Case J A Hannah Toronto—p 588
- Multilocular Polycystic Tumor of Pancreas R E McKechnie and J T Priestley Rochester Minn—p 592
- Treatment of Scoliosis R G Huckell Edmonton Alta—p 593
- Hay Fever in Alberta H C Jamieson Edmonton Alta—p 595
- Congenital Diabetes Mellitus and Renal Glycosuria E Lozinski and L I Frohlich Montreal—p 598
- Puerperal Infection R Mitchell Winnipeg Manit—p 599
- New Method of Rhinoplasty for Sinking of Tip of Nose J N Roy Montreal—p 603
- Hematoma of Abdominal Wall Simulating Intra Abdominal Tumor H M Robertson Victoria B C—p 606
- Table for Degree of Involvement in Chronic Arthritis D Taylor Montreal—p 608
- Measurement of Blood Loss in Nose and Throat Operations F D McKenty Winnipeg Manit—p 611
- Internal Secretions and Cancer Pauline Beregoff Gilow Montreal—p 614
- Modifications of Marshall's Clinical Method for Determination of Urinary Urea A. Hunter Toronto—p 616

Control of Diabetes Mellitus with Protamine Zinc Insulin in Surgery—To evaluate the action of protamine zinc insulin with respect to control of the diabetes immediately after operation, Fowler and his colleagues selected a variety of cases with regard to type of anesthetic, type of operation and severity of the diabetes. The twenty-five cases included gangrene of the extremities cellulitis of the feet and carbuncle and other not minor conditions. The operations that were necessary in these cases included cholecystectomies, hysterect-

tomy, amputations, incision of abscess, repair of birth trauma and tonsillectomies. The average control of diabetes in comparable patients both before and after the operations was much better with protamine zinc insulin than with unmodified insulin. Though the action of protamine zinc insulin on the blood sugar is ordinarily slower than that of the unmodified insulin, by the use of large injections it may be made to act as rapidly as the unmodified product. Therefore, with respect to rapid action alone protamine zinc insulin is not contraindicated in preparation of diabetic subjects for operation or for control of postoperative emergencies. By proper dosage the action of protamine zinc insulin may be prolonged sufficiently by single daily injections to permit the use of intravenous injection of dextrose after operations and also the normal rate of healing of wounds. The sustained action also appears to be sufficient to permit healing of infected tissues (cellulitis).

Experimental Gas Embolism—Richardson and his associates investigated the problem of experimental gas embolism on dogs and consider the relationship between the rate of injection of air and the time necessary to produce death when air is administered intravenously. Following the intravenous administration of air, the animal either dies or recovers. When the amount of air injected is small the animal usually shows no signs of respiratory or cardiac distress. When larger amounts are injected, either slowly or rapidly, respiratory distress and cardiac embarrassment are evident, but the animal may survive and recovery be complete. On the other hand the dyspnea and cardiac embarrassment may be of such magnitude that the injection proves fatal. This fatal issue may be either immediate or delayed. When the injection of air is rapid, respiratory failure predominates and death occurs almost immediately, if sufficiently large amounts are given, instantaneously acute cardiac dilatation occurs and death is extremely rapid. When the air is injected at an intermediate rate or when a moderate amount of air is injected suddenly, respiratory and cardiac symptoms are evident. Although partial recovery takes place, the animal may develop acute pulmonary edema and die within a few hours. A bronchopneumonia may become superimposed on an otherwise nonfatal pulmonary edema, resulting in death after several days. Some anesthetized animals, following the injection of air tend to hyperventilate themselves very markedly. These animals can tolerate larger quantities of air than other anesthetized animals whose respirations are less markedly affected. The general condition of the animal, as evidenced by its systemic blood pressure, plays a great part in its tolerance to intravenously injected air. Much less air is fatal to an animal with a low blood pressure than if the blood pressure is normal. This is of paramount importance in considering the amounts of air that apparently may prove fatal in cases of criminal abortion with which there is associated trauma, pain, apprehension and loss of blood.

Journal of Allergy, St. Louis

8 321 426 (May) 1937

- The Dry Pollen Nasal Test Its Technic Interpretation and Indications G I Blumstein Philadelphia—p 321
- *Alum Ragweed Precipitate Preparation and Clinical Investigation Preliminary Report A R Zoss C A Koch and R S Hirose Cincinnati—p 329
- Studies in Preparation of Pollen Extracts I Filtration by Carbon Dioxide Pressure H H Gelfand G Flamm J G Center and A J Heifetz New York—p 336
- Immunologic Relationship Between Grass Pollen and Seed L Farmer New York—p 338
- Interruption of Asthmatic Crisis by Tribrom Ethanol (Avertin) A M Fuchs New York—p 340
- *The Heart in Bronchial Asthma W A Colton Kecoughtan, Va., and T Ziskin Minneapolis—p 347
- Triplicate Determinations of Sugar Tolerance in Mild and Severe Asthma H C Wagner and F M Rackemann with technical assistance of Martha E. Duffy Boston—p 353
- Role of Cladosporium a Common Mold in Allergy H S Bernton and C Thom Washington D C—p 363

Alum-Ragweed Precipitate—Zoss and his co-workers isolated the precipitate produced by the addition of potassium alum to aqueous ragweed extract. They experimented with the substance on twelve guinea-pigs that were injected subcutaneously with 1 cc each of the suspension of alum ragweed precipitate (12,000 protein nitrogen units per cubic centimeter). An interval of twenty-two days followed. Three guinea-pigs

were injected intravenously with 0.25 cc of aqueous ragweed extract. These developed signs of definite anaphylactic shock but recovered. Each of the remaining nine guinea pigs received intravenously between 0.5 and 1 cc of the same aqueous ragweed extract. These died of typical anaphylactic shock. Intracutaneous injections of the undiluted suspension of alum-ragweed precipitate in amounts up to 0.2 cc in a series of normal subjects produced no local urticarial, erythematous or pruritic response. No determinable reactions were noted in normal subjects on subcutaneous injection of the undiluted suspension in amounts up to 0.5 cc. In the preseasonal treatment of twenty-four ragweed sensitive patients with alum-ragweed precipitate by the routine method of preseasonal pollen therapy, beginning with 1, 10 or more units (as was indicated by the sensitivity of the individual patient), the material was administered to the various patients in increasing amounts at intervals of from four to seven days. Different maximal doses were given to the various patients, the maximum varying between 200 and 5,000 protein nitrogen units. Good results were obtained in 42 per cent, fair results in 21 per cent and poor results in 37 per cent. A series of fifty control patients treated preseasonally in 1936 with aqueous ragweed extract in maximal tolerance doses showed 60 per cent good, 18 per cent fair and 22 per cent poor results. Patients who received the higher maximal doses of the precipitate had better results than those on lower maximal doses.

The Heart and Bronchial Asthma—Colton and Ziskin made a study of the heart in eighty-four cases of bronchial asthma. There were nine deaths in this group and six cases came to necropsy. From a pathologic standpoint the heart was not greatly involved in uncomplicated cases of bronchial asthma. Dilatation of the right side of the heart was found in one patient dying of acute asphyxia. Two cases complicated by various degrees of emphysema, bronchiectasis and lung abscess showed hypertrophy, dilatation and congestive heart failure. Pathologic changes in the six cases examined post mortem are reported. No clinical evidence of heart disease was found in the majority of cases. Definite evidence of right ventricular strain with a tendency to myocardial involvement was noted in the electrocardiographic study. It must be concluded that the heart does not remain singularly free from injury in bronchial asthma and that right ventricular strain with a tendency to myocardial involvement and heart muscle damage does occur as the disease progresses and emphysema ensues.

Journal of Experimental Medicine, New York

65 757 916 (June) 1937

- Studies on Suprarenal Cortex VI Effect of Suprarenal Cortical Hormone on Electrolyte Excretion of Intact Normal Dog Proposed Method of Comparative Assay G A Harrop and G W Thore Baltimore—p 757
- Effect of Prolonged Cultivation in Vitro on Pathogenicity of Yellow Fever Virus M Theiler and H H Smith New York—p 167
- Use of Yellow Fever Virus Modified by In Vitro Cultivation for Human Immunization M Theiler and H H Smith New York—p 18
- Adaptation of Unmodified Strains of Yellow Fever Virus to Cultivation in Vitro H H Smith and M Theiler New York—p 801
- Toxemia of Pregnancy in Rabbit I Clinical Manifestations and Pathology H S N Greene Princeton N J—p 809
- Infectious Catarrh of Mice I Natural Outbreak of Disease J B Nelson Princeton N J—p 833
- Id II Detection and Isolation of Coccobacilliform Bodies J B Nelson Princeton N J—p 843
- Id III Etiologic Significance of Coccobacilliform Bodies J B Nelson Princeton N J—p 851
- Action of Immune Serum on Human Influenza Virus in Vitro T P Magill and T Francis Jr New York—p 861
- Autolytic System of Pneumococci R J Dubos New York—p 873
- Chemical Studies on Bacterial Agglutination III Reaction Mechanism and Quantitative Theory M Heidelberger and E A Kabat New York—p 885

Journal-Lancet, Minneapolis

57 239 286 (June) 1937

- The Schilling Hemogram in Acute Infections W H Griffith Harp S D—p 239
- Benefactions of Surgery to Man O H Wangeosteen Minneapolis—p 243
- Medical Care of University Students W E Forsythe Ann Arbor Mich—p 256
- Aural and Nasal Problems in General Practice F L Bryant Minneapolis—p 261
- Silicosis and Other Dust Diseases A E Russell Washington D C—p 265

Journal of Pediatrics, St Louis

10 577 718 (May) 1937

- Studies on Urinary Excretion and Blood Concentration of Ascorbic Acid in Infantile Scurvy T H Ingalls Boston —p 577
- *Fulminant Streptococcal Sepsis in Infancy J M Rector San Francisco —p 592
- Comparative Study in Diagnosis and Treatment of Rickets with Observations of Normal and Abnormal Serum Phosphatase D J Barnes and M. Doris Carpenter Detroit —p 596
- Human Blood Serum in Treatment of Anemia Associated with Jaundice in the New Born Infant G N Krost Chicago —p 613
- Congenital Obstruction of Alimentary Tract H A Reisman Jamaica N Y —p 622
- Postoperative Pulmonary Atelectasis H Levy and A M Litvak Brooklyn —p 632
- Treatment of Pertussis with Specific Soluble Antigen H Gold Chester Pa —p 641
- *Effect of Repeated Blood Transfusions on Erythrocyte Sedimentation Rate in Rheumatic Heart Disease L C Rosenberg Newark N J —p 648
- Peripheral Neuritis Due to Lead J E Brown Jr and E E Smith Columbus Ohio —p 656
- Nonhemolytic Streptococcus Meningitis Report of Case R G Hodges Boston —p 666

Fulminant Streptococcal Sepsis in Infancy—Rector encountered eight cases of a particularly lethal type of fulminating streptococcal infection in infants. The instances of acute sepsis described differ primarily because death follows the onset of a bacteremia so quickly that localizing signs referable to individual organs rarely have time to appear. The disease is not primarily a pneumonic process but rather a widespread involvement of the entire body secondary to a bacteremia. The most important and typical feature is early bronchopneumonia of an interstitial type associated with peribronchitis. In addition there is often an extensive cerebral edema without local cerebral lesions and a diffuse edema of the optic nerves and spinal cord. Other common disorders include petechial hemorrhages throughout the viscera, microscopic venous thrombi in the lungs and elsewhere, and toxic changes in the spleen and lymph nodes. In a few cases, prior to the onset of apparent critical illness a vague history of irritability, restlessness, refusal of food and fever can be elicited. During this short prodromal stage, occasional vomiting and mild diarrhea are frequently seen. More often the infant is said to have been perfectly well until the sudden onset of his fatal illness. When the disease is well established there is commonly hyperpyrexia, meningism, profuse diarrhea, pharyngitis and uncontrollable convulsions occurring singly or in combination together with the usual manifestations of any severe infection. If debilitation is extreme, the course may be essentially afebrile. Among the eight cases the duration of illness varied from one to six days, with an average duration of sixty hours. The age of greatest susceptibility is apparently from 4 to 7 months. The determination of a pharyngitis or some other acute focus in the upper respiratory tract suggestive of a port of entry is significant. Whenever a critical illness is accompanied by convulsions uncontrolled by sedatives and the spinal fluid examination is negative, acute sepsis should be considered. The interstitial pneumonia so often present seldom gives rise to abnormal physical signs, for death intervenes before an appreciable amount of lung parenchyma has been involved. While positive blood cultures offer the best confirmatory evidence, organisms are not invariably isolated from the blood, and the clinical picture should occupy first place in establishing diagnosis.

Rheumatic Heart Disease—Rosenberg asserts that no disease of childhood is more discouraging to treat than rheumatic heart disease. He reports the case of a boy, aged 9 years, who was having his sixth attack of rheumatic heart disease. After twelve weeks of continuous fever and a persistent accelerated sedimentation rate with no prospect of the infection subsiding, repeated blood transfusions were given and apparently as a result of their use there occurred an immediate slowing of the sedimentation rate and a drop in temperature, accompanied by clinical improvement. While no hope of benefiting the damaged heart valves or restoring the myocardium to normal by blood transfusions is entertained it is the author's belief, based on the outcome in this case and in others referred to that giving blood transfusions may be a method of suppressing an attack of rheumatic fever.

Kansas Medical Society Journal, Topeka

38 193 236 (May) 1937

- Anaerobic Panophthalmitis J F Gsell and G F Gsell Wichita —p 193
- Treatment of Acute Cholecystitis T G Orr Kansas City —p 194
- Maternal Neonatal and Infant Death Rates in Kansas 1931 1935 H R Ross Topeka —p 198
- Method of Reviewing Gross Anatomy H B Latimer Lawrence —p 204
- Prolapse of Umbilical Cord R A McCurdy Eldorado —p 206
- Sight Begins at Sixty Two M E Brownell Wichita —p 207
- Treatment of Narcolepsy with Benzedrine Sulfate H N Thien Wichita —p 208

New England Journal of Medicine, Boston

216 915 960 (May 27) 1937

- Administration of Evipal Soluble to Infants and Children H W Hudson Jr Brookline Mass —p 915
- Lung Cysts Report of Three Cases L Rabinowitz and E J Rogers Pittsford Vt —p 919
- *Effect of Benzedrine Sulfate on Hematopoietic System P G Schube Naomi Raskin Dorchester Center Mass and Eleanor Campbell Boston —p 922

Effect of Benzedrine Sulfate on Hematopoietic System—Because any new drug is potentially dangerous from the point of view of causing damage to the hematopoietic system with resulting changes in the hemoglobin content of the erythrocytes and alterations in the type, quantity and proportions of erythrocytes and of leukocytes, Schube and his associates investigated the ability of benzedrine sulfate to alter these blood elements. The eighty-six subjects used for the study were all physically normal. Six patients received 10 mg of benzedrine sulfate by mouth daily for thirty days. The blood picture was followed at weekly intervals throughout this period and for several subsequent weeks. Seventy patients received 10 mg of benzedrine sulfate by mouth daily for thirty days. Their blood picture was studied from six to twelve months later. Ten patients received 30 mg of benzedrine sulfate subcutaneously daily for fourteen days and the blood picture was studied from six to twelve months later. In the first group of cases (1) there were no significant alterations in the red blood cell counts, (2) the hemoglobin in three weeks of drug administration showed first a decrease and then an increase, (3) the leukocyte count showed no consistent change, (4) the polymorphonuclear count, after an initial drop during the first two weeks, returned to its original level, (5) the number of small lymphocytes decreased in most instances during the first two weeks and remained at the new level throughout the experiment, (6) there was very little change in the number of large lymphocytes, monocytes, basophils and eosinophils and (7) no abnormal or young erythrocytes or leukocytes were found. These changes were not beyond the range of the experimental error of the methods used and were certainly not pathologically significant. In the second group of cases a study of the blood picture from six to twelve months later showed it to be normal. This included the hemoglobin estimation, the erythrocyte, leukocyte and differential counts, and the size, shape and staining reaction of the cells. In the last ten cases a study of the blood picture from six to twelve months later showed no abnormality in any detail.

New Orleans Medical and Surgical Journal

89 667 726 (June) 1937

- What Ails the Doctors? C M Horton Franklin La —p 667
- Teaching the Public About Health W W Bauer Chicago —p 668
- Clinical Aspects of Gonorhea H R Mahorner New Orleans —p 673
- Etiology of Venereal Lesions E von Haam and C Lafferty New Orleans —p 683
- Plasmodium Ovale J S D Antoni New Orleans —p 691
- Certain Factors in Epidemiology of Malaria in the Southern United States E C Faust New Orleans —p 692
- Role of Malaria in General Paresis L A Golden New Orleans —p 694
- Modern Treatment of Malaria C F Craig New Orleans —p 697

Philippine Islands Med Association Journal, Manila

17 197 262 (April) 1937

- Study of Food Intake of Inmates of Welfareville I Concepcion Manila —p 197
- Infant Mortality in City of Manila F Z Cruz Manila —p 211
- Malaria Survey of Los Baños College Campus P I de Jesus Manila —p 221
- Pan Sinus Operation L D Abad E G Brion and J C Antonio Manila —p 235

Public Health Reports, Washington, D C

52 659 684 (May 21) 1937

Strain of Endemic Typhus Fever Isolated from a Field Mouse G D Brigham —p 659

Susceptibility of Animals to Endemic Typhus Fever G D Brigham —p 660

Studies in Chemotherapy IV Comparative Studies of Sulfonamide Compounds in Experimental Pneumococcus Streptococcus and Meningococcus Infections S M Rosenthal H Bauer and Sara E Brinham —p 662

52 685 722 (May 28) 1937

*Studies in Chemotherapy V Sulfanilamide Serum and Combined Drug and Serum Therapy in Experimental Meningococcal and Pneumococcal Infections in Mice Sara E Brinham and S M Rosenthal —p 685

Studies in Chemotherapy—Brinham and Rosenthal state that sulfanilamide has shown a marked therapeutic action in mice in which a meningococcal infection has been produced experimentally. Twenty strains of meningococci representing types I, II and III have been used. A high percentage of treated animals survived fatal doses of the micro-organisms even when the single drug injection was given two hours after inoculation with the bacteria. The drug has been found to be more effective by subcutaneous injection than by mouth when administered in the same dosage. A comparison was made between sulfanilamide and serum therapy with ten strains of meningococci. With three the drug was more effective, with four the serum was more effective, and with three strains the activity was equal. The combination of serum and drug therapy yielded much better results than either alone. In four experiments in which poor curative effects were obtained with serum or sulfanilamide only, combined therapy resulted in the survival of most of the mice. A synergistic action seemed to exist. The superiority of the combined therapy was likewise demonstrated in mice infected with type I pneumococci. The results suggest that a combination of sulfanilamide and serum therapy in meningococcal and pneumococcal infections in man is worthy of trial.

Review of Gastroenterology, New York

4 76 159 (June) 1937

Experimental Arthritis and the Gastro-Enterologists M E Rehfuss, Philadelphia —p 76

Lymphosarcoma of Gastro-Intestinal Tract E C Reifenshtein Syracuse, N Y —p 82

*Clinical Consideration of Defensive Factors of Tissues in Etiology of Peptic Ulcer L A Carlson and A B Rivers Rochester Minn —p 96

Changes and Results of Decade in the Management of Gastric Ulcer H L Segal and W J M Scott Rochester N Y —p 101

Intubation Studies of Human Small Intestine IX Factors in Maintenance of Physiologic Conditions T G Miller Philadelphia —p 115

Etiology of Gallstones I Solvent Action of Vitamins on Gallstones Experimental Study S Morrison and M Feldman Baltimore —p 120

Effects on Digestion of Mixture of Carbohydrate and Protein in Diet. E Foldes New York —p 125

Gastric Autonomic Imbalance in Early Youth S B Kaplan Newark N J —p 127

Diverticula and Diverticulitis C J Drueck Chicago —p 134

After Treatment of Cholecystectomy Hydromineral Therapy M Vauthier Vichy, France —p 139

Etiology of Peptic Ulcer—Carlson and Rivers say that the factor common to all peptic ulcers is that they occur only in tissues bathed by the acid-pepsin gastric chyme. Eroding potentialities promptly develop in tissues that are unaccustomed in their natural physiologic existence to contact with the acid chyme, if by artificial procedures the gastric contents are made to impinge on them. These tissues are more likely to succumb to erosion than are tissues which are normally bathed in the acid gastric juice. The crucial factor of derangement may in such instances exist in disturbances of the tissues themselves. The persistent unmitigated bombardment of tissues by highly acid chyme may break down tissues that have normally intact defense mechanisms. It is not difficult to assume that under such conditions gastric chyme which does not possess unusual erosive characteristics will cause dissolution of tissues, which may lead ultimately to erosion and ulceration. Therefore treatment must not be directed solely to the neutralization of the acid factor but must include some measures to accentuate the defensive mechanisms of these tissues. Even though there may be wide variations in the concentration of acid juice during the day and night, the mucosa is still able to protect itself adequately against ulceration. If, for any reason, this margin

of safety is decreased and lowering of the defensive mechanism of the tissues occurs, ulceration might conceivably develop. In the presence of acid gastric chyme that does not possess unusual erosive tendencies.

Surgery, Gynecology and Obstetrics, Chicago

64 977 1106 (June) 1937

Early Recognition and Treatment of Cervical Cancer E Novak Chicago —p 977

*Diagnosis and Treatment of Tumors of Bladder by Means of Roentgen Rays G E Pfahler Philadelphia —p 989

Glucose Tolerance as Diagnostic Aid in Jaundice II Further Differentiation of Cases Showing an Obstructive Type of Curve. H G Jacoby New York —p 995

*Fallacy of Use of Iodine Immediately After Bilateral Subtotal Thyroidectomy Preliminary Report M Davison and L J Arnes Chicago —p 999

Artificially Induced Thrombophlebitis with Suggested New Approach to the Problem of Postoperative Pulmonary Embolism D H Paly London England —p 1002

Clostridium Welchii and Associated Organisms Review and Report of Forty Three New Cases E L Lhason W H Erb and F D Gilbert Philadelphia —p 1005

Differentiation Between Peripheral Arterial and Arteriole Spasms in Selection of Cases for Sympathetic Ganglionectomy S Perlman Chicago —p 1015

Hydatidiform Mole and Chorio-Epithelioma A Five Year Study A Mathieu, Portland Ore —p 1021

Fallacies Concerning Chemically Sterilized Surgical Catgut Sutures with Particular Reference to Use of Metallic Silver R O Clark New York —p 1027

Eight Year Survey of Cesarean Sections at the William H Coleman Hospital G W Gustafson Indianapolis —p 1035

Renal Tuberculosis with Especial Reference to Follow Up Results in the Squier Clinic H H Gile New York —p 1046

Reconstruction of Bile Ducts New Method of Anastomosis. C L Hoag San Francisco —p 1051

Hemithyroidectomy in Stages in Treatment of Hyperthyroidism S F Marshall Boston —p 1055

*Old Ununited Clavicular Fractures in the Adult E J Berkenstein Chicago —p 1064

Fractures of Neck of Femur Fixation by Means of Kirschner Wires or by Smith Petersen Nails N Backer Grondahl Bergen Norway —p 1073

Fractures of Patella G W Hawley Bridgeport Conn —p 1074

Deformity of Wrist Following Resection of Radial Head R W Lewis and A A Thibodeau New York —p 1079

Economic Advantages of Early Protected Weight Bearing in Fractures of Leg Foot and Ankle F B Gurd Montreal —p 1085

Treatment of Bladder Tumors by Roentgen Rays—Pfahler has succeeded in demonstrating both benign and malignant tumors, varying in size from 1 to 8 cm. It is not always possible to make an exact pathologic diagnosis by means of pneumocystography as to whether the tumor is malignant or benign. However, if a tumor is small, sharply defined and pedunculated, and especially if there are multiple tumors, the probabilities are that it is benign. If it is large, irregular on the surface and associated with a broad base, it is probably malignant, and if it is infiltrating in character it is always malignant. If the tumor has definitely infiltrated the wall of the bladder so that it cannot stretch normally, one obtains more definite evidence of a malignant growth than could be obtained cystoscopically. Since urologists state definitely that all tumors of the bladder are potentially malignant, the important matter is to demonstrate the tumor and to remove it by the best means possible, according to the indications in any individual case. The various combinations of treatment in tumors of the bladder have included excision, preceded or followed by irradiation, cystotomy and direct surface application of radium, cystotomy, electrocoagulation and insertion of radium needles or seeds, cystotomy, electrocoagulation and surface application of radium to the base of the tumor, preliminary roentgen therapy, local destruction, subsequently followed by additional roentgen therapy, and high voltage roentgen therapy, with high filtration, supplemented, if necessary, with electrocoagulation of any remnant that does not respond to irradiation. The author has obtained the best results by the last method.

Fallacy of Use of Iodine After Thyroidectomy—Davison and Arnes studied 100 consecutive patients with hyperthyroidism, irrespective of type, from the medical services of the Cook County Hospital and the University Hospital after having been carefully prepared by iodination and supportive treatment. In all of these patients the classic operation of bilateral subtotal thyroidectomy was done in one stage. Fifty patients were given compound solution of iodine after operation.

as in the usual procedure rectally in a dosage of 1 drachm (4 cc.) immediately on the return from the operating room, and from that day on oral administration of 10 minims (0.6 cc.) three times daily. This amount is greatly in excess of that required for iodization. The second group of fifty patients were not given any iodine. Other than this exception, the routine postoperative treatment was the same in the two series, consisting of a minimal amount of 2,000 cc of 10 per cent dextrose given intravenously in each twenty-four hours for two days, and one sixth grain (0.01 Gm.) of morphine administered as was found necessary for restlessness. The postoperative course of both series was judged by the temperature, pulse, respiration and the general toxicity of the patient, on the basis of 1 to 4 plus. The two series are fairly comparable as to average original metabolic rate, average reduction in the rate following the preparation with iodine, and the average number of days required for optimal preoperative improvement. In instances in which the temperature and pulse rate rose disproportionately the administration of continuous intravenous dextrose by dilution produced a steady fall in the temperature and pulse and a general steady improvement in the toxic reaction of the patients not receiving iodine postoperatively. The other series of patients who developed equally high temperature and rapid pulse rates did not respond any more rapidly to iodine and intravenous dextrose. The patients to whom iodine was not administered after operation had an average milder reaction than those who were given iodine. The patients receiving iodine who developed postoperative toxic phenomena did not seem to be influenced any more rapidly by the use of iodine than those who were not given iodine. From this it would seem that the proper attack on untoward reactions following bilateral subtotal thyroidectomy is dilution of the thyroxine in the circulating blood stream by the administration of enteral or parenteral fluids. There is no combination clinically shown to exist between iodine and thyroxine in the circulating blood. If sufficient gland has been removed and if the patient has been adequately prepared before operation, the use of postoperative iodine seems to have no rational basis. The use of iodine is still definitely indicated in such incomplete operations as polar ligations, lobectomy and the removal of discrete adenomas, in all of which cases residual thyroid tissue has been left behind, necessitating further protective iodization.

Old Ununited Clavicular Fractures—Berkheiser believes that the present day treatment of clavicular fractures, particularly in adults leaves a good deal to be desired. He is confident of this because within a comparatively short period he has observed nine cases of ununited clavicular fractures of long standing in adults. Six of these had brachial plexus involvement and seven had to be subjected to open surgical treatment and correction owing to the disability of the patients. Recently one case of fracture of the clavicle with malunion and severe brachial plexus involvement was seen and operative correction was advised. Immediate surgical intervention appears to be indicated if there is marked displacement of the fragments which cannot be aligned and maintained by the usual conservative treatment of reduction and bandaging. In the treatment of old ununited clavicular fractures in adults the use of the tibial bone graft with immobilization is recommended as the method of choice. In order to avoid the disastrous complications of infection, the operative field should have a forty eight hour preoperative preparation and then the operative area should be painted with iodine and alcohol at the time of operation. A semicircular incision is made below the clavicle from a point 1 inch lateral to the sternoclavicular joint extending nearly to the acromioclavicular joint through the skin, subcutaneous fat and platysma muscle. This incision should be made so that the lowest point is at the level of the second rib thus the line of incision will not be directly over the prominence formed by the graft. The periosteum is incised along the anterior superior margin of the fragments and is freed from them by subperiosteal blunt dissection. On the inferior posterior margins of the ends of the fragments there are found long bone spurs. These bone spurs, adherent to the fascial sheath of the nerves and vessels, should be removed with caution. After the ends of the fragments are freed for some distance, the wound is covered with sterile towels. The tibia

is exposed for a distance of 6 inches on its anteromedial surface through a longitudinal incision. The periosteum is not removed from the surface of the tibia, and particular care is taken to leave it attached to the bone. The graft is cut from the tibia with a motor saw, the full thickness of the cortex of the bone being used. After the graft is freed, four drill holes are made in it. The graft is removed from its bed, care being taken not to remove any of the attached periosteum or medullary bone and applied to the anterior superior surface of the clavicular fragments so as to bridge the line of fracture. With the graft in place, drill holes are made in the clavicular fragments to correspond with those in the bone graft. The only bone graft is secured in position by heavy chromic catgut sutures, which are passed through the drill holes in the clavicular fragments and the graft and tied around both. The periosteum muscular attachments and aponeuroses are then closed over the fragments by a continuous suture of strong chromic catgut. The wound is closed without a drain, with a continuous suture for the subcutaneous tissue and with black silk for the skin. The patients are placed on a flat, firm bed without pillows, but with a folded blanket between the shoulders after a snug Velpeau bandage is applied. The sutures are removed in two weeks and then a plaster shoulder spica, which extends from the wrist to the iliac crests, is applied with the elbow flexed to a right angle, thus holding the shoulder upward and backward as far as possible. The patients are then ambulatory for ten weeks, after which the spica is removed provided bony union is demonstrable.

Yale Journal of Biology and Medicine, New Haven

9 393 508 (May) 1937

Daniel Webster and Hay Fever C Barker New Haven Conn.—p 393

Postoperative Pulmonary Complications Statistical Study Based on Personal Observation of 1215 Consecutive Major Operations G E Lindskog New Haven Conn.—p 403

Tetanus Immunization P B Cowles New Haven Conn.—p 409

*Relation of Hypersensitivity to Localization and Dissemination of Streptococcus Viridans from Incisor Teeth of Rabbits D Weisberger Boston—p 417

Artificial Radioactivity and Neutron Rays in Biology and Medicine J H Lawrence New Haven Conn.—p 429

Spermatogenesis in Hard Shell Clam (Venus Mercenaria Linnaeus) V L Loosanoff New Haven Conn.—p 437

Incidence of Dental Caries in Seventy Six Monkeys B G Anderson and S S Armin New Haven Conn.—p 443

Proteins of the Nervous System Considered in Light of Prevailing Hypotheses on Protein Structure R J Block New York—p 445

Hypersensitivity and Focal Infection—Weisberger observed that rabbits previously sensitized to horse serum will develop and maintain a bacteremia for from twenty-four to seventy-two hours provided the shock dose of horse serum and the bacteria are inoculated simultaneously into their veins. On the other hand, similar inoculations of horse serum and bacteria into nonsensitized rabbits produce a bacteremia for only one or two hours. This apparent interference with the mechanism for the removal of bacteria from the blood stream was present also in the viscera of the sensitized rabbits. Since it is believed that bacteria are normally removed from the blood by the cells of the reticulo-endothelial system it is suggested that the response of the sensitized rabbits to horse serum is a manifestation of a temporary impairment of the function of these cells. The presence of a transient bacteremia from bacterial inflammatory foci after the intravenous inoculation of horse serum in sensitized rabbits indicates an antagonistic influence on the fixation of bacteria by inflammatory tissue. It is not difficult to understand the removal of Streptococcus viridans from the blood by means of the local inflammatory reaction produced in the sensitized tissues by the inoculation of horse serum. Even a minimal tissue response elicited by normal horse serum or saline solution in nonsensitized rabbits is capable of localizing the bacteria, provided the initial intravenous injection is sufficiently large. The presence of bacteria at the apexes of the teeth may be attributed partially to the localizing effect of the tissue response caused by the introduction of foreign protein into sensitized tissue by way of an exposed dentin or pulp canal. Previous studies have shown that it is possible to shock guinea-pigs with horse serum through the exposed dentin of incisor teeth. The significance of the generalized hypersensitive response in liberating bacteria from dental foci in human dental disease is not known.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Ophthalmology, London

21 225 272 (May) 1937

- *Laurence Moon Biedl Syndrome. Record of Case. J. R. Mutch—p. 225
 Trial Spectacle for Prism Prescription. I. C. Michaelson—p. 232
 Paget's Disease of the Eyelid Associated with Carcinoma. A. Hagedoorn—p. 234
 Children with Defective Vision. R. A. Kaz—p. 242

Laurence-Moon-Biedl Syndrome—Mutch reports a case showing the complete Laurence-Moon-Biedl syndrome: moderate obesity, hypogonadism and hypospadias, mental retardation, polydactyly, syndactyly, optic atrophy and macular degeneration and lordosis of the lumbar vertebrae. The visual symptoms appeared late, being first evident at the age of 12. Remission occurred, and vision was apparently normal from 14 to 30 years of age. Unlike the usual state of affairs in retinitis pigmentosa, the patient sees best in a dull light and has no difficulty in finding his way about in the dark. At the periphery the retina appears to be normal, only the macular area being affected, this is not surprising when it is remembered that the macular area is photopic in function and has a relatively high light threshold compared with the remainder of the retina, which is scotopic in function, in the eye adapted for darkness it is about a thousand times more sensitive to light than the fovea. The patient's health at the age of 35 is generally good, aside from occasional headaches, impaired vision and a lowered mentality.

British Journal of Surgery, Bristol

24 637 852 (April) 1937

- Carcinoma of Male Urethra. Report of Case. H. Mortensen—p. 669
 Fat Embolism. Report of Case with Review of Literature. A. J. Watson—p. 676
 Pyelography in Renal Hydatids. R. C. Begg—p. 691
 Multiple Villous Papillomas of Gallbladder. F. R. Brown and D. F. Cappell—p. 703
 Ruptured Aneurysm of Splenic Artery with Recurrence. Case. C. G. Parsons—p. 708
 One Stage Lobectomy for Hydatid Disease of Lung. A. L. d'Abreu—p. 713
 Effect of Brachial Plexus Block on Patients Suffering from Secondary Traumatic Shock. H. J. B. Atkins—p. 717
 *Fixation of Hip Joint by Means of Extra Articular Bone Graft. Late Results. H. C. Trumble—p. 728
 Treatment of Fractured Patella by Excision. Study of Morphology and Function. R. Brooke—p. 733
 Extension Apparatus of Knee Joint. Note. E. W. H. Groves—p. 747
 Some Reflections on Gastrostomy. E. S. J. King—p. 749
 Experimental Lesions of Rabbit's Appendix. A. Q. Wells—p. 766
 Intestinal Strangulation. Histamine Content of Peritoneal Transudate from Strangulated Intestinal Loops. I. Aird and W. K. Henderson—p. 773
 *Experimental Observations on Spread of Carcinoma by Blood Stream with Especial Reference to Difference Between Portal and Systemic Routes. D. H. Patey—p. 780
 Basis of Treatment of Vasospastic States of Extremities. Experimental Analysis in Monkeys. P. B. Ascroft—p. 787

Fixation of the Hip Joint—Since 1932 Trumble has obtained fixation of the hip joint by means of an extra-articular bone graft in eight cases of tuberculosis of the hip. The main features of the operation are as follows. The skin and the fascia lata of the thigh are incised in the same line, and the osseous insertion of the gluteus maximus muscle is divided a short distance from the bone. The musculocutaneous flap so formed is elevated enough to expose the tuberosity of the ischium, the femoral shaft and the sciatic nerves. A deep cleft is made in the tuberosity of the ischium with a broad chisel, and a trapdoor opening is cut in the posteromedial aspect of the shaft of the femur a little below the level of the lesser trochanter. A stout free bone graft of the requisite length is cut from the tibia, one end is inserted into a cleft in the tuberosity of the ischium and the other into the medullary cavity of the femur through the trapdoor opening. There were no post-operative troubles and no immediate infection or subsequent breaking down of the wounds in the eight cases. Three of the patients had sinuses discharging on the lateral and anterior aspects of the hip joint at the time of operation, while another had scars of healed sinuses. The sinuses have since healed in two of the cases. The graft united satisfactorily both with the femoral shaft and with the ischial tuberosity in seven cases.

In one case the graft became displaced from the cleft made in the ischial tuberosity soon after operation by some ill advised movement of the limb but united strongly with the femur. Absolute fixation of the hip joint was attained in all but this case. In the years after operation, the increase in thickness and strength of the grafts has been striking and in some of the cases unexpectedly pronounced. In several instances the x-ray appearances are sufficient to show that the grafts, besides acting as distance bars or struts preventing adduction and movement at the hip joint, are transmitting a large proportion of the weight of the body to the femoral shafts. No increase in deformity has occurred in any case. Fracture of the graft occurred in one case, about eighteen months after operation, owing no doubt to the thinness of the graft. Roentgenograms taken at intervals after the fracture show that the fragments have increased in size and density and that there has been some attempt at union. There is no movement clinically appreciable at the hip joint. All but one of the patients were up and about in April 1936. The man in whom the graft failed to unite with the ischium is confined to bed with extensive pulmonary tuberculosis, although the hip disease is quiescent. Six patients have dispensed with all artificial aids to walking, and several have returned to their former occupations.

Spread of Carcinoma by Blood Stream—Patey compared experimentally the spread by the blood stream of malignant disease by the portal and the systemic routes. The tumor used in the experiments was a carcinomatous one growing on the scrotum of a rabbit and successfully transmitted by Brown and Pearce to other rabbits by inoculation into various sites. The experiments showed that under controlled conditions tumor cells reaching the blood stream by the portal vein give rise to metastatic deposits in markedly fewer cases than tumor cells entering through a systemic vein. This observation corresponds to the observations on human malignant disease, which have shown that blood-borne metastases are much more frequent with tumor of the systemic territory, such as carcinoma of the breast and nevocarcinoma, than with tumor of the portal territory, such as carcinoma of the large intestine. The experiments suggest that one of the factors responsible for the diminished incidence in man of blood-borne metastases associated with tumor of the portal territory, as compared with that associated with tumor of the systemic venous territory, is the barrier of the liver. In the present experiments the liver showed deposits in thirteen of forty-four cases in which injection was by the systemic route and in five of forty one in which injection was by the portal route. On a purely mechanical basis, one would expect the incidence of cases with deposits in the liver to be much greater after portal injection, in which all the cells injected enter the liver. It is possible that some of the deposits in the liver following systemic injection represent secondary emboli from deposits in other organs, such as the kidneys. But it is also possible, particularly in view of the work of Foulds on the role of the reticulo endothelial system in the resistance to blood-borne metastasis, that the cells of this system in the liver play a part in the lower incidence of deposits in the liver following portal injection and also in the lower total incidence of deposits. The experiments also confirm the marked selective affinity of certain tumors for certain organs. Thus, in spite of the double barrier of the capillary network of the liver and the lungs, the kidney was the organ most frequently showing deposits after portal injection, just as after systemic injection. Thus, anatomic vascular factors seem to have a part subsidiary to this selective affinity.

British Medical Journal, London

1 953 1008 (May 8) 1937

- *Habitual Abortion and Stillbirth Syndrome and Late Pregnancy Toxemia. Vitamin E and Prolan Progesterone Mechanism. J. Young—p. 953
 Treatment of Midline Ventral Hernia. R. W. Power—p. 958
 Hereditary Sebaceous Cysts. J. T. Ingram and M. C. Oldfield—p. 960
 Osteochondritis Dissecans. D. S. Stevenson and F. L. Henderon—p. 963
 Endometrial Biopsy. A. Sharman and H. L. Sheehan—p. 965
 Epilepsy and Cysticercosis. A. J. P. Alexander—p. 966

Habitual Abortion-Stillbirth Syndrome—Young is of the opinion that the evidence which has become available within recent years is consistent with the view that an important cause of the habitual abortion-stillbirth syndrome is a disturbance occurring in the metabolism of pregnancy, in which a

deficiency of vitamin E is involved. The evidence further raises the question as to the part which vitamin E plays in the gonadotropic progesterone mechanism of pregnancy. Some evidence is adduced for the view that the foregoing considerations may likewise supply one with the missing factor that has been previously postulated to explain the nontoxic recurrence of abortion, stillbirth and accidental hemorrhage in women who are subject to eclampsia and preeclampsia. This evidence is consistent with the view that major degrees of deficiency tend to interruption of pregnancy in the early months without toxic manifestations, whereas if the deficiency is less marked the pregnancy is capable of progressing to the later months with a consequent risk of toxemia. The evidence reviewed in this communication raises the question as to the part played by diet in racial fertility and more especially as to how far changes in the consumption of essential dietetic elements may have contributed to the declining birth rate.

Glasgow Medical Journal

157 204 (April) 1937

- Experimental Carcinogenesis P R Peacock—p 157
The Modern Treatment of Squint J N Tennent—p 166
The Deafened Man and Hearing Aids J K Love—p 173

Indian Medical Gazette, Calcutta

72 193 264 (April) 1937

- Tuberculosis in Infants and Children A C Ukil—p 193
Increasing Value of Modern Sanatorium Treatment as Judged by After Histories of Patients C Frimodt Møller—p 201
Some Observations on Chrysotherapy in Pulmonary Tuberculosis J C Banerjee—p 205
Analysis of Artificial Pneumothorax Treatment in 1 039 Patients C Frimodt Møller and M C Verghese—p 208
*Thoracoscopic Examination and Cauterization of Adhesions P V Benjamin—p 212
Applicability of Phrenic Evulsion in Pulmonary Tuberculosis at the Outpatients Department of a City Hospital A C Ukil P Chatterjee and K N De—p 215
Oleothorax in Treatment of Pleuropulmonary Tuberculosis A C Ukil and K N De—p 221
Thoracoplasty in Pulmonary and Pleural Tuberculosis P V Benjamin—p 227
Treatment of Cervical Glandular Tuberculosis F M Collins—p 230
Oxygenation of Peritoneal Cavity in Treatment of Tuberculosis of Abdomen N Bordia and J R J Tyrrell—p 233
Intrapleural Pressure Interpretation of Manometric Readings in Therapeutic Artificial Pneumothorax T J Joseph—p 237
Treatment of Tuberculous Hemoptysis by Subcutaneous Emphysema U P Basu—p 241
Pulmonary Tuberculosis and Kala Azar Fatal Combination L E Napier—p 242
Hydatid Cyst of Lung with Postoperative Tuberculous Involvement Case A C Ukil and S K Ganguli—p 244

Thoracoscopic Examination and Cauterization of Adhesions—Benjamin believes that every patient treated by artificial pneumothorax for whom a ray examination after the first six or eight weeks shows that the lung is collapsing imperfectly is a potential subject for thoracoscopy and cauterization of adhesions. The presence of adhesions alone is not always an indication for operation. Some adhesions do not prevent a satisfactory collapse. Whether a collapse is satisfactory or not can be judged by the effect of the pneumothorax on the clinical symptoms, such as temperature, cough, the quantity of sputum and the presence of bacilli, and also by the changes in the blood. In some cases, although the patient improves under treatment by pneumothorax in spite of the presence of adhesions, cauterization may have to be done eventually if the adhesion shows a tendency to pull out the lung too early. There must be sufficient pneumothorax space for the manipulation of the instrument. If effusion is present, the fluid has to be aspirated before cauterization. A recent acute onset of effusion is a definite contraindication and thoracoscopic examination should be postponed until the acute stage is over, as manipulation inside the pleura at this stage is likely to cause severe reactions. In only ten of forty patients could all the adhesions be cauterized. Collapse of the lung was increased in these ten after the operation, five patients were much improved and two improved. Tubercle bacilli were present in the sputum of the ten at the time of the operation and disappeared after the operation from the sputum of six. In the remaining thirty patients all the adhesions that were seen could not be cauterized but one or more adhesions were

cauterized in every case. As a result of the operation the collapse of the lung was increased in all. Twelve patients were much improved and nine improved making a total of twenty-one, or 70 per cent, positive results. Tubercle bacilli were present in the sputum of the thirty patients in this group at the time of the operation, and they disappeared from the sputum of fourteen, or 46.7 per cent, after the operation.

Journal of Pathology and Bacteriology, Edinburgh

44 517 720 (May) 1937

- Rhabdomyoma and Myoblastoma D F Cappell and G L Montgomery—p 517
Experimental Cirrhosis of Liver Produced by Intravenous Injection of Sterile Suspensions of Silicious Dust F W Simson—p 549
Distribution of Influenza Virus in Experimentally Infected Mice A A Smorodintseff and S M Ostrovskaya—p 559
Observations on *Pseudomonas Pyocyanea* B R Sandiford—p 567
Comparison of Value of Heat Killed Vaccines and Toxoid as Immunizing Agents Against Experimental *Staphylococcal* Infection in Rabbit A W Downie—p 573
*Hay Fever (I) Effect of Pollen Therapy on Skin Reactions (II) Reaction Inhibiting Substance in Serum of Treated Patients D Harley—p 589
Precipitation Reactions of Normal Serum and Lipoid Suspensions T J Mackie and C G Anderson—p 603
Adrenal Changes Associated with Estrin Administration and Mammary Cancer W Cramer and E S Horning—p 633
Experiments on Dissociation of Allergic Hypersensitiveness and Immunity W Pagel—p 643
Syringomyelia Associated with Intramedullary Tumor with Remarks on Relation of Gliosis to Tumors of Ependymal Origin Case L B Cox—p 661
Origin of Acetyl-methylcarbinol in Bacterial Fermentation M M Barritt—p 679
Genetic and Antigenic Basis of Tumor Transplantation P A Gorer—p 691

Hay Fever—Harley treated forty patients sensitive to grass pollen with extract of grass pollen to a final dose of 100,000 units. Prick and intradermal tests were performed before and after treatment. The prick and intradermal test reactions were both markedly reduced in size following this treatment. The prick test reactions showed a reduction greater than that of the intradermal reactions at the 20,000 unit dose stage of treatment. A number of commercial extracts of grass pollen were tested for skin-reactive potency and very considerable variations were found. Pollen therapy results in a decrease in size of the specific skin reactions provided a sufficient dosage of potent pollen extract is administered. A reaction-inhibiting substance makes its appearance in the serum of patients sensitive to grass pollen after treatment with grass pollen. This substance blocks or inhibits the reactions of normal skin sites to serum-pollen mixtures. The block occurs not between the skin cells and the idioceptor (allergic reagent) but between the latter and the idiotoxin (allergen). The reaction-inhibiting substance apparently acts by attaching itself to the idioceptor, so preventing idiotoxin from uniting with the idioceptor. The attachment of reaction-inhibiting substance to idioceptor does not appear to be very stable. The skin site is found to be fully reactive to pollen extract twenty-four hours later, indicating that the inhibiting substance is removed from the skin in that time.

Journal of State Medicine, London

45 249 310 (May) 1937

- The Problem of the Diphtheria Carrier M Mitman—p 249
Laboratory Findings in Rheumatic Diseases J Race—p 258
Bacteriophage J Morison—p 270
Diarrhea and Vomiting of Babies D H Haler—p 279
*Some Notes on Microbiology of Canned Foods O Jones—p 286
Infectious Diseases Training and Its Value M Pool—p 294
Venereal Warts in Women R Schofield—p 300

Microbiology of Canned Foods—Jones intends that the term canned food shall include both foods hermetically sealed in the usual tinne'd iron container and those similarly sealed in glass molds and bottles. The bacteria that are of special interest to the food preserving technologist are roughly grouped as follows: nonpathogenic aerobic spore forming group (which includes the subtilis mesentericus *Clostridium*-simplex *mycoides* *cereus* *megatherium* round terminal spore cylindrical terminal spore and central spored groups), the coccaceae the leucostoc group the anaerobic spore forming bacteria, thermophilic bacteria and the salmonella group. The coccaceae organisms are readily destroyed by heat and should not give rise to any difficulty in efficiently processed cans of food and their presence in the food must be looked on as evidence of

insufficient heat treatment. Organisms of the leukonostoc group are the cause of spoilage in canned condensed milk. They are all facultative aerobes of low thermal death point. The high heat resistance of the spores of anaerobic spore forming bacteria, coupled with their anaerobic propensities, causes them to be more likely to survive canning treatment than organisms of nonsporing character. For this reason the time and temperature of processing, for the sake of safety, has to be based on their possible presence in foods, except in foods of high hydrogen ion concentration, such as canned pineapple. Spores of the nonpathogenic aerobic spore forming group are not especially heat resistant and therefore are of negligible concern to the food canner. Thermophilic bacteria are of great importance in the spoilage of canned foods. Generally their optimal temperature for growth is from 55 to 60 C, and as a consequence they are not only not destroyed but actually encouraged by the washing of utensils, such as trays and tables, with "hot water." Many of them possess spores of a very high heat resistance and infected canned food may spoil in spite of being processed at temperatures calculated to remove even the troublesome spores produced by anaerobes. The salmonella group of organisms are readily destroyed by exposure for a few minutes to a temperature of 80 C, which renders their presence in canned foods extremely improbable. Their toxins are more liable to give rise to trouble, but it is doubtful whether they will withstand 100 C for a period exceeding thirty minutes.

Journal of Tropical Medicine and Hygiene, London

40 113 124 (May 15) 1937

- X Rays in Diagnosis of Some Tropical Diseases A Granger—p 113
Disinfection of Fresh Vegetables Contaminated with Organisms of the Enterica Group M A Gohar—p 115

Lancet, London

1 1093 1154 (May 8) 1937

- Prevention of Pulmonary Tuberculosis Among Adults in England in the Past and in the Future P M D Hart—p 1093
Insulin Shock Treatment of Schizophrenia G W B James R Freudenberg and A T Cannon—p 1101
Treatment of Urinary Infections with Calcium Mandelate E Schnohr—p 1104
Corneal Grafting (Keratoplasty) Report of Case T H S Tizzard—p 1106

1 1155 1210 (May 15) 1937

- Observations on Malignant Disease of Thyroid Gland A Haas—p 1155
Sulfhemoglobinemia and Methemoglobinemia Following Administration of p Aminobenzenesulfonamide J P J Paton and J C Eaton—p 1159
Contribution to Pathology of Rheumatoid Type of Arthritis and of Rheumatic Fever A G T Fisher—p 1162
Acquired Hemolytic Jaundice with Unusual Features E S Duthie—p 1167

1 1211 1262 (May 22) 1937

- Bismuth Iodoform Paraffin Paste Method of Treatment of Acute Osteitis J H Saint—p 1211
Diagnosis and Treatment of Gastric and Duodenal Ulcer D Leys—p 1217
Tuberculosis in Wild Voles A Q Wells—p 1221
Autoserotherapy for Drug Addiction Margaret Vivian—p 1221
Epithelioma with Associated Tumors of Nail Beds S G James—p 1223
Nutritional Retrobulbar Neuritis Followed by Partial Optic Atrophy D F Moore—p 1225

Sulfhemoglobinemia and Methemoglobinemia After Sulfanilamide—Paton and Eaton state that the administration of magnesium sulfate simultaneously with, or within two or three days preceding, the administration of sulfanilamide gives rise in most persons to sulfhemoglobinemia. The formation of sulfhemoglobin takes place very rapidly even after small doses of the drug. In the absence of sulfates large doses of the drug are well tolerated, but in a considerable proportion of persons doses of from 12 to 24 Gm daily result in methemoglobinemia. Some patients may have an increased susceptibility to the drug. The removal of sulfhemoglobin from the blood is much slower than removal of methemoglobin. The former has been detected six weeks after administration of sulfanilamide ceased. The latter disappears in approximately twenty-four hours. Spectroscopic examination of the blood is a more delicate means of detecting sulfhemoglobinemia than clinical observation of cyanosis. Oxygen is of little value in the treatment of severe cases of sulfhemoglobinemia. If the patient's life is in danger, blood transfusion is indicated. In methemoglobinemia oxygen appears to be of value.

Medical Journal of Australia, Sydney

1 569 610 (April 17) 1937

- *Athletics and the Heart Electrocardiographic and Radiologic Study of Response of Healthy and Diseased Heart to Exercise E L Cooper J O Sullivan and E Hughes—p 569
The Life History of *Cysticercus Bovis* in Tissues of Ox H B Penfold—p 579
Retention of Urine and Use of Urethral Catheters R G S Harrington—p 583
Epidemic Pleurodynia K M Doug—p 586
Trigeminal Neuralgia and Disseminated Sclerosis Report of Case K Ross—p 587

Athletics and the Heart—During 1935 and 1936 Cooper and his associates made a series of observations on the oarsmen of the Melbourne University eight, the Ormond College crew and the Scotch College crew. For purposes of comparison a number of outpatients with cardiovascular lesions at Saint Vincent's Hospital have been investigated along lines similar to those used with the oarsmen. It was found that during muscular work appreciable dilatation of the heart does not occur, and that immediately after the cessation of exercise the heart decreases in size. During exertion in the trained man the muscular and respiratory systems are working not only at a more rapid rate but also more efficiently than in the same individual in the untrained state. The effects of training, as seen in electrocardiograms, were not very great. Some of the men of the Ormond crew had electrocardiograms taken before training commenced and when they were prepared for a race. The time interval was approximately three to four months, and in this period the only striking change was an increase in the amplitude of the T wave in lead I. There are appreciable changes in the electrocardiogram after even mild exercise of short duration, such as running up stairs or "touching toes," until the pulse rate rises above 100 per minute. In the adjustment to the increased demands of exercise the pulse rate shows a very rapid rise to the frequency required, for the particular form of exertion, also there is a rapid return toward normal, once the exercise ceases. Extreme variations in blood pressure occur during exercise. The systolic blood pressure and the pulse pressure rise very soon after exercise commences and fall immediately exercise ceases. The fall of blood pressure after exercise is often to a figure below that usual for the individual at rest. There appears to be no parallelism between the pulse rate and the body temperature. The pulse rate may return to normal, while the temperature is still markedly elevated. After prolonged strenuous exertion the blood sugar often falls to a very low figure. The nervous system, the neuromuscular junction and the muscle cell are all closely concerned with the establishment of fatigue during exertion. In no instance of an oarsman who has been rowing for a number of years has the heart been larger than normal and in the majority the heart is smaller than the average for the height and build of the individual. To investigate the late effects of athletics, the records of 100 men rowing for Ormond College between 1885 and 1905 were investigated. Of these men twenty four are now dead (seventeen from natural causes seven from war injuries) and seventy-six men are alive and well. The expected mortality of men of an average age of 21 years during the years in question is 31.8. The men who rowed for Ormond therefore show a lower mortality than the males of the general population.

Medical Press and Circular, London

194 407 444 (May 5) 1937

- The Nature of Rheumatism F J Poynton—p 416
*Preventive Organization in Juvenile Rheumatism R Cove-Smith—p 419
Rheumatism Importance of Some Unexplained Symptoms C Sundell—p 421
Rheumatic Heart Disease and Its Sequels E C Warner—p 423
Chronic Rheumatic Arthritis H W Crowe—p 426
Indications for Light Therapy in Rheumatic Diseases A Eidinow—p 429
Spa Treatment of Chronic Rheumatic Diseases F G Thomson—p 434

Preventive Organization in Juvenile Rheumatism—Cove-Smith remarks that in the preventive organization of rheumatism in the juvenile the plan of the London County Council consists of (1) the availability of a sufficient number of beds to provide for an average period of six months treatment for all children showing signs of active disease, (2) the establishment of rheumatism supervisory centers for the pu

pose of early diagnosis of doubtful cases and supervision of quiescent cases, (3) the establishment of a system of supervision of cases after discharge from rheumatism units, (4) investigation and amelioration, if necessary and possible, of the child's home environment and (5) central coordination of the various branches. During the last year the supervisory centers alone have dealt with more than 6,000 cases, while more than 2,000 applications were received from various sources for treatment by the acute units. These figures alone show the vast field covered by this scheme, which, comprehensive as it is, is still susceptible of greater expansion.

Quarterly Journal of Medicine, Oxford

G 93 230 (April) 1937

- *Treatment of Acute Rheumatic Polyarthritides with Concentrated Antiscarlatinal Serum. J. Eason and G. Carpenter—p. 93
Idiopathic Steatorrhea (Gee Thaysen's Disease). Three Cases. E. Mogensen—p. 119
Hematopoietic Activity of Human Liver. Part II. Achrestic Anemia and Aplastic Anemia. J. F. Wilkinson, L. Klein and C. A. Ashford—p. 143
Observations on Site of Antagonistic Action of Posterior Pituitary Extracts on Insulin Hypoglycemia. H. Cohen and J. Libman—p. 157
*Observations on Skin Sensitivity in Asthmatic and Control Subjects. R. S. B. Pearson—p. 165
Systematized Atypical Amyloidosis with Macroglossia. F. P. Weber, S. Cade, A. W. Stott and R. J. V. Pulvertaft—p. 181
Achlorhydria, Anemia and Subacute Combined Degeneration in Pituitary and Gonadal Insufficiency. I. Snapper, J. Groen, D. Hunter and L. J. Witts—p. 195
Plasma Phosphatase in Disease. A Review. N. Morris and Olive D. Peden—p. 211

Acute Rheumatic Polyarthritides and Concentrated Antiscarlatinal Serum.—Eason and Carpenter assert that the principal disadvantages of salicylate therapy are a high relapse rate and the high incidence of cardiac sequelae. In a series of forty-four cases of acute rheumatic polyarthritides, concentrated antiscarlatinal serum has proved itself an effective form of therapy worthy of extended trial. As compared with salicylates, the advantages of serum therapy outweigh its disadvantages. It is safe to give serum to very ill patients even when suffering from grave carditis. The immediate effects of serum are sufficiently satisfactory to justify its wider use with a view to determining its effect on the incidence of cardiac sequelae, which is the only part of the rheumatic syndrome dangerous to life. It is unlikely that the effects of antiscarlatinal serum on acute rheumatic polyarthritides are entirely specific. Similar effects are reported with nonspecific protein therapy. A brief series of controls, showing a high relapse rate, indicate the possibility of combining a nonspecific element and a specific element in concentrated antiscarlatinal serum. There is no evidence that either serum therapy or the withholding of salicylates was a contributory cause of death in the three fatal cases of the forty-four treated with antiscarlatinal serum.

Skin Sensitivity in Asthma.—Pearson believes that the knowledge of the frequency of reactions to intradermal injections of horse serum in healthy subjects is essential not only in estimating the practical value of skin tests but also in forming a true conception of the part played by the presence of sensitivity in the production of asthma and allied conditions. It was to obtain information of this kind that he carried out intradermal tests under the same conditions on a series of control subjects (342) and of asthmatic patients (293) using extracts of five substances: horse dander, chicken feathers, wheat, egg white and dilutions of pure horse serum albumin. Sensitivity to common inhalant substances occurred with considerable frequency among "control" subjects. The percentage of positive reactions and the proportion of large reactions are considerably greater among a corresponding group of asthmatic subjects. A group of persons who gave a history of having experienced some atopic condition in the past or in whose family such a condition was reported to be present, showed a greater proportion of skin reactions than a group who gave no such history and was intermediate between these and the asthmatic group. Sensitivity to inhalant substances was found to be greatest in subjects between the ages of 15 and 30 years. This was found to be true for the asthmatic and control groups. Sensitivity to more than one extract occurred frequently in all groups and it was exceptional to find subjects highly sensitive to one substance who failed to react in some degree to extracts of other substances.

Bulletin de l'Académie de Médecine, Paris

117 537 574 (May 18) 1937

- Exanthematous Rat Virus Especially in Rabbits. H. Viole—p. 543
*Anemias of the New Born. M. Pehu and R. Noël—p. 548
Selection Immigration Naturalization. R. Martial—p. 554
Extrasystole and Vagus Action on Heart. E. de Somer—p. 565

Anemias of the New-Born.—Pehu and Noël share the opinion of those who think that real anemia is rarely diagnosed in early infancy. Except for rare instances, the new-born infant is little exposed to general infections, septicemias or toxemias that would have an untoward influence on his blood. As regards the behavior of the hematopoietic system, the authors distinguish between secondary and idiopathic anemias. The underlying causes leading to the impairment of the infant's blood are primarily internal and external hemorrhages from the digestive tract, the umbilicus or the adrenals. Of the infections giving rise to anemia in the new-born, first place is to be given to congenital syphilis and congenital malaria. The blood of these patients returns to an embryonic stage in which proerythroblasts and erythroblasts can be observed, but rarely megaloblasts. The composition of infantile blood may also be impaired if during pregnancy the mother has received insufficient or inadequate food, or food deficient in iron. But anemia of the mother has only seldom an untoward influence on the blood of the fetus. The so-called idiopathic anemia appearing to be primary or congenital because no underlying cause can be found for it, was first observed by Ecklin in 1919. It must be differentiated from grave familial icterus of the new-born and from fetoplacental anasarca. This anemia makes its appearance about seven or eight days after birth. The patient is usually of a healthy disposition with normal stools and urine but with a slightly enlarged spleen and liver. The peripheral blood and that of the liver and spleen shows an abnormal quantity of erythroblasts. But to include this disease among the erythroblastoses is not yet quite well founded, especially because little information has been received from analysis of the bone marrow of these patients. It remains also to be determined whether this entire anemic syndrome is or is not the result of deficient maternal nourishment.

Echo Medical du Nord, Lille

T 649 672 (May 16) 1937

- *Dangerous Universal Donors. E. Balgarnies and L. Christiaens—p. 649
Generalized Herpes with Fever. J. Minet and P. Dupire—p. 669

"Dangerous" Universal Donors.—Balgarnies and Christiaens, following reports by American and European authors, made the observation that blood transfusions from certain universal donors (group O) may be injurious. This seems particularly true of blood rich in agglutinins. A case of hypoplastic anemia is cited in which the first transfusion of 150 cc of group O was well tolerated, but the second from another donor of the same group was soon followed by an alarming shock. But while the first donor had a low proportion of antibodies, the blood of the second was rich in antibodies and the authors attribute the shock to the latter condition. A third transfusion of group A was well tolerated. Of 217 cases of hemolytic shock, Hesse found forty-six coming from group O, in which the receiver may or may not belong to the same group. Some are also complicated by nephropathies. But the authors are not of the opinion that capillary thromboses or emboli are the direct cause of the renal disturbances. On the basis of the works of Hesse and Filatov of Leningrad they attribute the cause to hemolysis during which the destruction of red blood corpuscles gives rise to certain depressing substances which induce spasm of the blood vessels. This results in the enlargement of the capillary network, slowing of blood circulation and lowering of blood pressure. The heart action is diminished, owing to its incomplete diastolic filling. The severity of the shock may eventuate in renal abreaction or even death. The quantity of blood transfused and the lesser or greater integrity of the reticuloendothelial system determine the degree of hemolysis. To determine the proportion of antibodies, the authors use Schiff's centrifuge technic. Five-tenths cubic centimeter of serum is diluted in geometrical progression ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$, $\frac{1}{16}$, $\frac{1}{32}$) to which is added 0.5 cc of a 5 per cent solution of erythrocytes of standard A or B. The mixture is

stirred and then left to stand for fifteen minutes. Then it is slowly centrifugated for thirty seconds and immediately examined. In case of doubt, another reading is made half an hour later. The authors thus found a preponderance of anti-A-bodies in serums of group O, in which the "dangerous" donors are included to about 4 per cent. But it is not the proportion of agglutinins alone that constitutes the "danger." It depends likewise on the dilution and the humoral constitution of the blood given. It has therefore been advised to test universal donors and to restrict those whose plasma is particularly rich in antibodies, universal donors are contraindicated in severe anemias in which the corpuscular resistance is decidedly diminished and in cases of blood disease or renal insufficiency. But the tests in their present form are not particularly reliable, and universal donors should be reserved only for urgent cases. The best treatment of shock is the injection of homologous blood, of which a few cubic centimeters may be sufficient.

Archivio Italiano di Chirurgia, Bologna

45 461 558 (April) 1937

- Anatomy of Heart Following Experimental Retractable Collapse Therapy of Lung in Rabbits. A. Biasini—p. 461
Viale Reaction in Blood After Operations. L. Baccarini and M. Sartini—p. 485
Fractures of Vertebral Column. Late Results in Forty Six Cases Treated at Monza Hospital. A. Ciminata and G. Andreoletti—p. 505
Surgery of Nephritis and Nephrosis. E. Mingazzini—p. 533
Decapsulation of Kidney in Nephritis and Nephralgia. A. Ciminata—p. 550

Decapsulation of Kidney.—Ciminata resorted to decapsulation of the kidney in a group of eight patients suffering from nephritis or nephralgia. Pain in the kidney uncomplicated by nephritis disappeared after the operation, which caused only a temporary relief or none at all in nephritis and glomerulonephritis. The author regards decapsulation of the kidney a partial sympathectomy which induces favorable modifications of the circulation and structural conditions of the kidney with consequent improvement of the renal functions. Freeing the kidney from perirenal adhesions by decapsulation results in suppressing painful spinal stimulation to the organ, which also plays a part in stopping renal pain.

Rivista di Clinica Pediatrica, Florence

35 385 480 (May) 1937

- Constitutional Hemolytic Jaundice. Case. U. Vignolo and Frida Semah—p. 385
Hypercholia in Feces in Bronchopneumonia of Infants. A. Galeotti Flori—p. 397
Behavior of Fibrinogen and of Principal Factors of Hemostasis in Children Following Administration of Various Substances (Coagulants, Vitamin C and Liver Extract). A. Farioli and E. Medda—p. 405
Sedimentation Speed of Erythrocytes in Children with Tracheobronchial Adenopathies During Sojourn at Seashore Climate. G. Sanpaolisi—p. 420
Biologic Properties of Extremely Low Temperature on Food. Experimental Study. C. Cocchi—p. 429

Hypercholia in Feces in Bronchopneumonia of Infants.—According to Galeotti-Flori, the presence of excessive excretion of bile in the feces is a common occurrence in the course of bronchopneumonia in infants. It is so common that an early diagnosis can be established when the symptoms are still slight. The author states that alterations of the blood due to the pulmonary pathologic condition and hemolysis caused by bacterial toxins, with consequent bilirubinemia, play a part in the establishment of an increased elimination of bile. The main causal factor, however, is a reaction of the liver to circulatory, toxic and bacterial stimuli. During reaction the organ secretes more bilirubin than it does normally and eliminates bilirubin recently formed as well as that stored in the structure. The greater the enlargement of the liver the darker the color of the feces and the greater the amount of bilirubin they contain. The amount of bilirubin in the feces has no relation to the intensity and evolution of bronchopneumonia, but it is especially related to the secretory and chologenic reaction of the liver. The elimination of bile acids parallels that of bilirubin. The author performed daily determinations of bilirubin in the feces of twenty-nine infants suffering from bronchopneumonia. In all cases the amount of bilirubin eliminated was increased in comparison to that eliminated by infants suffering from diseases other than bronchopneumonia.

Archivio per le Scienze Mediche, Turin

63 283 350 (April) 1937

- Ammonium Metabolism: Presence and Behavior of Ammonium in Bile in Normal and Pathologic Conditions in Man. G. Oliva and M. Pescarmona and F. Quagha—p. 283
Physiopathology of Ketone Bodies in Diabetes Mellitus. S. Battistini, C. Angeleri and U. Widmer—p. 299
Disorders of Fat Metabolism After Splenectomy. B. Zancan—p. 319
Donaggio's Obstacle Phenomenon in Aviators. A. Mangiacapra—p. 339

Disorders of Fat Metabolism After Splenectomy.—Zancan found that experimental splenectomy in dogs induces transient disorders of the fat metabolism. Five or ten days after splenectomy the total lipids, total cholesterol and the cholesterol esters and phosphatides are increased, the neutral fats are decreased and the free cholesterol in the blood is unchanged. The disorders of the fat metabolism are attenuated twenty days after splenectomy. One month after the operation the fat metabolism is normal. The fat fractions show oscillations forty-five, sixty, seventy-five and ninety days after splenectomy, which are due to physiologic changes in the fat metabolism due to splenectomy. The body weight, the amount of total proteins in the blood and the chromocytometric values show slight variations after splenectomy which are not related to the operation. The transient disorders of the fat metabolism after splenectomy seem to be due to rupture of the equilibrium of the sympathetic nervous system with consequent increase of the liver function in its relation to the fat metabolism.

Ginecologia, Turin

3 319 398 (May) 1937

- Behavior of Bladder When Perivesical Suppuration Is Emptied into It. D. Porcaro—p. 319
Conservative Laparotomy at All Events in Treatment of Sterility. D. Porcaro—p. 323
Hydremia in Labor and in Puerperium. G. Piroli—p. 328
Roentgen Diagnosis of Placenta Praevia. E. Robecchi and S. Zocchi—p. 334
Roentgen Irradiations in Small Doses in Deficient Menstruation. E. Robecchi—p. 348
Hemorrhage from Rupture of Umbilical Vessels in Velamentous Insertion of Umbilical Cord. Cases. T. M. Caffaratto—p. 364
Influence of Certain Irradiations on Results of Friedman Reaction. T. M. Caffaratto and M. Bertini—p. 395

Roentgenologic Diagnosis of Placenta Praevia.—Robecchi and Zocchi used Ude and Urner's technic in thirty-four cases in which the presence of placenta praevia was suspected. The original technic was reported in the *American Journal of Obstetrics and Gynecology* (29:667 [May] 1935). The method is based on the relation between the contour of the head of the fetus, in cephalic presentation, as a landmark and the shadow of the urinary bladder, which is rendered opaque by means of the injection of a contrast medium. According to statements of the original authors, the contour of the fetal head in the lower uterine segment is continued in the shadow of the bladder in the last three months of normal pregnancy, whereas a free space caused by the placenta separates the fetal head from the shadow of the bladder in roentgenograms of cases of placenta praevia. Robecchi and Zocchi state that the method is of diagnostic value if pregnancy has evolved beyond the seventh month. Before this time roentgenograms with the characters of those showing central placenta praevia may be obtained in normal pregnancy. The space between the contour of the fetal head and the shadow of the bladder should be more than 1 cm in width, at least to have diagnostic significance. Separation of the cephalic and vesical shadows by a placenta praevia takes place regardless of the point of insertion of the latter at the anterior or posterior aspect of the lower uterine segment. The method has no value for the differential diagnosis of grave detachments of normally inserted placenta and for placenta praevia if the fetus is in the podalic presentation.

Roentgen Irradiations in Small Doses in Deficient Menstruation.—Robecchi states that roentgen irradiation in small doses over the ovaries in menstrual disorders is harmless. He resorted to the treatment in a group of eighteen cases. The irradiations were given with a Duoval apparatus with a tension of 170 kilowatts, an intensity of 3 milliamperes, a filter of 0.5 mm of copper and 3 mm of aluminum and a hemivalent layer of 0.8 mm of copper at a skin focal distance of 40 cm. The irradiations were superficially given on a circular field 13 cm in diameter, over the ovarian region. A dose of 125 or 150

roentgens fractionated in two treatments with one week's interval between the first and second irradiations were administered. In rare cases the irradiation was repeated six months later or a superficial hypophyseal irradiation, of 175 roentgens, was given through two temporal fields. According to the author, the treatment gives fairly satisfactory results in primary scanty menstruation and amenorrhea. The best results are obtained in patients under the age of 25, when the disease is of recent development (less than three years) and when there are no grave organic lesions of the internal genitalia. The fear that roentgen irradiations of small doses may cause irreversible harm to the sex functions or to the fertilized egg are unjustified. The irradiations destroy the altered follicles, but cells of great vitality are ready for the fecundation process. The author's experience with the treatment dates back fifteen years. He shows the advisability of resorting to the treatment more frequently.

Polieinico, Rome

44 225 272 (May 1) 1937 Medical Section

Hematopoietic Antitoxic and Anti-Infectious Action of Adrenal Hormones S. Fiorentini—p. 225

Acute Syndrome of Complete Transverse Section of Spinal Cord from Primary Sarcoma of Head of Pancreas in Youth Clinical and Anatomopathologic Study L. Jacchia—p. 240

*Skin Reactivity of Men to Killed Tubercle Bacilli E. Carlinfanti—p. 262

Reactivity of Skin to Killed Tubercle Bacilli—Carlinfanti made a comparative study of the reaction of the skin to killed tubercle bacilli and to old tuberculin in a group of about 100 cases, including pulmonary and other forms of tuberculosis and nontuberculous diseases. The tubercle bacillus preparation consisted of an ointment made up with tubercle bacilli, killed by heat at 158 F. An amount equivalent to the size of a pea was left in contact with the skin of the anterior aspect of one arm, whereas old tuberculin was epidermally or intracutaneously administered in the other arm. In 76 per cent of the cases the reaction of the skin to killed tubercle bacilli was positive. The reaction and its intensity for either antigen were different. Some patients with a slight reaction or no reaction at all to tuberculin reacted to killed tubercle bacilli. According to the author, the diagnostic and prognostic significance of the skin reaction to the ointment of killed tubercle bacilli is more reliable than that of old tuberculin. The dissociation of the skin reaction to the antigens shows that the allergic reactions are selective for the different antigens contained in tubercle bacilli and that patients in a condition of allergy may give negative reactions to tuberculin. The lack of a positive skin reaction to tuberculin does not rule out the existence of allergy, which may be selective in the given case. The existence of selective allergy is of importance in relation to the pathogenesis of tuberculosis.

Radiologia Medica, Milan

24 367 458 (May) 1937

*Radiobiology and Radiothanatology G. Paltrinieri—p. 367
Bases for Constructing and Managing Instruments for Stereoscopic Following Principles of Synchronous Alternation of Function of Tubes and Vision M. Serge—p. 392
Aspects and Lacunar Alterations of Cranium L. Galis—p. 399
Diverticulosis of Small Intestine G. Bignami—p. 422

Radiobiology and Radiothanatology—Paltrinieri made microscopic studies of the skin of cadavers which was previously subjected to infrapenetrating radium irradiations and soft roentgen irradiations. He concludes that the cells of cadavers react to the irradiations during the first hour after death. The reaction is active, biologic and different from the passive action of other physical or chemical agents of caustic action. The action of the irradiations both on living and on inorganic matter, is of a physical nature. It is related to phenomena of ionization, luminescence and secondary irradiation. The phenomena, and hence the reaction, are different in living and in inorganic matter owing to the fact that the former is able to react with a cytolytic reaction to the physical stimulation from the irradiations whereas the latter is not. The radiosensitivity of the cells depends on the life of the cells and on the intensity of their metabolism. It is conditioned by the intracellular formation of radiolabile physicochemical structures in a reaction of both the cells and their metabolism to the physical stimuli. The action of the irradiations on the cells is direct (from the

irradiation) and indirect through the local reaction of blood and cellular fluids in the irradiated territory. The protoplasm is just as important as the nucleus in the development of radiosensitivity. The irradiations act by stimulating groups of cells to reaction with consequent active necrobiosis of the cells themselves. The reaction is elective during the first half hour after death and does not take place one hour later. This fact can be of use in medicolegal procedures for differentiating actual from apparent death and determining the hour at which death took place in a given case. The author states that the irradiations with primary beta and gamma rays of radium have an active action on cells which survive after death.

Klinische Wochenschrift, Berlin

16 697 728 (May 15) 1937 Partial Index

Present Status of Problem of Burns with Especial Consideration of Therapy P. Fasal—p. 697

*Influence of Venesection on Vital Capacity of Lung in Healthy Human Subjects G. Budelmann—p. 704

Experiments with Quinine Calcium on Surviving Uterus of Mouse A. Wiessmann and Elisabeth Klippel—p. 705

Experimental Contribution to Question of Pemphigus L. Fleck and F. Goldschlag—p. 707

Sudden Death from Heart Failure in Angina Pectoris Without Coronary Thrombosis F. Kisch—p. 708

Question of Takata Reaction F. Hahn—p. 710

Influence of Venesection on Vital Capacity of Lung—Budelmann says that the vital capacity of the lung is an indirect but reliable measure for the blood perfusion of the lung. Pulmonary congestion by blood is accompanied by a reduction in the vital capacity. This is caused by an impairment of the respiratory mechanism of the lung, which in turn is the result of a pulmonary rigidity and of a corresponding increase in the intrapleural pressure. The decrease in the vital capacity is explained by a reduction in the air reserves of the lung. Not only does measurement of the vital capacity of the lung reveal a reduction in the vital capacity in case the lung is overfilled with blood, but a reduction in the blood content of the lung manifests itself in a corresponding increase in the vital capacity. It is well known, for instance, that the vital capacity increases following venesection in cases of chronic and acute pulmonary stasis and after digitalis therapy in cardiac insufficiency with pulmonary stasis. Thus it can be said that the blood perfusion and the air content of the lung show an antithetical behavior. The author further describes observations on the action of venesection on the vital capacity of the lung in healthy subjects. In healthy students and in patients without heart disease who had practiced spirometry and in whom a normal value had been computed, the vital capacity was measured following a venesection in which from 500 to 1,000 cc of blood was withdrawn. The venesection was followed in all cases by a noticeable increase in the vital capacity, and the persons stated that their breathing was freer and deeper. But, whereas in cases with a pathologic overfilling of the lung the increase in the vital capacity corresponds to the quantity of blood that has been withdrawn, this is not always the case in healthy persons. Moreover, the increase in the vital capacity of healthy persons is observable for only a short time (about one hour) after the venesection.

16 729 768 (May 23) 1937 Partial Index

Pulsatory Movements in Pulmonalis Region and Their Manifestation in Surface Kymogram K. Heckmann—p. 733

*Surprisingly Regularly Occurring Muscular Phenomenon in Focal Infection and Its Practical Use, A. Slauck—p. 740

Impairment of Cardiac Vessels in Protracted Fractional Irradiation of Malignant Tumors of Upper Air and Food Passages H. Bartsch and G. Wachner—p. 743

Capillary Blood for Determination of Cevitamic Acid Content of Blood Methylene Blue Method as Micromethod A. Elmby and T. K. With—p. 746

Investigations on Cevitamic Acid Content of Serum and Vitamin C Depot in Four Cases of Clinically Manifest C Hypovitaminosis H. Lund, H. Lieck, T. K. With and S. Clemmesen—p. 748

Muscular Phenomenon in Focal Infection—After citing his earlier histologic studies on the various forms of muscular atrophy, which revealed that the disorders of connected fields of muscular fibers are the result of the impairment of the ganglion cells of the anterior horns of the spinal cord or of the cells of the motor nuclei of the cerebral nerves, Slauck directs attention to the symptom of "muscular fibrillation." He shows that in the rheumatic conditions in which toxic foci play a part the musculature of the inside of the foot and of the calves of

the legs shows fibrillation. Moreover, the muscles of the hand and those in other localizations may likewise exhibit the symptom of fibrillation. The author emphasizes that this symptom will enable the practitioner to determine whether a focal infection exists and whether there is dissemination of the toxin into the cerebrospinal fluid canal. In all cases in which muscular fibrillation is detected, the practitioner should see to it that a thorough search is made for toxic foci.

Medizinische Klinik, Berlin

33 657 688 (May 14) 1937 Partial Index

- Antagonism of Insulin and Vitamin A as Contribution to Pathogenesis of Diabetes Mellitus M. Roller—p. 661
 *Limitation of Carbohydrates in Treatment of Migraine O. Porges—p. 664
 *Practical Significance of Tuberculin Sensitivity of Skin A. Sylla and G. Rothe—p. 665
 Pneumonia like Course of Pulmonary Tuberculosis in Patients with Diabetes G. Dilyannis—p. 668
 Prontosil in Infections of Urinary Passages A. Weiser—p. 674

Limitation of Carbohydrates in Treatment of Migraine—In studies on the dehydrating and therapeutic effects of diets with a restricted carbohydrate content, Porges observed that migraine is often favorably influenced by such a diet, just as many cases of migraine are favorably influenced by a salt-free diet. He treated a number of patients with migraine by putting them on a diet with a limited carbohydrate content. Some of the patients had been treated previously with restriction of the sodium chloride intake, without adequate success. In these cases the author added the carbohydrate limitation to the salt restriction, in other cases he at once started with limiting both the salt and the carbohydrate intake and in still others he restricted only the carbohydrate intake. The therapeutic effect was generally favorable. The best results were obtained by restricting both the salt and the carbohydrate.

Tuberculin Sensitivity of Skin—Sylla and Rothe point out that, although the old tuberculin reaction is of definite diagnostic value in children, its reliability is still disputed in adults. For this reason they decided to investigate the diagnostic value of the old tuberculin test in a large number of nontuberculous and tuberculous adults. Because exact dosage is possible in the intracutaneous test, the authors employed the Mendel-Mantoux test rather than any of the cutaneous tests. They used Koch's old tuberculin in solutions of 1:10,000 and 1:100,000. These solutions were made with distilled water rather than with physiologic solution of sodium chloride. The tuberculin tests were made on 1,516 patients. Of these, 908 were free from tuberculosis and 608 had tuberculosis. It was found that with a tuberculin solution of 1:10,000, in a quantity of 0.1 cc, 21.8 per cent of positive reactions were obtained in the nontuberculous patients. On the other hand, 25.35 per cent of the tuberculous patients had negative reactions. If tuberculin dilutions of 1:1,000 are used in adults, there are almost 100 per cent positive reactions. If positive reactions are obtained with dilutions of 1:10,000 and higher, the sensitivity of the skin is increased. The negative outcome of the skin reaction does not permit conclusions regarding the allergic state of certain organs. The existence of tuberculosis cannot be demonstrated by means of an old tuberculin test. However, it may prove valuable for the desensitization treatment not only of tuberculosis but also of other disorders in which there exists a hypersensitivity to old tuberculin and which are of a predominantly allergic character (asthma, chronic arthritides and so on).

Munchener medizinische Wochenschrift, Munich

84 801 840 (May 21) 1937 Partial Index

- After Examinations in Postvaccinal Encephalitis M. Kaiser and J. Zappert—p. 801
 Relations Between Diseases of Gallbladder and Heart O. von Zimmermann—p. 803
 *Surgical Treatment of Painful Calcaneal Spur Seventy Cases H. Spitz—p. 807
 Retrodeviations of Uterus W. Weibel—p. 808
 *Fractures of Ungual Phalanx of Fingers A. Perschl—p. 810
 *Importance of Tryptophan Test for Diagnosis of Tuberculous Meningitis R. Pongratz—p. 814

Surgical Treatment of Painful Calcaneal Spur—Spitz shows that it is not merely the contact with the floor which makes the calcaneal spur painful, but particularly the traction on the plantar fascia and on the flexor digitorum brevis, which

have their point of attachment at the site at which the calcaneal spur develops. In persons who have a considerable amount of excess weight, the traction at this point is especially severe and painful. The operation recommended by the author severs subcutaneously, by means of a tenotome, the fascia and muscle, which are attached at the site of the spur. Eight days after this simple operation, the patients were able to step on their foot without feeling pain. The operation was performed in seventy cases, in two of which it was a failure. In discussing these two failures, the author stresses the importance of the differential diagnosis, pointing out that merely the roentgenologic demonstration of a spur does not justify the intervention but only the painfulness of the spur, which has been demonstrated by careful local examination.

Fractures of Ungual Phalanx—Perschl cites cases and reproduces roentgenograms which demonstrate that, in case of fracture of the unguinal phalanx, it usually takes from four to six months until the part of the bone which has been torn away is again united with the terminal phalanx. The pain, however, disappears at the latest after four weeks and the working capacity likewise has been completely reestablished at this time, in fact, some hard-working persons do not interrupt their work at all in the presence of such fractures. The author directs attention to this belated union in fractures of the unguinal phalanx in order to prevent the premature removal of the detached bone and to avoid unnecessarily prolonged invalidism.

Tryptophan Test in Diagnosis of Tuberculous Meningitis—Pongratz demonstrates that the tryptophan test is of great value in the differentiation between tuberculous meningitis and all nonpurulent meningitides and encephalitides. The tryptophan test is already positive during the beginning stage and thus permits a diagnosis during the prodromal stage. Moreover, the technique is simple and requires little time, so that the practitioner can perform it.

Zeitschrift fur Tuberkulose, Leipzig

77 321 456 (May) 1937 Partial Index

- Late Results After Filling of Upper Lobe J. Beitz—p. 333
 *Diagnosis of Diaphragmatic Paralysis After Tuberculous Changes in Children R. W. Muller—p. 339
 Fate of Patients Whose Pulmonary Tuberculosis Was Detected in Course of Group Examinations K. Ermisch—p. 353
 Decalcification Processes on Old Primary Foci H. Brugger—p. 363
 Pulmonary Tuberculosis in Simultaneous Extrapulmonary Tuberculosis W. Heesen—p. 367
 *Hepatic Function and Its Significance in Tuberculosis I. V. Balanescu and S. Oeriu—p. 377

Diaphragmatic Paralysis After Tuberculous Changes—Muller says that today diaphragmatic paralysis is usually diagnosed by means of roentgenoscopy, which reveals reduction in the motility and in the tonus of the diaphragm. The diaphragmatic hypotension usually becomes manifest in an elevation of the diaphragm, and, in case of a more severe paralysis, it is expressed in a paradoxical respiratory movement. The tuberculous processes that cause diaphragmatic paralysis are especially those of the hilus and its surroundings, that is, those which impair the phrenic nerve. However, in order to decide whether an impairment of the phrenic nerve is caused by a tuberculous process, the paralysis should develop during the process and later perhaps disappear again. To be sure, this is rarely possible and a probability diagnosis must be accepted. A paralysis of a different origin cannot be excluded if it does not disappear again. The author cites cases in which the etiologic diagnosis was impossible. He states that the incidence of typical diaphragmatic paralysis in tuberculous processes of the hilus is not definitely known but that at this clinic, at least, diaphragmatic paralysis was less frequent in these tuberculous processes than in diphtheria and poliomyelitis. However, he regards the milder forms of phrenic lesions as comparatively frequent in cases of tuberculous processes of the pulmonary hilus. He describes several cases in which appearance and disappearance of paralysis could be observed. In one child a paralysis developed twice on the same side. Successive exacerbations may also be observable in the paralytic process. In two instances, good motility of the diaphragm was observed in the presence of considerable elevation.

Hepatic Function and Tuberculosis—After discussing the value of the galactose test in the detection of hepatic disorders, Balanescu and Oeriu describe their studies on sixty

patients and ten healthy persons. They made comparative galactose tests with Bauer's method and with one devised by themselves. They place the night urine, which has been voided at 7 a. m., into a container marked A₁. Then the patient is given a galactose solution, which is prepared by dissolving in 200 cc of warm water a quantity of galactose equal to 0.5 Gm for each kilogram of body weight. The patient is not permitted other food during the subsequent two hours. The urine voided during the two hours following the intake of galactose is placed in a container marked A. Since urine contains a number of substances that reduce potassium permanganate solution, a quantity of thirtieth normal potassium permanganate solution sufficient to effect reduction is added to the urine. In healthy persons less potassium permanganate solution is required for the urine in container A than for that in container A₁, in patients with hepatic disturbances, however, more solution is required for A than for A₁. The reaction can be expressed in the following manner: A smaller than A₁ equals negative galactose reaction, A larger than A₁ equals positive galactose reaction. A tabular report indicates that the method developed by the authors is more sensitive than the Bauer method, for it discloses even the mild and incipient forms of hepatic disorders. Moreover, it requires less time and is thus less trying for the patient, and the laboratory technic is simple. The authors studied the hepatic function of tuberculous patients, particularly, in order to detect whether gold therapy causes hepatic diseases. They found that, although gold therapy does not as a rule produce hepatic disorders, it usually exacerbates an existing hepatic disorder. They advise that the hepatic function be tested before gold therapy is begun.

Zentralblatt für Gynäkologie, Leipzig

61 1153 1200 (May 15) 1937

Significance of Hormone Disturbances in Genesis of Mastopathia Cystica and of Epithelial Metaplasias of Cervix. L. Herold and G. Effkemann. —p. 1155

Action of Prolonged and Increased Treatment with Estrogen on Vaginal Mucosa of Different Animals. L. Herold and G. Effkemann. —p. 1161

Short Wave Treatment of Preeclampsia and Eclampsia. J. Emmrich. —p. 1165

Pregnancy in Presence of Intra Uterine Pessary. Case. Katharina Thomsen. —p. 1171

*New Symptom for Differentiation Between Inflammatory and Noninflammatory Genital Tumors. Particularly of the Left and Retro-Uterine Side. E. Schleyer. —p. 1176

Complemt Fixation Reaction in Diagnosis of Female Gonorrhea. A. Klamartsiuk. —p. 1181

Differentiation Between Genital Tumors—Schleyer describes a number of cases which illustrate the value of rectoscopic examination in the differentiation between inflammatory and noninflammatory genital tumors. He found that, if rectoscopy reveals a proctosigmoiditis or a sigmoiditis, the tumor of the genital adnexa is generally of an inflammatory character, whereas a normal mucosa in the sigmoid indicates a noninflammatory genital tumor.

61 1201 1264 (May 22) 1937

*Late Fatalities After Successful Implantation of Ureter into Intestine (According to Coffey). F. von Mikulicz-Radecki and C. Krauspe. —p. 1202

Combination of Ischiobulbocavernosus Plasty with Wide Levator Plasty. W. Stöckel. —p. 1224

Absence of Left Kidney in Simultaneous Absence of Left Adnexa. H. Huber. —p. 1229

Deformities of Urinary and Sex Organs. B. Szendi. —p. 1234

Fatalities After Implantation of Ureter into Intestine—Von Mikulicz-Radecki and Krauspe review the literature on the transplantation of the ureters into the large intestine according to the method of Coffey. They disagree with the authors, who regard this method as entirely without danger, for although the immediate results may be favorable, the later results often are not. They demand that, before resorting to Coffey's operation, the gynecologist should consider the following: 1. The transplantation of the ureters into the intestine results in an unphysiologic condition, which, in spite of the geniality of Coffey's technic, involves dangers for the kidneys. It does not produce an ideal condition but is only a makeshift, which should be resorted to only if all other methods of plastic reconstruction on the urethra and bladder have failed. 2. Coffey's operation is indicated chiefly in exstrophy of the bladder and in vesical carcinoma. In these conditions, Coffey's operation accomplishes favorable results and the reports about these

induced the gynecologists to resort to this operation also in gynecologic disorders. However, there are fundamental differences in exstrophy of the bladder, the kidneys are healthy and the same may be the case in vesical carcinoma, or, if not, the transplantation of the ureters is intended only for temporary relief, the ultimate prognosis of vesical carcinoma usually being unfavorable. But if the urinary incontinence is caused by vesicovaginal fistulas or by defects in the urethra, the ureters, renal pelvis and even the kidneys have usually become involved in an ascending infection which would be further promoted by the transplantation of the ureters into the intestine, even if by a special technic the infection from the intestine should be prevented. Following the description and evaluation of the different technics of Coffey's operation, the authors cite late fatalities after this operation, some of which were reported in the literature and two of which they observed.

Wiener Archiv für innere Medizin, Vienna

30 127 300 (May 29) 1937 Partial Index

Action of Dienecephalic Narcosis on Iodine Content of Blood in Exophthalmic Goiter. E. Fenz and K. Uiberrak. —p. 135

Experimental Studies on Cardiac Action of Quinidine. E. Flaum. —p. 161

*Leukemias with Tumor-like Growth. H. Fleischhacker and H. Seyfried. —p. 177

Value of Electrocardiogram in Differential Diagnosis of Acute Myocardial Infarct. N. von Jagie and O. Zimmermann-Meinzingen. —p. 187

Pathology of Angina Pectoris and of Cardiac Asthma. H. Siedek. —p. 197

Influence of Rhythmic Activity of Liver on Blood Sugar Regulation. W. Falta and K. Uiberrak. —p. 219

*Secretagogue Action of Extracts of Salivary Glands. Humoral Genesis of Gastric Secretion. R. Boller and W. Pilgerstorfer. —p. 231

Leukemias with Tumor-like Growth—Fleischhacker and Seyfried point out that some authorities still insist that leukemic disorders should be classified with the tumors, but that the greatest majority regard the leukemic metaplasias and infiltrations as essentially different from tumors. However, the literature reports cases in which tumor-like formations developed in diseases the leukemic character of which had been definitely established. In lymphomatosis, particularly in its aleukemic forms, there is a tendency to the development of tumor-like infiltrates in the skin and in the mucous membranes. In some cases these are the only symptoms, in that the typical enlargement of the spleen and lymph nodes develops later or not at all and the leukemic blood picture is entirely absent. If leukemia takes this course, it is necessary to consider in the differential diagnosis also the possibility of a lymphosarcoma. The differentiation of lymphosarcoma may encounter considerable difficulties. However, if the examination of blood and bone marrow fails to clarify the diagnosis, the puncture of the diseased lymph nodes or of the tumor may aid in the decision. In this connection the authors cite a case in which exploratory excision from the retroperitoneal and inguinal lymph nodes did not permit a differentiation between lymphogranulomatosis and lymphosarcoma, but puncture of the lymph nodes revealed the typical tumor cells. The authors further describe and discuss cases of leukemia in which tumor-like growths were observed. In the first case an operation was performed on the basis of the erroneous diagnosis of medullary carcinoma, but later the typical aspects of aleukemic lymphomatosis were observed. This case indicates that a hematologic test should be made even in apparently clear cases and it also shows that histologic examinations may produce erroneous results. In a second case the breast had been amputated on account of a rapidly growing tumor but the histologic examination revealed a lymphatic leukemic hyperplasia. In this connection the authors point out that a survey of a large hematologic material will disclose lymphomatoses which are accompanied by lymphatic-leukemic infiltration of the mammary gland. Following the discussion of several other cases, they conclude that a knowledge that leukemia may be accompanied by tumor formation is not only of scientific interest but also of importance for the correct treatment for it is inadvisable to subject patients with leukemia to surgical interventions.

Secretagogue Action of Salivary Glands—Boller and Pilgerstorfer say that in former studies on extracts of the salivary glands they were able to show that a secretion of gastric juice takes place following the injection of an extract from the parotid and the submandibular glands. They point

out that substances which act on the gastric secretion were detected also in other organs of the digestive tract. Comparative tests were made to determine whether the secretagogue substance of the salivary glands exerts the same action as the substances from other organs. Moreover, extracts from organs outside the digestive tract were tested for their secretagogue action. In summarizing their observations, the authors say that extracts of the salivary glands of cattle contain a substance which, when administered by way of the blood stream, stimulates the secretion of gastric juice. This substance, although exerting a histamine-like effect, is not identical with histamine but, presumably, is identical with the gastrin that was discovered by Edkins. The comparison of the extracts of the salivary glands with those of the mucosa of the stomach, the duodenum, the colon and the rectum revealed that these different extracts vary in potency. Most potent is the extract of the duodenal mucosa, then follow those of the stomach, the salivary glands, the colon and the rectum. With the exception of the liver, the organs outside the digestive tract do not contain secretagogue substances.

Finska Lakaresällskapets Handlingar, Helsingfors

SO 97 194 (Feb.) 1937

Contribution to History of Plastic Surgery in Finland II R. Faltin —p. 97

Reversible Hepatargia R. Elhstrom —p. 127

*Significance of Premature Delivery in Origin of Certain Cerebral Disturbances with Especial Regard to Graver and Milder Degrees of Mental Deficiency of Exogenous Cause T. Brander —p. 134

Pulmonary Endocarditis with Multiple Lung Infarcts Case W. Edgren —p. 151

Significance of Premature Delivery—Brander says that in his material of 370 premature children 14 per cent have an intelligence quotient above normal, 46 per cent normal and 527 per cent below normal. The main factors leading to mental deficiency in premature children are the low birth weight, birth complications (in which he includes not only complications such as asphyxia and abnormality in presentation but also complications in pregnancy [eclampsia and syphilis] and grave operative interventions in connection with delivery) and hereditary psychic taints. Of his cases 230 were without birth complications and poor psychic heredity, sixty-six with birth complications, fifty-four with poor psychic heredity but not birth complications, and twenty with both. The mental development was most favorable in the first group and least favorable in the last. Among the anomalies in delivery, primary or secondary pelvic presentation is of greatest significance in the mental development of the premature, because of its relatively high frequency in premature births. Of the psychic disturbances in heredit, alcoholism is most important in this material. The author presents tables to show that in the first group of 230 cases different degrees of defective mental development are due to different degrees of the same cause—birth weight, duration of delivery, rickets and enlarged tonsils, respectively. He says that not only the primary mortality and the percentage of pronounced cerebral defects can indicate the intensity of intracranial birth traumas, the frequency of milder degrees of intellectual inferiority should also be considered. Study of the causes and prophylaxis of the less marked forms of mental defects seems to him fully as important as that directed to the gravest forms of mental deficiency, since the former undoubtedly occurs more often, and there may further be a question as to who are more detrimental for society, the mildly defective at large or the hospitalized idiots.

Hospitaltidende, Copenhagen

SO 425 452 (April 20) 1937

Focal Infection, Especially Stomatogenic I. Origin and Development of Problem E. Jarlov and O. Brinck —p. 425

Orientating Investigations on Significance of A. Avitaminosis and Hyperparathyroidism in Origin of Urinary Calculi H. K. Lassen and M. Olesen —p. 435

*Inflow of Duodenal Contents into Bile Ducts C. I. Baastrup —p. 443

Inflow of Duodenal Contents into Bile Ducts—Since in Baastrup's case of entrance of contrast substance into the bile ducts jaundice had appeared after passage by the rectum of a stone of the size of a hazelnut, and since the choledochus was slightly irregular, he considers it likely that the stone had passed by way of the ampulla of Vater and not through a

fistula between the gallbladder and the duodenum and that an insufficiency of Oddi's sphincter had resulted. To the causes for inflow of duodenal contents into the bile ducts named by Titone he therefore adds insufficiency of Oddi's sphincter after passage of a calculus. He also says that, while he has seen only three reports of roentgenologically demonstrated air in the bile ducts, the phenomenon is not particularly rare.

SO 453 480 (April 27) 1937

*Treatment of Infections of Urinary Tract with Mandelic Acid E. Schnohr and C. Johansen —p. 453

Anencephaly S. Hansen —p. 469

Investigations on Distinction Ability Compared with History of Diet J. E. Poulsen —p. 473

Mandelic Acid in Treatment of Urinary Tract—In twenty-three of Schnohr and Johansen's patients with pyelitis and cystitis treated with mandelic acid, the urine became sterile in from three to thirty days. In the remaining cases administration of the drug had to be stopped, in two after two days, because of by effects. In eight later cases described with on the whole more marked infection of the urinary tract, calcium amygdalate was given, which has the advantage of being tasteless and of causing insignificant or no dyspeptic trouble. The therapeutic effect was fully as good as that attained with sodium amygdalate.

SO 481 524 (May 4) 1937

*Surgical Treatment of Leukokeratosis of Penis S. Hansen —p. 481

Pyelitis in Pregnancy P. Freudenthal —p. 504

Hyperproteinemia Dependent on Albumin Fraction J. E. Holst and J. E. Poulsen —p. 516

Rectal Hematoma—C. Avitaminosis S. With —p. 521

Surgical Treatment of Leukokeratosis of Penis—Hansen excises all the affected tissue in healthy tissue and stresses preservation of the skin of the prepuce, sewing it to the corona of the glans, so that part of the prepuce is kept. In cases with disorder of the glans he excises the thickened parts simultaneously with extirpation of the frenulum, and in six cases he resected the outermost part of the urethra at the same time and sewed the edges to healthy tissue, he thinks that the absence of more marked bleeding is due to his not having excised radically enough to reach healthy tissue, in a man, aged 77, there was recurrence after three years. In three cases with disturbance of the glans, radical treatment was given by electrocoagulation. He finds the results of his treatment of leukokeratosis of the penis satisfactory and recommends his procedure as the normal method. The observation period has been up to eight years. Carcinoma has not developed in any case, and the patients have been freed from their discomfort almost immediately after operation. After-examination of twelve patients showed no recurrence of the keratosis with localization on the prepuce and the glans. The five after-examined cases of urethral keratosis were also without recurrence. The postoperative cicatricial changes presented in three instances were easily treated by simple dilation with a bougie. He advises against incomplete operation for phimosis, which is followed by recurrence. Twenty-four cases are described.

SO 525 560 (May 11) 1937

*Investigations on Heart Lesions Due to Blunt Force W. Munck —p. 525

Sacral Extirpation of Rectal Cancer in Two Sessions T. Eiken —p. 538

Pneumo-Arthroradiography of Knee Joint Especially Technique O. Scheibel —p. 548

Osteochondritis Dissecans with Mouse Formation in Semilunar Bone J. Bak —p. 556

Heart Lesions Due to Trauma—In twenty-two out of thirty-two persons who died up to sixteen days after trauma due to powerful blunt force, mostly in automobile accidents, Munck found changes in the heart believed to be connected with the trauma. There were grave changes, especially in the cases with direct lesion of the thorax. Scattered small hemorrhages in the myocardium predominated. On microscopic examination there were also frequently subpericardial and subendocardial bleedings seen to extend into the underlying musculature. Distention of blood vessels, in spots or more diffuse was often seen, mainly in the small veins and in capillaries and often in the combination of dilated veins and contracted arteries. The author believes that, if certain patients had survived these hemorrhages might have affected the heart function and later caused clinical symptoms. Nine cases are described.

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THE FUTURE OF MEDICINE

CHAIRMAN'S ADDRESS

J H MUSSER, MD

NEW ORLEANS

It is rightly said that he who would attempt to foretell the future is either foolhardy or an ignoramus foolhardy because he lays himself open to future exposure of his fallibility, an ignorant person because it is obvious that he has no knowledge of the past and what has gone before. If this is true with regard to forecasting social, economic, militaristic, political or professional events and trends, how emphatically true it is in reference to any attempt to foretell what may take place in economic or scientific medicine in the approaching distance.

In the field of medicine, small and seemingly inconsequential discoveries or observations have effected totally unexpected changes in the science and practice of the profession. These developments brought about profound alterations in subsequent medical practice which the prophet of the day most assuredly could not, or would not, have appreciated. Striking examples might be cited. When Auenbrugger applied a physical principle well known to the mechanics of his day to the human body and Laennec made use of a hollow tube the better to hear the sounds generated in the chest, diagnosis of diseases above the diaphragm soon became a matter of relative exactitude and not a matter of speculation. Until the time of Louis, medical observation consisted of the recital of what appeared in the occasional and sporadic case. When this great clinician initiated statistical methods of analyzing disease and disease trends in a large series of cases he also effected a profound advance in medical knowledge. The science of immunity began with a chance observation of a keen-witted country doctor. What has been accomplished by the studies of Pasteur, by the hard fought but eventual triumph of Lister, needs no recounting, nor must it be forgotten that present day diagnosis, and to a limited extent treatment, is tremendously dependent on the random observation of a German physicist, Roentgen, that certain rays of light, which developed in a peculiar type of tube, were able to pass through practically any substance save a few of the heavy metals.

If such scientific studies and discoveries, seemingly trivial at the time of their conception, can bring about revolutionary changes in the art of diagnosis and treatment of disease, how can the astounding upheavals in the political world that have taken place since the World War have anything but a tremendous repercus-

sion on the social and professional life of every physician? In the last few years almost elemental changes in our form of government and in the care of the indigent ill presage still further alterations in our methodology of practice. Changes in mode of practice and in obtaining a professional living by the individual are truly predicated on mass change in government and in social outlook or point of view. Only scant suggestions of what might happen socially and economically in 1937 were presented to the physician of twenty-five years ago and but slight reason would he have had to foretell how rapidly medical practice would be changed in subsequent years.

Having pointed out the fallacies of prognostication not based on historical evidence and the difficulties of the soothsayer in a swiftly changing world, let me attempt to deal with (1) the scientific, (2) the economic and (3) the educational future of medicine in the light of contemporaneous conditions.

THE SCIENTIFIC FUTURE

It seems reasonably safe to write that there will be an ever increasing dependence on the ancillary sciences of medicine—more and more will the physicist, the physiologist or the biologic or physical chemist play his part in elucidating the mechanism of abnormal syndromes and symptoms or in discovering the cure of disease. It is through the assistance and the cooperation of scientists in these fields that the why and wherefore of disease will become known, or it is through the mediation of the medical man trained in these special branches of science that new facts and fresh information will accrue to the science of medicine. The chemist, the research and practicing immunologist and occasionally the clinician will develop new chemical compounds, new specific serums and new operative procedures which will cure or ameliorate disease to an extent undreamed of at the present time. To the bacteriologist and to the sanitarian will fall the lot of preventing infectious diseases before their inception.

The mechanization of medicine grows apace. Less and less attention is being paid to the study of the patient by the unaided senses and more and more are instruments and machines being called on to make the diagnosis or to follow the course of disease. From the initial blood count to the final elaborate instrumental set-up in the constant temperature, air conditioned room, the patient, for example, with peripheral vascular disease, will be studied also entirely by the physical measures.

In the near future specifics will be obtainable for many if not all diseases, which will be diagnosed by bacteriologic, pathologic, chemical or physical means. The implications of the character of practice of medicine in this future era are obvious.

THE ECONOMIC FUTURE

In any discussion of the economic future of medical practice, two great trends must be noted. The first has to do with the ever growing socialization of the nation as a whole. There is now, and it will undoubtedly be greater in the future, a leveling out process whereby the large incomes are being restricted by taxation. Applied to the medical profession, this means that the large incomes of the occasional successful consultant or operator will approach more closely the level of the average professional income. The benefits accruing to the medical profession from such a change lie in the fact not that large incomes are to be deprecated or disdained but that certain questionable features in obtaining large incomes will be deleted, and no longer will the sole aim of many physicians be the accruing of a modest fortune. The second trend has to do with the socialization of medicine as a whole. This is an ever menacing terror to many physicians, but I venture to predict that if it comes about that medicine is completely regimented and totally under bureaucratic control, the care of the patient will be adequate, the life of the doctor will be interesting and happy, his income will be sufficient for his needs, and opportunity will not be lacking for the ambitious to advance. To me, and to most doctors, the idea of a future socialized medicine is a step backward. We look on it with abhorrence. We do not believe that it will help the patient and we feel confident that it will destroy professional initiative and self reliance, but most of us know in our hearts that, while methods may change, human nature is usually the same from generation to generation. The will and ability to enjoy life are inherent in the individual. He will get pleasure, profit and satisfaction out of doing a job well whether under the egis of an official or under his own personal supervision.

THE EDUCATIONAL FUTURE

I have speculated on the future of medicine in general and have hinted about the rather nebulous chimera of the distant future. Now I will present some ideas dealing specifically with internal medicine and present some thoughts concerning the immediate future of this specialty. Necessarily it will be impossible to do more than touch lightly on a few phases of the education of the medical undergraduate and graduate student in his relation to that which is to come.

As a result of the recent survey of the medical schools under the joint auspices of the Council on Medical Education and Hospitals of the American Medical Association, the Federation of State Medical Boards of the United States, and the Association of American Medical Colleges, there has been a reduction of 11 per cent in two years in the number of medical students matriculating at the various institutions teaching medicine. This result has been obtained by a strict limitation of the number of entering students to those for whom the laboratory and clinical facilities of the school were sufficient for the efficient training of the prospective physician. It is to be anticipated that the young physicians, selected from a large group of candidates for their scholastic ability, their personality and their hereditary and moral standards, will be an outstanding group. To these picked men may safely be assigned the future of medicine. That they represent a selected group which has passed the rigid requirements of medical instruction will enhance the solidarity of the profession and by their accomplishments encourage a friendly, but competitive, spirit of doing better work than the other man.

Within the past year a board has been set up which has to do with the certification of physicians qualified to practice the specialty of internal medicine. This board, as do the eleven other special boards, functions directly under the standards set up by the Council on Medical Education and Hospitals. A man who is certified by these boards as being competent in his special realm of medicine has had a full and complete training the adequacy of which is investigated by examination. Thus, in the near future, self-styled and imperfectly trained specialists who are their own judges of the extent and amount of knowledge they may have in a given branch of medicine will be eliminated. The public will be protected by certification if nothing else is obtained by this step. I have little sympathy for those who object to the principles and to the procedure, of certifying of specialists. Surely their good sense must tell them that this is a reform, a step in advance, which will do away with incomplete and deficient service to the public, which is in no position to acquaint itself with the merits or demerits of him it calls on to save an eye, to remove a tumor or to diagnose an early tuberculous infection. Every advance in medicine has been fought by a certain misguided few, from those in recent years who have objected to certification boards to those who opposed the reformation of medical education thirty years ago. Perhaps one reason that medical practice is as free as it is from governmental interference in this country at the present day is that the medical profession itself has been the first to see its weaknesses and the first to initiate self-corrective procedures.

A real problem presents itself in how best now to train the future specialists in internal medicine and how best to make use of existing facilities. Internal medicine is a broad field and knowledge of its finer niceties of diagnosis and treatment cannot be obtained in a day. It would seem advisable for medical schools to enlarge their horizon and to set up some mechanism whereby a man may secure graduate training in clinic and laboratory. This could be done by increasing materially the number of so-called fellowships in the various departments of the school. The fellow in clinical medicine should be paid a small, livable salary and in return for this and for the opportunity to learn he should be expected to do a certain minimal amount of routine teaching and class work. There are other opportunities for training. The larger hospitals could, as many do, readily establish advanced residencies where, under the supervision of a well trained staff, satisfactory training could be obtained in special branches. The release of members of the staff from routine by the advanced residents would enable the older men to give time to aiding and helping in the instruction of the younger. Still a third method suggests itself, the preceptorship. Many a man now in middle life who has had the opportunity of working under and with a good doctor realizes that much of what he knows has been obtained from his superior. It is suggested that many a mature clinician could take under his wing for a few years the budding clinician and in return for a small salary, for guidance in reading and for instruction in the practical application of theoretical information, the neophyte would relieve him of much routine and hackneyed detail. By one of these three methods of teaching it is believed that the qualified internist of the future will evolve.

SUMMARY

I have suggested how medicine of the future will develop. Scientifically it will undoubtedly progress. Economically and socially the future is less clear, but

it can be safely assumed that the delights of accomplishment and the fascination of the problems of medicine will ensure happiness to its practitioners. Educationally the future is bright. Undoubtedly many from a well trained group of men will take advantage of the facilities now existing and those to be established to qualify themselves as experts in limited fields of practice.

1430 Tulane Avenue

LATENT GONORRHEA AS A CAUSE OF ACUTE POLYARTICULAR ARTHRITIS

WESLEY W. SPINK, M.D.
AND
CHESTER S. KEEFER, M.D.
BOSTON

It is generally accepted, though specific data in medical literature are lacking, that gonococcic infections may remain dormant for years, and then, without history of reinfection, all the signs and symptoms of an acute gonorrhea may appear. Fraser and Dye¹ recently called attention to this in a report on a patient who had had a gonorrheal urethritis at the age of 20. Fifty years later, following a prostatectomy, there was an acute exacerbation of the gonorrheal urethritis.

It appears to be little known that latent gonococcic infections may have exacerbations with or without evidence of local genital lesions. Gonococcic arthritis is one of the most common of these infections. During the past three years we have studied seventy individuals with acute gonococcic arthritis. Of considerable interest were the observations on thirteen of these patients, who had a sudden onset of acute, polyarticular arthritis without symptomatic evidence of localized gonococcic infections of the genito-urinary tract. In several the arthritis was preceded by an acute upper respiratory infection, so that they were at first considered to have acute rheumatic fever. Four of these thirteen patients were female patients who developed acute gonococcic arthritis during pregnancy. At this time we present observations on these thirteen patients in order to emphasize the following: (1) the importance of latent gonococcic infections as a cause of acute arthritis, (2) a discussion of possible factors that may precipitate acute attacks of gonococcic arthritis, (3) diagnostic aids for distinguishing acute gonococcic arthritis from other types of polyarthritis, especially acute rheumatic fever.

It is well known that women may have an acute gonococcic infection of the genito-urinary tract with few or no symptoms. Ten of the thirteen patients were women who were ignorant of any gonococcic infection before entrance to the hospital. The cause of their arthritis was in doubt until it was found that each was harboring the gonococcus either in the joints, tendon sheaths or the genito-urinary tract. In two of the three men studied, we were unsuccessful in demonstrating any gonococcic infection of the genital tract. One stated that he had a gonococcic urethritis eighteen months before entry and the other five years before. The

third man did not admit of ever having a urethral discharge, but after two vigorous prostatic massages the gonococcus was obtained. Gonococci were isolated in pure culture from the joints of the three men and from five of the eight women. Gonococcus complement fixation tests done on the blood or synovial fluid of twelve of the thirteen patients were positive in nine and negative in three.² The significance of this will be discussed presently.

When a young person and, as Ferris and Myers³ have recently shown, elderly patients have a sudden onset of acute polyarticular arthritis, acute rheumatic fever must be seriously considered. This is especially true if the pains in the joints have been preceded by a sore throat or tonsillitis. Seven of the thirteen patients studied were at first thought to have had acute rheumatic fever because their arthritis was preceded by a severe, acute upper respiratory infection. There appeared to be no symptomatic evidence of a localized gonococcic infection.

In the following case a severe attack of tonsillitis was followed by an acute polyarthritis. Although the patient's hymen was intact, it was later proved that she had an acute gonococcic urethritis without symptoms, and cultures from the pus aspirated from a joint yielded gonococci.

CASE 1.—M. C., a woman aged 21, single, Italian, complained of a severe sore throat with chills and fever ten days before entry to the hospital. Two days later she had pain and swelling of both knees and swelling of the dorsum of the right hand, index finger and right shoulder. She later developed difficulty in swallowing because of enlarged cervical glands. There was no previous history of arthritis or genito-urinary symptoms. Physical examination showed her to be well developed and nourished, and in acute pain. Her throat was injected and the tonsils were enlarged and cryptic. The cervical nodes were enlarged and tender to palpation. The heart, lungs and abdomen were within normal limits. The right knee joint was swollen, red and tender, with evidence of fluid present in the joint space. There was pain on motion of the right hand and right shoulder. There was no vaginal discharge, and the hymen was intact. Laboratory data revealed occasional red and white blood cells in the urinary sediment. The blood showed a slight hypochromic anemia and leukocytosis. The Kahn test on the blood serum was negative for syphilis, and two gonococcus complement fixation tests were negative.

Because the polyarthritis was preceded by a severe sore throat, the diagnosis of acute rheumatic fever was entertained. The pains in the joints did not respond well to salicylates. The right knee, which continued to show evidence of fluid, was aspirated and a pure culture of gonococci was obtained. Close questioning of the patient revealed a story of incomplete coitus several months before. Gonococci were obtained in pure culture from the urethra. The knee joint was opened and irrigated, and, after orthopedic measures, she made an excellent recovery.

The foregoing illustrates two points of value in the diagnosis and treatment of acute arthritis. First, when a patient with acute polyarthritis fails to show improvement with large doses of salicylates, the joint symptoms may not be a manifestation of acute rheumatic fever. Second, it is of great value to aspirate and culture the fluid from any joint with a demonstrable effusion to aid further in the diagnosis.

The necessity of differentiating, early in the disease, acute rheumatic fever from gonococcic arthritis from the point of view of treatment is emphasized by the

From the Thorndike Memorial Laboratory, Second and Fourth Medical Services (Harvard), Boston City Hospital and the Department of Medicine, Harvard Medical School.

¹ Fraser, C. K., and Dye, W. J. P. Acute Exacerbation of Latent Gonorrheal Urethritis After Fifty Years Following Prostatectomy. *J. A. M. A.* 105: 269 (July 27) 1935.

² The tests were done by the Wassermann Laboratory of the Department of Health of the Commonwealth of Massachusetts. Dr. William A. Hinton, director.

³ Ferris, E. B. Jr., and Myers, W. K. Initial Attacks of Rheumatic Fever in Patients Over Sixty Years of Age. *Arch. Int. Med.* 55: 809 (May) 1935.

following case This patient was also unaware of any localized gonococcal infection and developed polyarthritis following an upper respiratory infection She was treated for three weeks for acute rheumatic fever, and at that time aspiration and culture of fluid from a knee joint revealed gonococci The inflammatory process had continued for so long that there was considerable destruction of the tissues of the knee joint, and permanent ankylosis resulted in spite of operative measures

CASE 2—D M, a white woman aged 25, a Canadian, developed an acute upper respiratory infection three days before entry The evening of onset she noted twinges of pain in her left knee, both ankles, elbows, wrists and all the fingers She felt feverish and thirty-six hours later observed several widely separated, red "bumps" on her trunk and extremities The day before entry she noted redness and swelling of the left knee and of one finger on both hands She denied venereal infection by name and symptom and had no leukorrhea or genito-urinary symptoms

The patient was well developed and nourished and appeared acutely ill She complained of pains in the joints Positive signs were limited to the joints, which included a swollen, red and hot left knee with evidence of an effusion into the joint space There was swelling and pain of the second proximal joint of the left hand and of the second metacarpophalangeal joint of the right hand There was no vaginal discharge, tenderness or masses in the vaults Laboratory examination revealed an occasional white blood cell in the urine The hemoglobin and erythrocyte count were within normal limits There was moderate leukocytosis There was a negative Kahn test for syphilis

She responded poorly to salicylates Because of continued joint pains and fever, a gonococcus complement fixation test was done on her blood and reported as positive A second test was positive, and a cervical smear revealed gram-negative intracellular diplococci At the end of the third week in the hospital the left knee was aspirated and a pure growth of gonococci obtained from the fluid Her knee was opened and the joint cavity washed out She had a prolonged period of convalescence, and on discharge from the hospital there was only 10 degrees motion of the knee This was due in large part to an ankylosis of the patella to the femur

There were two male patients who had an acute upper respiratory infection followed by arthritis, and they were suspected of having acute rheumatic fever Both had had a gonococcal urethritis in the past, but on entry to the hospital there was no urethral discharge even after vigorous massage In both, an early diagnosis of gonococcal arthritis was made by aspiration and culture of gonococci from the synovial fluid The gonococcus complement fixation tests of the blood were negative in both The following is the case history of one of these patients

CASE 3—I R, a man aged 56, Jewish, became thoroughly chilled and wet six days before entry to the hospital The following day he was feverish, developed a cough, and remained in bed for three days Two days before entry, he again exposed himself to severe weather and became chilled Following this he felt feverish and perspired profusely The day before entry he developed excruciating pain in the right knee and both feet At the same time he noted a purplish rash on both legs and thighs He stated that he had rheumatism twenty years previously with all joints involved, which lasted several months He had had a gonococcal urethritis eighteen months previously but had had no discharge or symptoms since then

The patient was well developed and nourished and he appeared acutely ill There was present on the skin overlying the trunk, extremities and face a dull red, macular eruption not fading on pressure A few lesions appeared petechial In some areas the lesions were small elevated papules The right knee was painful to motion, with evidence of an effusion into the joint There was pain on pressure over the plantar surfaces of both

feet The prostate was of normal size and consistency and not tender The urine was normal The blood showed a slight hypochromic anemia with leukocytosis A blood culture showed no growth Both a Kahn test and a gonococcus complement fixation test on the blood were negative

On the day following admission, fluid was aspirated from the right knee, and gonococci were obtained in pure culture. The knee was opened and washed An uneventful convalescence followed, with complete recovery of function of the right knee.

In the foregoing cases upper respiratory infections preceded an attack of gonococcal arthritis, while in the following case the antecedent infection was of a different nature This patient had a cellulitis of the foot, which was followed by an acute polyarthritis and treated as acute rheumatic fever until a pure culture of gonococci was isolated from a tendon sheath

CASE 4—P F, a woman aged 28, single, was in good health until two weeks before entry, when she developed a blister on the right heel because of an ill fitting shoe This was followed by swelling, redness and pain of the entire right foot, and she was treated by her physician for cellulitis Three days after the onset of this swelling she developed pain and swelling of the left wrist, and a week later there was a similar involvement of the right wrist Just before entry, the fingers of both hands became stiff and painful

The patient was well developed and slightly obese She complained of pain in both wrists The nose and throat were reddened with a slight mucopurulent discharge The heart and lungs were within normal limits There was pitting edema, heat and redness over the dorsum of the right hand The ulnar aspect of the left wrist was very tender and slightly red The right heel showed a healing ulceration with evidence of a previous swelling Vaginal examination showed no discharge or tenderness Laboratory data included six examinations of the urine, and all of them were within normal limits The blood hemoglobin and erythrocyte count were normal There was a slight leukocytosis The Kahn test of the blood was negative

At first it was thought that the patient had an atypical attack of acute rheumatic fever following a streptococcal infection of the foot Five days after entry, a small fluctuant area over the back of the right wrist was observed This was aspirated with a fine needle, and a pure culture of gram negative diplococci was obtained which proved to be gonococci by agglutination tests A gonococcus complement fixation test of the blood was negative at first but positive on two later examinations An examination of material from the uterine cervix showed gram-negative intracellular diplococci She recovered from the arthritis completely following simple orthopedic measures

There were four women who had gonococcal arthritis as a complication of pregnancy It is recognized by obstetricians that pregnancy may cause latent pathologic processes, including infections, to increase in severity Gonococcal infections appear to be no exception As far as could be determined, there was no evidence that these four patients had acute symptoms due to a localized gonococcal infection prior to their entry to the hospital Three of the patients were from three to four months pregnant when they developed a severe polyarthritis The gonococcus was isolated in pure culture from the uterine cervix of each of the three patients and from the hip joint of one One patient died of bronchopneumonia following an operation on a joint The fourth patient presented considerable interest because she developed a gonococcal septicemia with a septic polyarthritis following a self-induced abortion She had no knowledge of symptoms referable to a previous localized gonococcal infection Her clinical history was as follows

CASE 5—H D, a woman aged 28, married a housewife, was the mother of five healthy children She entered the hospital because of uterine hemorrhage following a self induced abor-

tion. A dilation and curettage was done and after two weeks she left the hospital. Two days after discharge from the hospital she developed chills, fever, and pain in the right wrist. At the same time she suffered from low abdominal pain and had a profuse vaginal discharge. Two weeks later she observed a skin rash involving her body, face and extremities. Three weeks after the onset of her illness she entered the hospital.

The patient was emaciated and appeared chronically ill. On the skin of the face, hands, legs and feet there were varying sized maculopapular and vesicular lesions. She had bilateral low abdominal tenderness on palpation. Both wrist joints and the fifth finger of the left hand were swollen and painful on motion. The uterine cervix was enlarged and boggy, and there was tenderness in both vaults. Laboratory data showed the urinary sediment consistently loaded with white blood cells. She had a marked hypochromic anemia and leukocytosis. The Kahn test on the blood was negative. The gonococcus complement fixation test was negative on admission, doubtful the third week after entry, and positive the fifth week. The cervical smear revealed gram-negative intracellular diplococci. A gram-negative diplococcus was isolated from the blood stream on three occasions, which proved to be gonococci by agglutination and fermentation tests.

When it was learned that the blood culture showed gram-negative diplococci, a fine needle was inserted into the right wrist joint and a drop of purulent material aspirated. Cultures of this yielded gonococci. For the first ten days she had chills and fever every other day. Cultures of material from the skin lesions were taken and stained but no organisms were seen. In the fourth week she showed marked improvement following a blood transfusion. On discharge from the hospital, she had an ankylosis of the right wrist joint.

The following case presented most difficult therapeutic and diagnostic problems. The patient entered the hospital in diabetic coma and developed signs of bronchopneumonia. This was followed by a sudden onset of acute polyarthritis with a high fever. The joint symptoms were not alleviated by large doses of salicylates. After several weeks had elapsed, a gonococcus complement fixation test was done and reported as positive. Two months after entry, after repeated attempts, a culture of gonococcus was obtained from a joint.

CASE 6—K W, a Negro aged 17, single, entered the hospital in coma of eighteen hours' duration. One month before, he was said to have noted loss of weight, polyuria and polydipsia. He was markedly undernourished and dehydrated. His throat and mouth were dry. The lungs, heart and abdomen were within normal limits. The reflexes were sluggish. Laboratory data revealed a brick red test for sugar in the urine. The red blood count and hemoglobin were normal. There was moderate leukocytosis. The blood sugar was 494 mg per hundred cubic centimeters. The carbon dioxide combining power was 9.8 volumes per cent, and the blood nonprotein nitrogen was 60 mg per hundred cubic centimeters.

He was given large amounts of fluid and insulin and in the course of forty-eight hours gradually recovered consciousness. At the end of the first week he had fever and signs of consolidation at both lung bases, confirmed by x-ray examination. The signs in the lungs cleared, but he began to complain of joint pains and he continued to have fever. He was suspected of having acute rheumatic fever, which was supported by slight electrocardiographic changes. The joint pains were not relieved by salicylates, and a gonococcus complement fixation test done shortly after was reported as positive. Two subsequent tests were also positive. There was no evidence of an acute urethritis, and he had no knowledge of any previous urethral discharge. A prostatic massage yielded a few drops of purulent material, which contained gram negative intracellular diplococci. Four and one-half weeks after entry to the hospital, his temperature was spiking at 102 to 103 F. Coincident with the second prostatic massage, his temperature dropped to a normal level and remained there. The left subacromial bursa was aspirated and purulent fluid obtained but the culture was sterile. Eight weeks after entry, the right elbow was opened surgically

and purulent fluid was obtained. Culture of this showed gram-negative diplococci, proved to be gonococci by agglutination with immune serum. Following this, he recovered rapidly with his diabetes controlled by diet and insulin. There was slight limitation of motion of the right elbow on discharge from the hospital.

The next case illustrates that acute gonococcal arthritis may appear following a pelvic operation in a patient in whom it was not possible to obtain a history of a gonococcal infection, and no organism could be isolated from the pelvic organs.

CASE 7—C C, a white woman aged 54, married, a housewife, complained of the gradual development of a "dragging down sensation" in the pelvis, with a presentation of the cervix at the introitus. Coincident with this there appeared a yellowish, "scalding," vaginal discharge. She had moderate dysuria and frequency. Her menstrual periods had been regular until one year before entry, when they ceased. There was no evidence in her past history indicating the presence of a gonococcal infection. Her husband was living and well, and she had three healthy children.

The patient was well developed and nourished. She appeared much older than her stated age. Several teeth were missing, only carious stumps remaining. Her lungs were clear. The heart was within normal limits. Blood pressure was 150 mm of mercury systolic and 90 diastolic. The abdomen was slightly distended. Rectal examination revealed a uterus of normal size and movable, in second degree retroversion. On straining, the cervix presented itself at the introitus. The mucous membrane was intensely injected and there was a profuse discharge. There was thickening of the anterior vaginal wall. The skin of the adjacent thighs was red and thickened. The cervix was lacerated and hypertrophied. Laboratory data showed that the urinary sediment contained numerous white blood cells. A Hinton test of the blood serum was negative for syphilis.

Three days after entry a complete plastic operation was done, which included repair of the cervix, an anterior colporrhaphy, a posterior perineorrhaphy, and an Olshausen suspension of the uterus. When the peritoneal cavity was opened, the tubes appeared normal and the ovaries small and sclerotic. The pathologist's report on the cervix was "cervical erosion, chronic endocervicitis."

The patient had an uneventful postoperative convalescence and was allowed out of bed on the twelfth day after operation. Because of a tachycardia without symptoms, she was put back to bed. Two days later a tender mass appeared in the right groin. She had a temperature of 100 to 101 F. This was considered to be due to a thrombophlebitis of the right external saphenous vein. Four days later, or on the eighteenth day after operation, she had pain and slight swelling of the left knee, which increased in severity within the next few days. Three days after the onset, an x-ray examination of the knee was reported as giving results within normal limits. At this time, fluid was aspirated from the left knee joint. Culture of this fluid yielded a pure growth of gram-negative diplococci, which proved to be gonococci by fermentation and agglutination tests. At this time she also noted pain on motion of the fingers of the left hand and of the left wrist. A cervical culture at this time showed no gonococci. During the next week she continued to have a febrile course. The swelling and pain of the left knee persisted with complete limitation of motion. Fluid was aspirated from the joint seven days after the initial aspiration. Because the consistency of the fluid was much thicker than previously, and because of the continued presence of gonococci, an open drainage and lavage of the knee joint was done. Following this the wound was sutured tightly and skin traction put on the leg. Following the operation, the pain and swelling of the knee subsided and forty-three days later the patient was discharged from the hospital with no limitation of motion of the left knee.

In brief, then, a woman who gave no history of a gonococcal infection in the past was operated on for prolapsed uterus. Eighteen days later, acute arthritis of the left knee joint appeared which was proved to be due to gonococcal infection. Complete recovery followed adequate treatment.

This case illustrates that gonococcal arthritis may appear with no demonstrable focus in the genito-urinary tract, and it further emphasizes the importance of the examination of the synovial fluid in all cases of arthritis having an effusion into the joint spaces

COMMENT

These cases illustrate the well known fact that gonococcal arthritis may be present without any symptoms referable to the genito-urinary tract. Of still greater significance are the cases in which there are no symptoms or signs of a local lesion in the genito-urinary tract but gonococci can be isolated from the synovial fluid. It is a matter of common experience that women may develop acute gonococcal polyarthritis without any symptoms or signs referable to the genito-urinary tract, but the fact that the original focus of infection may disappear and arthritis arise later is not generally appreciated. We emphasize this point in order to encourage the bacteriologic examination of synovial fluid.

We should also like to call attention to the observation that the appearance of arthritis may be preceded by an acute upper respiratory infection or an acute infection elsewhere, or it may come on during pregnancy. In eight of the thirteen cases the arthritis was preceded by an acute upper respiratory infection, in four it appeared during pregnancy, in one it followed an acute cellulitis of the foot, and in one it developed soon after a pelvic operation.

In the diagnosis of gonococcal arthritis we have found the following examinations of most importance: (1) examination of the synovial fluid for micro-organisms, (2) the gonococcus complement fixation test on the blood, (3) the isolation of organisms from possible foci of entry, (4) the course of the disease.

In our experience with forty-two samples of synovial fluid from patients with gonococcal arthritis the culture was positive in sixteen. Since synovial fluid does not contain organisms in all cases, it is necessary to rely on other examinations, such as the patient's history, clinical course, the finding of gonococcal infection elsewhere, and the gonococcus complement fixation test. This test was done on the synovial fluid of thirty-five patients. It was positive in twenty-one cases, negative in thirteen and doubtful in one.

It is of some interest that in six synovial fluids with organisms the gonococcus complement fixation test was negative. The reason for the sterile synovial fluid in some of these cases is the presence of a high antibody titer. This aspect of the synovial fluid examination will be discussed in detail elsewhere.

In fifty-four cases of gonococcal arthritis the gonococcus complement fixation test was positive on the blood in forty-seven, negative in five and doubtful in two. This test may show a positive reaction as early as the first week of the disease and remain positive as long as two years after all symptoms have subsided. In suspected cases of gonococcal arthritis it may be necessary to do repeated gonococcus complement fixation tests frequently as a positive reaction may not be obtained until several weeks after the onset of symptoms.

SUMMARY AND CONCLUSIONS

Observations on thirteen patients with acute polyarticular arthritis of gonococcal origin emphasize the importance of latent gonococcal infections as a cause of acute arthritis. In seven of these cases, joint symptoms were preceded by an acute upper respiratory infec-

tion so that acute rheumatic fever was suspected. There were several in the group without clinical or laboratory evidence of a localized genito-urinary gonococcal infection. Various methods of diagnosis were employed and have been outlined with particular reference to the value of a bacteriologic examination of synovial fluid and to the gonococcus complement-fixation test.

Picrotoxin in the Treatment of Barbiturate Poisoning

REPORT OF CASE

EDWARD M. KLINE, M.D.
Instructor, Department of Internal Medicine

EDWARD BIGG, M.D.
Resident, Department of Internal Medicine
AND

H. A. K. WHITNEY, Ph.C.
Chief Pharmacist, University Hospital

ANN ARBOR, MICH.

Picrotoxin was discovered by Boulay in 1812¹ but it was not until 1847 that a rational use for it was suggested by Tschudi,² when he expressed the opinion that it might be a suitable antagonist to morphine. In 1875 J. Crichton Browne³ published a series of papers in the *British Medical Journal* dealing exhaustively with the pharmacology of the drug and in particular suggested its use in the treatment of chloral hydrate poisoning. A review of the subsequent literature gives little evidence that picrotoxin enjoyed any popularity in these connections. However, in recent years it has once more received attention following the proposal of Maloney, Fitch and Tatum⁴ that the drug be used as an antidote in barbiturate poisoning.

RECENT LITERATURE

Having demonstrated in their first paper⁴ that picrotoxin was of value in antidoting poisoning by the shorter acting barbiturates, Maloney and Tatum⁵ in a second report dealt with those of the longer acting type. The conclusions in the publications did not differ materially. These were, in brief, that (1) picrotoxin shortened the recovery time following the administration of sublethal doses of these compounds, (2) cures were effected in the case of lethal doses within certain limits, and (3) beyond these limits the life of the animals was prolonged.

Comparison of the effectiveness of picrotoxin and other analeptics as antidotes in acute experimental barbiturate poisoning have produced encouraging and consistent results. Maloney, in evaluating the efficiency of picrotoxin and strychnine⁶ and of picrotoxin, strychnine and cocaine⁷ as antidotes in barbiturate poisoning in the rabbit found a higher percentage of recoveries following the use of picrotoxin than for

From the Department of Internal Medicine, University of Michigan Medical School.

1 Solis Cohen, Solomon and Githens, T. S. *Pharmacotherapeutics*. New York: D. Appleton & Co., 1928, p. 1569.

2 As quoted by Koppanyi.³⁰

3 Browne, J. C. On the Actions of Picrotoxin and the Antagonism between Picrotoxin and Chloral Hydrate. *Brit. M. J.* 1: 409-411 (March 27), 442-444 (April 3), 476-478 (April 10), 506-507 (April 17), 540-542 (April 24), 1875.

4 Maloney, A. H., Fitch, R. H. and Tatum, A. L. Picrotoxin as an Antidote in Acute Poisoning by the Shorter Acting Barbiturates. *J. Pharmacol. & Exper. Therap.* 41: 465-482 (April) 1931.

5 Maloney, A. H. and Tatum, A. L. Picrotoxin as an Antidote in Acute Poisoning by the Longer Acting Barbiturates. *J. Pharmacol. & Exper. Therap.* 41: 337-352 (March) 1932.

6 Maloney, A. H. Comparative Studies in Barbiturate Antagonism with Strychnine and Picrotoxin. *J. Pharmacol. & Exper. Therap.* 45: 267-268 (July) 1932.

7 Maloney, A. H. A Comparative Study of the Antidotal Action of Picrotoxin, Strychnine and Cocaine in Acute Intoxication by the Barbiturates. *J. Pharmacol. & Exper. Therap.* 40: 133-140 (Oct.) 1933.

either of the others tested. Eleven typical members of the barbiturate group were used in both studies.

More recently Barlow⁸ reported on the use of a somewhat larger series of analeptics as antidotes to sublethal and lethal dosages of pentobarbital, chloral hydrate and tribromethanol. He summarizes his results as follows:

The order of practical usefulness of the several therapeutic measures, judged by the degree of improvement in respiration, circulation and reflex excitability, degree of shortening of the usual stages of recovery and the margin of safety of effective dosages of each agent from high to low is as follows: picrotoxin, metrazol, ephedrine, artificial respiration, "coramine," "icoral," strychnine, and caffeine sodio-benzoate.

Koppanyi⁹ and his associates found that the action of picrotoxin in antidoting barbiturate poisoning is both cortical and medullary. When minimal anesthetic doses of the barbiturate have been given, this cortical awaken-

ing the administration of picrotoxin is a slow but gradual rise in the blood pressure and respiratory rate to normal levels.

CLINICAL DATA

While experimental evidence in favor of the use of picrotoxin in barbiturate poisoning has rapidly accumulated (no attempt has been made to mention all experimental literature) there has been a conspicuous absence of detailed papers dealing with its clinical application. Arnett's¹⁰ case is difficult of interpretation since the patient, a 3 year old child, was not known to have taken a fatal dose and the picrotoxin was supplemented by other therapeutic measures. Koppanyi^{9b} in his presentation of clinical material describes two cases of severe poisoning treated with picrotoxin alone. Recovery was prompt in one instance and was well established in the other, when the patient succumbed to bronchopneumonia.

Details of Clinical Course

Time	Temperature (Rectal)	Pulse	Respirations	Blood Pressure	Medication	Clinical Notes
3/10/37 12 30 a m	97.5	70	20	80/70	Gastric lavage with sodium bicarbonate mucus aspirated from throat	Patient completely flaccid, responds to extreme pain stimuli, pupils constricted, reflexes absent and skin cold, laboratory examinations negative
1 20 a m	98.0	70	20	80/70	First subcutaneous dose of picrotoxin* 0.003 Gm. this represents mode of administration and quantity of all subsequent doses	
3 40 a m	98.2	80	20	92/70	A total of five doses of picrotoxin has been given, approximate interval between doses 30 minutes. Intravenous 5% dextrose begun	Condition unchanged
5 10 a m	98.6	82			A total of ten doses of picrotoxin has been given, approximate interval between doses (from fifth to tenth) 18 minutes	Generalized muscular twitchings with spasticity and resistance to passive motion. Slight stimulus causes clonic convulsions, all reflexes hyperactive, this state persisted for 15 minutes
4 30 p m	101.5	105	24	120/70	A total of twenty three doses of picrotoxin has been given, approximate interval between doses (from tenth to twenty third) 30 minutes. final dose total amount given 0.069 Gm.	Patient moves about spontaneously, general condition improved, reflexes continue to be slightly hyperactive
3/11/37 6 00 p m	102.8	115	30	120/80	Completion of intravenous dextrose, total amount given 7.260 cc	Bilateral bronchopneumonia demonstrated by roentgenogram W B C 13500
3/12/37 9 00 p m	102.0	100	20	110/70		Completely oriented, muscles tender to palpation, marked improvement throughout day
3/12/37 9 00 a m	99.0	76	20	120/75		Patient feels fine and has no complaints, physical examination entirely negative W B C 7400

* Ampoules Picrotoxin Lilly, Eli Lilly & Co. Each 1 cc ampule contains 0.003 Gm of picrotoxin.

ing effect is seen frequently in animals and in man within a few minutes after the intravenous administration of the antidote. The concentration of barbiturate in animals so awakened in most instances does not differ from that in depressed controls. The implication is, therefore, that picrotoxin does not hasten the destruction of barbiturate but rather that the two are physiologic antagonists. It is the impression of Koppanyi and his associates that the more normal physiologic state of the awakened animals (and presumably man) enables them to destroy larger amounts of barbiturate. In addition to these cortical actions there is a direct stimulatory effect on the respiratory and circulatory centers. The typical response follow-

The following protocol is presented in some detail as an example of the dose employed, the frequency of administration and the response obtained.

REPORT OF CASE

History—J. B., college student, aged 20, had been in excellent health until March 8, 1937, when, following an emotional upset, he became depressed. The following day he conducted himself in a normal manner until 9 30 p m, when he was found in a comatose condition. He could not be aroused, but a suicide note and an empty amylal bottle nearby suggested the diagnosis. A physician was summoned, who gave him one subcutaneous injection of strychnine 1 mg, and sent him to the University Hospital, where he was admitted at 12 30 a m.

Later we learned from the patient, and from the druggist who made the sale, that this bottle had contained thirty amylal tablets of 0.1 Gm (1½ grains) each. The total number had been ingested and retained.

The past history was irrelevant. The patient's mother is an inmate of a state psychopathic hospital suffering from manic-depressive psychosis.

¹⁰ Arnett, J. H. Ephedrine and Picrotoxin Used Successfully in Amytal Poisoning. *J. A. M. A.* 100: 1593 (May 20) 1933.

⁸ Barlow, O. W. The Relative Efficiency of a Series of Analeptics as Antidotes to Sublethal and Lethal Dosages of Pentobarbital, Chloral Hydrate and Tribromethanol (Avertin). *J. Pharmacol. & Exper. Therap.* 55: 125 (Sept.) 1935.

⁹ (a) Koppanyi, Theodore, Linegar, C. R. and Dille, J. M. The Analysis of the Barbiturate-Picrotoxin Antagonism. *J. Pharmacol. & Exper. Therap.* 75: 130-131 (June) 1936. (b) Studies on Barbiturates. *IX. Analysis of the Barbiturate-Picrotoxin Antagonism.* *ibid.* 58: 199-228 (Nov.) 1936.

portions. Each portion was tested with Millon's reagent for the presence of free phenol and if free phenol was found only in the first 20 cc of the distillate, it was termed one plus, if in the first and second, two plus, if in the first, second and third, three plus, and in all four, four plus. The same procedure was followed after each patient was given an intravenous injection of 20 cc of guaiacol solution.

Table 1 shows definitely that, when a solution containing free guaiacol is given intravenously to patients with lung abscesses, their sputums for from forty-eight to seventy-two hours after the injection contain a substance which gives a positive reaction with Millon's reagent. In view of the fact that no phenol bodies were present in the sputums of these patients for four consecutive days prior to the intravenous administration

administration of the guaiacol solution, the drainage from the abscess cavity contained a volatile phenol which gave a positive reaction with Millon's reagent. It is evident, then, that when guaiacol is injected intravenously it is excreted through the lungs of patients with lung abscesses as a volatile phenol body.

TREATMENT

The following routine was adopted for the treatment of patients with acute or chronic lung abscesses:

- 1 Bed rest if the rectal temperature was above 99.8 F
- 2 Twenty-four hour collection of sputum
- 3 Temperature taken every four hours
- 4 X-ray films of chest, in postero-anterior, lateral and oblique positions, repeated every three to four weeks
- 5 Examination of teeth and careful mouth hygiene and extraction of decayed teeth if necessary
- 6 Bronchoscopy soon after admission
- 7 No tobacco or alcoholic drinks
- 8 High caloric diet
- 9 Intravenous injection of guaiacol every third or fourth day. All patients were given the solution until the amount of the sputum was reduced, its foul odor disappeared and the general condition of the patient improved.
- 10 On discharge the patient was sent to a convalescent home and not permitted to resume work until the roentgenograms revealed complete healing.

The summarized results of twenty treated cases are shown in table 3. A short summary of each case is presented, with roentgenograms, temperature chart and daily sputum output of three.

REPORT OF CASES

CASE 1—J. B., a white man, aged 42, was admitted Dec 6, 1930, to the alcoholic ward of Bellevue Hospital. He had been intoxicated for two weeks. He was found to have a consolidation of the right upper lobe and a temperature ranging from 102 to 104. After two weeks he was transferred to the medical service as his lung condition showed no improvement. He began to expectorate from 4 to 8 ounces (120 to 240 cc) of foul purulent sputum daily. A roentgenogram revealed a large cavity with a fluid level in the right upper lobe with a large area of infiltration surrounding it.

The sputum was negative for acid fast bacilli. The blood Wassermann reaction was negative.

He was given twelve injections of guaiacol and sodium iodide solution within a period of nine weeks. The sputum lost its foul odor after three weeks and the temperature returned to normal. The amount of sputum diminished until, when discharged, Feb 27, 1931, the output was nil.

CASE 2—L. S., a white man, aged 35, was admitted June 30, 1930, with a history of sour gaseous eructations followed by a cough productive of foul purulent sputum of one month's duration. These symptoms appeared after a bout of drunkenness. Previous to this he had been well.

He continued to have a septic temperature, ranging from 99 to 103. The sputum output was from 5 to 10 ounces (150 to 300 cc). He was treated with bed rest and postural drainage and on discharge, July 30, he was still raising from 4 to 6 ounces (120 to 180 cc) of foul material. He went to another hospital where he remained until Sept 1, 1930.

He was readmitted Jan 25, 1931, with a history that he was well until five weeks previously when he "caught cold." Since

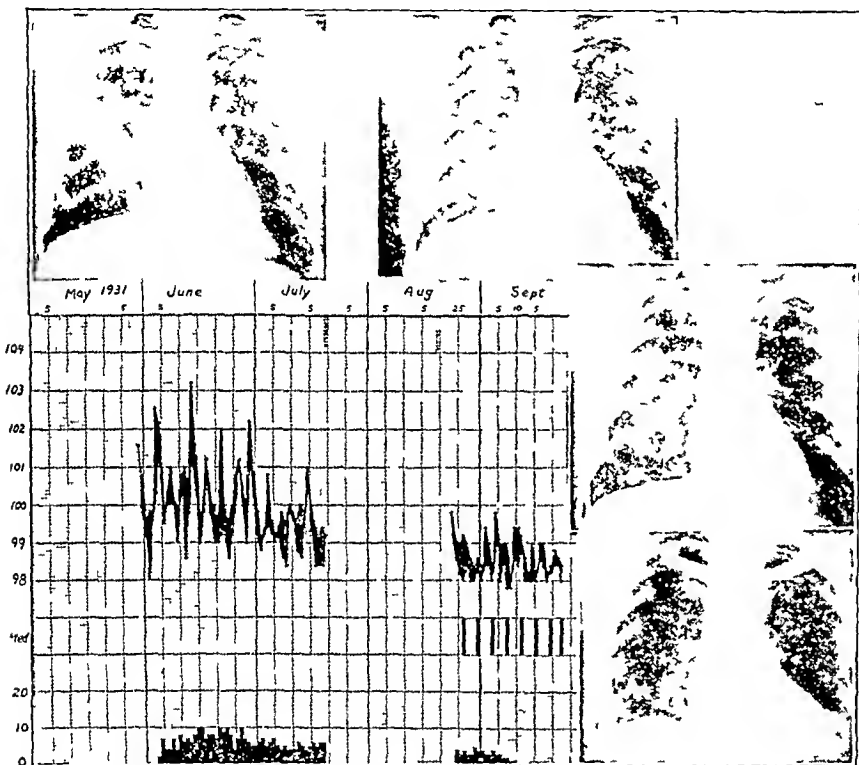


Fig. 2 (case 6)—The clinical course during both admissions. The lower solid area shows the daily twenty-four hour sputum output in ounces. The individual solid blocks indicate the days guaiacol was administered and above is shown the daily temperature fluctuations—maximum and minimum in each twenty-four hour period. The progress of the case is also shown by the roentgenograms which were taken reading from left to right July 20, 1931, after the patient had been in the hospital a week on general care; August 20, on the second admission; September 23, on discharge after treatment; and October 1935, four years after discharge from the hospital.

of guaiacol, it is reasonable to assume that the phenol body present in the sputum after the injection is guaiacol or a derivative of it.

While these experiments were being conducted, a patient with a putrid lung abscess was operated on in our surgical division (thoracotomy). It was deemed wise to examine chemically the drainage from the lung for the presence of volatile phenols. The drainage was collected for two consecutive days and the dressings and drainage distilled with steam. The distillate was collected in 20 cc portions as described previously and each portion tested with Millon's reagent. The patient was then given an intravenous injection of 20 cc of the guaiacol and iodide solution and the drainage and dressing for the next seventy-two hours collected and treated as before. The results are shown in table 2.

The drainage from the lung abscess cavity contained no volatile phenol bodies, but, following the intravenous

then he had been coughing and expectorating large amounts of foul sputum. His admission temperature was 102. The daily sputum output was from 15 to 20 ounces (450 to 600 cc) and was negative for acid fast bacilli. He was given an injection of 20 cc of guaiacol and iodide solution every third day. The temperature dropped, the sputum decreased in foulness and amount, until after the second month when the output was only 1 ounce (30 cc). Jan 30, 1931, the output was nil and the temperature had been normal for two months.

CASE 3—C Q, a white man, aged 23, a machinist, was admitted March 23, 1931, with a history that two years prior to this admission he had fractured two ribs in the left lower part of the chest. Three months after this subsided he developed pain in the left chest, with cough, fever and foul expectoration. He was treated with prolonged bed rest for six months. He was well until a week before, when he developed a chill and pain in the left side of the chest, with fever and cough productive of foul smelling sputum, which was negative for acid-fast bacilli. The blood Wassermann reaction was negative.

The roentgenograms showed a large area of consolidation involving the entire left lower lobe, with numerous areas of lessened density adjacent to the left lower border of the heart.

The temperature ranged from 102 to 104.6, with from 10 to 14 ounces (300 to 420 cc) daily sputum output.

After injections of guaiacol and iodide solution were given every third day, the temperature gradually dropped and the sputum diminished in odor and amount. On discharge, June 22, the x-ray films showed an area of fibrosis in the left lower lobe, the temperature was normal and there was no expectoration.

CASE 4—C M G, a white man, aged 47, a painter, was admitted April 8, 1931, with a history of a cold for a month with pain in the right lower part of the chest and a cough productive of foul sputum. He had been well until the onset of this cold.

The sputum was negative for acid-fast bacilli. The blood Wassermann reaction was negative. His temperature ranged from 101 to 103 and the sputum output was from 4 to 6 ounces (120 to 180 cc) daily. The roentgenogram showed an abscess of the right lower lobe. He was given an injection of guaiacol every third day, and on discharge, May 27, the sputum was nil and the temperature normal.

CASE 5—W S, a white man, aged 42, a clerk, was admitted April 10, 1931, with a history that he had been well up to six weeks before, when he had a chill but continued to work despite a high temperature. He later developed a cough and then had a hemoptysis, the sputum became profuse and foul.

The blood Wassermann reaction was negative. The sputum was negative for acid-fast bacilli.

The temperature rose to 103 and the sputum output was up to 8 ounces (240 cc) daily.

A roentgenogram showed an irregular patch of consolidation in the lower portion of the upper lobe of the right lung, with a cavity 2 inches in diameter.

He was given an injection of guaiacol every fourth day. The temperature dropped to normal and the sputum lost its foul odor and diminished in amount, until on discharge, May 6, the daily sputum output was nil and the temperature normal.

CASE 6—J J S, a white man, aged 59, a clerk, was admitted May 29, 1931, with a history of pain in the right lower part of the chest with productive cough the onset occurring three weeks previous to admission. The sputum was negative for acid fast bacilli. The blood Wassermann reaction was negative. The roentgenogram showed an area of infiltration extending out from the right root in all directions.

He remained on bed rest and postural drainage for fifty days with no improvement of his symptoms, the sputum output varying from 6 to 10 ounces (180 to 300 cc) daily. The patient went home unimproved, July 19.

He was readmitted Aug 24, 1931, emaciated and raising from 4 to 5 ounces (120 to 150 cc) of foul sputum. There was marked gingivitis. The sputum was negative for acid-fast bacilli. The roentgenograms showed infiltration about the right root extending into the lower lobe.

Intravenous injections of guaiacol and iodide were given every fifth day. The sputum lost its foul odor and became diminished in amount and the temperature fell to normal. On his discharge, September 23, the patient was greatly improved, he was symptom free, the sputum output was nil, and the x-ray film showed marked fibrosis around the root of the right lung. The patient weighed 137 pounds (62 Kg) on admission and on discharge 151½ pounds (69 Kg), a gain of 14½ pounds (6.5 Kg).

CASE 7—F L, a white man, aged 57, a waiter, was admitted July 10, 1931, with a history of having an alcoholic debauch.

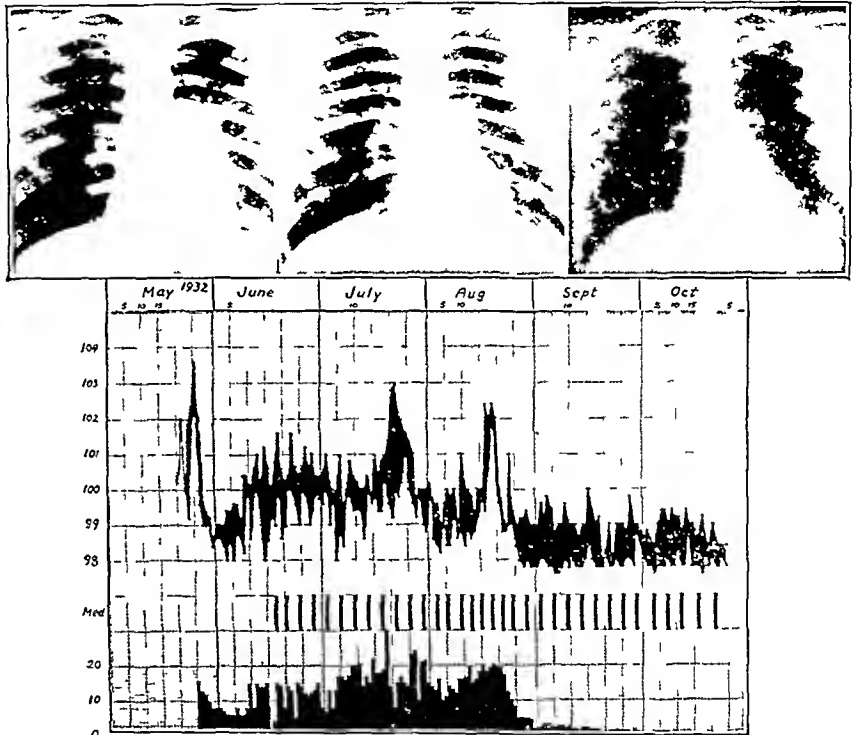


Fig 3 (case 9)—The clinical course while under treatment in the hospital. The solid area on the bottom indicates the daily twenty four hour sputum output in ounces. Above is indicated the days medication (guaiacol) was given and the daily temperature fluctuations—minimum and maximum in each twenty four hour period. The roentgenograms reading from left to right were taken May 23 1932 shortly after admission, October 11 just prior to discharge from the hospital and May 5 1935 after one year follow up in our clinic.

eight weeks previously and shortly afterward developing a cough productive of a large amount of sputum and associated with pain in the left upper part of the chest. He was emaciated and his teeth and gums were in very poor condition.

The sputum was negative for acid-fast bacilli. The blood Wassermann reaction was negative. The roentgenogram showed a large abscess cavity in the left upper lobe with fluid level and a large area of infiltration about the root. The right lung showed evidence of infiltration of the root and upper lobe with abscess formation.

The patient was kept in bed and postural drainage was instituted for eighteen days but without improvement. Intravenous injection of guaiacol and iodide was begun and with subsidence of the temperature the patient improved markedly. The sputum remained profuse, although the foul odor disappeared. The patient refused to have his teeth and gums treated and began to smoke a great number of cigarettes daily.

Two months later he began having a septic temperature and the sputum increased in amount although it remained odorless. X-ray examination at this time showed the process in the left upper lobe to be clearing but the conditions in the right

upper lobe remained unchanged. Injections were continued until he was discharged, April 20, 1932, when the roentgenogram showed marked fibrosis in both upper lobes at the level of the first ribs. The temperature had been normal but the sputum continued profuse, about 4 ounces (120 cc) daily, although odorless.

The patient was sent home, returning May 21, 1932, for a check up and was finally discharged June 12, 1932. The temperature was flat, the sputum was not foul but continued to be fairly profuse, averaging from 4 to 5 ounces (120 to 150 cc) daily. X-ray examination showed fibrosis at the roots of both lungs and above the first rib, with several small areas of rarefaction bilaterally above the first rib.

He persistently refused to have his teeth treated and a number of them fell out. He continued to smoke and drink as heavily as previously. He died March 30, 1934, of type I pneumonia of the right lower lobe.

CASE 8—J C, a white man, aged 42, a laborer, was admitted because of cough, blood-streaked sputum and loss of weight since September 1930. He worked in a very dirty and smoky atmosphere. He had been treated at another hospital where bronchoscopy and x-ray examination had been done. A roent-

the grip. There was also pain in the left side of the chest, which was very severe at times. For the past few weeks he noticed that the sputum was sour.

The sputum was negative for acid-fast bacilli. The blood Wassermann reaction was negative. His temperature was septic and the sputum output was from 8 to 16 ounces (240 to 480 cc) daily. An x-ray film showed an area of infiltration over the root of the left lung, extending posteriorly to the heart.

He was put on bed rest and postural drainage for one month but showed no improvement. Intravenous injection of guaiacol and iodide was begun. The sputum output increased in amount but the foul odor disappeared. After showing a septic course for the next two months, the temperature fell to normal, the sputum output was reduced to 2 ounces (60 cc.) daily and with further treatment the sputum output was reduced to 0. On discharge, Sept 2, 1934, the x-ray film showed fibrosis about both roots and in October the x-ray picture was perfectly normal.

CASE 10—G D, a white man, aged 43, a janitor, was admitted June 7, 1932, with a history of shortness of breath and cough for the past year. In December 1931 he was ill for

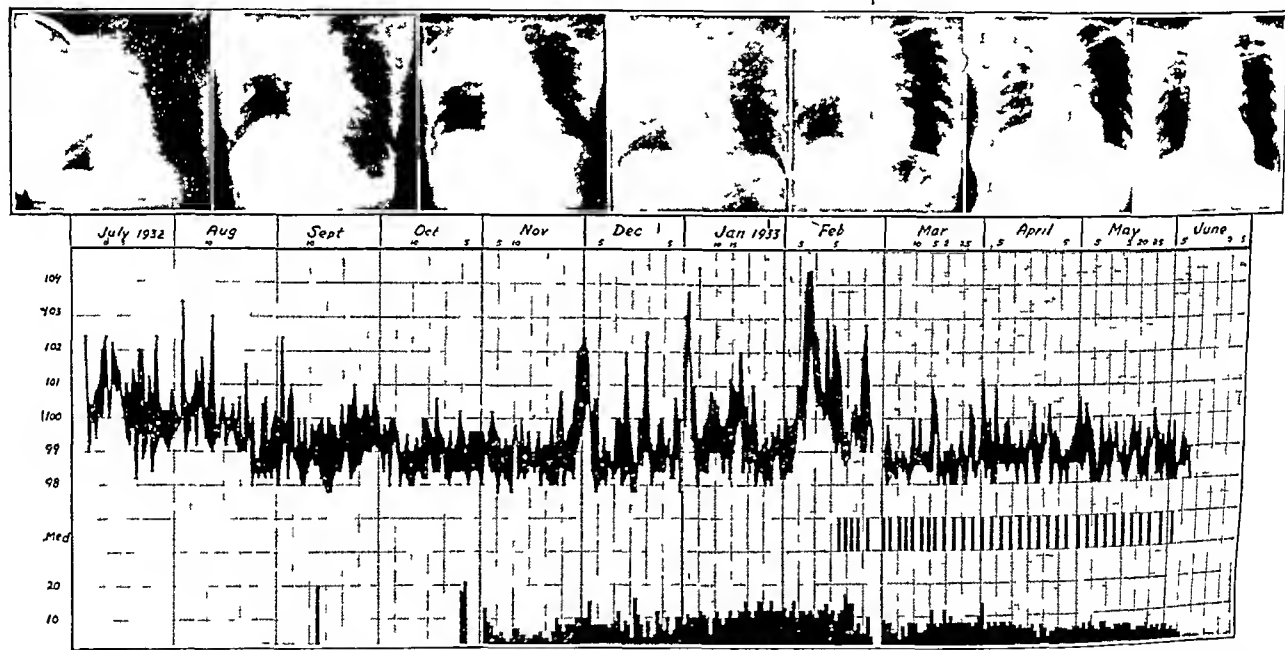


Fig 4 (case 12)—The clinical course while in the hospital—showing a long period during which general treatment was given and a shorter period during which treatment with guaiacol was given. The solid area on the bottom shows in ounces the gradual decrease in the twenty four hour sputum output after treatment was begun. The chart shows a gradually lowering temperature until normal was reached. The roentgenograms reading from left to right were taken July 6 1932 shortly after admission, August 22 Jan 26 1933 Feb 25 March 9, June 12 1933 a few days after discharge and the last in October 1935 after a two year follow up in the clinic.

genogram showed infiltration of the lower part of the left upper lobe. In May 1931 a bronchogram with iodized oil revealed a cavity in the lower part of the left upper lobe close to the cardiac shadow, filled with opaque material.

The patient continued raising a large amount of foul sputum and his temperature was elevated. Intravenous injections of guaiacol and iodide were given every third day. The sputum lost its foul odor and diminished in amount, the patient was then symptom free.

In January 1932 the patient developed pain in the left side of the chest, and a cough with from 1 to 2 ounces (30 to 60 cc) of watery sputum but no elevation of temperature. After rest in bed with a series of intravenous injections for one month the roentgenograms showed irregular fibrosis between the first and the fourth ribs, on the left.

One year later an x-ray film showed irregular fibrosis in the left upper lobe and several areas of decreased density. The patient has been symptom free and doing his daily work since December 1932.

CASE 9—P D D, a white man aged 24 a painter, was admitted May 21, 1932, with a history of a cough productive of small amounts of blood since February 1932 when he had

one week with fever, general body pain and fatigue and had coughed up a small amount of blood. The cough continued and expectoration became profuse until May 1932, when it became blood streaked and foul. On admission the temperature was elevated and septic in character. The patient was emaciated. The daily expectoration measured from 4 to 10 ounces (120 to 300 cc) and was negative for acid-fast bacilli. The blood Wassermann reaction was negative. An x-ray film revealed a large infiltrative lesion in the right upper lobe with the trachea pulled to the right. Bronchoscopy revealed a mass projecting from the medial wall of the right main bronchus 28 cm from the upper incisor teeth, and above it to the right upper lobe a bronchial opening. A biopsy showed it to be a bronchial polyp.

The temperature continued septic for one month and the general condition remained unchanged. Guaiacol and iodide injections intravenously were begun, the temperature remained septic for the next twenty-five days and the daily sputum output increased in amount but was no longer foul. The temperature and output then decreased until his discharge September 23 when the sputum output was nil. A roentgenogram showed marked fibrosis in the right upper lobe.

In August 1933 he began coughing up blood-streaked sputum and lost weight rapidly. An x-ray film showed a large new growth in the right hilar region extending into the right upper lobe. The patient died of spontaneous pneumothorax, Nov 5, 1933.

Reexamination of the x-ray plates showed that the original condition was a new growth of the bronchus with a superimposed abscess.

CASE 11—M S, a white man, aged 47, a clerk, was a chronic alcoholic addict. He began to cough in April 1932, after being on a drunken spree. Expectoration became profuse and foul. In June he was treated at another hospital for a lung abscess and was discharged after three weeks feeling greatly improved, expectoration being very slight. He remained well until September 15, when he developed a cough productive of very foul and profuse sputum. He was treated at home by his physician but did not improve. He was admitted to the Fourth Medical Division Dec 15, 1932. The temperature was septic, expectoration was profuse and foul, and his teeth were in very poor condition with marked gingivitis. A roentgenogram showed a large cavity with fluid level in the right upper lobe.

The sputum was negative for acid-fast bacilli. The blood Wassermann reaction was negative. The patient was unimproved after twenty days of bed rest and postural drainage.

After intravenous injections of guaiacol and iodide the temperature began to fall, and the patient insisted on leaving the hospital. However treatment was continued at home. After one month the temperature became normal with diminution of the daily output of the sputum and it lost its foul odor.

Five months after treatment was instituted the patient returned to his usual work, being symptom free.

CASE 12—C S, a Negress, aged 55, a houseworker, was admitted July 5, 1932, with a history of a severe cough since February 1932 following a "bad cold." She had lost 15 pounds (7 Kg) and had occasional chills and profuse foul and blood-streaked sputum. On admission it was found that there was a definite glycosuria, the blood sugar being 250 mg per hundred cubic centimeters. The sputum was negative for acid-fast bacilli. The blood Wassermann reaction was negative.

The patient was treated in another service until Feb 6, 1933. During the interval the x-ray film showed an infiltrative lesion involving the right upper lobe.

Expectoration varied from 6 to 20 ounces (180 to 600 cc) daily. The patient became progressively worse and surgery was inadvisable because of her poor general condition. Feb 17, 1933, guaiacol and iodide injections were begun and continued every third day. There was a gradual fall in temperature and decrease in the daily sputum output with a disappearance of its foul odor. The patient regained her appetite. The x-ray plates for the first time showed the beginning of definite clearing of the right upper lobe.

On discharge the patient was symptom free with normal temperature and 3 ounces (60 cc) daily output of sputum. The x-ray examination showed fibrosis in the right upper lobe. In October 1935 the patient was still symptom free and the sputum output nil. The x-ray film showed fibrosis with numerous small cavities in the right upper lobe.

CASE 13—J V, a white man aged 44, a porter, was admitted Nov 19, 1932, with a two months history of a cough productive of a large amount of foul smelling blood streaked sputum. Loss of weight had occurred and he was easily fatigued. On admission the temperature was elevated. The daily sputum output averaged from 15 to 18 ounces (450 to 540 cc) and was negative for acid fast bacilli. The blood Wassermann reaction was negative. His teeth and gums were in very bad condition. An x-ray plate showed a large cavity in the right upper lobe with infiltration extending up to the apex.

Intravenous injections of guaiacol and iodide were given every third day. The temperature dropped to normal and the sputum output diminished until it was nil on discharge March 7, 1933. A x-ray film showed fibrosis in the right upper lobe and about the right hilar region.

CASE 14—J A, a white man aged 47, a laborer, was admitted Dec 1, 1932, with a history of having been operated on for a left lower lobe abscess five years previously. Since then he had had a productive cough but was otherwise well until

three months before admission when he developed fever pain in the left side of the chest and paroxysms of coughing with foul expectoration. He had lost pounds since the onset of this illness in September 1932.

On admission his temperature was 103. The daily sputum output ranged from 18 to 20 ounces (540 to 600 cc) and had a foul odor. Intravenous injections of guaiacol and iodide were given every third day. At first the daily sputum output increased to 30 ounces (900 cc) but the odor decreased and the temperature dropped remaining between 98 and 99.8. X-ray films showed a cavity with a fluid level in the left lower lobe. After months of treatment the cavity decreased in size, as evidenced by x-ray examination the temperature was normal the daily sputum output was from 4 to 6 ounces (120 to 180 cc) and was odorless. The patient left the hospital against our advice, April 25, 1933, because he felt very well.

He was readmitted July 11, 1933, because of pain in the left side of the chest and a productive cough. X-ray examination showed infiltration of the entire left lower lobe with a cavity and a fluid level. There was from 10 to 12 ounces (300 to 360 cc) daily output of sputum and the temperature ranged between 99 and 101. Injections every third day produced a gradual decrease to 3 ounces (90 cc) daily of odorless fluid sputum the temperature became normal and x-ray films showed marked fibrosis of the entire left lower lobe with no definite cavity.

At present the patient is employed as an iron worker still having a cough productive of from 1 to 2 ounces (30 to 60 cc) of odorless fluid sputum.

CASE 15—M M, a white man aged 36, a waiter, was admitted Jan 27, 1933, with a history of cough and high fever of one weeks duration. This was complicated by a severe diabetes requiring 30 units of insulin three times a day. He had pneumonia in 1931.

On admission the diagnosis was made of an unclassified type of pneumonia of the right upper lobe. The diabetes was controlled with great difficulty. The signs in the chest did not clear and the temperature remained elevated. He continued to cough and raised small amounts of sputum. A roentgenogram February 23 showed a large area of infiltration at the periphery of the right upper lobe. November 31 the x-ray film showed an area of lessened density with fluid level. The patient was raising from 4 to 6 ounces (120 to 180 cc) of sputum daily. April 7, 1933, injections of guaiacol and iodide were begun and given every fourth day. The temperature fell to normal, remaining so and the sputum output decreased until it was nil one month before discharge May 13, 1933.

At the present time the patient is perfectly well and has no complaints. The diabetes is controlled and he attends the diabetic clinic regularly.

CASE 16—M G, a white woman aged 58, an interior decorator, was admitted March 24, 1933, with a history of being troubled with a cough since December 1932. In February 1933 she developed pain in the left side of the chest, anorexia, weakness, fever and a productive cough with foul thick sputum, which had all continued and become more troublesome.

The temperature was 101 and fluctuated between 101 and 104. The sputum was negative for acid-fast bacilli. The blood Wassermann reaction was negative. X-ray studies showed an area of infiltration in the upper left lobe with a large cavity with a fluid level.

The patient was given intravenous injections of guaiacol and iodide every third day. After fifteen days the temperature fell and the daily output of sputum decreased from 8 to 3 ounces (from 240 to 60 cc). The patient insisted on leaving the hospital against advice on May 5 after her temperature had been normal for twenty-five days and daily sputum output was only 1 ounce (30 cc). An x-ray plate showed that the area of infiltration had partially disappeared but the outline of the cavity was still visible.

She went to a summer resort and late in August developed a nonproductive cough. She was readmitted Nov 21, 1933. The temperature was elevated the sputum output ranged from 8 to 10 ounces (240 to 300 cc) daily and x-ray plates showed numerous small cavities with one large cavity in the left upper lobe. Despite intravenous injections of guaiacol and iodide a low grade temperature and daily sputum output of from 8 to

10 ounces (240 to 300 cc) persisted. Roentgenograms showed no improvement and she was discharged May 12, 1934. She died of a chronic lung abscess April 9, 1935.

CASE 17—I J, a white man, aged 41, a laborer, was admitted May 23, 1933, with a history of a cough productive of foul sputum following an alcoholic debauch one month previously. Two weeks prior to admission the patient had a hemoptysis, which had been repeated every morning since then.

The sputum was negative for acid-fast bacilli. The blood Wassermann reaction was negative. An x-ray film showed a large cavity in the right upper lobe with a fluid level and an area of infiltration around it. The temperature was 100 and the sputum output was 10 ounces (300 cc) daily.

Intravenous injections of guaiacol and iodide were given every second and third days, and the patient showed marked improvement. His appetite improved, the sputum was less foul, but the temperature continued to fluctuate between 101 and 105 for two months, when it finally dropped and the sputum output was only 1 ounce (30 cc) daily. X-ray studies showed only a slight fibrosis in the right upper lobe, with no definite evidence of a cavity.

The patient was discharged Sept. 22, 1933, and has remained perfectly well up to the time he was last seen, in August 1935.

CASE 18—K W, a white woman, aged 35, a housewife, was admitted May 8, 1933, with a history of being a heavy drinker of alcoholic liquors, complaining of a loss of 25 pounds (11 Kg.) within the past few years and a tired weak feeling.

The patient had a septic temperature and raised large amounts of foul sputum, averaging about 8 ounces (240 cc) daily. X-ray examination revealed an area of infiltration in the right upper lobe, with a definite area of decreased density with a fluid level. She was given intravenous injections of guaiacol and iodide every third day. The odor of the sputum disappeared and the amount, which at first increased, later diminished. After two months of treatment, the temperature was normal and she felt greatly improved. She left the hospital against advice, July 31, because we advised her to have her decayed teeth extracted and infected gums treated. An x-ray film on discharge showed only a small area of infiltration in the left hilar region.

Jan. 6, 1934, the patient returned to the clinic with a history of exposure to inclement weather and a productive cough with odorless sputum. X-ray films showed an area of infiltration extending from the left hilar region into the left upper lobe.

The patient reentered the hospital January 27, with a temperature of 102 and 20 ounces (600 cc) daily sputum output. She refused to have a number of decayed teeth extracted and also refused treatment. During the first thirty-five days of hospitalization, the temperature continued to be septic and the daily sputum output ranged from 8 to 12 ounces (240 to 360 cc). She was then given intravenous injections every third day, after which the temperature dropped to normal and the sputum output decreased. The patient again left the hospital against our advice, April 8, and the x-ray examination showed an area of fibrosis in the left upper lobe.

The patient remained well and symptom free until October 16, when she was readmitted in coma and died without regaining consciousness. Autopsy revealed a right subdural hemorrhage (traumatic), enlarged fatty liver and a small abscess cavity in the left upper lobe extending down into the left lower lobe.

CASE 19—T S, a white man, aged 65, a fireman, was admitted July 7, 1933, with a history of fever and productive cough following an alcoholic debauch. He was treated for pneumonia for three weeks but did not clear up and x-ray examination revealed a definite cavity with a fluid level in the right upper lobe.

On admission his temperature was 102. The daily sputum output ranged from 10 to 20 ounces (300 to 600 cc). Two weeks after admission, treatment with intravenous injections of guaiacol and iodide every third day were begun. The temperature fell to normal and the daily sputum output decreased and lost its foul odor. On discharge, September 20, the daily sputum output was 1 ounce (30 cc) daily with no odor and the patient felt perfectly well. X-ray studies showed some fibrosis in the right upper lobe with no evidence of cavitation.

CASE 20—P B, a white man, aged 39, a tailor, was admitted Feb. 19, 1934, complaining of a cough, productive of from 8 to 15 ounces (240 to 450 cc) of thick, foul smelling sputum. He also complained of dull pain in the left side of the chest about the third space near the sternum, and a loss of 6 pounds (2.7 Kg.) in the past month.

On admission the temperature was 102 and continued to show a septic course. The sputum output ranged from 8 to 16 ounces (240 to 480 cc) daily and was very foul.

Two weeks after admission the injections of guaiacol and iodide were begun. Within four weeks after the injections were started the temperature fell to normal, and the sputum output diminished. Eight weeks after treatment was begun the patient was symptom free and the x-ray examination showed the lungs to be clear except for bilateral hilar adenopathy.

COMMENT

The results have been satisfactory and it is noteworthy that Unger,⁶ using an injectable guaiacol solution, obtained similar results at the Rudolf Virchow Hospital in Berlin. In the present study of twenty treated cases, it was found that the patients felt considerably better in a very short time, owing to the subsidence of the fever and cough and to the decrease of the daily sputum output and the loss of its foul odor. Serial roentgenograms showed early regression of the large area of pneumonitis surrounding the abscess cavity and later its actual disappearance.

It is felt that the eradication of all foci of infection about the mouth, nose and throat and moderate restriction of all activities until the roentgenogram shows complete healing is very essential if the results of this type of treatment are to be permanent. Of the four deaths in this series, one was due to a malignant condition of the lung, one to traumatic subdural hemorrhage, and two to recurrence of the abscess. It is well to point out that the abscess reappeared in those patients who refused to have their infected gums treated.

Because many lung abscesses heal spontaneously and because of the danger of early operation, most authorities agree that acute lung abscesses should be treated medically from six to twelve weeks before any surgical procedures are resorted to. Yet, after reviewing the literature, one is impressed with the lack of active medical treatment during this period. As the intravenous use of guaiacol causes early subsidence of the symptoms and a regression of the pathologic condition in the lung without producing any unfavorable reactions, it appears that this type of therapy should be used in the treatment of patients with acute and chronic lung abscess.

125 East Sixty-Third Street—127 East Sixty-First Street

6 Unger R. Anastil: an Injectable Guaiacol Preparation. *Med Klin* 20: 1360 (Sept. 28) 1924.

Novelties and Chance Findings—The present stress laid in this country upon the preclinical laboratory courses, particularly those in chemistry and physiology, has greatly influenced the entire point of view of the physician who must have a calorimeter and an electrocardiograph with a technician to operate them, if only to keep in fashion, little realizing that they are scarcely more than research instruments. There has been much talk about the modern physiological schools of physics and surgery and I presume this means that it is less fashionable for the clinicians to grub in the pathological and anatomical laboratories than formerly. No doubt this is the case. Anatomy and pathology just now appear to the unimaginative to have been thoroughly explored, the pioneers have taken the surface washings, and rather than dig deep for gold we prefer to look elsewhere for novelties and chance findings—Cushing, *Harvey, Consecratio Medici and Other Papers*, Boston, Little, Brown & Co., 1928.

FACTORS RESPONSIBLE FOR FAILURE FURTHER TO REDUCE INFANT MORTALITY

HERMAN N BUNDESEN, MD, ScD
President Chicago Board of Health

WILLIAM I FISHBEIN, MD

O A DAHMS, MD

AND

EDITH L POTTER, MD

CHICAGO

The death rate of infants from 7 days to 1 year of age, in the United States registration area, has been reduced 53 per cent during the years 1916 to 1934 inclusive. During the same time the death rate of infants under 7 days of age has been reduced only 10 per cent.¹ In order that infant mortality may be further materially reduced, the chief effort must be to prevent deaths under 2 weeks of age and particularly to prevent those that occur during the first few days of life. Before such an effort can be successful, the causes of early infant deaths must be accurately determined. When the actual causes of infant deaths are known, measures can be more effectively devised to prevent them.

The number of infant deaths under 7 days of age has not been reduced to a greater extent because little has been generally known as to the relative frequency and importance of the various causes of neonatal² deaths. Those who suspected the situation were not in a position to reduce the infant mortality.

SOURCE OF STATISTICS

To determine accurately the cause of an infant's death, particularly in the neonatal period, first, a satisfactory necropsy must be performed by a pathologist thoroughly familiar with infant pathology; second, careful consideration must be given by well trained physicians to the clinical history and laboratory results. Therefore in Chicago during 1936, whenever an infant died a complete necropsy was obtained, if possible. An investigation of the clinical history and available laboratory results for every infant who died was made by trained workers. A complete obstetric history was obtained in every case.

Whenever a necropsy was performed, a written record or protocol, covering all the facts, was obtained. This protocol, together with the entire record of the investigation of each case, was reviewed by a committee including pathologists, pediatricians and obstetricians. After consideration of the entire record—clinical, laboratory and pathologic—a conclusion was reached as to the most probable cause of death in each case.

STANDARDS OF SATISFACTORY NECROPSIES

The committee mentioned set up standards by which a necropsy was evaluated as satisfactory or unsatisfactory. To be considered satisfactory, a necropsy (1) must have been done by a competent pathologist, familiar with fetal and infant pathology, and (2) must have included an examination

of the brain and cranial cavity, (3) must have included a microscopic examination of the tissues, if necessary to make an accurate diagnosis, and (4) must have included a complete, written report of the results. Whenever the necropsy was limited, but the cause of death was obvious from the examination made, it was also considered satisfactory.

In Chicago, during 1936, 1,848 infants died under 1 year of age. Necropsies were performed on 798, or 43 per cent,³ of them. Based on the standards given, 645, or 81 per cent, of these necropsies were accepted as satisfactory.

The investigation revealed that many of the necropsies done on infants during the neonatal period were unsatisfactory because they had been delegated to untrained men to teach them necropsy technique. In other instances, necropsies were indifferently performed by well trained men who had little interest in making any real effort to determine the correct cause of death.

In view of the fact that permission to perform necropsies is often difficult to obtain, the waste of material as a result of inadequate or careless necropsy technique is noteworthy.

METHODS OF ASSIGNING DEATHS

The health officer bases his efforts to prevent infant deaths on information obtained chiefly from two sets of figures: (1) from the causes of death taken from the death certificates of his own locality and (2) from the causes taken from the death certificates of the entire United States registration area. Both these groups of causes are classified according to the rules of the International List⁴ as well as the Manual of Joint Causes.⁵

Both these sets of figures are, as a rule, inaccurate and misleading because they are made up from the causes of deaths taken from death certificates. These causes, particularly for infants under 2 weeks of age, in a large number of cases are not correct (and usually cannot be unless a satisfactory necropsy is performed). The figures become more misleading when the causes are classified according to the rules of the International List and the Manual of Joint Causes, since, as a result of this classification, a death is often charged to a cause that has little or no relation to the real reason for the infant's death.

ERRORS DUE TO THE GROUPING OF TERMS IN THE "INTERNATIONAL LIST"

The grouping of terms on death certificates by the rules of the International List often hides the true cause of death by throwing together, under a single heading, a variety of conditions. For example, such conditions as infection of the umbilical cord, hemorrhagic disease of the new-born, and asphyxia are classified in the group Other Diseases Peculiar to Early Infancy in the International List.

The health officer, in studying these figures, cannot tell from the grouping Other Diseases Peculiar to Early Infancy what preventive measures may reduce

3 From Jan. 1 to June 1 1937 necropsies were performed on 500 or 60.5 per cent of 827 infants who died.

4 The International List of Causes of Death is a list of all the terms which might be used on a death certificate grouped under 200 headings, each heading having a code number. The various terms are required to be charged to the code number under which they are listed. When the term International List is used it denotes the International List of Causes of Death.

5 The Manual of Joint Causes is a list of the same 200 headings that appear on the International List and shows to which heading a death should be assigned when two or more causes appear on a death certificate.

The authors received the assistance and cooperation of physicians in Chicago who with the hospitals made available for this study their records and case reports of infant deaths.

1 The period from 1916 to 1934 inclusive is used because figures for the deaths under 7 days in the registration area before 1916 and after 1934 are not available for comparison.

2 When the term neonatal is used in this article the period under 15 days is meant.

the number of deaths from the various causes included under this heading. However, if the conditions actually causing infant deaths are known by the health officer, he can often outline helpful procedures to prevent them. Thus much can be done by proper technic to prevent infections, while hemorrhagic disease may be treated successfully by transfusion in many cases. Furthermore, asphyxia may at times be prevented by proper obstetric care.

Such conditions as atresia of the rectum or pyloric stenosis, which might be obvious causes of death, as well as others, such as epispadias and syndactylism, which could not in themselves be causes of death, are thrown together in the group called Other Congenital Malformations.

The lives of a number of infants, even with the more serious of these disorders, might be saved by using proper procedures. For instance, in imperforate

anatomically open for as long as three or four months after birth. In such a case the real cause of death remains unknown.

ERRORS DUE TO THE PREFERENCE GIVEN CERTAIN CONDITIONS BY THE MANUAL OF JOINT CAUSES

Under the rules of the Manual of Joint Causes, not infrequently a death is charged to some condition not responsible for it.

For example, if such causes of death as prematurity or bronchopneumonia are included on the death certificate with patent foramen ovale, the death would still be charged to Congenital Malformations of the Heart, because congenital heart disease takes precedence over pneumonia or prematurity. We know that congenital heart disease, to which the death is charged because of the patent foramen ovale, probably had nothing whatever to do with causing it. Thus the true cause of death, such as pneumonia, for which the health officer might devise preventive measures, is hidden.

If a prematurely born infant under 15 days of age dies of infectious diarrhea, and prematurity and diarrhea appear on the death certificate, the death is charged to premature birth.

If an infant born by cesarean section dies from pneumonia during the neonatal period, and pneumonia and cesarean section both appear on the certificate, under the rules of the Manual of Joint Causes the death is charged to birth injury with cesarean section, when it really should be charged to pneumonia.

Chicago Facts—To overcome the difficulty arising from a lack of reliable figures on which to plan a campaign to reduce neonatal mortality in Chicago, steps first were taken to collect the facts (not only the figures). Then after the facts were collected, they were dispassionately analyzed. Finally, based on the analysis of these facts, additional and more definite procedures than formerly used were set in motion to reduce the number of infant deaths.

Crude Rates—In 1934 Chicago's death rate for infants under 1 year of age, per thousand live births, was 47.7. This was higher than that of a number of other large cities. In 1936 Chicago's infant death rate was 38.5. This was the lowest submitted by any of the twelve largest cities in the United States.

There was a reduction of 11.5 per cent in the death rate of infants under 7 days of age during the two year period 1935 and 1936. This decrease helped materially in bringing about Chicago's death rate of 38.5 for infants under 1 year of age.

This reduction of 11.5 per cent followed the institution of the procedures⁶ for preventing neonatal deaths started in 1935 and continued and amplified thereafter. These procedures were based on the information obtained by satisfactory necropsies and clinical investigations and were amplified as better and more satisfactory necropsies were performed.

COMPARISON OF THE CAUSES OF NEONATAL DEATHS WITHOUT NECROPSIES WITH THE CAUSES DETERMINED BY SATISFACTORY NECROPSIES

Of the 1,848 infants who died under 1 year of age during 1936, 1,123 or 61 per cent, were under 15 days of age. As we have stated, it is particularly

TABLE 1—Leading Causes of 398 Neonatal Deaths Determined by Satisfactory Necropsies (Not Classified by the Official Classification*)

	Cases	
	Number	Per Cent
Cerebral hemorrhage	102	25.6
Congenital malformations	63	15.8
Pneumonia (all types)	35	8.5
Asphyxia	13	3.3
Pulmonary hemorrhage	8	2.0
Edema of the brain	7	1.8
Erythroblastosis	6	1.5
No demonstrable pathologic conditions	123	30.9
(a) Viable infants with marked atelelectasis	37	9.3
(b) Infants showing marked immaturity or born of mothers with pathologic conditions or both	53	20.8
(c) Full term infants with no atelelectasis or maternal factors	3	0.8

* Whenever the term 'official classification' or 'officially classified' is used it refers to the method of classification required by the International List of the Causes of Death as well as by the 'Manual of Joint Causes'.
† See discussion of atelelectasis. The previable premature infants with atelelectasis are included with those having no pathologic condition.

anus and congenital intestinal obstruction, early operation may occasionally save the infant. Early diagnosis of pyloric stenosis makes it possible, by proper treatment, to save the baby. In instances such as anencephalus, nothing can be done. However, the health officer in studying the figures based on the International List has no way of knowing what procedures should be instituted to prevent deaths in this group.

In general the International List, instead of containing only those disorders which might cause death, includes almost every disorder, whether possibly fatal or not.

Thus, if some condition that does not cause death is written on the death certificate, some means of classifying it as a cause of death can be found by using the International List. For example, if cesarean section appears on the death certificate, the death is grouped under Injury at Birth. This only serves to mislead the health officer who uses these figures.

As occurs with the grouping Other Congenital Malformations the group Congenital Malformations of the Heart also includes conditions that are not responsible for deaths such as patent foramen ovale and patent ductus arteriosus.

At present if the death certificate shows the cause of death as patent foramen ovale the death would be classified as one from congenital heart disease. However a patent foramen ovale is a normal condition in the new-born infant and the foramen may continue

⁶ Bundesen H N, Dahms O A, Fiehlman W J and Harmon G F. Mortality of New Born Infants in Chicago during 1935. J A M A 107: 270-276 (July 25) 1936.

in this neonatal group that the evidence indicating the causes of infant deaths is not generally known

Of these 1,123 infants who died under 15 days of age, satisfactory necropsies were performed on 398, or 35.5 per cent, and unsatisfactory necropsies on 117, or 10.4 per cent. No necropsies were done on 608, or 54 per cent. In the 398 neonatal deaths in which there were satisfactory necropsies and in which the clinical investigations and laboratory observations were studied, the eight leading causes of death accounted for 90.4 per cent of all the deaths in that group.

In the 608 infants dying under 15 days of age on whom no necropsies were performed, the eight leading causes of death as stated⁷ by the physicians on the death certificates were as given in table 2.

EVIDENCE THAT THE CAUSE OF DEATH AS GIVEN ON THE DEATH CERTIFICATE (WITHOUT NECROPSY) MAY BE INACCURATE

To determine the importance of necropsies, the eight leading causes of death found in the 608 infants dying under 15 days of age on whom necropsies were not performed (table 2) should be compared with those found in the 398 infants on whom satisfactory necropsies were done (table 1). In such a comparison it will be noticed in the group with no necropsies that prematurity is the leading cause (41 per cent). In the group with necropsies, such deaths as occurred from prematurity are included in the 30.9 per cent that were classified under the heading "No Demonstrable Pathologic Conditions." The reason for this difference is discussed later in the section under "Premature Infants."

Atelectasis is second on the list of causes without necropsies. It is stated as the cause of death in 14.7 per cent of this group. As atelectasis is a secondary lesion, it was not accepted as a cause of death in the series with necropsies. Infant deaths in which there was no pathologic condition other than marked atelec-

TABLE 2—Leading Causes of 608 Neonatal Deaths as Stated by Physicians Without Necropsy (Not Classified by the 'Official Classification')

	Cases	
	Number	Per Cent
Prematurity	249	41.0
Atelectasis	89	14.7
Cerebral hemorrhage	77	12.7
Congenital malformations	74	12.2
Asphyxia	45	7.4
Pneumonia (all types)	17	2.8
Injury at birth other than cerebral hemorrhage	10	1.6
Icterus neonatorum	9	1.5

tasis were put in the group of those with "No Demonstrable Pathologic Conditions."

Cerebral hemorrhage is third on the list of causes without necropsies. It is found twice as often in the group with necropsies as in the group without.

Congenital malformations is the fourth cause in the group with no necropsies, and the second cause in the group with necropsies.

Asphyxia is fifth on the list without necropsies. It is stated to be the cause of death more than twice as often in this group as in the group with necropsies. On the other hand, pneumonia (all types) is sixth on

⁷ Many death certificates contain two or more causes of death. The reviewing committee in cases in which two or more causes appeared on the death certificate assigned the death to what it believed was the most probable cause.

the list and is stated to be the cause of death only one third as often in the group with no necropsies as in the group with necropsies.

This indicates the difficulty of diagnosing pneumonia clinically in the neonatal period. Furthermore, even when making the diagnosis by necropsy a microscopic examination of the lung tissue must be included, since on gross examination the pneumonia may be missed or may occasionally be erroneously diagnosed. It is frequently impossible to tell the difference grossly between the lung partially atelectatic and engorged with blood and the lung with pneumonia.

TABLE 3—Leading* Causes of the 1,123 Neonatal Deaths When Classified by International List and the Manual of Joint Causes

	Cases	
	Number	Per Cent
Premature birth	501	44.61
Injury at birth	283	25.20
Congenital malformations	143	12.70
Other diseases peculiar to early infancy	110	9.79
Pneumonias (all types)	42	3.73
Diseases of the thymus gland	10	0.89
Congenital syphilis	7	0.62
Congenital debility	4	0.35

* Infanticide is the seventh cause but is not listed since the figures would be the same in all tables.

Injury at birth other than cerebral hemorrhage is stated as a cause in the group with no necropsies, while it does not appear in the eight leading causes in the other group. On the other hand, edema of the brain appears among the first eight causes of death in the group with necropsies and is not found in the group without them.

This comparison between the eight leading causes of neonatal deaths, as determined by necropsies, and the causes as stated without necropsy shows that there is a difference in the relative frequency and importance of the various causes of neonatal deaths and indicates the importance of postmortem examinations in determining the correct cause of deaths. Although it is realized that the collected information is not sufficient to solve the problem of the causes of neonatal deaths, the 398 cases with satisfactory necropsies do give a good idea as to the nature of the problem.

COMPARISON OF THE CAUSES OF NEONATAL DEATHS "OFFICIALLY CLASSIFIED" WITH THE CAUSES DETERMINED BY SATISFACTORY NECROPSIES

If all the causes of death in the 1,123 infants dying under 15 days of age (which includes the 607 without necropsies, 398 with satisfactory necropsies and 118 with unsatisfactory necropsies) are classified according to the rules of the International List and the Manual of Joint Causes the distribution of the eight leading causes of death is as given in table 3.

EVIDENCE THAT CERTAIN CAUSES OF DEATH ARE INACCURATELY ASSIGNED BY THE "OFFICIAL CLASSIFICATION"

To reveal the manner in which the "official classification" hides certain causes of death, the eight leading causes in table 3 should be compared with those in table 1.

Prematurity—In the grouping just made (which is the misleading type usually employed in planning procedures to reduce infant mortality), premature birth is the first cause. It is listed as the cause of death in 501, or 44.6 per cent of all the infants who died

under 15 days of age, an even greater percentage than in the series without necropsies not grouped by the "official classification" On the other hand, those premature infants on whom necropsies were done and in whom no pathologic lesion was discovered are included with the 123 cases listed as "No Demonstrable Pathologic Conditions" in table 1 Of the 123 infants in whom no pathologic lesion was discovered at necropsy, eighty-two were premature infants whose mothers did not have complications that might have contributed to

stated to be due to this condition In the group with necropsies in table 1, 158 per cent of the deaths were found to be due to congenital malformations Moreover, a number of deaths charged to patent foramen ovale are included in the "officially classified" group, but patent foramen ovale is not a cause of infant deaths Furthermore, there is no means of knowing which of these malformations reported as causing death in the "officially classified" group were really responsible for death Hence the percentage given may be entirely misleading In the group with necropsies, only those deaths were assigned to congenital malformations in which the malformation was the direct cause of death

Other Diseases Peculiar to Early Infancy—This is given as the fourth cause of death in the "officially classified" group, accounting for 110, or 9.79 per cent, of the deaths This heading includes such conditions as asphyxia, icterus and particularly atelectasis, which was not accepted at all as a cause of death in the series with necropsies

Atelectasis—In the series with necropsies, the committee assigned deaths in which there was no pathologic condition other than atelectasis to those with "no demonstrable pathologic condition" This action was taken because the expansion of the lungs after birth is a gradual process and some degree of atelectasis is almost a universal condition in the lungs of the premature infant during the first few days It is also frequently present in the lungs of the full-term infant during this period

Furthermore, atelectasis, even when almost complete, is a secondary condition dependent on some other condition, such as depression of the respiratory center This depression in turn may be due to the pressure from cerebral hemorrhage, to interference with oxygenation of the infant's blood during labor, or to narcosis brought on by the excessive use of analgesics in the mother during labor When it is more generally realized that the excessive use of narcotics may cause atelectasis and thus lead to the infant's death, steps will surely be taken to limit their administration

TABLE 4—Leading Causes of 243 Neonatal Deaths in Premature Infants Determined by Satisfactory Necropsies (Not Classified by the "Official Classification")

	Cases	
	Number	Per Cent
Cerebral hemorrhage	56	22.0
Pneumonia (all types)	19	7.8
Congenital malformations	18	7.4
Asphyxia	9	3.7
Edema of the brain	7	2.9
Congenital syphilis	3	1.2
Erythroblastosis	2	0.8
No demonstrable pathologic condition	111	45.6
(a) Viable infants with marked atelectasis	30	12.3
(b) Infants showing marked immaturity or born of mothers with pathologic conditions or both	81	33.3

the death In other words, in these eighty-two infants, or 20.6 per cent of the 398 cases with necropsy, the only known factor that may have been responsible for the death was prematurity

Cerebral Hemorrhage—In the classified group in table 3, injury at birth is given as the second cause Two hundred and eighty-three, or 25.2 per cent, are thus listed In the group of deaths with necropsies in table 1, injury at birth does not appear as such

However, in the group with necropsies, cerebral hemorrhage is first in the list as a cause of death, accounting for 102, or 25.6 per cent

In the International List, no separate heading for cerebral hemorrhage, as a cause of infant death, exists The rules require that this condition be included under injury at birth Therefore table 3, which lists the series officially classified, cannot carry cerebral hemorrhage as a distinct item

In the group with satisfactory necropsies, table 1, the term is used specifically, because the lesion was actually found However, no comparison of the two tables is possible with respect to cerebral hemorrhage, because the "officially classified" group embraces, under the title Injury at Birth, not only cerebral hemorrhage and all types of injuries but also a variety of conditions which may or may not have produced death, such as fractured clavicle, breech presentation, retarded labor, forceps operation, placenta praevia, hemorrhage into the lungs, knot in the umbilical cord, and born with a caul

Though it is required by the official classification that all these conditions be included under injury at birth, the total of these in the "officially classified" series is only 25.2 per cent, as compared with 25.6 per cent of cerebral hemorrhage alone in the group of necropsies

It is evident from this fact that many cerebral hemorrhages were not diagnosed when necropsies were omitted Furthermore, not all cerebral hemorrhages are injuries at birth

Congenital Malformations—In the "officially classified" group in table 3, congenital malformations is third Of the deaths in this group, 12.7 per cent are

TABLE 5—Causes of 372 Neonatal Deaths in Premature Infants Classified by International List and Manual of Joint Causes

	Cases	
	Number	Per Cent
Premature birth	297	79.8
Injury at birth	47	12.6
Congenital malformations	20	5.4
Other diseases peculiar to early infancy	6	1.6
Pneumonia	1	0.27
Congenital syphilis	1	0.27

Heretofore atelectasis, like prematurity, has been a scrap heap into which a large number of infant deaths has been thrown when the cause of death was not definitely known If physicians continue blindly to accept it as a cause of death, the correct causes will remain hidden

Pneumonia—Pneumonia was fifth on the list in the "officially classified" group and third on the list in the group with necropsies It was found almost three times as often in the infants with necropsies as in those in the "officially classified" group

This comparison between the leading causes of neonatal deaths when "officially classified" and the causes

as determined by satisfactory necropsies shows that certain causes of death are inaccurately assigned by the "official classification"

By comparing the number of times certain causes of death occur in the infants on whom necropsies were performed with the number of times they occur in the group classified according to the rules of the International List and the Manual of Joint Causes, it is seen how this classification may mislead health officers and others interested in preventive work. The International List hides causes by throwing together a large number of unrelated conditions under one heading. The manual of Joint Causes hides the true causes of death by charging a death to some condition not responsible for it.

NEONATAL DEATHS IN PREMATURE INFANTS

Of the 1,848 infants who died under 1 year of age in Chicago during 1936, 782, or 42 per cent, were premature, 681 of these, or 37 per cent, died under 15 days of age. Of these 681 neonatal deaths in premature infants, necropsies were performed on 309, or 45.2 per cent. Of these 309 necropsies 243, or 79 per cent, were satisfactory according to the standards established.

The classification of Dr. Fred L. Adair⁸ for degree of maturity was used, which states that a previable premature infant is from 400 to 999 Gm in weight, of twenty-two to twenty-eight weeks' gestation and from 28 to 35 cm long.

A viable premature infant is from 1,000 to 2,499 Gm in weight, of twenty-nine to thirty-seven weeks' gestation and from 36 to 46 cm long.

In the 243 premature infants, a study of satisfactory necropsies, clinical investigations and laboratory observations revealed that the eight leading causes of death were as given in table 4.

COMPARISON OF THE CAUSES OF NEONATAL DEATHS IN PREMATURE INFANTS OFFICIALLY CLASSIFIED WITH THE CAUSES DETERMINED BY SATISFACTORY NECROPSIES

Had the causes of death in the 372 infants on whom no necropsies were performed been classified according to the rules of the "official classification," they would be as given in table 5.

By comparing table 5, which gives the deaths classified by the "official classification" and which is the one usually employed by health officers in attempting to reduce the infant mortality, with table 4, which gives the causes shown by necropsies, it will be seen that the use of the "official classification" hides causes of death. In table 5 the "officially classified" series, 79.8 per cent of the deaths are assigned to prematurity. In fact, so many deaths are thrown into this group by the "official classification" that a number of other causes, such as icterus and asphyxia, are completely eliminated.

Premature birth in itself was probably the cause of death in a number of the eighty-one of the total of 111 infants in the series with necropsies in whom no pathologic lesion was discovered. It probably was a cause also in some of the thirty infants who were viable with no discovered lesion other than atelectasis.

Of these 111 premature infants on whom necropsies were performed (those with no lesions and those with atelectasis), fifty-seven, or 51.3 per cent, were previable, three were abortions and fifty-one, or 46 per cent, were viable according to the "Adair classifica-

tion." A premature infant who has not reached a sufficient degree of maturity may die within a few minutes or a few hours, without any demonstrable cause other than mere prematurity. The three abortions in this series obviously were in this group.

However, as the period of uterogestation increases, the mortality rate tends to decrease. Furthermore, as the period of uterogestation increases, causes of death in addition to prematurity are more likely to be found.

In our experience, pathologic lesions in addition to prematurity have been found in many instances, even in previable premature infants. Thus, of a total of seventy-nine previable premature infants on whom necropsies were done, definite pathologic conditions, such as cerebral hemorrhage or pneumonia were found in twenty-two infants, or 28 per cent. These deaths were probably due to prematurity, even though other lesions were present, since these infants all weighed less than 1,000 Gm.

However, before deciding on the percentage of the series with necropsies in which the cause of death was due to prematurity alone, the maternal factors must be taken into account. Such maternal conditions as toxemia, placenta praevia and abruptio placentae may play some part in producing the death of an infant. These conditions might not produce demonstrable lesions.

Of the group in which no demonstrable pathologic conditions were found, as stated, three were abortions, fifty-seven were previable and fifty-one were viable premature infants. In these previable and viable premature infants, maternal factors, which might have caused death, were present in twenty-six, or 23 per cent.

This still leaves eighty-two, or 33 per cent of the 243 cases with necropsies in which the cause of death may be stated as due to prematurity, as compared with 79.8 per cent in the "officially classified" group.

With proper care, in many instances, a premature infant's life may be saved and pathologic conditions kept from developing. This does not mean that prematurity is not a contributing factor in causing death. Therefore to us it seems better in the case of a strong, viable premature who dies with no discoverable pathologic lesions or any cause on the maternal side to consider the cause of death as undetermined rather than to judge the death as due to prematurity alone.

The percentage of deaths stated to be due to injury at birth in the officially classified group is two thirds of that shown to be caused by cerebral hemorrhage alone in the group with satisfactory necropsies.

This is a striking difference and indicates that cerebral hemorrhage is a more frequent cause of death in premature infants than is generally recognized. Sixteen of these infants with necropsies, who had cerebral hemorrhage, were previable. If these sixteen deaths are considered as due to prematurity rather than to cerebral hemorrhage, there are still forty, or 16.4 per cent, of the deaths due to cerebral hemorrhage.

Pneumonia was stated to be the cause of death in 0.27 per cent of the "officially classified" group and in 7.8 per cent of the group with necropsies or about twenty-nine times more often. One reason for this marked difference is the undue weight given to prematurity by the Manual of Joint Causes. These figures indicate that pneumonia is a cause of neonatal death in premature infants more often than is generally thought. A number of such pneumonias are probably due to aspiration of infected amniotic fluid.

⁸ Adair, F. L. Personal communication to the authors.

Edema of the brain was found in 29 per cent of the cases with necropsies but was not given as a cause of death at all in the group without necropsies, and yet, such edema appears to be frequent in premature infants delivered by cesarean section, for, of these seven premature infants who died of edema of the brain, five were delivered in this way. The significance of edema of the brain is not definitely known. The cranial cavity of a premature infant contains more fluid than that of a full term infant. When this fluid is present to an excessive degree, however, it is believed that it may have some pathologic significance.

Congenital malformations make up 54 per cent of the deaths in the "officially classified" group, as compared with 74 per cent in the group with necropsies, while atelectasis is given as 13 per cent in the "officially classified" group (included under the heading "Other Diseases Peculiar to Early Infancy"), as compared with none in the group with necropsies.

MAIN FACTORS RESPONSIBLE FOR A HIGH NEONATAL DEATH RATE

A study of the clinical investigations of neonatal deaths and the obstetric histories showed that there were four main factors which contributed greatly to these infant deaths: (1) maternal complications, (2) inept obstetric care, (3) incorrect or inadequate neonatal care, and (4) prematurity.

Maternal Complications—Complications in the mother were associated with 385 of the 1,123 infant deaths occurring during the neonatal period. The most common of these complications, in the order of their frequency, were toxemia, placenta praevia, accidents and injuries, abruptio placentae, syphilis and hypertension. All these complications and particularly toxemia, might be factors in the production of infant deaths.

The early diagnosis and treatment of maternal complications, therefore, are important in the reduction of neonatal deaths. In the presence of pathologic conditions in the mother, adequate antepartum care is essential.

Inept Obstetric Care—Inept obstetric care was found to be associated with a number of the deaths that occurred from cerebral hemorrhage. Cerebral hemorrhage was the leading cause of death in the infants on whom necropsies were performed.

Attempts to speed up delivery by the indiscriminate use of oxytocics, such as solution of posterior pituitary, the unindicated application and improper use of forceps and the unnecessary performances of version and extraction, were often followed by the death of the infant.

The use of analgesics, such as morphine, scopolamine and the barbiturates, during labor, adds to the hazards which many new-born infants face. With prematurity, cerebral hemorrhage or the effects of prolonged labor, the additional depression of the respiratory center by the analgesic materially increases the difficulty in establishing respiration.

Prematurity—The premature infant whose tissues have not developed sufficiently to function normally will not survive unless given special care. Some premature infants have such inadequately functioning tissue, particularly in the lungs, that they will not survive under any conditions. Immediate provision for the maintenance of normal body temperature, proper feeding, particularly the use of breast milk, protection against infection, and the use of oxygen are the four

main safeguards for the premature infant. (This subject was discussed previously⁶.)

Adequate care for premature infants should be provided to bring about further reductions in neonatal mortality.

Incorrect or Inadequate Neonatal Care—An essential part of correct neonatal care is the use of proper methods of resuscitation in reviving the asphyxiated infant. Investigations revealed that measures often are employed which are damaging to the infant, particularly those who are prematurely born. It is generally agreed that violent methods, such as slapping, swinging, hot and cold baths and ether sprays, are more liable to result badly than favorably.

On the other hand, the skilled use of the tracheal catheter is generally accepted as the best means of clearing the respiratory passages and initiating respiration. However, it was by no means employed as often as indicated.

Education in the proper methods of resuscitation is important to help in further reducing neonatal mortality.

The subject of maternal factors and inept obstetric care in causing neonatal deaths will be fully discussed in a separate article.

COMMENT

The figures prove that, while there has been a reduction in the number of deaths in infants under 1 year of age in the United States registration area, the greater part of this reduction has been in infants past 14 days of age.

Before procedures can be effectively carried out to reduce the number of deaths in the neonatal period, the accurate causes of these deaths must be determined. This can be done only by competently performed necropsies on large numbers of new-born infants.

The use of the "official classification" tends to hide certain causes of death and gives too much weight to others.

Since a series of satisfactory necropsies reveals that the leading cause of death is cerebral hemorrhage and that prematurity is a large factor in the production of many deaths, directly or indirectly, it is our feeling that the chief attack in reducing neonatal mortality should be centered on these two conditions.

There is need for further study of the factors responsible for prematurity.

The toxemias of pregnancy, which often result not only in premature delivery, both spontaneous and induced, but also in damage to the infant, are other factors contributing to infant deaths which need further investigation. However, the principal and most hopeful field of endeavor at the present time is to make certain that the infant is in skilled hands. The statement has been made that every mother is entitled to skilled care during delivery. We might add that the infant too is entitled to the same consideration.

CONCLUSION

1 Many of the causes of neonatal deaths, as stated on the death certificates, are incorrect, because of misdiagnosis.

2 The use of the International List and the Manual of Joint Causes in classifying causes of deaths is misleading in many cases.

3 The rules of the official classification result in many deaths being classified as due to prematurity when they are actually due to other causes.

4 Those conditions which are not responsible for deaths might well be deleted from the International List. Instead of putting such causes on the certificate, it is better to state that the cause of death is unknown, thus encouraging necropsies.

5 Premature infants who die might well be classified separately from full term infants. Additional causes found in these premature infants should be classified with the prematurity, such as prematurity and bronchopneumonia, prematurity and gastroenteritis and prematurity and cerebral hemorrhage, instead of being charged to prematurity and the other cause ignored.

6 Further reduction in neonatal mortality will require, among other things, efforts to prevent prematurity and to provide adequate obstetric care for every mother and infant.

7 Such other efforts as the health officer will make will be directed particularly toward the prevention of those causes of death which death certificates indicate to him occur most often. If, however, the causes given to him are incorrect, such efforts as he exerts will be futile. If he has the correct causes, there are many things which may be done to save lives.

When, for example, pneumonia and diarrhea are concealed by assigning deaths to prematurity, the faulty nursery technic that may be responsible for these deaths remains undetected and uncorrected. If the death certificate correctly designates cerebral hemorrhage as the cause of death instead of incorrectly designating prematurity or atelectasis, the health officer may discover that faulty obstetric care was a large factor, and he may establish certain safeguards to prevent future fatalities under similar circumstances.

Combating atelectasis alone, without attention to its underlying causes, will not save infant lives. On the other hand, when atelectasis is due to excessive use of analgesics, if the health officer knows that this is occurring, he can take steps to prevent such deaths.

Asphyxia on the death certificate, without further information as to its cause, will leave the health officer undecided as to the direction of the efforts he should make, whereas a knowledge of the maternal factors, such as abruptio placentae, placenta praevia or breech delivery, will point the way to methods of better protection for the child. In the same connection the proper procedures for attempting to resuscitate the asphyxiated infant are of outstanding importance. Likewise, better and immediate neonatal care, the use of the incubator for the prematurely born, the conservation of heat and body fluids, and many other measures are contingent on accurate information as to the causes of death which, by disclosing the lack of these things in many cases, will show the health officer how to provide for their use in the future.

Now that our knowledge of the causes of neonatal deaths is increasing through clinical investigations, more necropsies and better classification, the direction of future efforts in preventing neonatal deaths is more clearly indicated.

We must learn more of the prevention of prematurity. Why do one third of twin pregnancies terminate prematurely? Can they be carried to term? Has progesterone or vitamin E any value in extending the duration of pregnancy? Also the value of the early injection of whole blood should be determined in the treatment of cerebral hemorrhage, hemorrhagic disorders, prematurity, anemia and icterus of the newborn and erythroblastosis.

There is still much to be learned concerning the relationship of the maternal diet to the prevention of neonatal disorders. Will the administration of large amounts of vitamins B and D and dicalcium phosphate, during pregnancy, have a beneficial effect?

Can present methods be improved or more effective methods be devised for the resuscitation of asphyxiated infants? These and many other problems still await solution.

No help can be extended in any situation when the facts regarding it are concealed by carelessly filled out or incorrect death certificates, or methods of classification which emphasize the secondary and ignore the important and preventable causes. Realization of the correct causes of neonatal mortality is the groundwork on which life-saving campaigns must be built.

THE SERUM CAROTENE IN DIABETIC PATIENTS

WITH CLINICAL EVIDENCE OF CAROTENEMIA AS DETERMINED BY THE PHOTO-ELECTRIC COLORIMETER

GEORGE H. STUECK, M.D.
GERALD FLAUM, M.D.
AND
ELAINE P. RALLI, M.D.
NEW YORK

In a previous study¹ the average fasting serum carotene in normal persons estimated by the White and Gordon method² was reported as 0.109 mg. per hundred cubic centimeters. In diabetic patients the average was 0.262 mg. per hundred cubic centimeters. In the present study all the diabetic patients had clinical evidence of carotenemia, as shown by pigmentation of the palms of the hands, soles of the feet or subconjunctival fat. The blood was taken three hours after the break-

TABLE 1—Calibration Curves with Crystalline Carotene

Solvent	Carotene Mg. per 100 Cc.	Negative Logarithmic Transmission
Petroleum ether	0.10	0.10
Cyclohexane	0.10	0.10
Petroleum ether	0.40	0.33
Cyclohexane	0.40	0.33
Petroleum ether	0.60	0.40
Cyclohexane	0.65	0.40

fast meal. We have found that the serum carotene does not rise after a meal unless a significant amount of carotene is taken with the meal.³

The extraction of the serum was carried out as described by White and Gordon² with 5 cc. of serum. The petroleum ether was removed from the alcoholic ether phases and a few more cubic centimeters of petroleum ether added. After the mixture was shaken and allowed to separate, the petroleum ether was removed and the procedure repeated until all other soluble material had been extracted. The ether was

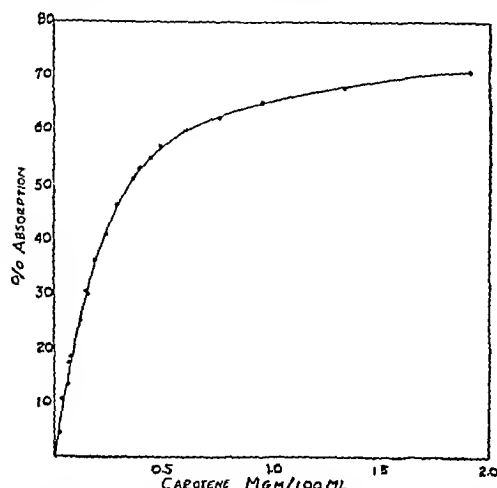
Dr. Stueck is Henry Strong Denison Fellow in Medicine. This investigation has been made with the assistance of a grant from the Committee on Therapeutic Research Council on Pharmacy and Chemistry, American Medical Association.

1 Brandaleone, Harold, and Ralli, Elaine P. Fasting Blood Carotene Level in Normal and Diabetic Individuals. *Proc. Soc. Exper. Biol. & Med.* 32: 200 (Oct.) 1934.

2 White, F. D., and Gordon, E. M. Estimation of Serum Carotene. *J. Lab. & Clin. Med.* 17: 53 (Oct.) 1931.

3 Ralli, Elaine P., Brandaleone, Harold, and Mandelbaum, Theodore. Effect of the Oral Administration of Carotene on Blood Carotene and Cholesterol of Diabetic and Normal Individuals. *J. Lab. & Clin. Med.* 20: 1266 (Sept.) 1935.

then made up to a volume of from 10 to 20 cc, depending on the intensity of color. The extracted carotene was read in a photo-electric colorimeter.⁴ A blue Jena glass filter BG 12 with a maximum transmission at approximately 425 millimicrons was used, as this was nearest to the maximum absorption band of carotene.



Curve showing concentration of crystalline carotene against the percentage of absorption of light

Calibration curves done with crystalline carotene (S. M. A.) both in petroleum ether (boiling point from 40 to 60 C) and cyclohexane (boiling point 81 C), showed the extinction values to be the same in the two solvents (table 1). Cyclohexane is superior as a solvent because of its slower rate of evaporation. The

TABLE 2—Serum Carotene in Relation to Age, Sex, Insulin Dosage, Diet and Duration of Diabetes

Case	Age	Sex	Insulin Units Daily	Diet Gm			Duration of Diabetes Years	Serum Carotene, Mg per 100 Cc
				Carbo hydrate	Protein	Fat		
1	61	Q	None	233	82	113	16	0.255
2	63	Q	None	132	60	50	11	0.260
3	48	Q	40	230	67	56	6	0.564
4	40	Q	25	306	62	85	1½	0.222
5	20	Q	80	300	65	85	2	0.390
6	61	Q	30	160	65	85	9	0.522
7	60	Q	10	180	70	85	12	0.540
8	48	Q	40	230	67	86	6	0.675
9	52	Q	None	180	65	85	4	0.288
10	49	Q	20	200	65	85	1	0.312
11	61	Q	None	233	82	113	16	0.240
12	55	Q	None	140	60	50	4	0.225
13	40	Q	25	356	62	85	1½	0.210

TABLE 3—Determination of Carotene with Photo-Electric Colorimeter

Case	Serum Carotene Mg per 100 Cc as Determined by	
	Photo Electric Colorimeter	White & Gordon Standards
10	0.312	0.300
9	0.268	0.300
1	0.240	0.225
12	0.225	0.225
13	0.210	0.210

accompanying chart is a plot of the concentration of crystalline carotene against the percentage of absorption of light.

In table 2 is summarized the serum carotene together with the age, sex, duration of diabetes, diet and insulin requirement for each patient. In every case carrots

made up a large part of the vegetable component of the diet, some patients using carrots as often as twice a day, others using them four or five times a week. The lowest serum carotene in this group was 0.210 mg per hundred cubic centimeters. In six of the thirteen cases the serum carotene was above 0.312 mg. The higher level of serum carotene in this group as compared to the group originally studied is consistent with the results of clinical evidence of clinical carotenemia.

In view of the fact that in the earlier study the extracted carotene had been read in a colorimeter against dichromate standards, determinations were made on some of the serums by this method and in the photo-electric colorimeter (table 3). These results show a fair approximation within the ranges determined. We have found the method now used accurate to within 5 per cent.

SUMMARY

1 The serum carotene was determined in thirteen diabetic patients with clinical evidence of carotenemia.

2 The serum carotene was above the normal in all the patients. The average serum carotene for the group was 0.392 mg, which was higher than in the previously reported group of diabetic patients.

3 The higher level of serum carotene is consistent with the appearance of clinical carotenemia.

4 The photo-electric colorimeter is a convenient and accurate method for the determination of carotene.

477 First Avenue

BENZEDRINE SULFATE AND ATROPINE IN TREATMENT OF CHRONIC ENCEPHALITIS

ISIDORE FINKELMAN, M.D.

CHICAGO

AND

LOUIS B. SHAPIRO, M.D.

ELGIN, ILL.

Atropine and related drugs (scopolamine, stramonium) have proved their value in the symptomatic treatment of chronic encephalitis. There is a definite decrease in rigidity and tremor as well as a decrease in sialorrhea. However, there are annoying symptoms in this disease which are not affected by atropine. These are oculogyric crises, drowsiness during the day and sometimes also wakefulness at night. Some patients also have a feeling of exhaustion.

Benzedrine sulfate has been used with success in sleep disorders (narcolepsy).¹ It has been found helpful in certain conditions characterized by fatigue and depression² and it has been reported as being of some symptomatic value in chronic encephalitis.³

Some of the symptoms of chronic encephalitis are due to parasympathetic stimulation.⁴ The addition of benzedrine sulfate, which is a sympathomimetic drug, to the

From the Department of Nervous and Mental Diseases, Northwestern University Medical School and the Elgin State Hospital.

1 Prinzmetal, Myron and Bloomberg, Wilfred: The Use of Benzedrine for the Treatment of Narcolepsy, *J. A. M. A.* 105:2051 (Dec. 21) 1935. Ulrich, Helmuth, Trapp, C. E. and Vigdoff, B.: The Treatment of Narcolepsy with Benzedrine Sulfate, *Ann. Int. Med.* 9:1213 (March) 1936.

2 Meyerson, Abraham: Effect of Benzedrine Sulfate on Mood and Fatigue in Normal and in Neurotic Persons, *Arch. Neurol. & Psychiat.* 26:816 (Oct.) 1936. Nathanson, M. H.: The Central Action of Beta Aminopropylbenzene (Benzedrine), *Clinical Observations*, *J. A. M. A.* 108:528 (Feb. 13) 1937.

3 Solomon, Philip, Mitchell, R. S. and Prinzmetal, Myron: Benzedrine Sulfate in Postencephalitic Parkinson's Disease, *J. A. M. A.* 108:1765 (May 22) 1937.

4 Finkelman, Isidore: Effect of Ephedrine on Blood Sugar Mobilization in Chronic Encephalitis, *J. Nerv. & Ment. Dis.* 77:345 (April) 1933.

⁴ Stueck, G. H., and Ralli, Elaine P.: Application of the Photo-Electric Colorimeter to the Determination of Carotene, *Am. J. Physiol.* to be published.

atropine treatment should enhance the effect of the latter. It has already been established that atropine when combined with benzedrine sulfate markedly increases its effect.⁵

Observations were made on twelve patients with chronic encephalitis. Before we began this study, eleven of the patients were on treatment with atropine sulfate, from 10 to 15 drops of 0.5 per cent solution three times a day. One was treated with scopolamine hydrobromide, $\frac{1}{400}$ gram (0.00065 Gm) three times a day. Benzedrine sulfate was then added to the treatment, the dosage ranging from 20 to 30 mg a day, one half of the dose being given at 7 a. m. and the other half at noon. After several days, ten of the patients complained of dizziness, precordial distress and palpitation. The second dose was discontinued in these patients. Two patients were continued on the full dosage, one receiving 30 mg and the other 20 mg a day—in addition to atropine—without any untoward effects. This treatment was discontinued after a month, and benzedrine sulfate alone administered, 20 mg a day. We were able to carry out this treatment for only seven days because all the patients complained bitterly about this form of therapy and they were definitely not benefited. The tremor increased. The patients were more helpless, could not feed themselves and had a greater tendency to fall. During the following thirty days atropine alone was administered. After this period the patients were again placed on atropine and benzedrine sulfate as in the first month of the experiment. The patients have been on the atropine plus benzedrine sulfate treatment uninterruptedly for varying lengths of time—none less than a month and three for eight months.

TOXIC EFFECTS

During the time that we were interested in this form of treatment there was an epidemic of influenza and two of the patients under treatment died with clinical evidence of pneumonia. We could not find any causal relationship of the death to the administration of benzedrine sulfate. However, stimulation of the sympathetic division of the autonomic nervous system by benzedrine sulfate, the effect of which was enhanced by paralysis of the parasympathetic division by atropine, may have reduced the resistance of these patients to the pneumonic infection. This needs further study. Moreover, these two patients were different from the others clinically in that, although they had signs of parkinsonism, in neither was a history of lethargic encephalitis elicited and both had suffered a skull trauma, one at the onset of the symptoms and the other after the syndrome had been well defined. This would suggest that head trauma with neurologic symptoms may be a contraindication to the administration of benzedrine sulfate. The two cases are included in the case reports (cases 10 and 11).

SYMPTOMATIC EFFECTS OF BENZEDRINE SULFATE AND ATROPINE IN PARKINSONISM

On comparing the observations during treatment with atropine alone, benzedrine sulfate alone and the combined treatment of atropine and benzedrine sulfate, it was evident that the best therapeutic results were obtained with the combined treatment. When benzedrine sulfate and atropine were administered, tremor was diminished in three cases in which atropine alone was unsuccessful. Oculogyric crises disappeared in

two cases and the frequency was diminished in five. The others did not have this symptom. The tendency to sleep during the day and remain awake at night was reversed to normal in all who had this symptom (eight patients). The patients who formerly had to be fed or dressed by the attendant could now dispense with this assistance. All but two of the patients said they had more "energy" or "ambition" than during their previous treatment with atropine alone. In two of the cases there was no greater improvement with the combined treatment than with atropine alone.

SUMMARY

Twelve patients with postencephalitic parkinsonism were treated during consecutive periods with atropine, benzedrine sulfate plus atropine, benzedrine sulfate alone, and again with benzedrine sulfate plus atropine. The best results were obtained during the combined treatment of atropine and benzedrine sulfate. Although atropine alone caused a diminution of tremor and rigidity, the addition of benzedrine sulfate caused improvement in the sleep cycle and reduced the frequency or caused the disappearance of oculogyric crises, and there was a feeling of increased energy. Two of the patients died during an influenza epidemic. Both had a history of head trauma. The relation of increased sympathetic stimulation to a reduction in resistance to pneumonic infection and the contraindication of benzedrine sulfate in patients with head trauma needs further study.

REPORT OF CASES

CASE 3—E. P., a woman aged 35, married, had lethargic encephalitis in 1931. Very soon she developed temper tantrums and paranoid ideas and she mistreated her children. She was admitted to Elgin State Hospital Nov. 15, 1933. There were manifestations of postencephalitic parkinsonism, such as masked facies, ventroflexion of the head and body, marked tremor of the upper extremities and jaw, monotonous speech, cogwheel rigidity and propulsion in gait. This was the only patient on scopolamine treatment. There was no further decrease in rigidity or tremor when benzedrine sulfate was added to the scopolamine treatment, but there was marked improvement in her sleep cycle, a feeling of exhilaration and a noticeable increase in activity.

CASE 4—M. L., a woman aged 20, single, at 12 developed a tremor of the left arm and leg, which became progressively worse, and she had frequent oculogyric crises. Examination revealed a masked facies, tremor of the left arm and leg, cogwheel rigidity and a reversal of the sleep cycle. The patient had a marked improvement in the tremor and sleep cycle with the combined treatment. During the treatment with atropine alone she could not sleep at night and a sedative was necessary. However, on the addition of 10 mg of benzedrine sulfate to the atropine dose, the patient was awake all day and was able to sleep at night without the use of a sedative.

CASE 6—H. H., a man aged 22, admitted to the hospital May 23, 1929, had a coarse tremor of both upper extremities, a marked speech defect, sialorrhea, masked facies and cogwheel rigidity. He was sleepy during the day and awake at night. When treated with atropine and benzedrine sulfate there was a definite improvement in his sleep cycle. He was awake and active all day. The patient said that he felt more "ambitious." There was a slight improvement in his speech.

CASE 7—J. L., a man aged 32, single, had lethargic encephalitis in 1924. He became apathetic and indolent. Examination revealed the typical signs of postencephalitic parkinsonism. He had a masked facies, tremor and cogwheel rigidity. He had had oculogyric crises three times a week. During the oculogyric crises he had obsessive thoughts. His speech was monotonous. When 30 mg of benzedrine sulfate a day was added to the atropine treatment the oculogyric crises disappeared, his activity increased and his speech defect and tremor diminished.

CASE 9—C. B. a man aged 29, admitted to the hospital Dec. 28, 1934 at the age of 14 began to have difficulty in talking and walking and his condition became progressively worse.

⁵ Meyerson, Abraham, Loman, Julius and Dameshek, William. Physiologic Effects of Benzedrine and Its Relationship to Other Drugs Affecting the Autonomic Nervous System. *Am. J. M. Sc.* 192, 560 (Oct) 1936.

Examination showed a masked facies, tremor of the upper extremities, monotonous speech and sialorrhea. He had oculogyric crises about once a week. Atropine treatment caused some improvement in the tremor but did not affect the oculogyric crises. With the combined treatment of atropine and benzedrine sulfate the oculogyric crises became very rare. The patient was now able to dress and eat by himself whereas formerly he required assistance.

CASE 10—S V, a man aged 28, single, admitted to Elgin State Hospital Oct 19, 1935, at 12 struck his head against a post and had several ill defined convulsive seizures. Soon after he became mentally dull and had a masklike facies and needed assistance in bathing, shaving and eating. On examination, it was found that he had a cogwheel rigidity, propulsive gait, masked facies, sialorrhea and tremor of the jaw. There was no improvement on the combined treatment of atropine 10 drops three times a day and benzedrine sulfate 10 mg daily. After a month on treatment he had signs of an upper respiratory infection. The following day there were signs of a right lower lobar pneumonia. The pulse was 132 and temperature 104.8. The atropine and benzedrine sulfate treatment was discontinued. His temperature fell gradually after two days to 99 F but rose gradually again to 104.6. His pulse continued rapid, 112 to 148, and he died six days later.

CASE 11—W G, a Negro aged 27, single was admitted to the hospital May 1, 1931. On examination it was found that he had a masked facies, cogwheel rigidity tremors and loss of associated movements. He was sleepy during the day and had difficulty in sleeping at night. June 5, 1933, he fell and sustained a skull fracture of the left frontal bone. The tremors increased. On the combined treatment of benzedrine sulfate and atropine his tremors lessened, he had more energy and was awake during the day and was able to sleep at night. While on this treatment he developed signs and symptoms of bronchopneumonia. His pulse rose from 90 to 116 and was 120 before death. His temperature ranged between 102 and 104 and he died three days after the onset of the pneumonic involvement.

185 North Wabash Avenue

Clinical Notes, Suggestions and New Instruments

DERMAGRAPH A NEW INSTRUMENT FOR LOCALIZING PAIN

ELIAS LINCOLN STERN M.D. NEW YORK

This instrument enables one to localize accurately and quickly hyperesthetic segments of the body. A freely movable wheel (fig 2) with sharp, closely set, radiating points is mounted at one end of the instrument. This wheel is lightly applied to the skin and then drawn across the area being investigated. The patient will feel pain as it crosses the hyperalgesic areas. When

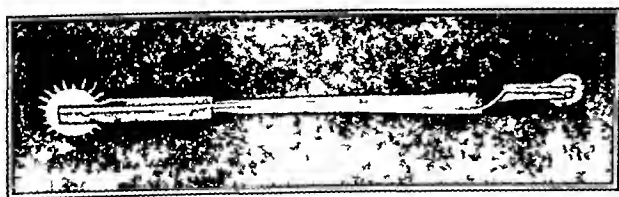


Fig 1—Appearance of dermagraph

applied parallel to the spine, and about 2 inches (5 cm) from the midline of the back, all the segments from the neck to the sacrum can be quickly tested. A rather constant pressure can easily be maintained along the course of the application.

At the other end of the instrument is a small disk wheel (fig 3), freely movable which has a rather sharp but not a cutting edge. This is used in a similar manner, excepting that

greater pressure is exerted on it as it is drawn over the skin. After a minute or two the skin reaction is observed. In cases of dermatographia a wheal appears almost immediately along



Fig 2—Testing for hypersensitive areas

the track of the application. Over hypersensitive segments, particularly of the sympathetic nerves, a white line flanked by a red streak on each side is noted. The normal reaction consists



Fig 3—Testing skin reaction

of a red line flanked by white lines. The use of this end of the instrument enables one to localize referred pains more accurately and aids in establishing diagnoses in obscure conditions.

From the Department of Sympathetic Neural Surgery, Sydenham Hospital

In addition, the disk wheel can be used to test the superficial reflexes and can be used repeatedly without scratching the patient's skin

It is obvious that the use of this instrument is neater, quicker, and more practical than the use of the usual safety pin or straight pin

1 East Seventy-Ninth Street

PERSISTENT BUCCONASAL MEMBRANE IN THE NEW BORN

H B LEMERE M D BEVERLY HILLS CALIF

This is a report of a case of persistent bucconasal membrane which was relieved permanently by probing and dilation. Cases previously reported in the literature have been in rhinologic journals, which do not usually come to the notice of obstetricians. The opinion expressed in the literature is that a large percentage of these children die of asphyxia without the cause of death being suspected. It is desirable, therefore, that obstetricians be familiar with this possibility. A simple emergency method of probing which gives immediate relief is also outlined. This life-saving procedure has not been given in any previous articles in the literature.

REPORT OF CASE

Baby William W was referred to me Jan 2, 1935, by Dr R C Nelson who gave me the following history. The date of birth was Oct 29, 1934. The mother had three other children. There was difficulty in starting breathing at the time of birth. The child always breathed entirely through the mouth and would become cyanosed when feeding at the breast. After the first few days he nursed from the bottle, attacking the bottle vigorously and then stopping to take breath. He was able to take only 3½ ounces (105 cc) at one feeding. He weighed at birth 7 pounds 3 ounces (3,260 Gm) and ten days later 7 pounds 2 ounces (3,232 Gm). I first saw the child at this time.

On admission the baby appeared well but was breathing entirely through the mouth. On account of the small postnasal space and the strength of the tongue and pharyngeal muscles it was impossible for me to pass my finger into the postnasal space without trauma. The nose and pharynx appeared normal and healthy. A tentative diagnosis of persistent bucconasal membrane was made. Five days later the child was operated on under general anesthesia. A small dull curet was passed along the inferior meatus on the right side and encountered, apparently slightly in front of the posterior nasal choanae, a firm membrane. This was broken through and gave the impression of a thin, firm partition. The back of the curet was used with firm pressure to dilate the opening. Immediately the child closed its mouth and breathed through this nostril. The left side of the nose was then opened and the membrane gave the same resistance. The mucus from the child's nose and throat was bloody but there was no free bleeding. There was no attempt made to bite or scrape away the membrane, only the pressure of the dull curet being used to enlarge the opening. The procedure turned out to be so simple and devoid of trauma or shock that the anesthetic used proved unnecessary. Post-operative progress was uneventful. The baby had gained 7 ounces (200 Gm) five days after the operation and was breathing through the nose and nursing without difficulty. One year later it was learned through the mother that the child was breathing normally.

LITERATURE

All textbooks on the nose and throat that I consulted do not mention this condition. Textbooks on pediatrics occasionally give it a brief paragraph. There are a number of cases reported in the laryngologic literature. Phelps¹ in reporting two cases in 1925 gives a good bibliography which I have used freely in this report. The classification in the literature is usually monolateral and bilateral. Each of these again is divided into partial or complete occlusion and a further differentiation into those cases discovered during infancy and those found later in

life. In 1923 Liberson² stated that 170 cases of all types had been recorded to that date. Cases of congenital, bilateral or complete occlusion are rarely reported, partly because they occur infrequently and partly because many must result in death at birth from asphyxia and remain unrecognized. Otto (1830) first reported a case of congenital occlusion found at autopsy. The first clinical case was reported by Emmert³ in 1853. Fraser⁴ and MacKenty⁵ report adult cases and both give a good summary and bibliography on this condition.

Most writers agree that this is a congenital defect and not due to a pathologic general condition. The theory that it is an outgrowth from the horizontal plate or from the vertical plate of the palate bone or from the vomer has been advanced. Schaeffer describes the development and disappearance of the bucconasal membrane as follows:

"The characteristic epithelium of the nasal areas is recognizable as early as the third week of embryonal life. During the fourth week, these areas become passively depressed by a positive increase in the thickness of the surrounding mesoderm which pushes the overlying ectoderm into relief. The nasal pits are thus formed. In a thirty-five day embryo, the nasal pits have deepened sufficiently to partake of the nature of cleft-like fossae, which end blindly at their dorsal and inferior termination. This is the primitive nasal fossa and its dorsal growth meets the ectoderm of the oral fossa and forms the bucconasal membrane. This membrane is so attenuated in a 35 to 38 mm embryo that rupture usually ensues and the primitive choanae are formed, which establishes the communication between the nasal fossa and the oral cavity and also delineates the primitive palate. Lack of this rupture leads to atresia of the choanae, as a result of an organization of the epithelial plugs which occasionally block the choanae, rarely caseous tissue develops in the organization."

My case might be described as persistent bucconasal membrane. If the condition had persisted to adult life, the median layer of bone would probably have grown to a pronounced bony plate.

DIAGNOSIS AND TREATMENT

The diagnosis of congenital bilateral persistence of the membrane in new-born children is simple. I know of no other condition that can produce complete obstruction to the nose with the exception of a congenital postnasal polyp, a rare condition. A probe can be passed and the membrane detected. A Politzer air bag may be used in either nostril and the impermeability of the nose demonstrated. In some cases the finger can be passed in the posterior pharynx and the membrane palpated. Phelps was able to see the membrane by passing a Holmes nasopharyngoscope into the mouth. Sometimes a new-born child will refuse to breathe at all if the nose is occluded and will die of asphyxia if efforts to force open the mouth or probe the membrane are not immediately undertaken. The treatment in my case was simple. Rupture of the membrane and dilation of the openings was all that was necessary. In a new-born child or very young infant this is probably all that is required or advisable, this membrane being similar in nature to the familiar membranous occlusion of the lacrimal duct, which remains patulous after once being broken through and dilated. All authorities agree that later in life, after the bone in the membrane is developed, it is difficult to maintain an opening, and MacKenty and others advise biting away the posterior portion of the septum as being necessary to maintain an opening. This has led to the opinion that even in infancy an elaborate operation must be performed. In my case the opening remained without a tube or obturator to maintain its permanence. There was no reaction from the procedure. The child breathed through the nose at once, and one year later the report was that breathing was normal.

COMMENT

Persistent bilateral bucconasal membrane producing complete nasal obstruction was relieved by simply rupturing the membrane. New-born children may die of asphyxia if there is complete obstruction to nasal breathing. The instinct of nose

2 Liberson, Ann Otol Rhin & Laryng December 1923
3 Emmert C F Lehrbuch der Chirurgie Stuttgart F u K Dann 1853
4 Fraser Brit M J 2 1698 (Vol 26) 1910
5 MacKenty J E M Rec 72 387 1907

1 Phelps L A Tr Am Acad Ophth 1925 p 353

breathing may be so impelling that mouth breathing cannot be accomplished. Others may die of malnutrition from interference with feeding.

It is desirable that obstetricians recognize this condition in case of asphyxia and also know the ease with which rupture of the membrane and dilation of the opening may be accomplished. The pediatrician will be interested in the interference that it caused in nursing. The literature on this subject is comprehensive, and my purpose in reporting an additional case is to show the result of the operation of simple rupture of the membrane. In none of the reports could I find that this simple procedure was performed or advocated. In the new-born it is not desirable to subject the child to the formidable proceedings advocated in the literature, but the probing can be carried out immediately without shock or injury.

9615 Brighton Way

Special Clinical Article

THE TRACING OF SYPHILIS THROUGH COMMON AILMENTS

CLINICAL LECTURE AT ATLANTIC CITY SESSION

A BENSON CANNON, M.D.

NEW YORK

A scientist once remarked that after five years' work in a certain field he had "allowed himself to speculate on the subject", after twenty-two years of painstaking research, he writes that it will take him many more years to complete it but that he will now consent to publish a brief abstract (one volume) of his researches. What Darwin wrote concerning the genesis of his "Origin of Species" might well apply to any man who would undertake a comprehensive study of latent syphilis. Like Darwin, I have "allowed myself to speculate on the subject." Unlike Darwin, I am still far from the point where I might presume to publish a 450 page "abstract" of any research I may have made.

If one speaks of clinical latency in syphilis, as is customary, there are many angles from which the subject may be studied. From the vantage point of the group with a large clinical material at its disposal it is possible, for example to study the duration of clinical latency in treated cases as compared with untreated or inadequately treated ones. Such comparisons, even when fragmentary and limited in scope, have in fact served as one of the principal guides in determining what constitutes "adequate" treatment. Likewise, a careful study of the behavior of the Wassermann reaction, taken frequently over long periods of time, in patients who have achieved clinical latency, would contribute much to our understanding of the "Wassermann-fast" case, long a bone of contention among syphilologists.

These methods of approach, in order to function adequately, presuppose a large clinical material observed over long periods and studied in retrospect by a group of specialists with a clerical staff at their disposal for the gathering and correlating of statistical data. The work undertaken along these lines by the Health Organization of the League of Nations and particularly by the Cooperative Clinical Group in this country deserves the highest commendation and should be followed with

interest by every worker in the field. Bruusgaard's unique contribution from the Oslo clinic on the proportion and duration of clinical latency in untreated cases followed for many years is also of interest in this connection.

It is possible, however, to approach this subject from other angles—angles which it seems to me represent the more immediate problems of the general practitioner. The average practitioner of my acquaintance will look with respect on the imposing array of statistics marshaled by some authoritative body of investigators, but privately he is likely to pin one of the investigators down to two or three everyday questions, such as: Just what is a latent case of syphilis? How am I to detect it? and How should I treat it—if at all?

When I am pinned down to a definition of latent syphilis I am strongly tempted to reply, in the words of the farmer, "Thar ain't no sich animal." Any schoolboy knows that the word itself derives from the Latin "latere," to "lie hidden," but the sign that is silent before the novice often shouts aloud to the experienced, and what was invisible yesterday may stand out in startling clarity today, with the aid of improved diagnostic facilities. Furthermore, the patient himself is in a constant state of change, so that the man who qualified as a perfect "latent" case on Wednesday has been known to drop dead on Thursday from a syphilitic heart condition, and syphilitic patients supposedly "cured" who came to autopsy from accidental causes have been found to harbor *Spirochaeta pallida* in their tissues. In the present state of our knowledge the positive serologic reaction is the one unfailing sign of the presence of a syphilitic infection, and to say that an infection is "latent" or "asymptomatic" is merely an admission that the site or sites of its activity are not known at the moment.

The most immediate problem, then, with which the practitioner is confronted, in the presence of a patient with a positive Wassermann reaction but without any of the obvious earmarks of syphilis, is to ferret out hitherto unsuspected sites of activity and to treat them according to his observations with the aim of forestalling if possible, further advances of the parasite. For this reason it seemed to me that a record, though of necessity brief, of the actual experiences of physicians in one large city clinic in discovering and treating cases of so-called latent syphilis might be worth communicating.

First, a few words as to how we proceeded.

The present study was originally conceived as part of a larger one dealing with the accomplishments of arsphenamine in the treatment of syphilis of all stages. For this purpose a systematic record was kept of all adult patients admitted to the department of dermatology from the spring of 1935 to the spring of 1937 whose ultimate diagnosis was syphilis. In the course of this study it became increasingly apparent that a large proportion of the patients so admitted arrived in this department by accident rather than by design, having presented themselves originally for some complaint totally unconnected with syphilis—at least in their own minds and frequently also in the opinion of the admitting physician. The approximately 600 cases of syphilis recorded to date are unselected, then, as regards latency and represent all syphilitic patients who were treated with arsphenamine during any or all of this period. It leaves out of account those who received only intramuscular injections and/or silver arsphenamine.

From the Department of Dermatology, Columbia University College of Physicians and Surgeons.
Read in the General Scientific Meetings at the Eighty-Eighth Annual Session of the American Medical Association, Atlantic City, N. J., June 8, 1937.

Among the cases under consideration 303, or slightly over half, appeared to be free from any external manifestations of syphilis and gave no history of recent infection. These may tentatively be termed "latent," for purposes of this paper. Among this group there were found to be 135 from whom some history of previous infection was elicited. Only eighty-one could recall a primary sore, and many of these were doubtful, being uncorroborated by darkfield examinations or Wassermann tests. Twenty-two gave histories of rashes or other symptoms strongly suggestive of secondary syphilis but could not recall any primary lesion, while only ten of the 135 gave definite accounts of both primary and secondary manifestations, recognized and treated as such. In fact, the outstanding features of the preliminary case histories of this entire series were, first, the tardy recognition of the disease as such and, second, the inadequacy of the treatment received, forty-one patients reporting either no treatment whatever or only local treatment (salves and the like), cautery, "pills," or "drops by mouth." Nearly half the patients who reported a primary lesion received no specific treatment in this stage.

Of the still larger number of patients (168) hitherto unaware of their syphilitic infection, some discovered it only when another member of the family was found to be infected, others, when a routine blood test was performed on application for a position, a considerable number of cases were caught when the persons in question were about to serve as blood donors, a surprising proportion of women patients were sent in from the antepartum clinic with a positive Wassermann reaction but without any other evidence or history of infection. Worry over possible recent exposure brought a number of men, while a still larger number, both men and women, were found to have positive Wassermann reactions when tested in a routine manner on application to the clinic for some injury or ailment not related to syphilis.

The patients to whom I would invite particular attention are those in whom supposedly latent syphilis created special problems of diagnosis and treatment. These patients, constituting a group of ninety-six¹ men and women deemed profitable for intensive study, had presented themselves at the admitting office with a great variety of complaints, none of which were directly attributable to syphilis. Many of the patients brought letters from other hospitals or from their family physicians, giving diagnoses for the most part merely descriptive and reminiscent of Sganarelle: "Your daughter is dumb, she has lost her speech" "Yes, yes, I know that, but the cause?"

Twenty-one of these patients sought admission to the clinic because of gastro-intestinal disorders, eighteen complained of symptoms referable to the respiratory tract, a like number were admitted for pains in bones, joints and muscles—backache being common among this group, there were nine patients whose urinary symptoms constituted their chief complaint, and seven women with gynecologic ailments. Fourteen cited headaches, nervousness and a "general rundown condition," often accompanied by vague aches and pains not definitely localized. These, together with a small group of miscellaneous disorders constituted the complaints which the admitting physician was called on to evaluate in order that each patient might be sent to the proper department for a more complete examina-

tion. In the majority of instances syphilis did not enter the picture at this stage. The patients were distributed to the departments of internal medicine, urology, ear, nose and throat, the tuberculosis clinic or department of gynecology as the case might be. What happened to them in these departments I believe is worth describing further.

PATIENTS WITH DISORDERS OF THE GASTRO- INTESTINAL TRACT

The majority of patients in the group of twenty-one cases in which there were disorders of the gastro-intestinal tract complained of "stomach trouble," epigastric pain, gas and indigestion being cited more often than nausea and vomiting, only three patients reported vomiting blood, and two additional ones had tarry stools. Two patients described "burning sensations" in the abdomen, sometimes radiating to the back and chest. Some complained of loss of appetite, while in others the appetite was unimpaired. Several had tenderness in the right lower quadrant which had led to a tentative diagnosis of appendicitis. There seemed to be no uniformity in the onset of symptoms, some apparently being unrelated to meals, others occurred after eating and others were relieved by food.

All these patients received a thorough physical examination, and all but two had x-ray examinations of the gastro-intestinal tract, stools and vomitus were examined for occult blood, ova and parasites. Some had test meals and analysis of gastric contents. As a matter of course, patients were questioned as to the relation of their symptoms to constipation or to the ingestion of particular foods. It is interesting to note that in nine of these cases, in spite of the most painstaking search, no definite diagnosis was arrived at. Tentative "impressions" of peptic ulcer had to be revised when x-ray examinations and laboratory tests all gave negative results. In two cases diagnosed as due to "chronic constipation" the patients were relieved of their constipation by diet and petrolatum, but pain and distention from gas still continued. In most of the remaining cases x-ray studies (both serial films and fluoroscopic examinations) were reported as being "suggestive" of duodenal or gastric ulcer though some were admittedly inconclusive or atypical, and in one case (in which no x-ray film was taken) opinion seems to have been divided between "acute gastro-enteritis" and "gastric neurosis."

It was usually at this juncture that the routine Wassermann reaction was reported, and twelve persons of this group of twenty whose histories were completely negative for a syphilitic infection were found to have a positive serologic reaction. The test is always repeated in instances in which there are no symptoms or history of previous infection or treatment, and so it happened that the twelve patients, plus others who had given histories of syphilis in the past, were eventually referred to the department of dermatology for treatment of syphilis. Here signs were frequently noted which had been overlooked in previous examinations because attention had been centered on other conditions—the sluggish pupil, the absent knee jerk, the accentuated second aortic sound, the story of repeated miscarriages—none conclusive in itself but all significant to the syphilologist trained to piece together bits of evidence into their proper sequence.

In patients of this group who admitted that they had had a previous syphilitic infection, the estimated duration of disease ranged from five to eighteen years, with an average of ten years.

¹ Seventy-six clinic cases to which were added twenty private cases presenting similar problem.

All these patients, at various intervals after the diagnosis of syphilis had been established, were started on antisyphilitic therapy, usually beginning with intramuscular injections of mercury or bismuth compounds and continuing with alternating courses of arsphenamine and a heavy metal, according to the requirements of the individual case. Potassium iodide was usually taken by mouth between arsphenamine courses. The effect of antisyphilitic treatment on these various stomach ailments constitutes one of the most interesting chapters in my experience. The bare fact that the patients in this group all showed marked improvement in their stomach symptoms under antisyphilitic treatment, while true, might in itself be misleading. Patients who after examination were adjudged to have gastric or duodenal ulcers were almost invariably placed on special dietary regimens, and it was not always possible to determine how much of the improvement was due to the diet and how much to the treatment for syphilis.

When the records were studied more carefully, however, many interesting features came to light. Some patients admitted on questioning that they had not adhered to the diet prescribed, since they felt so much better anyway after injections for syphilis were started. Some adhered to a prescribed diet and took medicines by mouth for a considerable period, with little or no relief, before antisyphilitic therapy was begun in the dermatology clinic, when symptoms cleared, often after a surprisingly few intravenous or intramuscular injections.

I have already mentioned two cases in which chronic constipation cleared under appropriate diet and petrolatum, without any apparent relief from gas, pain and abdominal distention. Both these patients showed marked improvement after a few injections of arsphenamine, one of the two reporting a recurrence of symptoms after a two months lapse from antisyphilitic therapy, and a clearing of symptoms as treatment was resumed. Seven of the patients admitted for gastro-intestinal complaints were found on later examination to have symptoms of cardiovascular involvement. It is often overlooked that epigastric pain and belching may be due to abdominal syphilitic angina when x-ray examination and gastric analyses are negative.

Three cases are reported here in greater detail.

A woman was transferred from a hospital where the diagnosis of inoperable carcinoma had been made. The patient had marked gastro-intestinal symptoms with a decided secondary anemia and a negative Wassermann reaction of the blood. In the second hospital the diagnosis was changed to that of primary anemia. It was not until after she was given a number of transfusions that it was discovered that her husband had a gumma of the leg with a four plus Wassermann reaction. The patient was cured with arsphenamine and has remained well for twenty-two years. (Private case.)

The second case is fairly typical of the patients who consulted a physician repeatedly for stomach trouble without securing any permanent relief until a hitherto unsuspected syphilis was discovered and treated.

CASE 27—K. F., a Negro, aged 24 was first admitted Aug. 10 1926 with subsequent admissions Sept. 2 1931 Jan. 17 1933 and Feb. 8, 1935. On the first admission he complained of attacks of epigastric pain one and one-half hours after meals for the past three years. He returned three times in the next nine years for recurrence of symptoms.

X-ray examination of the gastro-intestinal tract on the first admission led to a diagnosis of "ulcer of the stomach and possible ulcer of the duodenum." Physical examination was essentially negative in 1931 and 1933, no x-ray examination was made in 1933. X-ray films taken Feb. 19, 1935, showed "no evidence of ulcer previously found." Syphilis was denied by name and symptom. The Wassermann reaction of the blood was \pm and of the spinal fluid was negative on the first admission. Later Wassermann reactions were all positive in varying degrees. The Kahn test was positive. There were no symptoms of syphilis.

Ulcer diet and treatment by mouth brought some improvement but the patient still did not feel very well, the hair fell out badly, and the original symptoms kept recurring. Antisyphilitic therapy was begun March 14, 1935, twenty-one injections of mercury compounds and twenty injections of arsphenamine were given during the next year, treatment was then continued elsewhere for one year. His condition was reported "excellent" after twelve mercury injections. There was no return of stomach symptoms up to April 1, 1937, the date of the last visit. The Wassermann reaction was still weakly positive.

In the third instance a patient was operated on for peptic ulcer, but most of the symptoms continued to recur until antisyphilitic therapy was instituted.

CASE 37—R. G., a Negro, aged 34, admitted Feb. 11, 1934, complained chiefly for four years of gas, abdominal distention, belching, with pain and, more recently, intractable vomiting, later coffee-ground material appeared in the vomitus.

X-ray examination of the abdomen was negative. The guaiac test of the vomitus was $++$ and of the stool was negative. There was no free hydrochloric acid, and total acidity was 0. The diagnosis was bleeding peptic ulcer, with obstruction of the pylorus, probably due to stenosis.

There was a history of a primary lesion in 1918, but no secondaries were recalled. He had been treated by mouth only. On admission the blood Wassermann reaction was positive. Sluggish pupils, systolic murmur and marked sinus arrhythmia were noted.

March 5, 1934 a gastrojejunostomy was followed by temporary improvement, but gas and abdominal pain recurred, even with a special diet, and were still present nearly two years after operation. X-ray examination five months after operation showed the gastrojejunostomy functioning adequately.

Treatment with arsphenamine and bismuth begun Jan. 31, 1936 brought about disappearance of pain and marked improvement in the general condition, there was still some gas. There was a recurrence of symptoms after a lapse from antisyphilitic treatment. The patient was still under observation April 6, 1937.

It should be added that patient 37 had come to the clinic first in 1930, complaining of "gas" so troublesome that it had kept him awake for two nights. He was given a gastric sedative by mouth. A Wassermann test was not made and the patient did not return again until 1934, when the symptoms had reached the stage described. The conditions found at operation confirmed the clinical impression of pyloric stenosis, without, however, disclosing the site of bleeding. There was, in the words of the pathologic report, "a 5 cm area of induration just distal to the pyloric vein, on the posterior wall of the duodenum. No crater was felt. There was considerable edema posteriorly as well as anteriorly, extending into the gastrohepatic omentum. Both above and below the site were a number of large glands which were not quite hard enough for metastases. The liver appeared normal."

This is not the place to enter into a theoretical discussion of syphilis of the gastro-intestinal tract but various investigators have called attention to residual damage from a chronic syphilitic of the stomach, in the form of (1) mechanical obstruction from lesions

strategically situated in pyloric stenosis, and (2) fibrotic changes in the walls of the stomach, resulting in shrinkage and reduction of functional capacity. In the matter of ulcer of the stomach or duodenum, it is usually impossible to distinguish between syphilis with intercurrent ulcer and ulcer due to syphilis, and necropsy evidence from various sources would indicate that the single benign chronic peptic ulcer is no more common in syphilitic than in nonsyphilitic cases. It is pertinent to recall that Eusterman,³ summarizing his experiences at the Mayo Clinic, concludes that "in all cases of syphilis in which a demonstrable gastric lesion is present the condition should be regarded as syphilitic until it is proved otherwise" and that, "in the light of accumulating knowledge, the attitude that a case of gastric syphilis is not proved without histologic or bacteriologic confirmation, or both, is unjustifiable." Seventy-nine per cent of the patients in his series were reported cured or much improved under antisyphilitic treatment.

PATIENTS WITH SYMPTOMS FROM THE RESPIRATORY TRACT AND THE CARDIOVASCULAR SYSTEM

Not a single patient in the group of eighteen with symptoms from the respiratory tract and the cardiovascular system complained outright of "heart trouble." The most common complaints that brought them to the clinic were a chronic cough, associated with symptoms suggestive of tuberculosis, pleurisy, asthma, sore throat, hoarseness and sinus trouble. A few of the clinical diagnoses recorded on the case histories will indicate the impression of the admitting officer and the physicians in the various departments: "chronic upper respiratory infection," "chronic bronchitis and emphysema," "common cold," "bronchial asthma," "pulmonary tuberculosis (?)," "pleurisy, probably pleural tuberculosis," and "chronic laryngitis, cause unknown."

In the majority of these cases the condition was of long standing, in relatively few had it come on within the past year or less. Usually the patient had managed to get along with his cough, pleurisy or asthma until some intercurrent infection, usually a "bad cold," brought on an exacerbation of his symptoms and he became worried about the possibility of tuberculosis. It was common to find that patients had been referred by the admitting physician to the tuberculosis clinic because the preliminary examination disclosed a chronic cough, sometimes with sputum (occasionally blood streaked), night sweats, loss of appetite and weight, pains in the chest and a history of exposure to tuberculosis. In the tuberculosis clinic, x-ray examinations of the chest would show the lung fields to be clear and examinations of sputum for tubercle bacilli would be repeatedly negative. The temperature would be normal, and no definite foundation could be found for a diagnosis of tuberculosis.

Frequently, however, in these patients, physical or x-ray examinations of the chest, or both, would bring to light murmurs and enlargement of the heart or the aorta. If these examinations were followed up by an electrocardiogram, evidence of heart muscle damage was often added to the picture. By this time some of the symptoms originally attributed to disease of the respiratory tract—cough, asthmatic "wheezing," and the like—moved over into the frame of cardiovascular disease. When the patient was questioned more carefully

from this angle, many subsidiary physical changes cropped up that had been ignored or minimized in previous examinations, when attention had been directed toward tuberculosis. By this time the examiner was usually in possession of the routine Wassermann report, or the brief mention of an old syphilitic infection, previously overlooked or dismissed as irrelevant, had come to his attention. The patient would then be sent to the department of dermatology, with the pious hope that antisyphilitic therapy might help him, since nothing else had. (Usually, I might add, it did.)

A similar sequence of events could be traced in cases in which causes other than tuberculosis were originally believed to account for the symptoms. A preliminary diagnosis of "asthma" frequently brought the patient to the allergy clinic, where tests with a long series of allergic substances, including pollens, bacteria and foods, would turn out to be negative or inconclusive. X-ray examination of the sinuses disposed of the provisional diagnosis of "sinusitis" in more than one instance, while in others, in which some clouding was observed, nasal irrigations brought only temporary amelioration of symptoms. Laryngoscopy did not always reveal pathologic changes to account for a patient's hoarseness, whereas one patient who had been treated intensively for a year in another hospital for a supposed tuberculosis of the throat found that his "sore throat" had melted away with three injections of arsphenamine, which he was given on the discovery of a positive Wassermann reaction.

It is not implied for a moment that symptoms such as have been described here were invariably found to be due to syphilis. In some instances tuberculosis or an intercurrent infection was indubitably present, together with syphilis of long standing. The more obvious features of the former masked the presence of the latter.

Nor is it to be understood that the case types selected for special study necessarily represent the total distribution of latent cases among the different departments. Many cases of cardiovascular syphilis and syphilis of the nervous system were detected or at least suspected on admission by virtue of a previous history of infection or treatment, plus some sign caught by an alert examiner who followed up his flair promptly with specific diagnostic procedures. The men assigned to the admitting office are as a rule experienced physicians and probably more alive to the possibilities of syphilis than the average practitioner from the smaller community, where the incidence of syphilis is lower than in a cosmopolitan center like New York, and the number of syphilitic patients who seek medical care is correspondingly smaller. Thus it was felt that cases which had proved puzzling to this relatively syphilis-conscious group of physicians might well offer points of interest and practical value to the average general practitioner.

Examples could be multiplied indefinitely, but summaries will have to be limited to a few.

CASE 14—V W, a Negress aged 37, first admitted Nov. 24, 1933, and readmitted Jan. 13, 1936, complained chiefly of a cold in the chest for six days with cough and some phlegm, chronic cough the past winter, and night sweats and loss of weight over the past two years. She had had occasional sharp pains in the chest for the last seven to eight years. Was it tuberculosis? The patient returned Jan. 13, 1936 with the same symptoms as before but no cough. On the first admission in 1933 physical examination revealed rales at both bases, especially on the right and murmurs both diastolic and systolic over the aortic area. X-ray films of the lungs were negative. Examina-

³ Eusterman, G. B. Gastric Syphilis. Observations Based on Ninety-Three Cases. J. A. M. A. 96: 173 (Jan. 17) 1931.

tion of the sputum and urine was negative. The diagnosis was "common cold" with a suggestion of mitral heart lesion.

There was no history of primary or secondary lesions, but one miscarriage at two months and a positive Wassermann reaction in 1926 had been followed by from eight to ten intravenous injections at Bellevue Hospital. The Wassermann reaction was negative on the first admission here. There were no symptoms of syphilis. In 1936 the Wassermann reaction was positive, there were still no symptoms of syphilis.

In 1933 the patient was treated only for a "common cold." On readmission in 1936 the discovery of the positive Wassermann reaction led to antisyphilitic therapy consisting of a bismuth compound and arsphenamine in alternate courses. The patient was much improved after ten bismuth and eight arsphenamine injections. There were no signs of decompensation.

CASE 19—E M., a Negress, aged 30, admitted Nov. 17, 1934, complained chiefly of asthma and an asthmatic wheeze and chronic cold with cough and sputum which had been present for one and one-half years.

Physical examination revealed that the heart was slightly rapid but otherwise the examination was negative. The blood count showed slight anemia. X-ray films of the sinuses were negative. X-ray examination of the chest Nov. 21, 1934, revealed that the lungs were clear but that there was slight thickening of the right apical pleura and slight tenting of the right dome of the diaphragm. The sputum was negative for tubercle bacilli. The urine was normal. The temperature was normal. The diagnosis was "bronchial asthma" and, later, "chronic pulmonary tuberculosis." There was no history of primary or secondary lesions. The patient had had one miscarriage three years previously, one child had died at 2 or 3 days of age four and one-half years before admission and one child, aged 7 years, was living and apparently well. There had been a positive Wassermann reaction seven years before during the first pregnancy, followed by twelve intravenous and twenty-two intramuscular injections at irregular intervals up to two years before admission. The Wassermann reaction was positive on admission, Nov. 17, 1934. The spinal fluid was negative. There was a slightly accentuated second aortic sound, the right pupil was slightly larger than the left.

Tonics and sedatives were given for several months without noticeable improvement. An X-ray film of the chest, June 20, 1935, showed a shadow which had developed at the right apex since the last film which was probably thickened pleura. The parenchyma was clear. After one injection of a mercury compound, fifteen of a bismuth compound and ten of arsphenamine, August 7, the patient felt better, she had an occasional cough and expectoration but no chills or sweats. The temperature was normal and only a few fine rales were heard over the right upper lobe. After nine more injections of a mercury compound, October 28, she felt much better, she had no cough during the summer and gained several pounds, the lungs were resonant, with no rales. Breathing sounds were harsh about the hilus, and the heart was rapid and regular. X-ray examination of the chest, Nov. 6, 1935, showed that the shadow at the right apex had diminished, a few fibrous streaks remained. X-ray examination of the chest March 9, 1936, showed no change. Jan. 11, 1937, after thirty injections of arsphenamine, fifteen of a bismuth compound and forty-four of a mercury compound she had no complaints except occasional mild colds. She was still under treatment May 11.

CASE 23—F L., a Negro, aged 40, admitted Feb. 19, 1935, complained chiefly of (1) pains in the chest and a dry cough for the past six months, with no sputum, hemoptysis or night sweats and (2) swelling in the neck for the past two weeks, an enlarged supraclavicular node on the right, there had been no preceding infection and no known exposure to tuberculosis. He had lost 12 pounds (5.4 Kg.) in the past month.

Physical examination revealed slightly diminished resonance over both lungs, groans and squeaks throughout the chest but no fine rales. Sputum (chiefly saliva) was negative three times for tubercle bacilli. The blood count was normal. The urine was normal. X-ray examination of the chest, February 23, revealed a round shadow laterally overlying the great vessels and projecting to the right, which could be produced by posterior mediastinal adenopathy, also a small oval shadow at

the level of the right fourth rib which might represent an old minimal tuberculous lesion. The tuberculin test, March 12, showed a red raised wheal. The pathologic report based on the excised supraclavicular node read "typical for tuberculosis."

The diagnosis was (1) pulmonary tuberculosis? (2) tuberculous lymphadenitis of supraclavicular node.

There was a history of a primary (?) lesion fifteen months before, which was treated by cauterization, a mercury compound by mouth and one arsphenamine injection. There had been no secondary manifestations. The Wassermann reaction was positive on admission. There were no symptoms of syphilis.

Antisyphilitic therapy was begun April 1, with alternate courses of a bismuth compound and arsphenamine for one year. The patient felt much improved under treatment, he gained 20 pounds (9 Kg.), and his appetite was good. X-ray examination of the chest March 25, 1937, showed that the mass previously reported had regressed or disappeared. There was a small calcified area in the midzone of the right lung field opposite the hilus. There was no complaint at the last visit except an occasional slight pain in the right scapula. He was still under treatment April 8, 1937.

In case 14, symptoms of long standing were masked by the "cold" and signs suggestive of a mitral heart lesion were minimized in the presence of the negative Wassermann reaction and a history negative for rheumatic fever. A single negative Wassermann reaction, however, in a patient with a history of a syphilitic infection inadequately treated, does not prove that the patient is cured of syphilis. The test should be repeated, preferably after a small provocative injection of arsphenamine, a positive reaction is almost certain to appear in one or more tests taken at intervals of a few days or a week. This patient showed a recurrent positive Wassermann reaction three years later, on her second admission to the clinic. It is to be regretted that three years was lost in treating the infection.

It is impossible here to do more than touch on the problem of differentiating pulmonary syphilis from pulmonary tuberculosis. In the opinion of Stokes² "Fever, productive cough, blood-streaked sputum, gastrointestinal symptoms, weight loss and even night sweats are not impossible in pulmonary syphilis uncomplicated by active tuberculosis." With a positive Wassermann reaction and corroborative signs of syphilis, and sputum repeatedly negative for tubercle bacilli, the presumption is already strongly in favor of syphilis. Interpretation of roentgenograms requires special study, but in general the more definitely circumscribed shadow, fibrous tracts radiating from the main lesion and a preference for the right side point toward syphilis rather than tuberculosis. The clearing of symptoms under antisyphilitic treatment remains, of course, the most convincing argument. In both cases 19 and 23 the clinical improvement was supported by repeated X-ray films showing regression or disappearance of the original shadows as antisyphilitic treatment was continued.

CASE 48—L D., a white woman, aged 38, admitted Dec. 6, 1935, complained chiefly of hoarseness of one year's duration, which had become worse since tonsillectomy six months before admission and very severe in the past four weeks. When laryngoscopy was done Oct. 11, 1935, both vocal cords were found to be obscured by soft fibrous tissue, also a web was present anteriorly between the two sides, both ventricular bands were thickened, there was a tumor mass on the left ventricular band. Pathologic changes were not typical of tuberculosis (no tubercles and no caseation necrosis). Stain failed to show acid fast bacilli. "Chronic hyperplastic connective tissue infiltrated with round cells." X-ray examination of the chest December 17, suggested residual infection in the lungs from childhood, there was no evidence of pulmonary infiltration of recent origin. The diagnosis was "chronic laryngitis, cause

unknown", "impossible to make positive diagnosis from pathologic specimen—cancer ? tuberculosis ? syphilis ?"

The history was completely negative. There were no symptoms. There had been no previous Wassermann test or treatment. The Wassermann reaction was positive, December 13. X-ray films of the heart showed a slight increase in the transverse diameter.

Antisymphilitic therapy was begun December 24. The patient improved under a bismuth compound and still more under arsphenamine. The voice was sometimes entirely normal. Hoarseness then recurred during a four weeks lapse from treatment. After resumption of treatment hoarseness improved but has not disappeared entirely. X-ray examination of the heart, April 20, 1937 showed a definite decrease in the transverse diameter since the last film had been taken. She was still under treatment May 18.

Evidently in syphilis of the larynx, as in syphilis of other structures, the active inflammatory process may show marked regression and disappear under antisymphilitic treatment, but fibrosis and scarring, the sequelae of an active process, will of course remain. The hoarseness of patient 48 responded well to antisymphilitic treatment, only to recur during a four weeks lapse from treatment. Residual effects are still in evidence. Another case of hoarseness in this series (case 56) was found to be due to paralysis of the left vocal cord, there were no signs of tumor or ulceration in the larynx.

CASE 56—A man, aged 39, without a history of syphilis, was found to have a positive Wassermann reaction of the blood and of the spinal fluid, fixed pupils, and a soft systolic murmur but no other demonstrable signs of cardiac involvement. The hoarseness improved under antisymphilitic treatment but did not entirely disappear. Paralysis of one or both vocal cords may be caused by pressure from a thoracic aneurysm, but none was made out in the present instance.

In one patient with a negative history of syphilis but with a positive Wassermann reaction, pleurisy cleared entirely under injections of a bismuth compound and arsphenamine, and asthmatic attacks, recurrent since childhood, had become noticeably less frequent and less severe. In spite of this, a cautious physician decided after an attack of asthma to discontinue arsphenamine until the asthma improved. The pleurisy returned, with hemigirdle radiation to the lumbar spine. A lesion then developed on the vulva suggestive of a primary lesion (darkfield negative, one enlarged inguinal gland) and the patient was given a course of eight arsphenamine injections. The pleurisy disappeared. The lesion on the vulva turned out to be a furuncle.

SYMPTOMS FROM THE URINARY TRACT

Symptoms from the urinary tract brought to the clinic nine of the patients in our selected group of cases. Frequency and nocturia, difficult or painful urination, burning, sprained stream and slight enuresis, dribbling, acute retention, hematuria and pain in the lower part of the back were all represented, and there was one case of paroxysmal hemoglobinuria. Many of these patients gave a history of gonorrhea, this, however, did not account for the major symptoms, which had persisted even in treated cases. Roentgenograms of the genito-urinary tract, with one possible exception, were negative for stone and abnormalities, and cystoscopy did not reveal any tumors of the bladder or urethra. Local changes in the bladder will be described in some of the summaries of cases. With indications negative for stone and new growths the examiner usually weighed the possibilities of a local infection, a generalized infec-

tion, particularly tuberculosis and syphilis, and a cord lesion. In women patients the possibility of pressure symptoms from a uterus enlarged by pregnancy or fibroids was of course taken into consideration. In one case a pessary helped but did not entirely eliminate bladder symptoms. There was no evidence of tuberculosis in any of the patients in this group. Two were adjudged to have evidence of a "neurogenic" bladder, one of these was supported by a positive spinal fluid. All but one responded to antisymphilitic therapy either by marked improvement or by complete disappearance of urinary complaints. A few summaries of cases follow.

CASE 77—H. C. B., a white man, aged 48, admitted Nov. 19, 1936, complained chiefly of day frequency every hour for the past six weeks, it would disappear for one or two days and then recur. There were no other urinary symptoms.

Urinalysis was negative. X-ray examination of the urinary tract revealed no evidence of calculus, the right kidney was slightly enlarged and low in position. There were no other abnormalities. The local physician had sent the patient in with a diagnosis of prostatitis because of a slightly enlarged prostate. The urology department made a diagnosis of bladder hyperirritability of unknown origin.

The history was completely negative for syphilis. The Wassermann reaction was negative three years before, according to the patient. On admission the Wassermann reaction was positive, and again when repeated December 3. The right knee jerks, ankle jerks both on the right and on the left and abdominal reflexes were absent, the cremasteric reflex was hypotonic. The heart was apparently normal and the pupils were normal.

Treatment consisted of injections of a bismuth compound, arsphenamine, a mercury compound and silver arsphenamine in alternating courses. The urinary symptoms disappeared under the first bismuth course and had not recurred to the date of the last visit, May 25, 1937.

CASE 51—A. W. L., a Negro, aged 30, first admitted in 1930, and readmitted Feb. 15, 1935, complained on the first admission of frequency and pain in the lower part of the back and in the left shoulder and knees, he made the same complaint on the second admission.

In 1930, X-ray examination of the urinary tract was negative. X-ray films of the back showed no evidence of arthritis but sacralization of the lowest lumbar vertebra (congenital). Cystoscopy revealed moderate inflammation of the trigon and posterior urethra, with some elevation of the left ureteral orifice. The bladder was otherwise normal. Several specimens of urine showed an occasional red blood cell. On the second admission, in 1935, the urethroscope showed the posterior part of the urethra inflamed and the verumontanum raised. No diagnosis was recorded. The history was negative for syphilis. A 'lump in the groin' had been noticed for three weeks fifteen years before. No treatment had been given. The Wassermann test was not done on the first visit in 1930. The Wassermann reaction was positive on the second admission and three successive tests were also positive. There were no symptoms of syphilis.

Local treatment was given in the urology department, including irrigation of the bladder, and prostatic massage gave no permanent relief. An orthopedic belt for the back helped some but likewise brought about no permanent improvement. The condition cleared gradually under antisymphilitic treatment (a bismuth compound and arsphenamine, later a mercury compound and arsphenamine in alternating courses). The patient was dismissed from the urology department "free from complaints" Jan. 29, 1937. Urine was normal April 1. The patient was still under antisymphilitic treatment April 29.

CASE 56—P. L., a man, aged 39, Chinese, admitted Aug. 3, 1936, complained chiefly of dysuria for two weeks and slowing of the stream for a year and a half. The urology department reported that no genito-urinary pathologic changes were found. There was no history of syphilis. The patient had had gonorrhea five years before. The Wassermann reaction of the blood was positive on admission. The spinal fluid was positive September 18, in both the Wassermann and the colloidal gold

test There were fixed pupils A soft-systolic murmur was heard at the apex, x-ray films of the heart were twice negative The electrocardiogram suggested the presence of some damage to the heart muscle There were no other symptoms of syphilis

No treatment was given in the urology department Bismuth compounds and arsphenamine in alternate courses resulted in disappearance of the urinary complaints The patient was still under treatment May 14, 1937

CASE 24—M T, a white man, aged 35, admitted Jan 25, 1935, complained chiefly of "kidney trouble" He had had pain in the lower part of the back radiating down to the left testicle and thigh for the past two months There had been day frequency for the past week but no nocturia or other urinary symptoms There was some swelling of the left testicle Urinalysis was done three times and was normal The prostate felt normal An x-ray examination of the urinary tract was ordered but the patient did not keep his appointment X-ray examination of the heart revealed no abnormality

There was a history of a primary (?) lesion three years before but no secondaries, no blood test had been made, treatment was local and by mouth only The Wassermann reaction was now positive repeatedly There were no symptoms of syphilis

All complaints disappeared under treatment with alternate courses of a bismuth compound and arsphenamine The patient was still under treatment May 12, 1937

CASE 11—F O B a white man, aged 46, admitted Nov 12, 1935, complained chiefly of sprayed stream and slight enuresis for one and one-half years and acute retention of urine for the past fifteen hours The urine was cloudy The prostate was not enlarged and no prostatic stone was found X-ray examination of the urinary tract showed only a "calcified shadow in the left renal area which should be ruled out as kidney stone" The diagnosis was (1) stricture of the posterior portion of the urethra and (2) a large atonic bladder

A history of syphilis was given with a primary lesion five years before, no secondaries had been noted, no blood tests were made and no treatment was given at that time The Wassermann reaction of the blood and of the spinal fluid was positive The pupils were sluggish and irregular, the right larger than the left There were no other symptoms of syphilis

Treatment consisted of ten injections of a bismuth compound and ten injections of arsphenamine The patient passed urine readily after dilation of the stricture There was no improvement in the bladder symptoms The patient transferred to a private physician for spinal treatment, March 18, 1936

CASE 54—W M M, a white man, aged 50, first admitted Nov 21, 1935, and readmitted April 9, 1936, complained chiefly of swelling of the face and bloody urine on exposure to cold during the past two to two and one half years There was swelling over the malar prominences, also the ear lobes would become red and indurated after exposure to cold, especially cold wind Swellings would rise in about fifteen minutes and remain until the patient became warm again and then disappear in from five to twenty minutes The upper lip was sometimes affected Bloody urine was not constant, it had occurred about four times in the past three years after chilling of the feet the urine would be red for only one urination There was no pain or other urinary symptoms and no ankle edema Examination of the urine was negative for albumin and sugar There were 2 red blood cells and 1 hyaline cast per high power field The diagnosis was paroxysmal hemoglobinuria The history for syphilis was completely negative The patient had had gonorrhea at 18 years of age, which was treated, there had been no signs since The Wassermann reaction was positive on the first admission in 1935 and again positive on readmission in 1936

The pupils were slightly irregular, a prolonged blowing systolic murmur was heard over the aorta, with moderate enlargement of the heart to the left X-ray examination of the heart revealed slight enlargement to the left and diffuse dilatation of the aortic arch

No treatment was given on the first admission in 1935 On the second admission in 1936 the patient presented the same complaints as before, evidently untreated in the meantime After

antisyphilitic treatment of twenty injections of a bismuth compound and thirteen of arsphenamine, the patient was free from complaints No further hematuria was noted There was a little swelling of the ears occasionally after exposure to the wind The urine was normal Jan 28, 1937 The patient lapsed from treatment, February 4

Lesions of the bladder in early syphilis have been fairly well documented in recent years, but comparatively little is known about pathologic processes in the urinary tract in later stages of the disease The large atonic trabeculated bladder resulting from lesions of the spinal cord is amply recognized by urologists, but its clinical symptoms—difficulty in starting the stream, dribbling at the end and slight enuresis—are usually so gradual in onset that they are easily ignored or minimized by the patient and general practitioner Sudden hemorrhages without demonstrable cause have in a few reported cases been traced to gummas of the kidney, but the cases that come to necropsy are rare, and the residual damage left by previously active syphilitic processes are identified as such with difficulty even by experienced pathologists Differentiation of syphilitic from tuberculous processes of the urinary tract during life rests chiefly on collateral evidence of a syphilitic infection and the absence of evidences of tuberculosis plus the therapeutic test Improvement under treatment with preparations of mercury and bismuth is usually considered even more conclusive than under arsphenamine, because of the so-called nonspecific effect of the latter in some cases of proved tuberculosis I feel, however, that in tuberculosis of any organ or structure the reputed "nonspecific" effect of arsphenamine may in effect be a specific one, owing to the coexistence of a syphilitic infection masked by the more obvious signs of tuberculosis and by a temporarily negative Wassermann reaction It has been amply demonstrated that a personal history negative for syphilitic infection and one or two negative Wassermann reactions does not exclude syphilis

PATIENTS WITH GYNECOLOGIC AILMENTS

A considerable number of women who came to the clinic for menstrual disorders and symptoms of chronic inflammation of the pelvic organs obtained much prompter relief from antisyphilitic treatment after discovery of a positive Wassermann reaction than they had had under nonspecific therapy Perhaps the most striking cases were those in which the patients complained of menorrhagia and metrorrhagia, examination in the department of gynecology would lead to a diagnosis of "fibroid uterus" or "cystic mass in the region of the ovary" Operation would be advised and the patient placed on the waiting list for admission to the hospital Meanwhile, on discovery that the routine Wassermann reaction was positive, the patient would be sent to the department of dermatology for antisyphilitic treatment It was surprising to find, in going over large numbers of records, how many of these patients reported such marked relief from symptoms that their names were removed from the operative waiting list

In some of these instances, by the time the patient had had one or two courses of antisyphilitic treatment the examiner in gynecology would find that the "fibroid" or the "cystic mass" originally palpated could no longer be identified In other instances there was marked subjective improvement unconfirmed by a pelvic examination Because relatively few of the reports were considered sufficiently full for my purpose, the majority

were excluded from the group selected for special study. Three of those included are summarized here.

CASE 62—V F, a Negress, aged 34, admitted Sept 10, 1935, complained chiefly of unusually long menstrual periods (occasionally up to two weeks) and pain in the right lower quadrant for the past three months, worse during menstrual periods, polyuria and nocturia (three times) had been present for the past month. Some discharge followed the menstrual periods.

On pelvic examination the uterus was enlarged and slightly tender, the lower midline mass extended half way to the umbilicus. Examination of the heart revealed a systolic murmur at the apex, the second pulmonic sound was stronger than the second aortic and slightly accentuated. There was a history of acute rheumatic fever at 21 years. The diagnosis was uterine fibroids and pelvic inflammatory disease, operation was advised and the patient was put on the waiting list. The history was completely negative for syphilis, she had been married ten years and had had no pregnancies. The Wassermann reaction was now positive. X-ray examination of the heart and fluoroscopy revealed an increase in the transverse diameter in the region of the left ventricle and widening of the ascending aorta with increased pulsation, suggestive of aortitis. The knee jerks were not equal.

May 7, 1936, after eleven injections of a bismuth compound and six of arsphenamine, pains in the right lower quadrant were decreased, the cervix appeared healthy, adnexa were not felt, and the uterus was irregularly enlarged. Four months later, after continued treatment, pains in the right lower quadrant were gone, periods decreased from five-six-seven days to four days, bladder symptoms were gone, the general condition was much improved. The abdomen was normal on palpation but gynecologists found the uterus still somewhat enlarged. Operation was canceled. The patient then became irregular in attendance, receiving only eight bismuth injections in twenty-two weeks, then lapsing for eleven weeks without treatment. She returned with a recurrence of all original symptoms, April 26, 1937.

CASE 46—D M, a Negress, aged 24, admitted Feb 26, 1936, complained chiefly of irregular and profuse menstruation with clots, vaginal discharge, frequency and burning micturition.

Vaginal and cervical smears were negative for gonococci and positive for a fungus. A urethral smear was negative for the gonococcus and faintly positive for a fungus. The Frei reaction was negative. On pelvic examination the adnexa were normal, there was a moderate mucoid discharge from the cervix. No diagnosis was reported.

There had been a possible primary lesion ten years before, but no secondaries were recalled. No blood test had been made and no previous treatment had been given. The patient had had gonorrhea one year before. The Wassermann reaction was now positive but there were no symptoms of syphilis.

The vaginal discharge still continued after two months non-specific treatment (hot soda douches, cervix and vaginal canal painted with gentian violet). There were no more complaints after antisyphilitic treatment was started. She received sixteen injections of a mercury compound and nine of arsphenamine. She was still under treatment, March 4, 1937.

CASE 32—B D, a Negress, aged 32, was admitted in August 1934 for panhysterectomy because of uterine fibroids and chronic salpingitis. She returned, October 13, to the department of gynecology for follow up after the recent operation.

The present examination and diagnosis was 'cystic mass protruding into right fornix, probably in Douglas's pouch. Refer for (a second) operation'. There was no history of primary or secondary lesions and no previous blood test or treatment, but there had been five spontaneous miscarriages. The Wassermann test had not been done on admission for the previous operation. No blood test was made until Nov 21, 1935, one year and three months after hysterectomy. The Wassermann reaction was now positive and again when repeated December 4. The pupils were slightly sluggish to light, there were no other symptoms of syphilis.

Antisyphilitic treatment was not started until December 11 or a year and four months after hysterectomy. The patient was under observation in the department of gynecology in the meantime with observations reported as follows. Cystic mass

originally 1 by 2 inches (2.5 by 5 cm) gradually increased to the size of an orange and then to the size of a tennis ball. After fifteen injections of a bismuth compound and nine of arsphenamine, the department of gynecology reported 'No symptoms, pelvis clear, remove name from waiting list'. The patient was still under antisyphilitic treatment May 5, 1937.

PATIENTS WITH MISCELLANEOUS COMPLAINTS

Many subdivisions could be made of symptoms not already classified under one of the major groups, for there is scarcely an ailment known to medical science for which syphilis has not been justly blamed. Innumerable persons who are termed "nuts," "eccentric" or unduly "irritable" by their friends, or labeled "neurasthenics" by their physician, are in reality suffering from some of the more insidious manifestations of syphilis. People who are "anemic," always having one unexplained illness after another, "problem cases," those who complain frequently of headaches, general "run down condition," and vague aches and pains not easily localized, not all, but many of these, are found in the final analysis to have syphilis and respond almost miraculously to antisyphilitic therapy. Conversely, many persons who on a preliminary examination will maintain that they have always been in excellent health, when confronted with a 4+ Wassermann reaction and other significant but hitherto ignored signs of late syphilis, will recall a surprising number of earlier disorders which were in all likelihood manifestations of the disease.

Advanced cases of syphilis of the central nervous system are recognized with comparative ease, but the earlier stages often pass for awkwardness, stupidity or "temper."

In 1923 a well known New York physician sent to my office a man, aged 47, for the removal of a skin cancer on his face. In taking the history I was amazed at the mental slowness and uncertainty of a person with his education and high business attainment (vice president of a large corporation).

Physical examination revealed frank signs of tabes, the Wassermann reaction was 4+ and the spinal fluid very strongly positive, with a paretic curve. He admitted that while in college he had had a penile sore diagnosed as chancroid. The physician who referred him to me was advised of these facts. Nothing further was heard of the patient for about eight months, when he was returned for treatment. There were unmistakable evidences of mental changes in speech, nervousness, depression and inability to concentrate. His general condition improved rapidly for the first few months and then came a complete mental breakdown, with an attempt to murder his wife and two daughters in their sleep. He was put into an institution for about one year and the antisyphilitic treatment was continued. He improved. He was treated for five years continuously and has now been considered cured for six years. Today he is an active efficient business man and has recently married a second time.

A few additional examples are chosen from the many that might be cited if space permitted.

CASE 33—F C, a Negress, aged 24, admitted Oct 18, 1935, complained chiefly of goiter. There was symmetrical but slight thyroid enlargement, polyphagia, increased sweating, choking sensations, loss of weight, exophthalmos, tachycardia, exertional dyspnea, tremor and moist skin.

X-ray films of the chest were negative. The urine showed sugar 4+ on admission. It was normal November 4. The basal metabolic rate was minus 21. The diagnosis was 'fairly definite exophthalmic goiter'. The history was completely negative for syphilis. The Wassermann reaction was positive October 19. There were no symptoms of syphilis.

There was marked improvement of symptoms under antisyphilitic treatment, begun November 21 (ten injections of a mercury compound, ten of arsphenamine and four of a bismuth

compound) Nonspecific therapy was not given. The thyroid clinic, in view of this and the negative metabolic rate, decided that the complaints were "probably not due to the thyroid."

CASE 7—M W, a Negress, aged 33, admitted Oct 1, 1935, complained chiefly of (1) a hard, slightly tender lump in the lower interscapular region, to the left of the midline and of (2) pain in the right upper quadrant radiating to the scapula.

Twice x-ray examination of the chest was negative. X-ray examination of the gallbladder was negative. The urine was normal. The diagnosis was (1) tumor of the interscapular region (cold abscess? myoma? tuberculous abscess of the chest wall? aneurysm? tumor or gumma of the rib?) and (2) cholecystitis. There was a history of a primary lesion in 1927 followed by secondaries. The Wassermann reaction was positive in 1930. Thirty-five intravenous and four intramuscular injections were given, the last in 1929. The Wassermann reaction was now positive but there were no symptoms of syphilis.

The "tumor" diminished in size after three injections of a mercury compound and disappeared completely, as did the pain in the right upper quadrant after four injections of a mercury compound and iodides for four weeks.

CASE 66—R R, a white man, aged 37, admitted Dec 26, 1935, complained chiefly of swollen and painful joints and six months previously of pain and swelling in the right nipple region. The original swelling had subsided, leaving a firm, non-tender lump. Similar lumps were now in the right sterno-clavicular, right humeroclavicular, right acromioclavicular, right fifth rib and left sixth rib. Enlarged inguinal and cervical glands were noted.

The local physician's diagnosis was generalized adenomas and multiple hyperostoses, blood dyscrasia was suspected, but no blood work was done. At the clinic, x-ray films of the chest showed the lungs clear. X-ray films of the bones showed at the outer end of the clavicle evidence of bone destruction and trabeculae in cyst formation. Along the margins of the clavicle at both ends were areas suggesting periostitis. The urine was normal. Blood chemistry was essentially negative. The diagnosis at the clinic was multiple tumors of the ribs, clavicle and scapula, and periosteal fibromas. The question was whether the lumps were gummas or tuberculosis.

The history was completely negative for syphilis. The patient had had gonorrhea fourteen years before. The father had died of syphilis. The Wassermann reaction was now positive. There were no other symptoms.

Alternate courses of a bismuth compound and arsphenamine were given. The lumps diminished markedly after two injections of a bismuth compound. All evidences of syphilis were gone by Feb 21, 1936, after six injections of a bismuth compound and two of arsphenamine. There were no recurrences to May 21, 1937.

CASE 67—G D, a Negress, aged 36, admitted Jan 2 1936, complained chiefly of continuous pain in the throat and left jaw, which later extended to the left ear. There was also tenderness to pressure and some pain on motion at times. Pain later extended back of the ear.

Examination of the ear, nose and throat January 6 revealed nothing to account for the pain, there was slight swelling of the lymphoid follicle low in the tonsillar fossa. The temperature was 99 F. Examination was repeated Feb 3, 1936, with the same results. No diagnosis was made at this time. There was no history of syphilis. The patient was married at 19 and was never pregnant. The Wassermann reaction was negative at the Vanderbilt Clinic in 1929 when the patient had a tonsillectomy, but the patient stated that she had "some injections" elsewhere in 1927. The Wassermann reaction was now positive, but there were no other symptoms of syphilis. The final diagnosis was syphilitic arthritis of the left mandibular articulation.

There was no relief after six weeks of nonspecific treatment. Pain was gone by May 21, 1936 after five diathermy treatments, four injections of arsphenamine, four of silver arsphenamine and three of a bismuth compound.

CASE 70—M L, a Negress, aged 43, admitted June 27, 1936, complained chiefly of pain in the left upper arm with limitation of motion for from two to three weeks, and hard swellings on the forearms for six years, many were hard, movable non-

tender subcutaneous tumors over both arms, some were intimately connected with but not attached to the bones. One on the right forearm looked like an exostosis. The lumps appeared gradually after panhysterectomy at another hospital five years previously. A "lipoma" had been excised from the upper arm at Sydenham Hospital, July 20, 1934.

X-ray examination of the arms revealed "no bony abnormality except a little calcification of a spotted nature overlying the greater tuberosity of the left humerus, which may represent calcification in the subdeltoid bursa." The blood count was normal. The urine showed albumin +, sugar 0.

The diagnosis was brachial neuritis, multiple fibromatosis of the upper extremities and exostosis of the right ulna. The patient stated that she had had no primary lesion. She had had a generalized rash and sore throat "in her twenties." The Wassermann reaction was now positive. The knee jerks were very sluggish, the left being stronger than the right.

July 13, 1936, after one injection of a bismuth compound, the swellings seemed a trifle softer, the patient was sure that they were smaller. October 26, after ten injections of a bismuth compound, she felt well, the swellings in the arms had disappeared, there were no more complaints of brachial neuritis. The patient was still under treatment, May 10, 1937.

CASE 74—M F, a Negress, aged 29, admitted in January 1936, complained chiefly of enlarged, firm glands for one month as follows. Both submental regions were occupied entirely by firm, nodular, movable glandular masses, the cervical, axillary, epitrochlear and inguinal glands were firm and slightly enlarged, there was no pain or tenderness.

X-ray examination of the floor of the mouth revealed no evidence of soft tissue calcification. X-ray films of the chest were negative. X-ray examination of the abdomen revealed nothing definite. Examination of the ear, nose and throat was negative. The diagnosis was tuberculosis (?) blood dyscrasia and Hodgkin's disease (?).

There was no history of syphilis. The Wassermann reaction was now positive.

Bismuth compounds and arsphenamine were given in alternate courses. The glands became smaller after one injection of a bismuth compound. They were still smaller after two more injections of a bismuth compound and "entirely subsided" after five of a bismuth compound and one of arsphenamine. There have been no recurrences to date, May 12, 1937.

One patient sent in by a local physician with a diagnosis of "inguinal hernia" turned out to have a saccular aneurysm of the femoral artery and a positive Wassermann reaction, hitherto undetected. Another patient, suspected of having tuberculosis of the spine, was found to have an aneurysm of the abdominal aorta and a positive serologic reaction. One "subdeltoid bursitis," which had improved very little under physical therapy, cleared entirely after sixteen injections of a bismuth compound and five of arsphenamine, while a woman who had injured her right shoulder in a fall and developed a fusiform swelling in the midportion of the clavicle was finally conceded by her physician to have "a slight touch of lues" which "might account for her periostitis." The gumma was completely absorbed after nine injections of arsphenamine and twelve of a bismuth compound. One patient, symptom free but found to have a high blood and urine sugar, unaffected by a sugar-free diet, saw his diabetes disappear, together with his positive Wassermann reaction, as antisyphilitic treatment was pursued.

Most textbooks duly record the fact that gummas often develop at the site of an injury and that an interstitial keratitis may come on or recur after an injury to the eye. Yet when a woman complains of a blister from a tight shoe that just won't heal, when a boy comes in with a story of eye trouble after being hit in the eye with a baseball bat, when a housewife scalds her hand or when a dancer sprains her knee, to how

many physicians does it occur that the real trouble may be syphilis, either congenital or acquired? The examples cited are not imaginary. They represent actual cases encountered among 300-odd admissions in whom active syphilis was not at first suspected. Not until commonplace injuries failed to heal after weeks or months of treatment by ordinary measures were some of these patients discovered to have a positive Wassermann reaction and some a history of a previous infection, overlooked or passed by as irrelevant to the present complaint. The mystery of the slow healing operative wound—even after the extraction of a tooth—is often solved by the simple procedure of taking a blood test.

THE SIGNIFICANCE OF THE WASSERMANN REACTION

I believe that most physicians agree that a properly controlled, strongly positive Wassermann reaction (with the exception of a few instances such as yaws, acute fever, leprosy and the like) is diagnostic of syphilitic infection. Where many fail to agree is on the clinical significance of the positive Wassermann reaction. I am in agreement with the opinion expressed by Dr. Kolmer that a strongly positive Wassermann reaction is indicative of an active syphilitic process, whether the physician is able to find it or not. Every one is aware of the frequency with which foci of active syphilis are found with a persistent and strongly positive Wassermann reaction. The first place that a physician should look for the seat of infection is in the nervous system (by careful neurologic and spinal fluid examination), and next in the vascular system, notably the heart and large blood vessels, or in the eyes. If these observations are negative and the patient is apparently well, one is apt to minimize the importance of the 4+ Wassermann reaction and tell the patient that there is no evidence of syphilis in his physical examination and that probably syphilis is not a disease for him. There is no method as yet to tell whether or not active syphilitic lesions are affecting other vital parts of the anatomy at that very moment, notably bone marrow, liver, spleen and the smaller blood vessels. It is only in a case of sudden severe damage to some vital organ that one is able to recognize active pathologic lesions in the later stages of syphilis. It would appear to me that all patients with syphilis, as indicated by a four plus Wassermann reaction, are entitled to the benefit of treatment in one form or another.

FIXED REACTIONS

In this connection it might be well to speak of resistantly positive or Wassermann-fast cases. Barring active syphilitic processes of the brain structure, such as interstitial keratitis and congenital syphilis in older children, there is no such thing as a Wassermann-fast case. I have found that asymptomatic Wassermann-fast cases will become negative and remain so if the treatment consists of the best drugs, is continuous, and is persisted in long enough.

TREATMENT OF "LATENT" SYPHILIS

The treatment of latent syphilis is a highly specialized procedure. I have made it a practice to treat all cases of so-called latent syphilis with a strongly positive reaction whether or not there are symptoms. The drugs used, the intervals between treatments and the duration of the treatment depend on the age and the physical condition of the patient. Usually for indi-

viduals who are 45 and under I prescribe continuous treatment with a heavy metal, potassium iodide and arsphenamine for not less than from eighteen to twenty-four months. This is to be followed by a six months rest period during which time the patient takes mixed treatment (a mercury compound and potassium iodide). Then, after a month of rest from mixed treatment, he reports for complete physical examination, blood test and blood count. If his condition permits, he is advised to take mixed treatment for another six months and report. After the third year, he is given a rest of from fifteen to twenty weeks, after which time he receives weekly injections of a bismuth compound. After the fourth year, if there has been no appreciable change in the intensity of the Wassermann reaction, the patient is advised of his status and the suggestion is made that he take three months of mixed treatment or from twelve to fifteen injections of a bismuth compound a year as insurance against a catastrophe of some sort. I do not have the fear of the effects of antisyphilitic treatment that many of my colleagues have in the treatment of late syphilis. I have been amazed at the amount and length of treatment administered to some syphilitic patients without any noticeable detrimental effect.

SUMMARY

The present paper is based on a study of the records of about 300 patients who on admission to the Vanderbilt Clinic in 1935 and 1936, appeared to be free from any external manifestations of syphilis and who gave no history of a recent syphilitic infection. A considerable number of these patients originally came to the clinic for ailments supposedly unconnected with syphilis and were observed and treated in various other departments before being sent to the department of dermatology. A positive Wassermann reaction often constituted the only obvious basis for a diagnosis of syphilis, and in many instances the positive Wassermann reaction was discovered only incidentally, by routine test.

It was found that a surprisingly large proportion of these patients had presented as their chief complaint some ailment commonly encountered in general practice under the names of gastro-intestinal disorders, chronic disorders of the respiratory tract, urinary symptoms, gynecologic ailments and miscellaneous complaints diagnosed variously as neurasthenia, anemia, arthritis, diabetes, hernia, goiter and the like.

The present report attempts to describe, in a selected group of cases, the methods by which other causes were eliminated, and the symptoms were traced to a syphilis hitherto either unsuspected or supposedly inactive.

I have striven to present my material, reported here for the first time, not by analyzing it in retrospect but by following in their natural order the actual experiences of patient and physician through the various steps of diagnosis and treatment. Symptoms which brought patients to the clinic, the diagnostic procedures, including laboratory tests, x-ray examinations and pathologic changes, the evidence for syphilis and the treatment and its results are described as concretely as the limitations of space permit. It is hoped that this approach, by symptoms rather than systems (the usual textbook method), may have proved of considerable interest and some practical value.

371 Park Avenue

The Chemical Laboratory

THE A. M. A. CHEMICAL LABORATORY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT

PAUL NICHOLAS LEECH, Director

EXAMINATION OF CERTAIN AMERICAN BRANDS OF SULFANILAMIDE

The history of the introduction of para-amino-benzene sulfonamide in therapeutics was recounted in THE JOURNAL, January 2

It was apparently first introduced in the United States under the proprietary name "Prontylin." As this product was not, and could not be, protected by letters patent, and as other firms were privileged to make it, the Council on Pharmacy and Chemistry was approached for a nonproprietary name. The announcement of the term "Sulfanilamide" was made in THE JOURNAL, April 17. A report of the Council on Pharmacy and Chemistry on sulfanilamide appeared subsequently in THE JOURNAL, May 29.

A number of firms have submitted brands of sulfanilamide for the Council's consideration with a view to acceptance and inclusion in New and Nonofficial Remedies. The Council in turn asked the A. M. A. Chemical Laboratory to examine the product and elaborate standards for identity and purity. At the time of this report the following firms had presented brands

A method for the determination of sulfanilamide in biologic material, accurately within 2 per cent, has been described recently by Marshall, Emerson and Cutting.¹

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS COMPLEMENTING THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEECH, Secretary

SULFANILAMIDE — *p*-amino-benzene sulfonamide — $\text{NH}_2\text{C}_6\text{H}_4\text{SO}_2\text{NH}_2$ — The amide of sulfanilic acid

Actions and Uses — Originally it was reported that sulfanilamide acts against Lancefield's group A strains of hemolytic streptococcus by virtue of an apparently specific effect on these organisms. More recent clinical evidence suggests that the action of this chemical may affect other organisms, especially certain gram-negative cocci. The evidence suggests that its action may be antibacterial.

Sulfanilamide has been used primarily in infections due to beta-hemolytic streptococci, especially in the treatment of puer

Characteristics of Various Brands of Sulfanilamide*

Name of Firm	Uniformity of Crystals	Melting Point	Moisture, per Cent	Ash, per Cent	Sulfur, per Cent (Theory 18.6)	Nitrogen, per Cent (Theory 16.3)	Purity, per Cent of Powder	Purity, per Weight of Tablets Containing 5 Grains (0.375 Gm)	Average Weight of Tablets, Gm
Squibb (powder and tablets)	Not uniform not well defined	163	0.4	0.01	18.3	16.2	99.9	0.310	0.415
Merck (powder)	Not uniform not well defined	163	0.4	0.02	18.3	16.4	100.1		
Calco (powder and tablets)	Not uniform not well defined	167	0.4	0.02	18.5	16.3	99.8	0.315	0.465
Lederle (powder and tablets)	Uniform not well defined	164	0.2	0.02	18.3	16.5	99.7	0.303	0.390
Winthrop (powder and tablets)	Uniform well defined	165	0.6	0.03	18.4	16.4	100.0	0.305	0.405
Eli Lilly (powder and tablets)	Not uniform not well defined	164	0.0	0.04	18.5	16.3	99.9	0.315	0.390
Parke Davis (tablets)								0.315	0.400

* This includes the brands submitted at the time the report was made are undergoing examination.

Since then other firms have submitted their brands of sulfanilamide which

of sulfanilamide to the Council: the Calco Chemical Company, Inc., Lederle Laboratories, Inc., Eli Lilly & Company, Merck & Company, Inc., Parke, Davis & Company, E. R. Squibb & Sons, and Winthrop Chemical Company, Inc. (under the name of Prontylin). In all cases the product was a white, crystalline substance without perceptible odor and possessing a slightly bitter taste. The index of refraction of the crystalline product was found to be approximately 1.60. For convenience, the analytic data are tabulated.

From the accompanying table it will be noted that the preparations were of approximately the same grade of purity, ranging from 99.5 to 100 per cent. Because of the possibility of harm from the use of such a preparation, it was deemed necessary that the standards should be rigorous and fairly complete. Based in part on the foregoing data and in part on the material supplied by manufacturers, tests and standards have been evolved which appear in this issue in the New and Nonofficial Remedies department under sulfanilamide.

From the structure of the product, it will be noted that it is an "aniline derivative" and as such may not be without the harmful characteristics of aniline in producing a change in the hemoglobin molecule (methemoglobinemia). It also contains a sulfamido group, reports have already appeared in the literature of the occurrence of sulfhemoglobinemia arising from too intensive or too prolonged use.

peral fever, erysipelas, hemolytic streptococcus septicemia, streptococcal sore throat and surgical infections with hemolytic streptococcus. Present studies suggest that the drug may eventually prove useful in meningococcal and possibly in gonococcal infections.

It must be remembered that acidosis sometimes follows the administration of sulfanilamide. It has been suggested that sodium bicarbonate may prove useful in combating the acidosis produced by the drug. Jaundice and urticaria have also been reported as undesirable side effects following the administration of this drug. Magnesium sulfate should not be administered during the course of the treatment because it is thought to increase the danger of acidosis. Certain studies indicate that sulfhemoglobinemia may ensue in some individuals especially after intensive or continued administration of sulfanilamide. There is also a possibility that methemoglobinemia and granulocytopenia may follow such therapy and there have been reports of hemolytic anemia following sulfanilamide administration. It is advisable in any extensive use of sulfanilamide to examine the blood microscopically for evidence of blood cell destruction as well as lowering of the white blood cell count, and to rule out both sulfhemoglobinemia and methemoglobinemia by spectrographic examination of the blood.¹

¹ Marshall E. K., Jr., Emerson Kendall Jr. and Cutting W. C. Para-Aminobenzenesulfonamide J. A. M. A. 108:953 (March 20) 1937.
¹ The determination of sulfanilamide in the blood, urine and spinal fluid is described by Marshall E. K., Jr., Emerson Kendall Jr. and Cutting W. C. Para-Aminobenzenesulfonamide J. A. M. A. 108:953 (March 20) 1937 and Schulek E. and Boldizsar I. Zschr. f. anal. Chem. 108:396 1937.

Dosage—The dosage of sulfanilamide by mouth is calculated on the basis of 1 Gm (15 grains) for each 20 pounds (9 Kg) of body weight up to 100 pounds (45 Kg). Apparently 5 Gm (75 grains) represents the maximum daily dose that has been used with safety in adults of average weight. The 5 Gm (75 grains) is divided into four doses given six hours apart. Smaller doses of from 3 to 4 Gm (45 to 60 grains) daily will usually be found sufficient. Although intraspinal and intravenous administration of properly prepared solutions have been used, such use of the drug is largely experimental.

Sulfanilamide occurs as a white practically odorless slightly bitter—with sweet after taste—crystalline substance. It is soluble in hot water, hot alcohol and cold acetone, slightly soluble in cold water and cold alcohol and insoluble in ether, benzene and chloroform. The melting point is 165.166.5°C when a standardized micro-melting point apparatus is used. (This method is preferred for purposes of identification.) The melting point when determined according to the U.S.P. XI method is not less than 165 nor more than 167°C. An aqueous solution of sulfanilamide is neutral to litmus.

Crystallographic analysis of sulfanilamide gave an index of refraction of approximately 1.60.

Dissolve about 1.5 Gm of sulfanilamide in 75 cc of hot water, cool and filter. To 25 cc of the filtrate add 5 drops of nitric acid, 1 cc of silver nitrate T.S. No turbidity should be produced (*halogen ion*). Evaporate another 25 cc of the filtrate to approximately 10 cc and add 0.5 cc of 1 normal hydrochloric acid and 1 cc of barium chloride T.S. No turbidity should be produced (*sulfate ion*). To 0.05 Gm of sulfanilamide add 1 cc of 10 per cent sodium hydroxide and boil gently. Place a wetted piece of red litmus paper over the test tube; no bluing is noticeable (*free ammonia*). Incinerate about 0.1 Gm of sulfanilamide; the residue is not more than 0.05 per cent. Sulfanilamide shall also pass the test for arsenic and heavy metals (U.S.P. XI method). Dry about 0.1 Gm of sulfanilamide accurately weighed to constant weight at 100°C under vacuum not exceeding 150 mm of mercury for approximately five hours; the loss does not exceed 1 per cent.

Place approximately 0.01 Gm of sulfanilamide in a small test tube and heat over an open flame until the material melts; an intense violet blue color develops and an odor of aniline and ammonia is evolved if heating is prolonged. Dissolve 0.01 Gm of sulfanilamide in 0.5 cc of concentrated sulfuric acid; the solution remains clear and colorless on heating to 100°C (*carbonizable impurities*). Add 0.05 Gm of sulfanilamide to 2 cc of 10 per cent hydrochloric acid and boil gently for about two minutes; cool in ice bath and add 2 cc of 1 per cent sodium nitrite solution. Dilute with water to 4 cc and keep mixture in the ice bath for at least five minutes. To 2 cc of this cooled solution add a solution of 0.02 Gm of beta-naphthol in 1 cc of 10 per cent sodium hydroxide; an orange precipitate forms. Dissolve approximately 0.07 Gm accurately weighed of sulfanilamide previously dried in 1 cc of concentrated hydrochloric acid and 5 cc of water. Cool to 15°C and add 15 Gm of ice. Agitate the solution with a small glass rod and titrate very slowly with 0.1 normal sodium nitrite solution. Streak the solution on freshly prepared starch iodide paper until an immediate blue streak is obtained. Each cubic centimeter corresponds to 0.0172 Gm of sulfanilamide. The sulfanilamide assay is not less than 99 per cent nor more than 100.5 per cent. Dissolve 0.015 Gm of sulfanilamide accurately weighed in a small erlenmeyer flask with 3 cc of distilled water, add 0.05 Gm of potassium permanganate and 0.05 Gm of potassium hydroxide. Reflux this mixture for thirty-five minutes. Cautiously acidify with 5 cc of concentrated hydrochloric acid and boil until clear. Dilute with water and add 0.05 Gm of barium chloride pulverized. Filter the solution through a micro-Neubauer platinum crucible; the amount of sulfur is not less than 18.3 per cent nor more than 18.9 per cent.

For assaying sulfanilamide tablets, 5 grains, titrate the dissolved tablets in ice-cold hydrochloric acid solution with 0.1 normal sodium nitrite according to the assay for sulfanilamide. The sulfanilamide found is not less than 0.300 Gm nor more than 0.35 Gm.

Note—For purposes of scientific investigation and identification both diazotization and sulfur assays are given for manufacturing control; either one of these in association with the other tests may be considered adequate.

Sulfanilamide-Calco—A brand of sulfanilamide-N N R.

Manufactured by the Calco Chemical Co. Inc. Bound Brook, N. J.
No U.S. Patent or trademark.
Sulfanilamide Tablets 5 grains.

Sulfanilamide-Lederle—A brand of sulfanilamide-N N R.

Manufactured by the Lederle Laboratories Inc. Pearl River, N. Y.
No U.S. Patent or trademark.
Sulfanilamide Tablets 5 grains.

Sulfanilamide-Merck—A brand of sulfanilamide-N N R.

Manufactured by Merck & Co. Inc. Rahway, N. J. No U.S. patent or trademark.
Sulfanilamide Tablets 5 grains.

Sulfanilamide-Squibb—A brand of sulfanilamide-N N R.

Manufactured by E. R. Squibb & Sons, New York. No U.S. patent or trademark.
Sulfanilamide Tablets 5 grains.

CEBIONE (See New and Nonofficial Remedies, 1937, p. 457).

The following additional dosage forms have been accepted:

Ampules Cebione Sodium Solution 2.1 cc. Each cubic centimeter represents 0.05 Gm cephone and possesses a vitamin C potency equivalent to 1,000 international units.

Tablets Cebione 0.025 Gm.

Council on Foods

ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COUNCIL ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION AND WILL BE LISTED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED.

FRANKLIN C. BING, Secretary

HEINZ STRAINED BEEF AND LIVER SOUP WITH VEGETABLES

Manufacturer—H. J. Heinz Company, Pittsburgh.

Description—Canned comminuted and strained mixture of potatoes, beef, beef and chicken liver, carrots, celery, tomato puree and salt, requiring only warming for serving, and specially intended for infant feeding.

Manufacture—Beef from which the fat has been removed is cooked until tender and comminuted in a grinder or chopper. Chicken and beef livers are cooked together until tender. The vegetables are cooked together and the juices are retained. Air is excluded as much as possible. A high grade canned tomato pulp is added to the batch just before straining when fresh tomatoes are not obtainable. The ingredients are combined, comminuted and strained, thereby removing coarse fibrous material. Air is excluded by an atmosphere of steam. The mass collects under vacuum in glass-lined tanks and is subjected to high vacuum with gentle agitation to remove any air that may remain, filled into enamel-lined cans, sealed under vacuum, and processed at 116°C for seventy minutes in a rotating retort. The manufacturing process and the sanitary conditions are regulated by the U.S. Meat Inspection Act.

Analysis (submitted by manufacturer)—Moisture 86.9%, total solids 13.1%, ash 1.2%, sodium chloride (NaCl) 0.6%, protein (N × 6.25) 5.1%, fat (ether extract) 1.0%, crude fiber 0.2%, total sugar as invert sugar 1.0%, reducing sugar 0.9%, carbohydrates other than crude fiber (by difference) 5.6%, calcium (Ca) 0.025%, phosphorus (P) 0.019%, iron (Fe) 0.0018%, copper (Cu) 0.00029%.

Calories—0.52 per gram, 15 per ounce.

Vitamin—2,000 International units vitamin A per ounce (excellent source), 15 Sherman or 7.5 International units vitamin B₁ per ounce (good source), 42 International units vitamin C per ounce (good source), 25 Sherman-Bourquin units vitamin G per ounce (good source).

(1) HONEY GROVE BRAND CRYSTAL WHITE SYRUP

(2) HONEY GROVE BRAND GOLDEN SYRUP

Distributor—White Villa Grocers, Inc., Cincinnati.

Packer—Union Starch and Refining Company, Granite City, Ill.

Description—(1) A table syrup, corn syrup sweetened with sucrose flavored with vanilla extract—the same as Pennant Crystal White Syrup (THE JOURNAL, Jan. 30, 1932, p. 403).

(2) A table syrup, corn syrup flavored with refiners' syrup—the same as Pennant Golden Table Syrup (THE JOURNAL, Jan. 30, 1932, p. 403).

Claims of Manufacturer—For table use and as a carbohydrate supplement for milk modification in infant feeding.

PHYLLIS XXXXX BRAND EVAPORATED MILK

Distributor—Zimmermann Brothers, Lock Haven, Pa.

Packer—Page Milk Company, Merrill, Wis.

Description—Canned unsweetened, evaporated milk, the same as Page Evaporated Milk Sterilized Unsweetened (THE JOURNAL, May 30, 1931, p. 1872).

G & B BRAND PINEAPPLE JUICE

Distributor—Goldfine & Brenner, Inc., Philadelphia.

Packer—Hawaiian Pineapple Company, San Francisco.

Description—Canned unsweetened pineapple juice, the same as Dole Hawaiian Finest Quality Pineapple Juice (Unsweated) (THE JOURNAL, June 3, 1933, p. 1769).

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SATURDAY, JULY 31, 1937

REGIONAL ILEITIS

The rather vague term "benign granuloma of the intestine" included in the past a variety of chronic inflammatory lesions which, while resembling grossly new formations, were neither neoplastic nor due to any specific organism. The exhaustive review of literature by Tietze¹ in 1920 and later reports by Moschcowitz and Wilensky² and by Mock³ served to revive interest in the subject without, however, contributing new concepts. In 1932 Crohn⁴ and his associates presented for consideration a definite pathologic and clinical entity which they term "regional ileitis." This new concept was based on a clinical study of fourteen cases and a study of pathologic alterations seen in thirteen resected specimens. The lesion described involved the last 25 to 35 centimeters of the ileum, terminating abruptly at the ileocecal valve. The involved segment is greatly thickened, heavy and reddened. The lumen of the bowel is irregularly distorted and narrowed. The intestinal mucous membrane is subject to a destructive ulcerative process, the existing edema imparting to it a bulbous or cobblestone appearance. The submucosal and muscular layers show inflammatory, hyperplastic or exudative changes. The mesentery of the involved segment is stiff and enormously thickened, and it contains enlarged lymph nodes. Adhesion of the involved bowel to the neighboring viscera, with a slow perforation into these of the ulcerating areas, resulting in the formation of fistulous tracts, constituted a constant and characteristic feature of the disease. In order of frequency, the most common place of adherence was to the sigmoid, another coil of ileum, the cecum, the ascending colon, the hepatic flexure and the parietal abdominal wall.

Microscopic examination revealed various stages of acute, subacute and chronic inflammatory changes. The occasional finding of giant cells was interpreted by

the authors as a foreign body reaction provoked by the inclusion of small particles of vegetable matter. Evidence of tuberculosis, syphilis, actinomycosis, Hodgkin's disease or lymphosarcoma was not found. Inoculation of guinea-pigs, rabbits and chickens with triturated material from mesenteric glands and from the intestinal wall proved negative for tuberculosis. None of the cases presented any evidence of pulmonary tuberculosis and there were no positive Wassermann reactions.

The etiology of this apparently definite clinical entity is obscure. The disease occurs predominantly in young adults and is at least twice as frequent in males as in females. The clinical picture resembles closely that of chronic, nonspecific, ulcerative colitis. The onset may be sudden, with abdominal pain and diarrhea, which are not particularly severe and which tend to recur. The dull, cramplike pain may involve all the lower part of the abdomen but is commonly localized in the right lower quadrant. Weakness, progressive loss of weight and a moderate degree of anemia are significant symptoms. The stools contain mucus, pus and streaks of blood. The white blood count, as a rule, is normal or slightly elevated. The physical signs are those of a moderate sized, firm, tender mass in the right lower quadrant, the presence of fistulas, the scar of a previous appendectomy, emaciation, anemia and signs of intestinal obstruction.

Obviously the pain and tenderness and the mass in the right lower quadrant may give rise to the diagnosis of appendicitis. In half of the cases reported by Crohn the appendix had been removed at a previous operation. The authors are emphatic in stating that the process never transcends the limit of Bauhin's valve and that the appendix was not the cause of the underlying pathologic conditions. The appendix may be secondarily involved in inflammatory alterations, but its mucosa did not give any evidence of inflammation.

Regional ileitis must be differentiated from all conditions characterized by a mass in the right iliac region with diarrhea and fever. These include nonspecific ulcerative colitis, ileocecal tuberculosis, mesenteric tuberculosis, Hodgkin's disease, lymphosarcoma and actinomycosis. Consideration of the history and the physical signs, aided by a careful roentgenologic study of the intestinal tract with the aid of a progress meal, may enable one to make a correct preoperative diagnosis.

The treatment is essentially surgical, its aim being the removal of the involved segment of the bowel. This is accomplished in early and uncomplicated cases by a one-stage resection, while multiple-stage procedures become necessary in the presence of obstruction, fistulous tracts or abscesses.

In 1935 Mixer⁵ reported eleven cases of regional ileitis. The clinical and pathologic features of his cases were identical with those previously reported.

1 Tietze A. Ueber entzündliche Dickdarmgeschwülste. *Ergebn d. Chir. u. Orthop.* 12: 23A, 1920. 9: 219, 1913.
2 Moschcowitz Eln. and Wilensky A. O. Nonspecific Granulomata of the Intestine. *Am. J. M. Sc.* 166: 48 (July) 1923.
3 Mock H. E. *Surg. Gynec. & Obst.* 52: 672 (March) 1931.
4 Crohn B. B. Ginzburg Leon and Oppenheimer G. D. Regional Ileitis. *J. A. M. A.* 99: 1325 (Oct. 15) 1932.

5 Mixer C. G. Regional Ileitis. *Ann. Surg.* 102: 674 (Oct.) 1935.

Careful examination by the culture method, by guinea-pig inoculation and by staining reactions failed to demonstrate the tubercle bacillus. With regard to the etiologic rôle of the appendix, Mixer states that in none of their cases in which appendectomy had not been previously performed was there evidence suggestive of primary appendiceal inflammation, though frequently the appendix was enmeshed in the inflammatory mass by periappendicular adhesions.

The number of cases of regional ileitis observed at the Mayo Clinic, according to Pemberton and Brown,⁶ has rapidly increased since Crohn's publication. They were able to report thirty-nine cases in which diagnosis of regional ileitis was established by operation or necropsy.

Regional ileitis, or Crohn's disease, appears therefore to be a well defined clinical entity with a characteristic pathologic picture and obscure etiology.

AMERICAN ORTHOPEDICS—AN AUSTRIAN OPINION

Extraordinary publicity has regularly accompanied the meanderings about the United States of Adolf Lorenz, since the time when he first came to this country to treat the daughter of a Chicago packer. Now Dr. Albert Lorenz, the son of Adolf, gazing the American gift horse directly in the mouth, gives his impression of American orthopedic surgery in a lengthy article¹ from a public address given before the Society of Orthopedic Surgeons of Vienna in June 1936. The article, citing a number of commonplace observations on the treatment of different orthopedic conditions in this country, contains much that is not only erroneous but somewhat acrid in its criticism and judgment of American orthopedic surgery.

Particularly exasperating are his views on the spirit of American orthopedic surgery in general. This he connects with what he is pleased to call the general American mentality, which according to his description is "a product of mass hysteria and mass suggestion, all due to the feminism which governs the country." The American is the follower of herd instinct, he says, and there is not the slightest credit given to individual initiative. His authority for this bizarre and derogatory standpoint is Sinclair Lewis's "Arrowsmith," although it must have been poorly read and still less understood to omit all the commendatory features of our profession which even this severe critic of medical practice was willing to concede.

He lets himself go particularly in the field of sacro-iliac disturbances. Ignoring the development of diagnostic progress in this field, which has produced a great and laborious literature, principally of American and Italian origin, he considers low back pain an almost

entirely hysterical phenomenon, ridiculing the evidence of osteo-arthritis, sacralization and all those established pathologic appearances which more serious and worth while observers and investigators of both hemispheres have developed. Lorenz classifies all these as hysterical and then indulges in some reflections on American hysteria in general. Another choice morsel is the attitude which he attributes to the American orthopedist regarding operations. He says that the evident zest for new things which controls the profession is the reason why both physicians and patients are eager to try out a new operation. "A patient would be considered unmodern and un-American," he says, "if he would not willingly submit to a new operation."

Lorenz talks about Christian science and finally the chiropractors and the osteopaths. The reason why they make such inroads in the American medical practice is, according to him, that the orthopedic surgeon disdains conservative measures and wants only to apply the knife, therefore the public in search for more sane methods turns to the services of the chiropractors and the osteopaths. He considers both vocations a form of quackery whose practitioners are adept in the correction of fractures and adhesions, and he says that they obtain cures by effecting correction of contractures. He is peculiarly confused about the difference between chiropractors and osteopaths, but he says "in all orthopedic conditions suitable for massage and redressement the chiropractors are successful."

His observations on joint tuberculosis and the general attitude toward the treatment of tuberculosis are less than half truths because he misses that great contingent of orthopedic surgeons who have either retreated from prevailing surgical points of view or have never adopted them. Another strange assertion is that congenital spastic paralysis has something to do with the tendency of obstetricians to accelerate delivery. The same, he maintains, is true of Erb's palsy or obstetric paralysis. Equally startling is his remark that the bloodless reduction of the congenitally dislocated hip is considered here almost "mistreatment." No one knows where this author got his information, as he seems to ignore the great majority of orthopedic surgeons who consider the bloodless reduction of congenital dislocation of the hip within the proper age limit as the method of choice. Furthermore, in spite of Ridlon's modification and improvement on the Lorenz-Pacci technic, the younger Lorenz accuses American orthopedists of being ignorant of the technic of reduction. Extreme as his ignorance is in this particular field, it is still more blatant in the field of congenital clubfoot. The author believes that the Lorenz redressement would here celebrate its greatest triumph because he is under the impression that no American orthopedic surgeon is capable of doing a bloodless correction. Evidently he has never heard of Kite's treatment of clubfoot, or that of many others, nor seen the splendid results that are

⁶ Pemberton J deJ and Brown P H W. Regional Ileitis. *Ann Surg* 105: 855 (May) 1937.

¹ Lorenz, Albert. *Europäische und amerikanische Orthopädie*. Wien. *Mon Wehnschr* 50: 527 (April 23) 1937.

obtained by the use of our American plaster-of-paris casts, without the necessity of sending over to Vienna for "alabaster gips"

The space given to this discussion would not be warranted were it not that a reputable European periodical saw fit to publish these lucubrations of a young egoist whose balance—if any—seems to have been overturned by seeing the family cognomen too frequently in the papers

Current Comment

AMERICAN ASSOCIATION FOR HEALTH AND PHYSICAL EDUCATION

A new organization, developed in Detroit in June 1937 during the summer meeting of the National Education Association, replaces two previously existing groups. For many years the National Education Association has had a department of health and physical education with relatively small membership. There has also been a large national organization, the American Physical Education Association, not affiliated with the National Education Association. The American Physical Education Association had grown to be a strong group with a membership in excess of 8,000 members consisting largely of teachers of physical education, athletic coaches and gymnasium instructors, with a sprinkling of classroom teachers and supervisors on whom had been placed the responsibility for teaching health in the schools. The American Physical Education Association held an annual meeting, conducted several regional meetings each year and met in several states with the state education associations, with whom it was frequently affiliated. It published two journals, the *Journal of Health and Physical Education*¹ and the *Research Quarterly*². Because of the existence and the strength of the American Physical Education Association and for other reasons, the department of health and physical education of the National Education Association never became an effective functioning organism. At the meeting of the National Education Association in 1936, favorable action was taken on proposals from the American Physical Education Association to unite with the National Education Association through its department of health and physical education. At the annual meeting of the American Physical Education Association in 1936 the union of the two organizations was ratified and at Detroit in June 1937 it was effected. These developments interest the physician because of their influence on the health of the school child. The new department or association has organized three divisions, one on health, one on physical education and one on recreation. In the division of health a medical section was organized at Detroit. This medical section is intended to serve physicians interested in the health of the school child and includes, of course, school physicians, physicians acting as members of

boards of education, pediatricians and general practitioners whose practice includes school children. The hope was expressed that many physicians would avail themselves of membership in this section. Membership requirements are that a physician shall be a member of his county and state medical societies and of the American Medical Association. Honorary or associate members of county or state associations or the American Medical Association are included where such classifications exist. The only other prerequisite for membership in the section is membership in the National Education Association. The latter membership may be procured by sending \$2 to the National Education Association, 1201 Sixteenth Street N W, Washington, D C, and specifying that the member wishes to be enrolled in the Medical Section, Division of Health, of the American Association for Health and Physical Education—a Department of the National Education Association. Probably additional departmental dues will be fixed in the near future. For further information either the chairman or the secretary of the Medical Section may be addressed. At the organization meeting in Detroit, Dr. Don W. Gudakunst³ was elected chairman of the medical section and Dr. W. W. Bauer⁴ secretary.

ANTIGENICITY OF HORMONES

In a recent analysis of the antigenic functions of certain gonadotropic hormones, Kindermann and Eichbaum¹ of the University of Prague investigated a commercially available gonadotropic substance isolated from human pregnancy urine. Male or female rabbits repeatedly injected with this product went through three stages in the development of an active antihormonic immunity. The first stage was characterized by the formation and liberation into the blood stream of precipitins and complement-deviating antibodies. They reacted in vitro with gonadotropic substance and also with normal human serum proteins. These antibodies, however, in no way neutralized, inhibited or otherwise decreased the gonadotropic functions of gonadotropic substance as determined by the Aschheim-Zondek reaction. The second stage of active immunization was characterized by the formation of biologically active antihormones. Second stage antiserum neutralized gonadotropic substance, as shown by the negative Aschheim-Zondek reaction. In the third stage of active immunity, precipitins and complement-deviating antibodies disappeared from the circulation but were not accompanied by appreciable reduction in the anti-Aschheim-Zondek reaction serum titer. Neither the presence nor the absence of demonstrable precipitins and complement-deviating antibodies, therefore, is significant in the estimation of antihormonic immunity. The authors recognize, however, that this is but a tentative conclusion based on a study of commercially available and presumably impure gonadotropic substance.

¹ The *Journal of Health and Physical Education* is included with active membership at \$2 a year and with professional membership at \$5 a year.

² The *Research Quarterly* is included with professional membership at \$5 a year.

³ Director of School Health Department of Health Detroit.
⁴ Director Bureau of Health and Public Instruction American Medical Association 535 North Dearborn Street Chicago.
¹ Kindermann, Viktor and Eichbaum, Franz. *Ztschr. f. Immun. tatsforsch.* 89: 250 (Nov. 3) 1936.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES NEW HOSPITALS EDUCATION AND PUBLIC HEALTH)

ARIZONA

Dr Hughes Named State Health Officer—Dr Coit I Hughes, Phoenix, was recently appointed state superintendent of public health for Arizona to succeed Dr George C Truman Phoenix. Dr Hughes graduated at the University of Louisville School of Medicine in 1909.

Building Program at State Hospital—A building program has been approved at the state hospital in Phoenix which will cost about \$228,000 of which \$93,616 has been appropriated by the PWA, it is reported. Construction of the first unit in the project a women's ward began in June. This one story unit, costing about \$82,311, will be of Spanish design.

ARKANSAS

Opening for Serologist and Medical Director—The Arkansas State Personnel Division announces examinations for the positions of serologist and medical director. For the serologist no applications will be received after August 7 and applicants must be college graduates with a bachelor of arts or bachelor of science degree with courses in zoology biology chemistry and bacteriology postgraduate technical course in serology, two years' experience as laboratory technician and serologist or college graduates with a major in the biological sciences and four years' experience as a laboratory technician. The maximum age is 35 years. The salary is \$1,500 a year. Applications for the position of medical director will not be accepted after August 14. Requirements include graduation from a class A medical school internship in an approved hospital, skill in diagnosis and therapy of communicable diseases supervisory and organizing ability ability as a public speaker and in securing cooperation from local officials and civic groups. The salary is \$3,000 a year and the maximum age 35 years. Both examinations will consist of a formal application accompanied by a thesis covering specified subjects. Those who pass these requirements will be given an oral examination later. Additional information may be obtained from the personnel division, Capitol Building Little Rock Ark.

CALIFORNIA

Survey of Crippled Children—*California and Western Medicine* reports the results of a recent seven months study of 502 crippled children examined in nine diagnostic clinics held in eight counties of the state. Accidents were the causative factors in the present physical condition of 103 patients the condition was congenital in 313 while disease was responsible in 144. In the last group poliomyelitis accounted for the largest number of cases. While the classification of ages runs from 2 years to 20 and over the largest single number eighty-eight, is found in the adolescent period of 14 to 15 years representing 17.5 per cent of the total number examined 11.2 per cent of the total patients were under 6 years of age. Half of them were under 4 years of age, and 8.1 per cent were 18 years or over, suggesting that disease conditions had existed over a period of years or that children who had previously been surgically treated were reporting back for further orthopedic supervision. Of the 502 patients examined, no recommendations were made for fifty, or nearly 10 per cent. The report stated that this does not necessarily mean that no disease condition existed in this group but that no further care was indicated at the time of the examination. Of 556 recommendations made for 452 patients, the report shows that 71.4 per cent were for orthopedic care and 28.6 for nonorthopedic conditions. The largest number in the second group, or 12.6 per cent, were for the services of an ophthalmologist. Almost as many received recommendations of an orthodontic nature as required the services of other specialists. One third of the total orthopedic recommendations or 29.7 per cent was made for surgery representing both orthopedic and plastic surgery while 10 per cent of the total was for continued orthopedic supervision. Almost as many were made for corrective exercises as for appliances. Only 13.1 per cent of the children for whom orthopedic recommendations were made were referred back to the clinic, private physician or hospital previously attended. Almost as many had been under the care of a private physician as of a clinic indicating either that the majority of the children examined were not under medical supervision or that the service required was in a specialized field the report stated. The

fact that recommendations were made for 90 per cent of the patients examined signified not only the important contribution of the diagnostic clinics in meeting the needs of these patients but the necessity of following through the recommendations of the physician so that, in the end, medical care is not only conserved but made more effective, the report said.

DISTRICT OF COLUMBIA

Medical Bills in Congress—H R 7957, introduced by Representative O'Toole, New York, proposes to provide for the licensing of food handlers for the protection of public health. H R 7982 introduced (by request) by Representative Palmisano, Maryland, proposes to regulate the manufacturing dispensing, selling and possession of narcotic drugs in the District of Columbia. The term "physician" is defined by the bill to mean a person authorized by law to practice medicine or osteopathy in the District of Columbia.

IDAHO

Society News—Motion picture films on obstetric subjects and one on clinical administration of oxygen were shown at a meeting of the North Idaho District Medical Society in Moscow, June 16, the films were discussed by Drs Leonard W Brewer and John Harry Einhouse Moscow.

Personal—Dr Ralph M Alley has been placed in charge of the Indian sanatorium at Lapwai where the Nez Perce Indian agency has been moved from Moscow. The headquarters will have supervision over some 2,500 Indians, 1,400 of whom are members of the Nez Perce tribe—Dr Bruce C Budge, Boise, has been appointed a member of the faculty of Boise Junior College, which plans to offer a two year pre-medical course next year it is reported—Dr Jay H McClellan Jefferson Barracks, Mo, has been appointed chief medical officer of the Boise Veterans' Administration Facility. Boise succeeding the late Dr Rinaldo E Baker. Dr Norbert C Trauba has been acting officer—Dr Howard L McMartin Twin Falls has been appointed director of the Twin Falls county health unit succeeding Dr James W Hawkins, who became state health director.

ILLINOIS

Personal—Dr John W H Pollard health commissioner of Evanston for eleven years has resigned effective September 1, on account of ill health—Dr Karl M Beck has been appointed superintendent of the Lake County General Hospital Waukegan he will also serve as county physician and succeeds Dr Charles Lieber who is returning to private practice it is reported.

Wards of Children's Aid Society Undergo Syphilis Tests—Wards of the Illinois Children's Home and Aid Society are being tested for syphilis as a part of the general campaign against venereal diseases carried on throughout the state, it was announced July 11. The tests are being given to 2,000 wards of the society under the direction of Dr Mandel Spivek of the Children's Memorial Hospital. The society has a turnover of about 500 children a year and as new wards are accepted they will be examined. This program is the first of its kind ever carried on by any children's aid organization in the country it was stated. The project will cost between \$3,500 and \$5,000 a year and contributions are being sought to help defray the expense.

Chicago

Course on Traffic Safety—A gift of \$10,000 to expand the police training program of the traffic safety institute at Northwestern University was announced July 6. The fund was given by the Kemper Foundation for Traffic Police Training.

Dr Pusey Honored—Dr and Mrs William Allen Pusey were honored in Elizabethtown Ky, July 13 when a public reception commemorated their fiftieth wedding anniversary. The celebration was held at the Community House which was given to the town by Dr Pusey and his brother, Dr Brown Pusey. Both were born in Elizabethtown. The former is a past President of the American Medical Association.

River Noise Reduced—A telephone system will replace the whistling on river boats used as a warning to bridge tenders in accordance with recent action of the city council. A dispatcher will be stationed at the Outer Link bridge to pass the word when a vessel approaches. As each bridge is silently warned by telephone from the preceding bridge tender the bridges will open without the accompaniment of the usual whistles.

Questionnaires Seek Public Opinion on Tests for Syphilis—One million questionnaires will be sent to persons in Chicago asking whether they would accept confidential blood tests without cost to themselves in the campaign to conquer

sypilis now being conducted on a national basis by the U S Public Health Service. The plan was begun July 24 when more than 250,000 questionnaires were mailed. Two million franked envelopes for the mailing of the questionnaires and the replies have been supplied by the U S Public Health Service. The clerks are furnished by the WPA, the Chicago *Tribune* reported. Another phase of the campaign was being carried on in the federal statistical office in the Merchandise Mart where 2,893 physicians have enrolled thus far in the drive by returning questionnaires asking data on patients with sypilis under their care and observation in the four months period ended June 30 the names of the patient not to be revealed. All statistical material pertinent to the survey will be released through the Chicago Medical Society it was stated.

INDIANA

Fined for Prescribing Cancer Cure—George Byars, illiterate Negro, was fined \$200 in South Bend, June 22, when laboratory analysis showed axle grease to be the principal ingredient in a "cancer cure" he prescribed. According to the Indianapolis *Star*, Byars has posed as a healer for years, treating patients for cancer and other diseases. The investigation was brought about by the St Joseph County Medical Society and the fine imposed is the maximum penalty in Indiana.

New Division of Laboratories at University—Dr Clyde G Culbertson, assistant professor of pathology, Indiana University School of Medicine, and chief of the bacteriologic laboratory of the state board of health Indianapolis has been placed in charge of a newly established division of laboratories at the university medical center. The division was created by consolidation of the central clinical laboratory for the medical center, the research laboratory, the supervision of the laboratories of the state board of health and another to be established as a medicolegal laboratory. Drs John Lynn Arbogast and Albert W Ratcliffe have been appointed assistants to Dr Culbertson.

IOWA

Outbreak of Smallpox—The state department of health reports an outbreak of smallpox in Jasper County. On July 14 an investigation revealed that thirty-seven persons were either ill with smallpox or had recently suffered an attack of the disease. In one family nine children who had never been protected by vaccination contracted the disease while the father and mother, who had been vaccinated many years ago in Holland, escaped. The investigation further revealed that, so far as could be learned, only one among the thirty-seven smallpox patients showed evidence of vaccination, which in this instance had been carried out over fifty years ago.

Upper Des Moines Annual Summer Meeting—The Upper Des Moines Medical Society will hold its summer meeting on West Okoboji Lake, August 5. The all day program will open with a pediatric clinic conducted by Dr Julian D. Boyd, associate professor of pediatrics, State University of Iowa College of Medicine, Iowa City. Following a conference of county society officers of the third district the speakers will be:

Dr Roger L J Kennedy, Rochester Minn. Diseases of the Thyroid Gland in Children
Dr Ralph Bowen, Oklahoma City. Allergy As Seen in General Practice
Dr Frank R Peterson, Iowa City. Management of Rectal and Low Sigmoid Malnignancies
Dr Frederick A Willis, Rochester. Cardiovascular Syphilis

Dr Edward M Myers, Boone, president of the Iowa State Medical Society, will preside as toastmaster at the dinner in the evening and Dr Ewen M MacEwen, dean and professor of anatomy of the college of medicine will be the principal speaker.

KANSAS

New Health Officer—Dr Fred P Helm, health officer of Topeka, has been appointed secretary and executive officer of the Kansas State Board of Health effective July 15 succeeding Dr Earle G Brown who became health officer of Arlington, Va. Dr Helm graduated from the University of Louisville School of Medicine in 1923. He formerly served as health officer of Miami, Okla.

KENTUCKY

State Society Meeting Place Changed—The annual meeting of the Kentucky State Medical Association will be held in Richmond September 13-16, instead of Berea, September 6-9, as at first decided.

Louisville Health Department Expanded—An appropriation of \$75,000 from the federal government has enabled the department of public health of Louisville to expand its

activities in flood rehabilitation and preventive medicine. A district health center has been opened in the eastern part of the city under the direction of Dr John B Hozier, Louisville, and a trailer equipped with a loud speaker and motion picture machine has been purchased for health education purposes. Additions to the staff include Dr Gracie R Rountree, former health officer of Green County, as assistant director of health in charge of venereal disease control, Dr Annie S Veech as director of maternal and child hygiene, and Arthur G Fuller as sanitary engineer.

LOUISIANA

Arsenical Poisoning—Because of recent cases of arsenical poisoning, C L Clay, state chemist, Louisiana State Board of Health has issued a warning to manufacturers of insecticides or other poisonous compounds resembling flour or other food ingredients to color them so that they may not be mistakenly used in the preparation of food. This treatment is required under terms of regulation number 33 of the state's food and drug laws and violations are punishable by fine, imprisonment and destruction of the offending product and will be rigidly prosecuted the warning pointed out.

Graduate Instruction Reorganized at Tulane—Under a program of expansion of graduate medical education, Dr Hiram W Kostmayer, dean and professor of gynecology, Graduate School of Medicine, Tulane University, New Orleans, will henceforth be known as director of graduate medical studies in the school of medicine and Dr Maxwell E Lapham as director of the graduate medical extension division. All graduate medical instruction will be under the general supervision of Dr Kostmayer and under the immediate supervision and direction of the regular officers of administration and facilities of the several departments of the medical school it was reported. This arrangement will afford those who enroll for medical graduate study all the superior advantages in facilities, equipment and talent of the entire medical department of the university. According to the New Orleans *Times Picayune*, graduate degrees in medicine earned in graduate medical study will be conferred through the graduate school of the university, the faculty of which includes several department heads of the school of medicine.

MARYLAND

New Department Heads in Health Office—Dr David H Andrew, formerly health officer of Wythe County, Wytheville, Va., has been appointed director of the bureau of communicable diseases in the Baltimore health department, effective June 28, to succeed Dr Adolph Weinzirl. Dr Andrew graduated at the University of Maryland School of Medicine, Baltimore, in 1931. Recently he received a certificate in public health at the Johns Hopkins School of Hygiene and Public Health. Dr Phineas J Sparer was appointed recently to the newly created full time position of director of the bureau of tuberculosis.

MICHIGAN

Mayor for Twenty-Five Years—Dr Arnold R Miller has been mayor of Harrisville since 1912. He graduated from the Detroit College of Medicine now known as Wayne University School of Medicine, in 1906 and has been practicing in Harrisville since 1911. Harrisville in Alcona County, has a population of about 500.

Personal—Dr James A Dolce, medical inspector of the Glen Head L I, N Y, schools has been named associate field director and health officer of Allegan County, under a fellowship from the Kellogg Foundation. Dr James R Jeffrey Jr, Miami Springs, Fla., has been appointed a member of the staff of Battle Creek Sanitarium, Battle Creek, filling the vacancy in the department of gastro enterology caused by the death of Dr Elmer L Eggleston. Dr Ervin J Brenner, East Jordan, has been appointed health officer of the newly organized Alger-Schoolcraft county health department. Headquarters are in Manistique, with a branch office in Munising.

MINNESOTA

Dr Rosenow Wins Prize—The James E Stacey award of the University of Cincinnati consisting of a gold medal and \$100 was recently bestowed on Dr Edward C Rosenow Sr, Rochester, "because of recent establishment of the fact that certain types of spasmodic disease—such as chronic hiccup, torticollis and other types of spasm involving particularly the respiratory muscle group—were dependent on central nervous system infections originating in symptomless infections of the tonsils from which micro organisms and toxins were recovered which on injection into experimental animals reproduced identical forms of the disease." Dr Rosenow a graduate of Rush

Medical College, Chicago, is professor of bacteriology and immunology at the University of Minnesota Graduate School of Medicine

MISSOURI

Commission to Supervise New Cancer Hospital—Dr Ellis Fischel, associate professor of surgery St Louis University School of Medicine has been appointed chairman of a commission which will supervise construction and operation of a new state cancer hospital for indigents, it is reported. Names of the other three members of the commission were not announced. Creation of the hospital and a series of supplementary clinics was authorized by the last session of the legislature, which appropriated \$600,000 for construction and equipment of the institution and its operation for a year. It was stated that work cannot start until after the date on which the bill is effective, September 6. Dr Fischel is head of the cancer committee of the Missouri State Medical Association and a staff member and secretary of the medical board of the Barnard Free Skin and Cancer Hospital.

MONTANA

Hospital News—Construction of a new orthopedic hospital as a unit of the Montana Children's Home and Hospital, Helena, was to start June 21, newspapers reported. The new unit to be known as the Louis W Shodair Hospital for Crippled Children will cost about \$45,000. It is made possible through a gift of \$90,000 by Louis William Shodair, Los Angeles, who specified that half the fund be used for construction and the remainder for maintenance.

NEW JERSEY

Hobby Exhibit at State Meeting—Ninety-eight entrants sent 2072 articles to the annual art hobby and medical history exhibit of the Medical Society of New Jersey presented at the annual meeting in Atlantic City under the management of the Woman's Auxiliary. This year the exhibit included the first showing of county medical histories a project recently undertaken by the auxiliary. Nine counties had displays that included biographies, photographs, society histories, old books and medical antiques. In addition there were thirty historical exhibits entered by individuals. The art and hobby displays ranged from paintings, drawings, sculpture and photographs to Indian relics, coins and stamps. Mrs Ily R Beir Atlantic City, was chairman of the committee that arranged the exhibit.

NEW YORK

Hospitals Opened—A new eighty-two bed city hospital was dedicated in Oneida June 16 to take the place of the old Broad Street and City hospitals. Patients were moved June 29 into the new \$220,000 structure built with the aid of PWA funds. The Bath Memorial Hospital, formerly known as Bath Hospital, opened a new building with a capacity of fifty beds in May. The new hospital was built as a memorial to the late Drs Douglass H Smith and Henry J Wynkoop, Bath, with funds provided by members of their families augmented by a PWA grant of \$65,000.

New Department Heads at Albany Medical College—Dr Joseph Lewi Donhauser, associate professor of surgery, Albany Medical College, has been appointed professor of surgery and executive head of the department of surgery to succeed Dr Arthur W Elting, who retired July 1. Dr Lemuel Whittington Gorham, associate professor of medicine, will succeed Dr Thomas Ordway as professor of medicine and executive head of that department, and Dr Arthur J Wallingford, associate in gynecology, will succeed Dr John A Sampson as professor and head of the department of gynecology. Dr Donhauser and Dr Wallingford are graduates of Albany, Dr Gorham graduated from Johns Hopkins University School of Medicine Baltimore. In addition to the teaching appointments, Dr Donhauser becomes surgeon in chief at Albany Hospital and Dr Gorham consulting physician.

Commission to Study Problems of Hard of Hearing—Appointments to a temporary commission to 'examine, report on and recommend measures to improve facilities for care of deaf children and children liable to become deaf' authorized at the last session of the legislature, were recently announced by Governor Lehman. The governor's appointees are Dr Augustus J Hambrook, Troy, chairman of the committee for deaf and hard of hearing of the Medical Society of the State of New York, Dr Edmund P Fowler, director of research and clinics New York League for the Hard of Hearing, Dr Emily A Pratt, supervisor of eyes and ears, state department of education Albany, Miss Estelle E Samuelson, execu-

tive secretary of the New York League for the Hard of Hearing, and M Victor Skyberg, principal of the New York School for the Deaf. Six members of the legislature are also part of the committee and ex officio members are Dr Edward S Godfrey Jr, state health commissioner, and Frank P. Graves, LL.D. commissioner of education. The commission must report to the legislature on or before Feb 15 1938.

New York City

Hospital Temporarily Closed—Beth David Hospital closed its hospital and outpatient facilities at One Hundred and Thirtieth Street and Lexington Avenue, July 15, preparatory to moving to a new building. The new hospital at Ninetieth Street and Lexington Avenue, which will have a capacity of 200 beds, will open about September 1.

Changes in Staff of Rockefeller Institute—The board of scientific directors of the Rockefeller Institute for Medical Research announces promotions and new appointments in the scientific staff. The promotions are as follows:

Associate member to member Max Bergmann Ph D
Associate to associate member Wendell M Stanley Ph D
Assistant to associate Lyman C Craig Ph D Dr Lee E Farr
Roger M Herriott Ph D Alma E Hiller Ph D Dr Albert B Sabin
and Erich Traub VMD

The following new appointments are announced:

Assistants Otto K Behrens Ph D Washington, D C Lindsay M Black Ph D New York Dr Jacques Bourdillon Geneva Switzerland Dr Thomas M Brown Baltimore Dr Jordi Folch Pi formerly of Barcelona Spain Dr Frank H Robinson Jr Baltimore Dr Gerbard Schmidt formerly of Frankfurt Germany Dr Henry A Schroeder Philadelphia

Fellows Max A Lauffer Jr Ph D Minneapolis Dr John M Pearce, New York Richard E Reeves Ph D New Haven Conn and A Frank Ross Ph D Madison Wis

Appointments to Staff of Chronic Disease Hospital—Affiliation of Welfare Hospital, the new hospital for patients with chronic diseases, now under construction on Welfare Island with three medical schools and appointment of physicians to direct the divisions for each school have been announced by Dr Sigismund S Goldwater, city commissioner of hospitals. For Columbia University College of Physicians and Surgeons the director of medicine will be Dr Randolph West, the director of surgery, Dr William Barclay Parsons. For Cornell University Medical College the director of medicine will be Dr Irving Sherwood Wright, the director of surgery, Dr Ralph Firestone Bowers. For New York University College of Medicine Dr Norman H Jolliffe will be director of medicine and Dr William Howard Barber, director of surgery. Dr Wright has been made president of the medical board, Dr West vice president and Dr Jolliffe secretary.

NORTH CAROLINA

Personal—Dr James W Vernon, Morganton, was recently elected president of the North Carolina State Board of Medical Examiners. Dr Jabez H Williams, formerly of the staff of the State Sanatorium, Sanatorium, has been appointed health officer of Sampson County to succeed Dr Wyman P Starling, Clinton.

OKLAHOMA

Infantile Paralysis Reported—Newspapers have reported cases of infantile paralysis in some towns in Oklahoma. Bartlesville had nine active cases July 13 and two small neighboring towns had three more. Six cases were reported in Guthrie July 11. Three each were reported in Oklahoma City and in Ryan.

Society News—Among speakers at a meeting of the Southern Oklahoma Medical Association in Sulphur June 8 were Drs Bert F Keltz Oklahoma City, on 'Protamine Insulin versus Regular Insulin', Orman T Kimbrough Wichita Falls, Texas, 'Pain in the Kidney Region', and Leroy D Long Oklahoma City, 'Indications for Surgery and the Surgical Treatment of Peptic Ulcer', Richard M Burke Sulphur, 'Collapse Therapy in Pulmonary Tuberculosis', Bert E Mulvey Oklahoma City, 'Coronary Artery Disease and Joseph E Kanatser, Wichita Falls 'Obstetric Hemorrhages and Their Treatment'.

PENNSYLVANIA

Society News—The annual meeting of the Lehigh Valley Medical Association was held at Pocono Manor Inn Monroe County, July 14. Dr Charles L Brown, professor and head of the department of medicine, Temple University School of Medicine Philadelphia was the speaker on 'Digitalis Diuretics and Diet in the Management of Chronic Heart Failure'. Dr Charles E Beck, Portland president of the association.

gave his official address, on "Forty Years in Medicine"—The Fayette County Medical and Dental societies held their annual joint picnic at the Uniontown Country Club, July 21

SOUTH CAROLINA

New Members of Examining Board—The following new members have been appointed to the state board of medical examiners in recent months: Drs. Carl A. West, Camden, Daniel L. Maguire, Charleston, and Clough H. Blake, Greenwood. Dr. Josiah S. Matthews, Denmark, is president of the board, and Dr. Albert Earle Boozer, Columbia, is secretary. Other members are Drs. George R. Wilkinson, Greenville, Nathaniel B. Heyward, Columbia, and Enoch M. Dibble, Marion.

TENNESSEE

Society News—Drs. Walter T. Swink and Jacob Alperin, Memphis, addressed the Memphis and Shelby County Medical Society, Memphis, June 1, on "Treatment of Pneumonia" and "Diabetes Mellitus and Protamine Insulin" respectively. Dr. Ernest R. Zemp, Knoxville, addressed the Knox County Medical Society, Knoxville, June 29, on "Anatomical and Physiological Basis of Hypertension." At a meeting of the Hardin-Lawrence-Lewis-Perry-Wayne Counties Medical Society in Lawrenceburg, June 29, the speakers were Drs. Alva A. Jackson, Florence, Ala., on "Osteomyelitis", Oval N. Bryan, Nashville, "Diagnosis and Treatment of Syphilis", George C. Williamson, Columbia, "Acute Abdominal Conditions in Infancy and Childhood", and J. J. Reavis, DDS, Lawrenceburg, "Importance of Calcium and Phosphorus and Vitamins A, B, C, and D in the Child's Diet." Drs. Abraham J. Guinn, Ducktown, and John W. Bradley, Chattanooga, addressed the Hamilton County Medical Society, July 1, on tribrom-ethanol as a basal anesthetic, and venereal disease respectively. Drs. Thomas Jennings, Clinton, and Horton G. DuBard, Norris, discussed nephritis and lead poisoning respectively at a meeting of the Anderson County Medical Society, June 7.

TEXAS

Personal—Dr. Stuart P. Cromer, recently assistant medical superintendent of the Research and Educational Hospital, University of Illinois College of Medicine, Chicago, has been appointed superintendent of Baylor University Hospital to succeed Dr. Edgar M. Dunstan. Dr. Dunstan has been appointed head of the Dallas city and county hospital system. It is reported that Dr. Jarrett E. Williams, adjunct professor of pathology, University of Texas School of Medicine, Galveston, has been promoted to be associate professor to succeed Dr. John F. Pilcher, resigned. Dr. William P. Harrison, Teague, was recently elected president of the state board of health, succeeding Dr. Elbert W. Wright, Bowie.

UTAH

Society News—Dr. Frank M. McHugh, Salt Lake City, among others, addressed the Central Utah Medical Society at Salina recently on "Acute Tracheolaryngeal Bronchitis." Dr. Clyde W. Countryman, Spokane, Wash., addressed the Salt Lake County Medical Society, Salt Lake City, June 14, on "Gunshot Wounds of the Liver, with a Suggested New Method of Treatment." A special clinical meeting on muscular atrophy was held at the Latter Day Saints Hospital in the morning. At the May 10 meeting, Drs. John Mercer Anderson, George Gill Richards, and Charles Elmer Barrett presented a symposium on allergy. Dr. Samuel W. Hamilton, White Plains, N. Y., addressed the Utah County Medical Society at the Utah State Hospital, Provo, on recent advances in psychiatry, and Dr. Wilmer L. Allen, Provo, on "Deep Infections of the Neck" at recent meetings.

WEST VIRGINIA

Annual Seminar—The Golden Clinic of the Davis Memorial Hospital, Elkins, presented its annual seminar, July 14. In the morning there were case presentations at the hospital followed by a luncheon at the Randolph Hotel given by the West Virginia Heart Association. Drs. Roy Wesley Scott, Cleveland, and Louis Hamman, Baltimore, were guest speakers. At a scientific session in the afternoon at the Elkins High School, Dr. Scott spoke on Heart Diseases, Dr. Hamman on Tumors of the Abdomen, and Dr. Lawrence R. Wharton, Baltimore, on Tumors of the Kidney. The annual dinner was held at the Davis Memorial Presbyterian Church with Dr. J. Ross Hunter, Charleston, W. Va., as toastmaster. Dr. Lawrence A. Pomeroy, Cleveland, was the dinner speaker on "New Names for Old Tumors."

GENERAL

Organization to Study Convalescent Serum—A group of persons interested in convalescent serum therapy held a meeting at the Childrens Hospital, Philadelphia, June 7, and organized the American Human Serum Association. Dr. Fred M. Meader, Detroit, was elected president and Dr. Clarence M. Hyland, Los Angeles, secretary. Following are the other founding members of the association: Drs. Maurice A. F. Hardgrove, Milwaukee, Walter T. Harrison, U. S. Public Health Service, Washington, D. C., Sidney O. Levinson, Chicago, Aims C. McGuinness, Stuart Mudd, and Joseph Stokes, Jr., Philadelphia, Erling S. Platou, Minneapolis, William Thalhimer, New York, Franklin H. Top, Detroit, Paul Stephen Des Moines, Iowa, Miss Beatrice Howitt, Hooper Foundation, University of California, San Francisco, and Earl W. Flodorf, Ph.D., assistant professor of bacteriology, University of Pennsylvania School of Medicine, Philadelphia.

Fraudulent Instrument Repair Man—A physician reports the activities of a man who claims to repair surgical instruments but does not return those he takes. In Pittsburgh he claimed to renickel instruments for 25 cents and to replace broken parts of syringes at 20 cents each. Having picked up instruments and syringes, he next offered to sell a repaired instrument at a ridiculously low price. He usually said that the doctor had died while the repairs were being made and that he merely wanted the price of the repairs. Several physicians gave him cash and checks and are still waiting for their purchases, according to the report. The man said his name was W. J. Herries and gave his address as 1601 Market Street, Philadelphia, which is the Pennsylvania Railroad Station. He is between 45 and 50 years old, about 5 feet 4 inches tall, is of slight build, has thin sandy-colored hair, wears glasses and has poor teeth, it was said.

First Theobald Smith Award—Robley D. Evans, Ph.D., assistant professor of physics, Massachusetts Institute of Technology, Cambridge, received the first Theobald Smith Award in medical science at the summer meeting of the American Association for the Advancement of Science in Denver in June. Dr. Evans was honored for research that led to a method of detecting radium poisoning before its fatal stage and a treatment for extracting the radium from bones. He is 30 years old, a native of Nebraska, and received his doctorate at the California Institute of Technology in 1932. He was appointed to his present position in 1934 after spending two years as National Research Fellow at the University of California. The Theobald Smith Award was established in 1935 by Eli Lilly & Co., Indianapolis, to be awarded to an investigator under 35 years old for "demonstrated research in the field of the medical sciences taking into consideration independence of thought and originality." It consists of a bronze medal and \$1,000.

Fraudulent Sales Agent—Physicians in North Carolina and Georgia again report the activities of a man claiming to represent the Atlas Sales Company of Philadelphia and selling magazines in combination with medical books. In North Carolina he took subscriptions offering one of three medical books as a premium. He used the name W. D. Kitchens and gave the address of the firm as 1020 Walnut Street, Philadelphia. A letter to that address was returned unclaimed. In Georgia he took an order for *Life* with six medical monographs as premiums, gave his name as W. D. Kitchens and the address of the sales company as 1814 Walnut Street, Philadelphia. He gave his own address as Route 1, Box 12, Midland, Ga. A letter to the postmaster at Midland elicited the information that Kitchens was not known there and a letter to Philadelphia was returned unclaimed. Information concerning a fake agent claiming to represent the Atlas Sales Company, 1020 Walnut Street, Philadelphia, was published in THE JOURNAL, July 17, page 216. In that case the man used the name S. R. Ray. The earlier complaints came from Georgia and South Carolina.

News of Woman's Auxiliary—The *News Letter* of the Woman's Auxiliary reports the activities of the auxiliaries in various states. From Arizona it was reported that Yavapai and Yuma counties have recently organized auxiliaries, that Maricopa County members were active in the interest of medical legislation, and that Pinal County won one of three prizes of \$50 each given by Mrs. John O. McReynolds, Dallas, Texas, in a contest for subscriptions to *Hygeia*. In Idaho, the Boise auxiliary devoted much of its time to legislation, assisting in the passage of a bill providing for a state medical director and the establishment of health units and passage also of the uniform narcotic law. The Kentucky auxiliary has started a project to erect a memorial at Bowling Green to the late Dr. Joseph N. McCormack. It has under way also a memorial to Jane Todd Crawford, the patient on whom Dr. Ephraim

McDowell performed the first ovariectomy. North Carolina has started an endowment fund to support a bed in the new Western North Carolina Sanatorium near Black Mountain, it has for several years maintained a bed in State Sanatorium for physicians, their dependents and nurses. Utah members took an active part in legislative work as part of the "women's legislative council," a state organization representing women's organizations. They also had charge of two health meetings during a "woman's institute" sponsored by the *Salt Lake Tribune and Telegram* last April. This auxiliary has assembled an exhibit on quackery in the form of a circus, which has been exhibited at many fairs and conventions.

Medical Bills in Congress—Changes in Status H R 5030 has passed the House, granting increased pensions to veterans of the Spanish-American War, including contract nurses. The bill authorizes no pensions for contract surgeons. H R 6906 has passed the Senate, with amendments, proposing to regulate the use of cannabis by imposing occupational excise taxes and transfer taxes on certain dealers, including physicians who dispense or prescribe cannabis. S 2067 has passed, with amendments, the Senate and the House, to establish the National Cancer Institute and to provide for, foster and aid in coordinating research relating to cancer. *Bills Introduced* H R 7913, introduced by Representative Chapman, Kentucky, proposes to amend the Food and Drugs Act of June 30, 1906, as amended to bring within the purview of the act therapeutic devices and cosmetics and to redefine the terms "food" and "drug." H R 7959, introduced (by request) by Representative Sparkman, Alabama, proposes to provide for federal service medals of honor to government employees who while in the employment of the government have made outstanding contributions to the advancement of scientific knowledge or the application of its truths in a practical way for the welfare of the human race or who have rendered conspicuous service to humanity at the voluntary risk of life or health over and above the ordinary risks of duty. H R 7971, introduced by Representative O'Connell, Montana, proposes to regulate interstate commerce in goods produced under conditions exposing employees to the hazards of silicosis and related dust diseases. The Secretary of Labor is authorized to conduct investigations to determine the existence, nature and extent of such hazards and to require the installation, maintenance and effective operation of devices and safeguards to eliminate the hazards.

CANADA

Canadian Medical Association—The sixty-eighth annual session of the Canadian Medical Association was held in Ottawa June 21-25. The guest speakers included

Mr. Reginald Watson Jones University of Liverpool England
Mr. Harold Beckwith Whitehouse Birmingham England
Dr. Albert M. Snell Rochester Minn. Medical Aspects of Jaundice
Dr. Benjamin P. Watson New York Postpartum Sepsis
Dr. John S. Lundy Rochester Minn. The Present Unusual Opportunities for Medical Men in Anesthesia
Dr. Ralph M. Waters Madison Wis. Carbon Dioxide
Dr. Maurice Brodie New York Recent Immunologic and Pathologic Studies in Poliomyelitis and Their Significance
Dr. Perrin H. Long Baltimore Clinical Use of Para Amino Benzene Sulfonamide or Its Derivatives in the Treatment of Beta Hemolytic Streptococcal Infection
Dr. Franklin F. Snyder Baltimore The Normal Occurrence of Fetal Respiration and Its Relation to the Abnormalities of the New Born
Dr. Philip D. Woodbridge Boston Important Minor Points in Local Anesthesia

Government Services

Dr. Francis Ill with Relapsing Fever

Dr. Edward Francis U. S. Public Health Service is at the Marine Hospital, Baltimore slowly recovering from relapsing fever according to the *New York Times*. It was stated that Dr. Francis allowed himself to be bitten by a tick in a laboratory experiment. For five years he kept thirty ticks infected with relapsing fever in a pill box without food or water, according to the newspaper report. Then a monkey bitten by one of these in an experiment developed the disease proving that five years' starvation not only did not kill the ticks but did not kill the organisms they harbored. To determine whether the organism is transmitted to later generations of ticks and whether it was still capable of causing the disease, Dr. Francis allowed a second generation tick to bite him and as a result he developed the fever. Dr. Francis graduated at the University of Cincinnati College of Medicine in 1897 and joined the public health service in 1900. He was appointed medical director in 1930. In 1928 the American Medical Association awarded him a gold medal for contributions to knowledge of tularemia.

Foreign Letters

LONDON

(From Our Regular Correspondent)

July 3, 1937

The Editor of the *Lancet*

Sir Squire Sprigge, editor of the *Lancet* died within a few days of completing his seventy-seventh year. He was in active work almost to the end. Educated at Cambridge and St. George's Hospital, he graduated in medicine in 1887 but from the first showed a literary bent and no desire to take up practice, though he held various resident and traveling appointments. He wrote short stories in magazines and did some medical reviewing. He became secretary to Sir Russell Reynolds, whom he assisted in his literary work. He also became secretary to the Society of Authors, of which he later was chairman. The key to his important career is that he was the literary man turned medical journalist, a description which does not apply to any other member of that profession. At the end of 1892 he joined the staff of the *Lancet* on probation, by request of the editors, and soon was appointed assistant editor. The journal was then under the control of the son and grandson of the founder, Thomas Wakley. Sprigge had not been there long when he was commissioned to write the history of the founder and the early work of the *Lancet*. This appeared as a serial and afterward in book form under the title "The Life and Times of Thomas Wakley." With the appearance of the *Lancet* in 1823, English medical journalism assumed a new form. The novelty consisted in not only supplying medical information but in standing up for the rights of the doctor. Wakley was a great medical reformer who exposed the nepotism and inefficiency then rife in the medical schools. He increased the exasperation of their staffs by publishing their lectures, a thing never done before. They objected for fear that they might lose some of the fees paid by students. An acrimonious controversy, sometimes, as was customary in that age, even scurrilous, was waged. The tone of the *Lancet* was then very different from the staid respectability of later years. The whole story is vividly and admirably told in Sprigge's book, which is an important contribution to the history of medicine in England in the first half of the nineteenth century. With the death of Wakley's grandson in 1909 the *Lancet* passed out of the family and Sprigge became editor. He filled the position with distinction and was an important figure in both the medical and literary worlds. He was master of all the personal, social and political aspects of medicine. He was an authority on medical education, on which he published a book in 1910. In 1920 he was vice president of the section of medical education at the annual meeting of the British Medical Association. In 1921 he and the editor of the *British Medical Journal*, Dr. Dawson Williams, were knighted for their services in medical recruiting and in other ways during the great war. In medical politics he was a statesman on whom the profession could always rely for sane leadership in the difficult crises of recent years.

Rehabilitation of Injured Persons

Fracture clinics have been established in this country because they gave results much better than those of unorganized treatment. Last April the government appointed a committee, containing surgeons experienced in the treatment of fractures, to inquire into the arrangements at present in operation with a view to the restoration of persons injured by accidents, and to report as to what improvements or developments are desirable. The committee was directed to have regard to the Report on Fractures issued by the British Medical Association (*THE JOURNAL*, March 16, 1935, p. 934), which recommended the

concentration of cases in one department under single control, continuity of treatment and supervision until rehabilitation. The committee made a survey of the hospital arrangements of the country for the treatment of fractures and presented its report, which has just been published. Information was received from 724 voluntary and 101 municipal hospitals covering 201,732 new fracture cases treated in 1935. In 650 hospitals all cases were treated under the general surgical routine, fifty-nine hospitals had fracture departments organized on lines which appeared to conform to the principles stated, 116 other hospitals had partially organized fracture clinics. The committee prepared a scheme for the organization of fracture clinics and submitted a draft of it to a number of representative hospitals and authorities for their observation. In the meantime the question of providing fracture clinics was receiving consideration in many different quarters as a result of growing dissatisfaction with the results obtained under the old methods. Hospital authorities, local government authorities and employers' and workers' organizations took up the question. Some clinics were established and others were planned, and the committee was asked for guidance. It therefore decided to issue an interim report on the organization of fracture clinics, without waiting to complete its inquiry into other questions, such as the manner in which expenditure should be met, methods of rehabilitation after clinical treatment and provision for other kinds of injury.

ORGANIZATION OF A FRACTURE CLINIC

The scheme is based on the assumption that the clinics will be established as an integral part of existing hospitals, though independent clinics in a few centers, at which methods of treatment would be made the subject of special study, are not ruled out. The object is to bring all fracture cases under unified control and to ensure that the treatment shall continue under the same supervision until rehabilitation is complete. This can best be ensured by concentrating all cases in a separate department of the hospital. Where it is not possible under existing conditions to set aside separate wards for the purpose, certain beds in the general wards should be definitely assigned to the fracture department, pending the provision of separate accommodation. The department should be placed under the charge of one of the visiting surgeons, and one or more whole time assistants will be needed. An X-ray technician must always be available at any time of the day or night, so that there may be no delay in examination, by which alone treatment can be accurately controlled. The committee recommends one departure from ordinary practice in hospitals. It is not the custom for the visiting staff to receive any remuneration. But the surgeon in charge of the fracture clinic will undertake much more onerous duties than those usually falling to a visiting surgeon and probably will have to give up other remunerative work. He should therefore receive some honorarium. Unless this is done it may be difficult to secure the man best qualified for the work.

The arrangements for fracture clinics vary with their size. The maximum size compatible with unified control is one capable of dealing with from 3,000 to 3,500 cases a year, of which about one third would need inpatient treatment, involving the provision of forty beds. The needs of rural areas not served by a local hospital capable of maintaining a fracture clinic should be met by linking them up with one at some convenient center to which cases could be transferred. Outpatient treatment could be carried out locally, subject to supervision from the center. Thus the plan of the committee is to provide a network of fracture clinics covering the whole country. Its solution requires the cooperation of all the interests involved—the local government authorities, the larger voluntary hospitals in the more important centers, the smaller institutions in rural areas, the medical profession, the ambulance services, and employers' and workers' organizations.

The Changed Outlook in Mental Disease

Sir Kingsley Wood, minister of health, opened a new mental hospital at Runwell, Essex, which has been laid out on garden city lines, and in its twenty-five units, each planned for a specific purpose, a community of 1,010 patients and a staff of about 400 are housed. The buildings are separated by wide lawns and by flower and vegetable beds. Wide verandas with solariums form a feature of the patients' units, and airy rooms with French windows enable them to feel that they are in a sanatorium. Addressing the large audience present in the recreation hall, Sir Kingsley Wood said that the national outlook toward mental disease had completely changed in recent years. The old term "asylum" had disappeared and so had "lunatic," which was not only misleading but mischievous, because it ignored the fact that there were many forms of mental disorders with different causes. Great progress had been made in humanizing mental hospitals, and the whole atmosphere and outlook were quite different from the days when mental disease was treated more like a criminal offense than anything else. Increasing numbers were voluntarily seeking treatment in hospitals in the early stages of the disease, last year 2,500 patients of this kind were admitted to public mental hospitals. Occupational therapy and recreation were playing an increasingly important part in the treatment of mental disorders, and there was greater organization of outdoor games and dancing. He did not think that there was proof that the incidence of mental disorders in this country was rising. Probably something like one third of all sickness, apparently physical, was, in fact, nervous in origin.

The Use of Radioactive Thermal Waters

Before the section of physical medicine of the Royal Society of Medicine, Dr C. W. Buckley, balneologist, opened an important discussion on the indications for the use of radioactive thermal waters. He said that the thermal effects on the system from the use of water at various temperatures, and the mechanical action of douches, was much the same whatever water is used. But for the more severe types of chronic rheumatic disease the chemical action of the water used on and through the skin makes a material difference to the permanence of the relief, not to say cure. Thermal and mechanical effects are not those of chief importance. A criterion of the chemical action involved in the external use of mineral waters of the type of Buxton is the occurrence of "bath reactions." Simple immersion in the Buxton natural pool for fifteen or twenty minutes produces very different results from those after immersion in an ordinary swimming pool. The usual effect is a disproportionate lassitude accompanied by muscular pains and aches. If there is a tendency to gout, this effect is more marked and may culminate in an acute attack. As the patient is likely to have been taking a daily bath at home, the chemical activity of the water must be responsible for this effect, which is due to its action on metabolism.

Recent researches in France by Mougeot and others have shown that with gaseous waters osmosis takes place through the skin but that the gases are absorbed in much greater quantity through the lungs. They are continuously given off from the surface of the water in which the patient is immersed, and as they diffuse very slowly the layer of air which he breathes is richly charged with them and with radon, if present.

The benefit of radioactive waters and baths in rheumatic diseases is generally admitted, but doubt exists as to their use in the more acute stages of rheumatoid arthritis. Dr Buckley held that warm immersion baths, large and deep enough to permit of movements being freely carried out were valuable at any stage of this disease. Fibrositis, including sciatica and brachial neuritis, is an important indication, especially in cases due to toxic or infective causes while those due to strain or other forms of trauma are also likely to benefit. Osteo-arthritis is another indication, although the possibilities of improvement depend on the state and the extent to which fibrositis is asso-

ciated But gout is the disease above all others which benefits by radioactive waters at any stage, both for prophylaxis and for treatment In all these cases there is a certain specific action, the "bath reaction" mentioned This is probably of the nature of a mild protein shock and needs to be carefully controlled

Certain forms of hepatic disorder and catarrh of the colon due to residence in a hot climate and often the sequel of dysentery appear to do well High blood pressure of the type so often met with in women at the menopause is benefited by these baths and the eliminative effect of a diuretic water

PARIS

(From Our Regular Correspondent)

June 24, 1937

Iodized Oil as a Test of Pancreatic Function

The external secretion of the pancreas, as distinguished from its internal secretion, has such an important part in digestion that it is often necessary to determine its activity It is difficult to carry out such a study clinically, because the symptoms of deficiency are indefinite F Tremolieres read a paper at the May 25 meeting of the Academie de medecine on a method which could be used to enable the clinician to determine if not the composition of the entire pancreatic secretion at least that of one of its constituents His method consists in having the patient take, before breakfast, five capsules of iodized oil corresponding to 1 Gm of iodine As shown by the experiments of Rene Fabre, in collaboration with Sicard and Forestier and with Binet, the iodine is rapidly absorbed and is excreted by the kidneys, so that it is justifiable to assume that the elimination is proportional to the absorption It is sufficient, therefore, to collect the urine for twenty-four hours and to estimate its iodine content by the Cheramy method In normal persons the amount of iodine eliminated is about 50 per cent of that which has been ingested This method permits an estimation of the secretion of lipase The effect of the pancreatic lipase is, on the contrary, so much greater than that of the intestinal lipase that its estimation is not obscured The method has been employed in more than 200 cases with the following results 1 When examination of the feces, following a test meal, reveals a pancreatic insufficiency, the proportion of iodine eliminated is usually from 20 to 30 per cent, always more than 13 per cent and distinctly less than the normal 50 per cent 2 In cases of associated hepatic and pancreatic insufficiency the lowest percentages are found, lower than 25 per cent and going down as low as from 3 to 5 per cent 3 When the feces examination does not indicate any alteration of biliary and pancreatic function, the assimilation of iodine is close to the normal 50 per cent

The method is so simple that it merits, according to Tremolieres, further trial as a routine test of pancreatic function

Influence of Therapy on Dementia Paralytica

A statistical study of 3,000 patients admitted between 1920 and 1933 to a psychiatric hospital here appears in the May 29 issue of the *Presse medicale* The authors, Drs P A and C Chatagnon, have noted a change in the clinical picture as the result of changed social conditions and the newer methods of treatment They found that the number of men suffering from dementia paralytica increased markedly (about double) between 1926 and 1932, reaching a maximum from 1926 to 1927 and especially in 1928 The latter increase probably corresponds to syphilis acquired during the World War years There was an equally marked decrease in the number of admissions for dementia paralytica in 1933 There is less fluctuation in the case of women admitted between 1920 and 1933 The average number of patients admitted during these thirteen years as compared to that for other diseases was 55 per cent for women and 13.5 per cent for men The effect of modern therapy is more marked in the case of men suffering from dementia

paralytica than in that of women This explains the decreased number of male admissions as compared to that of females A striking decrease in the mortality for both sexes is to be noted as the year 1933 is approached, probably as the result of more energetic treatment With few exceptions, all the patients included in the statistics were treated with pentavalent arsenical preparations, mercury and bismuth compounds and also malaria

Variations of Mortality and Natality in France

Dr Marcel Moine, statistician of the French national committee for the control of tuberculosis, presented at the May 11 meeting of the Academie de medecine a study of the variation in the number of deaths and births in France from 1810 to the present time The study shows that the decreased number of births has been partially compensated by a noteworthy decrease in the number of deaths, especially in the past seventy years If the mortality had remained stationary, taking in consideration the diminution of the natality, the population of France in 1931 would have been only 28,400,000 instead of 41,800,000 If, on the other hand, the natality had remained the same as it was between 1810 and 1830, the population would have been 89,100,000 in 1931, more than double the actual figure for that year Compared to other countries in which the decrease in the number of deaths annually has been even more marked than in France, it is possible still to expect a decrease of 180,000 deaths a year This decrease alone would not, however, be able to equalize the number of deaths and births, if the number of the latter continue to decrease as is at present the case

New Regulations on Prevention of Venereal Diseases

In a letter sent by the minister of public health, Dec 10, 1936, to all antivenereal dispensaries, the latter were instructed to organize their social service departments Special stress was laid on the necessity of investigating the source of contamination in every new case of syphilis There should be close cooperation between the antivenereal and military services The precise nature of this cooperation is outlined in instructions sent out on April 16 to be applied in the central ministries (departments of the central government) in Paris and by the individual departmental representatives of the central government at Paris In the former (central administrations) there shall be cooperation between the commission on prevention of venereal diseases and the committee for the study of venereal disease in the army These two committees have, as members, representatives of the war and public health departments There shall be constant exchange between them of information regarding the development and prevention of venereal disease

Federation Recommends Higher Fees

As explained in previous letters, there is an organization in each of the eighty-six departments termed the medical syndicate of the respective department, which looks after the interests of the profession At the May 9 meeting of the executive committee of the Central Federation, the following resolution was unanimously passed "In view of the 30 per cent devaluation of the franc in September 1936 and the increased cost of living, the officers of the federation are authorized to take the necessary steps to increase the fees for services to veterans, accident cases, house and office visits 30 per cent" This step has been rendered necessary because of the constantly decreasing income of members of the profession, especially in larger centers of population

Twenty-Fourth Hygiene Congress

The twenty-fourth annual meeting of the French Hygiene Congress will be held October 18-19 in the Pasteur Institute The president this year is Dr Lesne, a pediatrician The subjects selected for special discussion are (1) overworked school children from the medical, social and administrative points of

view, (2) prophylaxis of tuberculosis in schools, (3) backward children in city schools and (4) healthful milk. Those who wish to take part in the program may write to Dr. R. Dujarric de la Riviere, 28 rue du Docteur-Roux, Paris (15).

BERLIN

(From Our Regular Correspondent)

June 12, 1937

The Prophylaxis of Diphtheria

Professor Prigge of the Institute of Experimental Therapy at Frankfurt-on-the-Main has made a study of protective inoculation against diphtheria. Active immunization, although extensively used abroad, gained little headway in Germany as part of the antidiphtheria armamentarium until a few years ago, the reason being that the immunizing power or protective value of the vaccine could not be estimated with any degree of accuracy. Whereas it was possible, to be sure, to determine with exactitude the harmlessness of a vaccine, it was impossible accurately to distinguish the effective from the ineffective. Animal experimentation, too, offered next to nothing that would help surmount the difficulties arising from the lack of a standard whereby the inoculation serum could be evaluated. Prigge established that the underlying cause for this failure was the great individual variation in the susceptibility to immunization of animals obtained through the usual commercial channels. Whereas the capability of reactive animals to numerous other biologically effective substances is markedly uniform, the conditions with respect to vaccines is altogether otherwise. The quantities of serum necessary to protect the animals which are most difficult to immunize are some 30,000 times greater than the doses sufficient to immunize the animals exhibiting the greatest powers of reaction. Prigge found that this variability could be reduced experimentally in guinea-pigs. After a progressive inbreeding of brothers and sisters over a period of years, the range of immunizing dosage was in favorable instances reduced till the maximal dose was only twenty-five times the minimal. Even this degree of variability, however, rendered the application of the customary biologic method of evaluation out of the question. Prigge also observed temporary variations in the reactions of whole groups of animals. The latter variations endured for several years, and investigation along this line promises to yield data of epidemiologic import. Only after meticulous analysis of all these concomitant circumstances was Prigge able to evolve a working basis for evolution of the immunizing power of diphtheria serum. The method by which the objective was obtained was an application of Fechner's law to the animal material. Even the difficulties arising from the constant variations in reactive capability in the animal material were completely surmounted and it became possible to check each measurement against an absolutely stable standard. Since 1934 the capability of immunization of all antidiphtheric protective vaccine on the German market has been subjected by law to the foregoing test. Furthermore, the establishment of a precise method of evaluation has made possible the rapid development of a more highly potent vaccine. Prigge was also able to demonstrate conclusively that the treatment of serum with various substances (aluminum, potassium alum and later aluminum hydroxide) increased its effectiveness, in some instances as much as a hundredfold. This method of treating the serum although made known in 1925 had been the subject of controversy and in Germany had been rejected. It may be expected that on the basis of the new technique a single inoculation will come to supersede the three injections. In various cities more than 100,000 children have already been immunized with the aluminum vaccine.

Reorganization of German Health Resorts

Reorganization of German health resorts has been contemplated (*THE JOURNAL*, Dec. 23, 1933, p. 2062). Pending definitive regulation by a national statute of health resorts,

the conduct of such places will be governed by the "Guiding Principles for the Regulation of German Health Resorts," which have been formulated by the German Society for Balneotherapy and Climatotherapy in collaboration with government officials. All resorts must pass inspection on the basis of the new regulations before Jan. 1, 1938. Three types are differentiated: (1) climatotherapeutic resorts, (2) fresh air resorts and (3) summer resorts, winter resorts, convalescent resorts, tourist resorts and winter sport resorts. Use of the bare term "health resort" without some qualification such as "mountain health resort" or "winter health resort" is to be abandoned.

A local sanatorium in collaboration with the national weather bureau must be equipped to record precise scientific data on the climate and its effects and to submit detailed reports. The medical activities at these resorts must be in charge of specially trained physicians. All health resorts must comply with certain standard requirements of sanitation, drinking water, sewage, hotel accommodations, attending personnel, exclusion of disturbing noises and so on.

Special advisers and inspectors have been appointed to supervise standardization of the health resorts. Cooperative endeavor seems to assure the success of the much needed reorganization.

Psychic Variations in Uniovular Twins

One is frequently surprised to observe manifest psychic variations in a pair of uniovular twins whose bodily and physiologic character are analogous. Geyer has reported his investigation of this problem to the Berlin Medical Society. In 289 pairs of twins observed by him, the psyche was more often dissimilar than similar, 64 per cent of uniovular pairs were mentally different. Bouterwek attributes such variations to difference in symmetry, according to his opinion the halves of the human body are congenitally dissimilar and thus it happens that the division of the germinative anlage of twins does not take place in exactly equal measure. Geyer rejects Bouterwek's theory of variations. To illustrate his view, he provides a detailed character analysis of two pairs of uniovular twins. The first pair were cyclothymic pyknic types, one of whom developed in the direction of the hypomanic and the other in the direction of the melancholic component of Kretschmer's diathetic proportion. The other twins were leptosomatic schizophrenic brothers. One of them represented the anesthetic-irritable pole, the other the hyperesthetic-autistic pole of Kretschmer's psychesthetic proportion.

The National Statute of Pharmacists

Similar to the "national statute of physicians" (*THE JOURNAL*, Feb. 15, 1936, p. 551) is a recently enacted "national statute of pharmacists," which embodies a comprehensive legal regulation of pharmaceutical affairs. The new law provides for the granting, the withholding and the revocation of the pharmacist's license. It also establishes a national chamber of pharmacists. This body is empowered to adjudicate all questions of professional duty and to uphold professional ethics. The national chamber is subdivided into regional chambers. The presiding officer of the national chamber bears the title "National Fuehrer of Pharmacists." He acts as an adviser to the entire profession. All German pharmacists belong to the national chamber with the sole exception of pharmacists on active service with the defense forces.

Professor von Krehl Dead

Prof. Dr. Rudolf von Krehl, Heidelberg clinician, died after a long illness May 26, in Heidelberg, aged 75. He was numbered among the "pupils of Curschmann," who formed in Germany such a large proportion of university professors and research workers in internal medicine. Later Krehl came to Marburg, by way of Jena, as ordinarius and after Marburg he occupied the same position successively at Greifswald and Strasbourg and from 1906 at Heidelberg, where he headed the clinic of internal medicine until 1930. After he had relinquished

his professorial duties at the age of 70, he was appointed director of the new Research Institute of Internal Medicine established at Heidelberg by the Kaiser Wilhelm Foundation. Krehl's scientific training lay along the lines of that experimental physiology of which Curschmann and Carl Ludwig were the principal exponents at Leipzig. A problem which early enlisted Krehl's attention was that of the circulation in heart disease. The work that made him famous is his "Pathologic Physiology," which has exerted its influence on each new generation of physicians for more than forty years. This work was the first to be written from a truly clinical point of view. It might be said that Krehl's supreme contribution was the removal of the fulcrum of research out of the laboratory and into the clinic. He understood how best to evaluate the myriad activities of a scientific clinic. Recently he opposed, with all the wisdom born of his vast experience, the wild theories of the nature cure extremists. In his personal contacts Krehl exhibited a sympathetic, lovable character and to the end he maintained his interest in the opinions and aspirations of the younger generation. He leaves a multitude of friends and adherents.

ITALY

(From Our Regular Correspondent)

June 30, 1937

Congress of Psychiatric

The twenty-first national congress of the Società italiana di psichiatria was recently held at Naples under the chairmanship of Professor Donaggio. The first official topic was the clinical evolution and pathologic anatomy of circumscribed atrophy of the brain (Pick's disease). Drs. Chailiol and Bonfiglio of Rome were the speakers. Pick's disease gives symptoms of associated focal and general dementia. The anatomicopathologic study of the disease shows circumscribed zones of cellular atrophy of the brain. The disease has been considered a variety of senile dementia with atrophy secondary to vascular spasm, an early phase of hereditary degeneration, or a predisposition of the brain tissue to degenerate. The causation of the disease is not clear and its place in a nosologic classification is not as yet definite. Pick's theory, by which the disease is considered a variety of localization of senile dementia, is not generally accepted. The disease cannot be placed in a group with Huntington's disease or with the forms of cerebellar and olivary pontile cerebellar atrophy because of the fact that the results of studies on the subject are insufficient to justify the classification.

Professor Bonfiglio differentiated a special form of Pick's disease with atrophy circumscribed to the nuclei of the base, especially the caudate nucleus. The symptoms are iterative, of a palimimic and palilalic type, without asymbolic, apraxic, aphasic, hypokinetic and extrapyramidal motor symptoms. The mental symptoms of circumscribed atrophy of the brain are those of general dementia without any differential characteristics from those caused by other brain diseases. The apparent conflicting opinions of the two speakers in differentiating the neurologic from the mental symptoms show the general difficulties in the differentiation. The diagnosis of Pick's cerebral atrophy is difficult.

The second topic was psychosis and diseases of the metabolism. Professor Penta of Naples was the speaker. Drs. De Marco and Zara were collaborators. The discussion involved the relation between mental disorders and the diseases of the liver, the kidney and the pancreas. Determinations of the metabolisms of the fats, the water and the mineral salts of the body fluids in mental diseases have been done. Acetonuria and acetonemia, with the consequent acetonemic vomiting, are due to alterations of the fat metabolism. The amount of cholesterol in the blood is increased in all cases of manic-depressive psychosis. The alterations of the fat metabolism in mental

diseases, however, are not causal factors of the disease. Adrenal cortex extract is of no value in the treatment of mental diseases.

According to Dr. De Marco, hyperazotemia, in certain forms of acute mental diseases, is secondary to alterations of the central nervous system as the functions of the nervous centers at the pons, in regulating azotemia, have been already verified.

Dr. Zara said that the field of the relation between psychosis, the metabolism of carbohydrates and the pancreatic diseases is circumscribed. He pointed out the constant presence of abnormalities of the sugar metabolism in these conditions and the special emotive mimetic, humoral and sympathetic symptoms of psychosis or anxiety.

Anatomic Abnormalities

Professor Bellelli, at a recent meeting of the Accademia delle Scienze Mediche e Chirurgiche of Naples, reported three cases of triphalangia. Two brothers without other abnormality had three phalanges on each of their two thumbs. In another case the condition was unilateral in a hand lacking the fourth finger. The speaker regards the existence of three-phalangeal thumbs as a phenomena of antique atavistic regression by which the hand with five equally developed fingers is similar to that with five rays of the primary hands. The middle phalanx is the one that is destined to disappear. The statement seems to be supported by the fact that this phalanx is less developed than the first and third ones. The middle phalanx fixes either on the first or on the third one and not necessarily on the third one, as Pfizner stated. The third phalanx does not derive from absorption of the middle one but it originates in a process of transformation and adaptation. The first metacarpal bone of three-phalangeal thumbs is anatomically and roentgenologically equal to the metacarpal bones of normal thumbs, except by its relation to the abnormal phalanx. The causal factor of different ossification and direction of the nutrient canal of the metacarpal bone of three-phalangeal thumbs is unknown.

Dr. Lanzillo, at the same meeting, reported a case of a supernumerary muscle of the leg, which was present within the extensor muscle of the great toe and the common extensor muscle of the other toes. It originated at a point in the lower third of the lateral aspect of the tibia, continued in a 10 cm long tendon, which inserted on the anterior aspect of the articular capsule at the tibia and the astragalus, and formed a strong ligament, 5 cm in length and 1 cm in width from the internal malleolus to the lateral portion of the neck of the astragalus. He regards the muscle as a variety of the anterior tibial muscle from a reduplication of the latter. The transverse ligament of the astragalotibial articular capsule in normal conditions does not exist or is of rudimentary size.

Cholesterol in Gallbladder

Professor Baiocchi of Naples, in a paper recently read before the Società di Chirurgia, reported his studies on the quantitative variations of cholesterol in the walls of the gallbladder in normal and in pathologic conditions. His determinations were made on gallbladders of dogs, cadavers and patients with different forms of cholecystitis. Cholesterol in the walls of the gallbladder in experimental cholecystitis follows the same behavior as that in the blood and organs of patients with acute cholecystitis. It increases during the peak of the infection, becomes normal when the infection improves, and diminishes near death. In noncalculous and chronic calculous cholecystitis and pericholecystitis there is an increase of between 15 and 37 Gm of cholesterol per hundred grams of the wall. The increase of cholesterol is related to the intensity of inflammation of the structure. The amount of cholesterol in the walls of normal gallbladders is that found in any normal tissues and organs and does not show cholesterol secreting or storing functions of the walls. The behavior of cholesterol in the walls of normal and pathologic gallbladders shows that the walls have little to do with the pathogenesis of biliary lithiasis.

BELGIUM

(From Our Regular Correspondent)

May 29, 1937

The Acute Pancreatitides

Messrs Applemans and Van Goidsenhoven reported before the Belgian Society of Gastro-Enterology their observations on seventeen cases of acute pancreatitis, sixteen of which were of lithiasic-vesicular origin. Operative treatment was given in twelve of the cases. Of the five cases in which no operation was performed, one ended fatally. Of the twelve interventions, three were considered emergency operations and two of the latter ended fatally as the result of pancreatic hemorrhage. The nine operations performed after more adequate preparation were followed by recovery (edematous lesions). The pathogenesis is to be explained on the basis of alterations in the bile ducts, so that in cases of vesicular lithiasis operative treatment to prevent pancreatitis may be indicated, at least if there is a history of pain referable to the left side, diastasia or, most important of all, glycemia. Every means should be utilized in order to arrive at an accurate diagnosis before intervention is attempted. Should intervention be regularly performed? Some surgeons favor such a procedure because of the possibility of false diagnosis. The authors feel that laparotomy is too serious an intervention to be performed unless the operator has a good understanding of the disorder in question. Not all cases of acute pancreatitis will require operative treatment, but it is of paramount importance that no intervention should be decided on hastily. If the disease assumes a hemorrhagic form, operative treatment without adequate preparation will be harmful, medical treatment should therefore be carried on for several hours at least. If the pancreatitis is of the edematous type with steatonecrosis, it is also necessary to permit the shock to subside, meanwhile supplying medical treatment, namely, hypertonic serum, dextrosed serum and insulin. The intervention designed so far as is possible to abolish the cause, consists of a cholecystectomy with drainage of the pancreatic region in some cases. In the suppurative cases, incision of the abscess is the obvious indication. Postoperative relapses can mean only that the medical treatment has been inadequate.

Physical Education in the Schools

Messrs Rene Ledent of Liege and Charles Dam of Brussels discussed the organization of physical education in the schools before the Societe belge d'education physique et de sports. The authors discussed in particular the special problems presented by abnormal children. These exceptional children are far more numerous than a person unfamiliar with the facts would suspect and, moreover, they require more medical care than all others. The previous report, in 1934, of an investigating committee provided estimates of the number of children in whose physical upbringing the school physician ought to evince a special interest. According to that report from 20 to 30 per cent of school children in all Europe were affected with scoliosis and bad posture. In Belgium, 5 per cent of children in the elementary schools receive special care on account of orthopedic disorders. This low figure would lead one to surmise that too few children were receiving needed care. Orthopedists are aware of the slight attention commonly accorded various types of neurolocomotor disturbances and to the frequent neglect from which the crippled child suffers. Physically infirm form 10 per cent of the total group, mentally abnormal 5 per cent. With regard to respiratory disturbances, the authors point out that in some localities the proportion of children suffering from them is only 6 per cent, whereas the figure elsewhere is 40 per cent. The higher percentage would seem to correspond more nearly with actuality. A revision of all statistics, to be based on standardized tests, is recommended.

The authors proposed the following resolution, which was unanimously adopted. The Societe medicale belge d'Education

physique et de Sports believes that physical education, although normally a part of the school curriculum, does not always conform to certain established and recognized standards. Accordingly, the Societe resolves: 1 To see to it that the budgets of all elementary schools contain ample provision for well organized gymnastics, games and sports among the pupils of all grades. 2 That the medical supervision of physical education be administered by regular school medical inspectors. 3 That these medical officers be selected from among graduates in physical education.

Amebic Dysentery

Dr Moulaert reports the results of an investigation of the incidence of chronic amebic colitis in Belgium. Studies were made of amebic cysts in the stools of ninety-nine patients; seventy-four of these persons were of Belgian birth and had never traveled in tropical or subtropical regions, eighteen were former colonials and seven were recent arrivals in Belgium or were in transit through the country. Examination of the specimens was carried out according to the technique of Carles and Barthelemy and the cysts were observed in the excreta of 72.62 per cent of the first group of persons, in 72.22 per cent of the second group and in 57.14 per cent of the third group. The author concludes that chronic amebiasis is more prevalent in Belgium than is commonly believed. He attributes this high incidence to the importation and dissemination of the disease throughout the kingdom by the demobilized troops in 1918 as well as to the presence of colonials on holiday and former colonials resident in Belgium.

The author points out the necessity of preventing contagion. This can best be accomplished by the speediest possible detection of persons who are carriers of the cysts. Such persons always present some colonic lesions or complaints (Craig).

Marriages

HARRISON L. McLAUGHLIN, New York, to Miss Aimee Virginia Bisgood of Sag Harbor, L. I., N. Y., April 3.

LAWRENCE F. ISENHART, Mount Carroll, Ill., to Miss Marjorie Knowlton of Chicago, in Oregon, April 1.

HERBERT H. SMITH, Brookline, Mass., to Miss Marion Elizabeth Hobbs of Bronxville, N. Y., April 16.

GEORGE WILBUR WRIGHT, Clifton Springs, N. Y., to Miss Elizabeth Kompa in Brooklyn, April 30.

ROBERT LEE PATTERSON JR., Athens, Ga., to Miss Margaret Douglas Sloane of New York, May 1.

CURTIS HORTON BAYLOR, Rochester, N. Y., to Miss Catherine Burns of Lebanon, Va., April 10.

EDWARD B. WINHELD, Philadelphia, to Miss Ethel M. Schenck of New York, March 19.

NOWELL DARDEN NELMS to Miss Virginia Bell Newsom, both of Newport News, Va., April 13.

IRA EUGENE HARRIS JR., Miami, Ariz., to Miss Marjorie Ann Horan of Inspiration, March 29.

HERBERT A. CARLSON, Minneapolis, to Miss Eleanor Mann of Dickinson, N. D., recently.

ALVIE CARL WALKER to Miss Suzanne Crawford, both of Waynesburg, Pa., March 12.

FRANCIS GILBERT ZEIER to Miss Angeline Catherine Jochum, both of Chicago, recently.

CHARLES E. BORAH to Miss Josephine McKellips, both of Phoenix, Ariz., March 5.

LEVI A. COLEMAN, Salisbury, N. C., to Miss Janet Monroe of Charlotte, April 3.

GEORGE ERBEN THOMAS to Miss Marie F. Cannon, both of Philadelphia, May 19.

JOHN W. GRIFFIS to Miss Kathryn Sexton, both of Denton, N. C., March 6.

ALBERT G. MARTIN to Miss Ruth Baker, both of Aurora, Ill., May 1.

PHILEMON C. ROY, St. Paul, to Miss Alice Bartles, May 26.

Deaths

John Woolman Churchman, New York, Johns Hopkins University School of Medicine, Baltimore, 1902, formerly professor of experimental therapeutics at Cornell University Medical College, instructor in surgery at his alma mater, 1909-1911, assistant professor of surgery at Yale University School of Medicine, New Haven, 1912-1914, and later professor, at one time on the staff of the New Haven Hospital, chief physician of the French military hospital at Passy, France, in 1916, member of the Medical Society of the State of New York, fellow of the American College of Surgeons, in 1921 received the Alvarenga Prize of the College of Physicians of Philadelphia for his work "Selective Bacteriostatic Action of Gentian Violet", in 1915 was awarded an honorary degree by Yale University, aged 60, died, July 13, at Amityville, L. I., of cerebral hemorrhage

Charles Dunbar Roy, Atlanta, Ga., University of Virginia Department of Medicine, Charlottesville, 1889, chairman of the Section on Laryngology, Otology and Rhinology of the American Medical Association, 1910-1911, and member of the House of Delegates, 1910, 1911 and 1914, emeritus professor of otology, rhinology and laryngology, Emory University School of Medicine, formerly clinical professor of eye, ear, nose and throat diseases and professor of otolaryngology at the Atlanta College of Physicians and Surgeons, member and past president of the American Laryngological Association and the American Laryngological, Rhinological and Otological Society, member of the Medical Association of Georgia and of the American Ophthalmological Society, served during the World War, aged 70, died, July 5, of cerebral thrombosis

William Hall Goodwin Ⓢ Charlottesville, Va., University of Virginia Department of Medicine, Charlottesville, 1908, professor of clinical surgery and gynecology at his alma mater, served during the World War, member of the Southern Surgical Association, fellow of the American College of Surgeons, visiting surgeon to the University of Virginia Hospital, aged 55, died suddenly, May 23, of a self-inflicted gunshot wound and coronary thrombosis

Samuel Wolfe, Philadelphia University of Pennsylvania Department of Medicine, Philadelphia 1873, member of the House of Delegates of the American Medical Association, 1907-1910, emeritus professor of theory and practice of medicine and clinical medicine at the Temple University School of Medicine, formerly on the staffs of the Samaritan, Old Blockley and the Garretson hospitals, aged 85, died April 28 in Daytona Beach Fla

James A. Foltz Ⓢ Fort Smith, Ark., Tulane University of Louisiana Medical Department, New Orleans, 1901, past president of the Sebastian County Medical Society, fellow of the American College of Surgeons, on the staffs of the Sparks Memorial Hospital and St. Edward's Mercy Hospital, veteran of the Spanish-American War, formerly member of the city board of education and board of health, aged 59, died, May 22, of heart disease

Lee Bey Greene Ⓢ Edgeley, N. D., University of Michigan Department of Medicine and Surgery, Ann Arbor, 1905, served during the World War, member of the state board of medical examiners, past president of the La Moure County Medical Society, aged 56, died, May 3, in the Northern Pacific Hospital, St. Paul

John Leonard Chester Ⓢ Detroit, Saginaw (Mich.) Valley Medical College, 1900, associate professor of clinical medicine at the Wayne University College of Medicine, past president of St. Clair County Medical Society, on the staffs of the Eloise (Mich.) Hospital and the Providence Hospital, fellow of the American College of Physicians, aged 69, died, May 31

Augustine Mathias Zell, Little Rock, Ark., Washington University School of Medicine, St. Louis, 1905, member of the American Roentgen Ray Society and the Radiological Society of North America, formerly instructor in electrotherapeutics at the University of Arkansas School of Medicine, aged 54, was found dead, April 23, of an accidental gunshot wound

Walter Edgar Barber, Atlanta, Ga., Atlanta College of Physicians and Surgeons, 1913, member of the Medical Association of Georgia, past president of the Fulton County Medical Society, formerly on the staffs of the Grady, Emory University, Crawford W. Long Memorial and the Georgia Baptist hospitals, aged 52, died May 24, of coronary thrombosis

Robert Rodney Dale Ⓢ Texarkana, Ark., University of Virginia Department of Medicine Charlottesville, 1913, fellow of the American College of Surgeons, on the staff of the

Michael Meagher Memorial Hospital, aged 52, died, May 10, in the Army and Navy General Hospital, Hot Springs National Park, of chronic interstitial nephritis

Garfield McCoy Hackler, Dallas, Texas, University of Maryland School of Medicine, Baltimore, 1891, professor of clinical surgery at Baylor University College of Medicine, member of the State Medical Association of Texas, fellow of the American College of Surgeons, on the staff of the Baylor Hospital, aged 72, died, May 6

Alfred Harrold Thomas, Staten Island N. Y., Yale University School of Medicine, New Haven, 1898, member of the Medical Society of the State of New York, fellow of the American College of Surgeons, served during the World War, aged 62, on the staff of the Staten Island Hospital, where he died, April 15, of pneumonia

Wilbur Henry Rietz Brandenburg Ⓢ Washington, D. C., Columbian University Medical Department, Washington, 1903, for many years a member of the board of police and fire surgeons, aged 59, died, May 11, in the George Washington University Hospital of atrophy of the liver and toxic nephrosis

Emma Louisa Call, Cambridge, Mass., University of Michigan Department of Medicine and Surgery, Ann Arbor, 1873, member of the Massachusetts Medical Society, aged 89, at one time attending physician to the New England Hospital for Women and Children, Boston, where she died, May 3

Richard Lounsbury Eltinge, Mendota, Wis., New York Homeopathic Medical College and Hospital, 1901, member of the American Psychiatric Association, on the staff of the Veterans Administration Facility, served during the World War, aged 61, died, May 21, of coronary thrombosis

Michael Waldon Conway Ⓢ Elma Wash., College of Physicians and Surgeons, Los Angeles, 1917, past president of the Grays Harbor County Medical Society, served during the World War, medical director of the Conway Hospital, aged 53, died, May 18, of coronary thrombosis

Rolla Baxter Stafford Ⓢ Topeka, Kan., University Medical College of Kansas City, 1901, formerly health commissioner of the Virgin Islands, and health officer of Brown County, member of the state board of health, aged 58, died, April 26, in Christ's Hospital, of thrombosis

Isadore Henry Cramer, Portland, Ore., Denver and Gross College of Medicine, 1909, member of the Oregon State Medical Society, served during the World War, aged 50, died, May 2, in the Good Samaritan Hospital, of hypertensive cardiovascular renal disease and uremia

Lawrence Parker Conley, Clifton Springs, N. Y., Cleveland University of Medicine and Surgery, 1897, member of the Medical Society of the State of New York, county coroner, village health officer and health officer of the town of Hope-well, aged 63, died, May 10

Julian Arthur Du Bois Ⓢ Sauk Center Minn., Rush Medical College, Chicago, 1879, an Affiliate Fellow of the American Medical Association, formerly mayor, aged 81, died, May 4, of cerebral hemorrhage, carcinoma of the stomach and hypertrophy of the prostate

Lyman Bon Bacon, Westboro Mass., Western Reserve University Medical Department, Cleveland, 1882, member of the Iowa State Medical Society, aged 77, died, May 14, in the Memorial Hospital, Worcester, of hypertrophy of the prostate and arteriosclerosis

William Samuel Emberson, New Rochelle, N. Y., New York University Medical College, 1898, member of the Medical Society of the State of New York, consulting surgeon to the New Rochelle Hospital, aged 62, died suddenly, May 17, of coronary occlusion

Lyman Trevitt Wade, San Luis Obispo, Calif., Bennett College of Eclectic Medicine and Surgery, Chicago, 1888, member of the California Medical Association, aged 70, died, April 11, of cerebral hemorrhage, hypertension and arteriosclerosis

Louis Philippe Gaillardet, Fairchild, Wis. (licensed in Wisconsin in 1900), formerly a member of the board of health in Kansas and city health officer and county physician in Black River Falls, aged 78, died, April 14, of cerebral hemorrhage

George Alonzo Cryer, Anniston, Ala., Vanderbilt University School of Medicine, Nashville, Tenn., 1903, member of the Medical Association of the State of Alabama, served during the World War, county health officer, aged 59, died, May 23

John Cabean Caldwell, Chester, S. C., University of Maryland School of Medicine, Baltimore, 1914, member of the South Carolina Medical Association, and state board of medical examiners, aged 47, died, May 10, of carcinoma of the liver

Frank Butler Clark, Ganesboro, Tenn, University of Nashville Medical Department, 1911, member of the Tennessee State Medical Association, county health officer, aged 53, died, May 7, in a hospital at Livingston, of cerebral hemorrhage

John Grace, Belleville, Ark., Vanderbilt University School of Medicine, Nashville, Tenn, 1893, member of the school board and formerly a member of the county board of education, aged 69, died, May 24, in a hospital at Russellville

Harris Hartwell Bass Sr, Henderson, N C, University College of Medicine, Richmond, 1899, member of the Medical Society of the State of North Carolina, aged 59, died, May 18, of coronary thrombosis and carcinoma of the pancreas

Finley Ransom Cook, New York, College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1895, member of the Medical Society of the State of New York, aged 68, died, May 5, in Hawthorne

William Middleton Duke, Minter City, Miss, Memphis (Tenn) Hospital Medical College, 1901, member of the Mississippi State Medical Association, aged 56, died, May 26, of diabetes mellitus and pulmonary tuberculosis

Stephen Vincent Cotter Ⓢ Buffalo, St Louis University School of Medicine, 1920, member of the Radiological Society of North America, on the staff of the Mercy Hospital, aged 43, died, May 30, of coronary thrombosis

Harman Richard Townsend Ⓢ Oakville Tenn Vanderbilt University School of Medicine, Nashville 1912, on the staff of the Oakville Memorial Sanatorium, aged 51, was drowned April 14 in the Mississippi River

Ambrose Kirk Brennan, Plainfield, N J, Yale University School of Medicine, New Haven, Conn, 1893, aged 66, on the staff of the Muhlenberg Hospital, where he died May 24, of carcinoma of the transverse colon

Rinaldo Everett Baker, Boise, Idaho, Kansas City (Mo) Hahnemann Medical College, 1912, served during the World War, aged 61, on the staff of the Veterans Administration Facility, where he died, May 1

Theodore Elliott Collier, Brook, Ind, Medical College of Indiana, Indianapolis, 1893, for many years a member and at one time president of the board of education, aged 74, died, May 29, of multiple sclerosis

Anthony Crocicchia, New London, Conn, Regia Università degli Studi di Roma Facoltà di Medicina e Chirurgia, Italy, 1893, aged 69, died, May 2, in Waterbury, of carcinoma of the bladder and prostate

Asa Douglass Campbell, Shaker Heights, Ohio, Northwestern Ohio Medical College, Toledo, 1888, formerly on the staff of the Glenville Hospital, Cleveland, aged 81, died, May 8, of lobar pneumonia

Alfred C Drouillard, Wyandotte, Mich, Detroit College of Medicine, 1893, for many years president of the board of education and school physician, formerly city health officer, aged 73, died, May 23

Charles Becker, Philadelphia, Hahnemann Medical College and Hospital of Philadelphia, 1893, served during the World War, aged 68, died, May 12, in the Presbyterian Hospital of prostatic hypertrophy

James D Mooney, Crystal Springs, Miss (licensed in Arkansas in 1903) member of the Arkansas Medical Society formerly mayor of Coal Hill, Ark., aged 69, died, April 30, at Lone Pine, Ark

Philip H Cosner, Newark, Ohio, Baltimore Medical College, 1896, past president of the Licking County Medical Society, aged 66, died, May 5, in the Licking County Tuberculosis Sanatorium

Frank Anthony Gravino, New York, Long Island College Hospital, Brooklyn, 1935, resident surgeon to the Bronx Eye and Ear Infirmary, aged 26, was killed, May 7, in an automobile accident

Holly M Baxter, Bohon, Ky, Kentucky School of Medicine, Louisville, 1898, member of the board of education, aged 64, died May 19, in the Good Samaritan Hospital, Lexington, of pneumonia

Harold Fonseca Da Costa, Chicago, Loyola University School of Medicine Chicago 1922 member of the Illinois State Medical Society, aged 46, died, May 23, of coronary thrombosis

James Bennett Gildee, Lowell, Mass, Bellevue Hospital Medical College New York, 1880, aged 79, died May 13, in St Johns Hospital, of diabetes mellitus and gangrene of the right leg

Erle Will Zook, Peoria, Ill, Rush Medical College, Chicago, 1895, aged 64, formerly on the staff of the Peoria State Hospital, died, April 7, of pneumonia following a sinus infection

Pleasant E Terry, Holly Grove, Ark, Memphis (Tenn) Hospital Medical College, 1899 member of the Arkansas Medical Society, aged 63, died suddenly, April 29, of coronary sclerosis

Malcolm McLachlan Crawford, Toronto, Ont, Canada, University of Toronto Faculty of Medicine, 1898, chief coroner of Toronto and supervising coroner for Ontario, aged 57, died, May 14

Thomas B Blakely, Coal Hill, Ark, Arkansas Industrial University Medical Department, Little Rock, 1883, aged 78, died, May 17, of carbuncle of the neck and erysipelas

John W Aldridge, Evansville, Ind, University of Tennessee Medical Department, Nashville, 1891, aged 79, died May 4, of chronic nephritis and carcinoma of the hip

Edward Erle Brownell, San Francisco, Johns Hopkins University School of Medicine, Baltimore, 1899, aged 62, died, May 3, of bronchopneumonia and chronic bronchitis

Isaac H Reiley, New York, College of Physicians and Surgeons of Chicago, 1884, member of the Medical Society of the State of New York, aged 93, died, April 30

Frederick E King, New Milford, Conn, University of Buffalo School of Medicine, 1876, formerly health officer of New Milford, aged 82, died, April 5

Thomas Ervin Anderson, Carthage, Texas, Vanderbilt University School of Medicine, Nashville, Tenn, 1913, aged 48, died, May 6, of angina pectoris

J W Hunter, Pax, W Va (licensed in West Virginia in 1884), formerly a member of the state legislature, aged 83, died, April 26, of acute nephritis

Lucius Bradley Dorr Ⓢ Buffalo, University of Maryland School of Medicine, Baltimore, 1890, aged 71, died suddenly, May 5, of cerebral hemorrhage

William Edgar Brunson, Sherrill, Ark (licensed in Arkansas in 1903), aged 59, died, May 31, in a hospital at Pine Bluff, of lobar pneumonia

Richard Emmett Thacker, Oklahoma City, Kansas City (Mo) Medical College, 1898, aged 64, died suddenly, April 1, in McAlester, of heart disease

John Christian Eigenmann, Springfield, Ill, Northwestern University Medical School, Chicago, 1897, aged 65, died, May 10, of malignant teratoma

Harry Brawley Bailey, Rockford, Ill, Rush Medical College, Chicago, 1902, aged 59, died, May 7, in McAllen, Texas, of coronary thrombosis

Robert A Gilmore, San Diego, Calif, L R C S, L R C P, Edinburgh, Scotland, 1879, formerly a practitioner in Omaha, aged 80, died, May 2

Luis Fernandez Alvarez Ⓢ Los Angeles, Cooper Medical College, San Francisco, 1887, aged 84, died, May 24, of bronchopneumonia

David Kenneth Stenton, St Thomas, Ont, Canada, Western University Faculty of Medicine, London, 1890, aged 78, died, April 12

Joseph L Barker, Dearing, Kan, Kansas City (Mo) Medical College, 1887, aged 73, was found dead in bed, May 9, of angina pectoris

Franklin Worthington Bush, Hannibal, Mo, Missouri Medical College, St Louis, 1876, aged 86, died, May 19, of arteriosclerosis

David Morgan Addington, Sutter, Calif, University of California Medical Department, San Francisco, 1879, aged 84, died, May 7

Jessie Beaumont Atkins, Clarksville, Tenn, Hering Medical College, Chicago, 1896, aged 73, died, May 13, of cerebral hemorrhage

Cleveland Roy Wilson, Toronto, Ont, Canada University of Toronto Faculty of Medicine, 1911, aged 49, died, April 19

Ralph Pern Gaskill, Columbus, Ohio, Ohio Medical University, Columbus, 1903, aged 57, died, May 3, of chronic myocarditis

Park McConnell Gilmore, Covington, Ky, Miami Medical College, Cincinnati 1903, aged 56, died, May 13, of heart disease

Bureau of Investigation

DR J L STATLER AND NORMAN BAKER

Federal Communications Commission Denies
Application of Baker Hospital Lessee to
Maintain a Radio Broadcast Studio
at Muscatine, Iowa

The application of J L Statler, doing business as Baker Hospital, Muscatine, Iowa, for authority to transmit programs to stations in Canada and Mexico has been denied by the Federal Communications Commission. The order was entered on June 1, 1937, effective at 3 a m eastern standard time Aug 3, 1937.

The commission held that the "public interest, convenience and necessity will not be served by granting application" for authority under section 325 to transmit programs to foreign stations.

The applicant, Dr Statler, is a long-time associate of Norman Baker and lessee of the Baker Hospital. The history of Norman Baker and the Baker Hospital is well known to the medical profession. Baker and his alleged cancer cure were dealt with editorially in *THE JOURNAL* of April 12, 1930, page 1146, and April 19, 1930, page 1241, and in *Hygeia* for May 1930, page 418, and by the Bureau of Investigation in *THE JOURNAL* for March 19, 1932, page 1012.

As a result of *THE JOURNAL*'s expose of Baker's activities, he brought suit against the Association, asking one-half million dollars in damages. The case went to trial on Feb 9, 1932, and terminated on March 3, when the jury returned a verdict for the American Medical Association.

Prior to entering the quack cancer field, Baker had sold radio sets, storage batteries, flour, coffee, canned fruit, silverware, brooms, alarm clocks, overcoats, mattresses, automobile tires, typewriters and general merchandise. In addition to printed catalogues and his magazine *T N T* (The Naked Truth), Baker also advertised his wares over his radio station, KTNT of Muscatine.

Station KTNT, operated by Norman Baker, was ordered off the air by the Federal Radio Commission June 5, 1931. In taking this action, it was reported, the commission sustained the recommendation of its chief examiner, who found that Baker used the station as a "private mouthpiece" in promoting business interests in which he was engaged, these were some twelve enterprises in Muscatine, including a newspaper and a mail-order business. Moreover, he used his station in attacking the medical profession and other individuals and organizations not in agreement with him.

After KTNT was banned from the air, Baker opened a powerful new station, XENT, near Nuevo Laredo, Mexico. This station was licensed by the Mexican government to operate with 150,000 watts. It is one of the strongest stations on the North American continent.

Feb 14, 1935, Baker applied to the Federal Communications Commission for a permit to open a new broadcasting station in Muscatine. His application was denied.

Among the Baker associates in the cancer hospital enterprise was one Johnson Lewis Statler, a graduate of Barnes Medical College, St Louis, 1909. The Federal Communications Commission, in denying the Statler application to maintain a radio broadcast studio at Muscatine for the purpose of making transcriptions to be transmitted to stations in Canada and Mexico, was constrained to find that the applicant (Statler) was not the real party in interest in the case.

A recent decision of the Supreme Court of the State of Iowa (*State v Baker* 270 N W 359, decided Dec. 15, 1936) found Norman Baker guilty of contempt for violating, through the fiction of a lease of the Baker Hospital to Dr J L Statler and others, an order enjoining him from practicing medicine in the State of Iowa.

According to the Federal Communications Commission's report of the hearing, "The only evidence offered by applicant with respect to a need for the proposed service related to the falling off of business of the Baker Hospital when KTNT was deleted."

The monthly receipts from Baker's cancer-cure activities started at \$1,380 for October 1929, climbed to \$75,232 for June

1930, and, following the articles published by the American Medical Association, dwindled until in January 1932 he took in only \$7,008.

On April 22, 1937, Norman Baker was sentenced by Federal Judge Thomas M Kennerly, presiding in the District Court of the United States for the Southern District of Texas, to four months in jail and to pay a fine of \$2,000 to the United States of America, "for conspiracy to locate, maintain and use apparatus from which and whereby sound waves are and were converted into mechanical and physical reproductions of sound waves and to carry, transport and deliver to a radio broadcast station in a foreign country for the purpose of being broadcast from that station and which said station was so located geographically that its emissions were received consistently in the United States, without first obtaining a permit from the Federal Communications Commission."

In turning down the Statler application, the Federal Communications Commission said "It is our opinion that the applicant has failed to show that the program service proposed to be rendered [advertising the Baker Hospital] would be in the public interest."

Which is putting it mildly!

GERMANIA HERB TEA

Companies Exploiting Purgative Reducing Nostrum
Receive Federal Trade Commission Cease
and Desist Order

The Federal Trade Commission has ordered the Germania Tea Company, 608 First Avenue North, Minneapolis, and the Consolidated Drug Trade Products, Inc, 544 South Wells Street, Chicago, to stop representing that "Germania Herb Tea" performs any functions in a reducing program other than those of a laxative or purgative, and that "Germania

LEMON JUICE

Squeezed from 1/2 a Lemon
Added to a Cup of

**GERMANIA
HERB TEA**

Sweetened with sugar as desired to make
it a delicious drink drinking 1 1/2 times a
day and a o d s t a c h y foods and fatty
meats says Ma g e t G o e c now employed
g v i n g free demonstrations made her

**Lose 62 lbs.
of Ugly Fat**

She lo t avoid bl red cibl
overweight a fely plz tly
a d regularized el m t on

AT ALL DRUG
& DEPARTMENT
STORES

---SEND FOR LIBERAL FREE SAMPLE---
and a Copy of M g t G e g e s Stat m nt
Germania Tea Co 544 S Wells St., Chicago Dept 33D
Please rush me Free Sample of German a Herb Tea.

NAME _____
ADDRESS _____
CITY _____

Orange Pekoe Tea" performs any function or has any value in treating obesity, or in a reducing program, other than in the caffeine supplied through its consumption.

According to a report of the Federal Trade Commission dated June 18, 1937, the principal ingredients of Germania Herb Tea are senna, which has laxative and purgative qualities, and jumper, a diuretic, and the principal ingredient of Germania Orange Pekoe Tea is caffeine.

Germania Tea was the subject of an article in *THE JOURNAL* April 8, 1933, page 1126. A few months later (Sept 9, 1933, p 870) *THE JOURNAL* reported that a quantity of Germania Herb Tea shipped by the Royal Drug Company of Chicago was the subject of a Notice of Judgment issued by the Food

and Drug Administration, which declared that the product bore fraudulent therapeutic claims on the label.

The current Germania Herb Tea advertising continues to play up a Margaret George, who, it is stated, lost 62 pounds of "ugly fat." The George person, the advertising states, is "now employed giving free demonstrations."

Germania Herb Tea is sold "At All Drug and Department Stores." Stores selling this nostrum would better serve their customers if they informed the obese that the persistent and indiscriminate use of purgatives as a means of reducing weight is an extremely dangerous procedure. Hurrying food through the bowel before proper assimilation takes place must ultimately result in a badly irritated digestive apparatus and a series of concomitant secondary alimentary derangements.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

ORAL DESENSITIZATION TO HAY FEVER

To the Editor—I understand that there are favorable reports concerning the use of the oral administration of ragweed pollen. Can you give me references in the literature and state where the material can be procured?

WARD E. COLLINS, M.D., Kalamazoo, Mich.

Is it true that there is a desensitizing agent available which can be taken by mouth? If there is, will you please advise me who manufactures it?

FRANK R. MAURER, M.D., Cicero, Ill.

I have seen an article in the medical column of the newspapers on "Hay Fever Vaccines by Mouth." Would you advise general practitioners to treat hay fever in this manner?

M.D., Iowa

ANSWER—Touart (*New York M. J.* 116:199 [Aug. 16] 1922) treated six hay fever patients by daily ingestion of a phenyl salicylate coated tablet containing 0.1 mg. of pollen protein. While those who were sensitive to grass pollens obtained relief only, one out of the six ragweed patients was benefited. Black (*J. Lab. & Clin. Med.* 12:1156 [Sept.] 1927), experimenting on himself, found that ragweed antigen could be demonstrated in the blood and urine after the ingestion of large amounts of ragweed pollen extract. Subsequently (*J. Lab. & Clin. Med.* 13:709 [May] 1928) he used oral therapy in a number of grass or ragweed sensitive patients. Complete failures occurred in 20 per cent with oral therapy as against 6 per cent with the injection method. In pollen asthma oral therapy failed completely in 22.2 per cent while with the hypodermic therapy no complete failures were noted.

Thommen (Asthma and Hay Fever in Therapy and Practice, Springfield, C. C. Thomas, 1931, p. 764) cites a satisfactory result in one case with oral pollen therapy but such attempts in other cases gave variable results. Thommen mentions as disadvantages the large amounts of extract required and the variability of enteral absorption by oral administration of specific peptones. Urbach (*Klin. Wchnschr.* 10:534 [March 21] 1931) succeeded in alleviating the symptoms of a man sensitive to the pollen of the horse chestnut by the oral use of the pollen peptone of the latter. Later he (*Wien. klin. Wchnschr.* 47:1073 [Aug. 31] 1934) wrote more broadly of this type of pollen therapy. He later (*Klin. Wchnschr.* 12:1797 [Nov. 18] 1933) reported similar results by the use of peptones made from the entire pollinating flower.

In 1933 Gatterdam (*Southwest Med.* 17:199 [June] 1933) reported on oral pollen therapy which subject he elaborated in 1934 (*ibid.* 18:130 [April] 1934). In his series of eighty-five hay fever patients treated with pollen orally from 75 to 85 per cent were markedly relieved. He stated further that "where results are not obtained by oral administration alone it can be used as an adjunct along with parenteral injections." The doses were given twice daily with additional doses for attacks. The usual amount used was from three to fifteen drops of the 3 per cent extract diluted in one-fourth glass of water. Mild urticaria or hay fever reactions occasionally resulted from overdosage. The pollens used were cottonwood, ash, Bermuda grass, rabbit bush and the false ragweeds.

The fact that a number of hay fever sufferers had stated that they obtained relief by the eating of honey produced in their vicinity led McGrew (*Mil. Surgeon* 80:371 [May] 1937)

to suspect that the pollen in the honey was responsible for the result. He therefore instituted oral pollen therapy. The average dose was four drops of a 1 per cent extract three times daily. Excessive doses caused aggravation of symptoms. Of thirty-three patients thus treated, twenty-nine were improved. Those with multiple allergy or with asthma did not do well.

Urbach (*München med. Wchnschr.* 84:488 [March 26] 1937) reported coseasonal treatment with proteins of the appropriate grass, grain or flowers (not the pollens, though these were used for testing). Good results are claimed.

Bernstein and Kirsner (*J. Allergy* 8:221 [March] 1937) in a recent paper on experimental considerations of oral pollen therapy attacked the problem by passive transfer of blood serum from patients with ragweed hay fever to normal skins. Five grains (0.3 Gm.) of ragweed pollen was then given by mouth to these subjects and no positive skin test occurred at the sensitized sites; this demonstrates that enteral absorption of pollen in the dosage used is so slight as to be nondetectable by passive transfer. They also showed that peptic digestion of ragweed pollen, either whole or as extract, does not destroy its activity. This is important as indicating that pollen may be given by mouth without destruction by the gastric juices. This does not agree, however, with the observations of Moore and Unger (*J. Allergy* 5:338 [May] 1934) who found that pepsin and papain digested timothy and short ragweed pollen to such an extent as to lessen materially the activity of the pollen extract. Bernstein and Kirsner also pointed out that the pollen therapy by mouth has the disadvantages of greater expense of too great a variability of intestinal absorption and of inability to observe local reactions in the matter of dosage.

Finally Stier and Hollister (*Northwest Med.* 36:166 [May] 1937) observed 383 cases extending over three years and found that the oral administration of pollen extracts gave about as good results as were obtained by the hypodermic method. They emphasized the ease of administration of the oral method and the wider margin of safety and stated that coseasonal treatment was as effective as preseasonal. Their data were obtained largely by the questionnaire method.

Practically all these reports emanate from the Northwest, Southwest or Europe—localities where ragweed is not an important offender. The latest and most complete favorable report (Stier and Hollister) is apparently based on the doubtful reliability of the questionnaire method. The few reports in the ragweed areas are not especially favorable. Self-administered therapy, unless thoroughly supervised by a physician, is likely to lead to many difficulties.

Pollen for oral use has not yet been placed on the open market by any recognized pharmaceutical house. This form of therapy for hay fever is still experimental and unproved. It would seem wise to await further reports from recognized experts in the field of allergy.

SENSITIZATION TO MILK AND PSYCHIC AVERSION TO MILK

To the Editor—A recurring problem in a practice of many years has often been what to do with those innumerable patients who say they can not take milk. Calcium deficiency is certainly prevalent enough. I think that many of us would appreciate a discussion from some authoritative source of this continually recurring subject.

FREDERICK J. WALTER, M.D., San Diego, Calif.

ANSWER—It is true that, while milk modification for infant feeding has been extensively studied, milk modification for the adult has had but little attention paid to it. There may be four different causes for a person's assertion that he cannot take milk. It may be due to erroneous interpretation of digestive disturbance, to allergy, to inherent difficulty in digesting milk, or to purely psychic aversion.

Characteristic of erroneous interpretation of digestive difficulty is the heterogeneous array of foods that the patient claims disagree with him and the fact that at one time he can take these foods without the distress which is produced by them at some other time. This condition, typically encountered with patients afflicted with cholecystitis or with spastic colon, is best treated by urging the patient to eat everything as it is, not the particular food just then eaten that caused the distress, but the fact that it was taken at a time when the taking of any food would have been distressful, because of the disturbance set in motion by the underlying disease.

When milk always disagrees, whenever it is taken, even in small quantity, this may be due to milk allergy, and, especially, if the total aspect of the case renders allergy probable, testing the skin reaction to milk proteins and test diets permits a conclusion as to the presence or absence of this specific allergy. When hypersensitiveness to milk is present, it is generally more practical to eliminate milk from the dietary completely rather than to attempt desensitization.

When the patient experiences inherent difficulty in milk digestion, the nature of this difficulty must be discovered. When milk is well digested it is a constipating food, when not, it produces diarrhea. This condition can generally be remedied by having the patient take boiled skimmed milk. When milk is constipating, adding cream to it or the use of liquid petrolatum will antagonize this tendency. When gastric distress is experienced every time milk in quantity is taken, this is probably due to coarse curdling of the milk. Boiling the milk lessens the size of the curd. The size of the curd is furthermore lessened by diluting the milk with an equal amount of water or, better, with carbonated water or barley water. A mixture of equal parts of cream and seltzer water may be relished and well digested. The addition of lime water is especially useful when milk produces diarrhea. The addition of sodium citrate (from 1 to 2 per cent) lessens the size of the curd and it also antagonizes somewhat the constipating tendency of milk and emphasizes its diuretic quality. The addition of large quantities of other fluid to the milk has the disadvantage of still further diluting this naturally bulky food. Hence the importance of insisting on sipping the milk and mixing it with saliva, which dilutes the milk with alkaline fluid without adding to the store of fluid in the system. One method of insuring the proper ingestion of milk is to have it chewed with cracker. The best way of preventing the formation of large curds, however, is to curdle the milk before giving it. This is why buttermilk, koumiss, matzoon or junket is often better digested than unmodified milk.

The person who has psychic aversion to milk is best served by disguising the milk, which can be done in innumerable ways. Adding it or cream to coffee, tea or cocoa is one way. Clams or oysters may be used to flavor the milk, which may be eaten either with or without them. Making various milk soups out of it is another. The various "infant foods," such as "malted milk," help by adding flavor as well as nutriment. Cereal gruels or toast taken with milk or cream and sugar to taste, are usually liked and well digested. "Milk punches" and egg nogs of various types are delectable. So are ice creams, ice cream sodas and so-called sundaes.

One may conclude, therefore, that unless a person has milk allergy it is merely lack of understanding and skill that makes impossible the giving of milk to a person who needs it.

ALCOHOL INJECTIONS IN CARCINOMA OF VERTEBRAE

To the Editor—I have under treatment a woman who has a metastatic carcinoma of the eleventh and twelfth dorsal vertebrae. Recently she has developed pain along the course of the right ilio-inguinal nerve. A therapeutic spinal anesthesia between the twelfth dorsal and first lumbar vertebrae gave marked but passing relief. Somewhere in my reading I have seen an article on the use of alcohol in these cases for more permanent relief. Please send all information and references on this subject available.

M D Iowa

ANSWER—The use of intraspinal alcohol injections for the relief of pain in cases of carcinoma has been considerably practiced, but there is no question that it is a delicate and dangerous procedure and unless strict attention is paid to the details of technique the patient may be more injured than helped.

In general, the use of a moderate amount of carefully measured x-rays, say 300 roentgens given twice a week for a period of about a month and then repeated after an interval of a month, will result in more satisfactory relief from pain than do the alcohol injections.

There are a number of excellent papers on the subject of alcohol injections, among them one by Ritchie Russell in the *Lancet* (1595 [March 14] 1936) and another by E. L. Stern in the *American Journal of Surgery* (25:217 [Aug.] 1934). Russell's directions are as follows: The patient must lie with the side of the body in which most pain is felt uppermost and in the usual semirecumbent posture employed for lumbar puncture. The operating table is tilted so that the sacrum forms the highest part of the spine, and the head should always be kept lower than the spine. The lumbar puncture should be made between the third and fourth vertebrae. A few cubic centimeters of spinal fluid is allowed to escape and 0.4 cc of absolute alcohol is slowly injected, the whole amount being introduced during a period of about twenty seconds. Cerebrospinal fluid should not be drawn into the syringe prior to injection. The patient is made to lie in the same position for about an hour and must on no account raise his head or the upper part of his body. He may, however, with advantage turn slightly on his face as soon as the injection is completed so that the alcohol may have access more to the posterior than to the anterior nerve roots. After lying in the same position for about an hour the patient is treated as for an

ordinary lumbar puncture. Headache after injection is rare. In some cases the pain disappears at once, in some it remains unchanged for several days and then ceases, in some it becomes less but is not abolished. If the pain is still severe ten days after the injection, the operation may be repeated. For lumbar or thoracic pain the injections may be made between the second and third lumbar vertebrae. In nervous cases morphine and scopolamine should be given before injection. A list of references is included in Russell's paper.

Stern in his article calls attention to the necessity of using alcohol sterilized by boiling. He says that the patient should be turned flat on his back ten minutes after the injection has been made and the foot of the bed elevated from 4 to 8 inches. The patient should be kept in this position for two hours, well covered and protected from drafts, but should not sit up until four hours after the injection and should remain in bed for at least twenty-four hours. Catheterization may be necessary. Sedatives should be used liberally to relieve postinjection reactions such as headache or pain. If the patient is not relieved after five or six days, the injection can be made one or two segments above or below the level first injected, depending on the segment affected, as shown by skin tests. The needle should never be inserted above the first thoracic vertebra. Stern states that when successful the procedure may relieve pain for as long as eight months and allows more intensive x-ray, radium or other medical treatment to be given and so tends to prolong life.

BUFFERING EYE SOLUTIONS

To the Editor—Kindly send me detailed information with regard to the procedure to buffer the eye solutions according to formulas of Dr. Sanford Gifford to adjust the pH of solutions. Also I am interested in knowing the practical procedure to make eye solutions isotonic. I have a copy of 'A Ready Method for the Extemporaneous Preparation of Isotonic Collyria' by Mellen and Seltzer (*J. Am. Pharm. A.* September 1936) and a copy of 'The Art of Compounding' by W. L. Seaville (ed. 5 Philadelphia: P. Blakiston's Son & Co. 1927) but I want if possible further and more detailed information. Is there a practical procedure to make eye solutions isotonic and with the correct pH at the same time?

RICARDO GALDIS M.D. Havana, Cuba

ANSWER—A method for adjusting the pH of solutions was described by Gifford in the *Archives of Ophthalmology* (13:78 [Jan.] 1935). It consisted in the preparation of an acid buffer solution of pH 5, which was made more alkaline by the addition of small amounts of a stock solution of sodium carbonate. The acid buffer solution contained boric acid (powdered) 12.4 Gm, potassium chloride (anhydrous) 7.4 Gm and distilled water 1000 cc. The stock sodium carbonate solution contained sodium carbonate (anhydrous) 21.2 Gm and distilled water 1000 cc. When 0.05 cc of the latter solution is added to 30 cc of acid buffer solution, the reaction of the solution is pH 6. When 0.1 cc is added to 30 cc, the pH is 6.2. When 1 cc is added, the pH is 7.2. When 1.5 cc is added, the pH is 7.6. When 3 cc is added, the pH is 8.2. When 4 cc is added, the pH is 8.4. When 8 cc is added, the pH is 9.

It seemed that reaction was much more important as to reactions produced than tonicity. With the small amounts of alkalis used in eye-drops a solution in 0.9 per cent sodium chloride would be practically isotonic. It is not obvious how the pH of a solution could be changed while keeping it isotonic without very complicated changes in buffer solutions for each prescription.

IMMUNIZING DOGS TO RABIES

To the Editor—Enclosed is a reprint concerning the prophylaxis of rabies in dogs and although *Queries and Minor Notes* of *The Journal* for April 3 carried a question and answer concerning this matter I am still not satisfied. I own a pet dog and have been under the apparent delusion that the one shot vaccine was sufficient prophylaxis against rabies. I should like an opinion regarding this matter.

M D Louisiana

ANSWER—There is no question that preventive vaccination against rabies in the dog is still strictly in the experimental stage. Obviously, compulsory vaccination of dogs should not be urged as long as absolutely reliable and safe methods of vaccination are not available. In the meantime there must be no relaxation but rather more strict enforcement of the only available methods of preventing canine rabies, namely, licensing and quarantining, and impounding and killing stray dogs.

As to the merits of the article mentioned in the question (*The Rabies Racket*, by Dr. William A. Bruette in the May 1937 issue of *House and Garden*), it may be said that its attack on the one shot rabies vaccine is well founded and timely because there is no evidence that such vaccination prevents rabies. But the explanation offered to account for symptoms

in so-called mad dogs is not wholly acceptable, because it tends to belittle the dangers of dog bites to human beings. A dog with such symptoms—excitement, restlessness, fits—may be rabid and should be treated as dangerous. The possibility of rabies from dog bite under any circumstance should never be minimized. *THE JOURNAL* (Aug. 8, 1936) pointed out editorially that the least that can be done is to cauterize the wound and place the dog under observation for three weeks to rule out rabies. If the dog cannot be found or identified, the safest course is to give antirabic treatment. The article is on safe ground in advocating the destruction of homeless dogs and quarantine as the only reliable means of controlling canine rabies. There is great need of intelligent public support of such efforts by officials. Recently a dog found to be rabid bit seven children in a Chicago school, in 1936 six persons died of rabies in Chicago, and it appears that the total number of persons bitten by dogs in that city is increasing. The article is probably not on wholly safe ground when it asserts that rabies in this country is on the increase as the result of infection from rabies vaccine, account should be taken of the fact that in nature the frequency of rabies fluctuates much.

PEDIATRIC DIAGNOSIS

To the Editor—I have had under observation for the past two months a boy aged 3 years who returned to the office today with a chronic complaint of occasional pain in the right axilla. Physical examination revealed impaired resonance and diminished breath sounds over the right lower lobe of the lung and a harsh systolic murmur over the precordium. During the examination his face became flushed, his eyeballs seemed to roll upward, and he became somewhat stuporous for a few minutes. His afternoon temperature was 99.2 F. The remainder of the examination was negative, the child being well nourished and well developed and having recorded a 2 pound gain in weight the past three weeks. The mother states that the child becomes listless and tired in the afternoon and undergoes the vasomotor changes about once daily. The patient was first seen by me two months ago at his home. He had a temperature of 104 and complained of pain over the right lower lobe. Respirations were increased but not labored. Epistaxis occurred while I visited him. Physical examination revealed a friction rub over the right lower lobe. The following day his temperature was normal but for several days thereafter continued to be of low grade with occasional epistaxis. The urine examination was negative. The ears were normal. He was discharged ten days after the onset of the disease with orders to stay in bed one more week. Two weeks later I was called to the house and his symptoms were the same as originally. However he had a loose cough and was expectorating some mucoid material. He was sent to the hospital for further study and x-ray examination of the chest. Blood and urine studies were negative. He was discharged from the hospital one week later with a normal temperature. Forceful questioning of the mother brought out the fact that the child's aunt had tuberculosis a year ago. With this complexity of symptoms and negative laboratory studies I am at a loss as to how to proceed further. Do you think it is advisable to repeat the x-ray examination? I would appreciate any suggestions as to diagnosis and further procedure. Please omit name and address.

M D, Wisconsin

ANSWER—The query presents a 3 year old patient with a number of symptoms that are difficult to unravel. The physical examination reveals impaired resonance and diminished breath sounds over the lower lobe of the right lung. These signs might indicate pleural effusion, collapse of the lung, infiltration of the parenchyma of the lung with an occluded bronchus, an elevation of the diaphragm due to abdominal distention, or enlargement of the liver causing pressure from below.

On another examination, friction sounds were heard over the lower lobe of the right lung. In addition, there was a productive cough. In spite of all these suggestive symptoms, the x-ray examination of the chest did not reveal lung changes.

A harsh systolic murmur was heard over the heart area, though no mention is made of the size of the heart, location of the apex beat, presence or absence of thrill, rate or rhythm of the heart beat, whether the heart tones were strong or feeble, or whether there was an accentuation of one or the other tone. The importance of these observations is obvious. In the interpretation of a harsh systolic murmur over the precordium, the question arises: Could the patient possibly be suffering from a congenital or acquired heart lesion?

It is further recorded in the query that during the examination of the patient his face became flushed, the eyeballs seemed to roll upward, and he became stuporous for a few moments. Could these symptoms indicate a mild convulsive seizure, which is commonly called petit mal? Was the attack possibly due to a heart block producing an Adams-Stokes syndrome? We would suggest investigating the patient carefully on this score and also for a cerebral involvement to elucidate the possible cause of the convulsions. An electrocardiographic study would show whether there is any evidence of heart block.

It is also mentioned that the patient had epistaxis on several occasions. The most common cause of epistaxis in children

is ulceration of the nasal septum or a varicosity of the veins of the nasal mucosa. It also occurs in severe rhinitis. It is observed in conditions that cause high venous blood pressure, such as bronchitis, emphysema or heart disease causing dilatation of the right side of the heart, though in any case the local condition of the nose should be ascertained by thoroughly illuminating the nasal mucosa with mirror and reflected light.

Finally, the query mentions the fact that a member of the family had suffered from tuberculosis, and we infer that the child may have been exposed to this disease. In order to remove any doubt about tuberculosis in the child, one should make a skin tuberculin test, such as a Mantoux or Pirquet. If a positive reaction is obtained, the x-ray examination of the chest should be repeated. It is difficult to do more than make an attempt to interpret the symptoms that are presented and to suggest further clinical investigation.

POSSIBLE STERILITY IN PULP WORKERS

To the Editor—I should like information regarding sterility of a person working with sulfurous acid and chlorine used in the manufacture of pulp. I have a patient who has worked in the pulp mill four years and has one child 2½ years old. For the past two years he has worked in the concentrated atmosphere of sulfurous acid and chlorine and his wife has been unable to become pregnant. There are two other men working in the same department as pipe fitter and lead burner, one has worked five years, the other four years. Neither has any children. Others work around the same part of the plant at intervals but do not spend their entire time in this department and they do not seem to have any special trouble. Is the handling of these chemicals likely to produce sterility?

KENNETH D. GRAHAM, M.D., Aberdeen, Wash.

ANSWER—Sterility in the male is not apt to be associated with industrial exposures to sulfurous acid or chlorine. At least such exposures will probably not lead to sterility as a direct and characteristic result. This query states that exposure is to a "concentrated atmosphere" of sulfurous acid and chlorine. Sulfur dioxide and more especially chlorine are so irritable that it can be reasonably doubted that large quantities of either were inhaled by these workers. Among workers engaged in this occupation in other pulp mills there is no known evidence of sterility. Instead, these workers may present evidence of chronic bronchitis, persistent coughing, crooked teeth or gastrointestinal disturbances. As a result of general depletion it is conceivable that a worker may become sexually impotent, but the probability of any such occurrence should not be emphasized. Under these circumstances it may be well for the physician in charge to make appropriate tests on these workmen to establish the presence of viable spermatozoa in customary numbers for the normal male. Further, adequate examination of the wives in question may lead to the demonstration of adequate causes for infertility. If for any reason lead enters into the operations involved, such for example as an impurity in the sulfurous acid, sterility of the male is possible, but in this case there should be other and more readily demonstrable evidences of lead poisoning.

DIFFERENTIAL DIAGNOSIS OF HYPERINSULINISM

To the Editor—A man aged 40 normal in every respect except for attacks of weakness appearing irregularly and lasting from fifteen minutes to one hour has low blood pressure: 90 systolic and 60 diastolic, a basal metabolic rate of minus 11, blood sugar 90 mg. and blood calcium 12 mg. I believe that this is a case of hyperinsulinism or hypoglycemia. He has been on treatment of low sugar and high fat diet with injections of adrenal cortex extract with improvement. Can you offer any further suggestions as to diagnosis or treatment? Please omit name and address.

M D, Virginia

ANSWER—One is not certain whether the blood sugar determination of 90 mg. was made during such an attack as described or whether it was from a routine sample taken in the morning after the usual overnight fast. The same doubt applies to the significance of the low arterial tension. If these observations have been made between the attacks of weakness they should be repeated at the time of such an episode, if this is at all possible. Typical attacks due to hypoglycemia are usually relieved promptly by the ingestion of sugar, orange juice, candy containing dextrose or Karo syrup taken promptly, should abort the sense of profound weakness. Arterial hypotension, on the other hand, may be considerably increased under certain conditions and thus cause symptoms. Fatigue is a common reason for the aggravation of chronic hypotension. The postural form of hypotension is being more and more clearly defined: vertigo, presyncope, extreme weakness and sometimes actual syncope occur when the patient changes from a recumbent to an erect position. These symptoms disappear when the head is lowered. Many of these patients learn to correct for the failure of the circulatory reflex by bending down as they

to tie their shoe laces when an attack appears. In postural hypotension it is more unusual for such an episode to last an hour.

Neurocirculatory asthenia (irritable heart), tuberculosis, organic cardiac disease with periods of fibrillation, petit mal epilepsy and marked and prolonged fatigue are other diagnostic possibilities. One is curious to know what preceded the onset of these attacks and whether they appeared abruptly or gradually. The description could apply to the common and distressing "postinfluenzal asthenia" in which arterial hypotension, moderate hypoglycemia, cold clammy sweats, vasomotor instability and severe apocamnosis are conspicuous manifestations. Adequate rest, small but more frequent meals, and strychnine sulfate 0.001 Gm (one-sixtieth grain) before meals are valuable therapeutic aids in this semuniversal sequel of influenza.

Further data are needed to make any more accurate diagnosis, and suggestions with regard to treatment must depend on a more explicit knowledge of the etiology of the syndrome.

THERAPY OF SYPHILIS

To the Editor—After an active course of treatment given properly and consisting of neoarsphenamine mercury preparations and close attention to the minutiae of treatment for two years when can one expect that the arsenic and mercury will leave the body? Does any of this arsenic and mercury circulate in the blood long after treatment? Has the presence of arsenic and mercury in the blood any effect on the Wassermann reaction? During the past year I have had occasion to have the Wassermann test performed on three patients. One had a negative reaction one year after completing treatment and now (several years later) has a 4 plus Wassermann reaction. Reinfection is not likely in this case. One patient has a Charcot joint and after active treatment for years now presents a 4 plus Wassermann reaction. One patient with a scaly eruption on the palms of the hands and the soles of the feet has a 4 plus Wassermann reaction after discontinuing treatment fifteen years ago (probably mercury inunction and potassium iodide and mercury iodide and so-called mixed treatment). Furthermore I had occasion to send a patient who had a fresh chancre to the city hospital for treatment and he reports to me occasionally. He tells me that some of the patients receiving treatment in the venereal clinic have been coming six and seven years and they are of the opinion that syphilis is never cured permanently. Probably the presence of those heavy metals (arsenic and mercury) in the blood stream if they get there interferes with the correct reading of the Wassermann test. If the arsenic and mercury really cure the disease the number of cases of dementia paralytica and takes should decrease. Is this so? New hospitals for the insane are being erected all over the country and they are probably all pretty well filled up. It seems to me that the old treatment of inunction and potassium iodide to the limit has done about the same as the newer treatment—makes symptoms disappear and that is all. I know that some patients get arsenic and mercury fast but how can one tell that except by using the Wassermann test and then this is just an alibi. I feel that the Wassermann test is ideal for diagnosis but not as an index of cure.

M D New York

ANSWER—It will be difficult to answer the various questions in detail. After an injection of neoarsphenamine a large proportion of it is excreted from the body within a week, and with an injection of trypanamide most of it is excreted within thirty-six hours. With injections of mercury compounds much will depend on the type of remedy employed. With a soluble injection most of it will be excreted within a period of one or two days, while with a preparation such as mercuric salicylate most of it will be excreted within a week. These are the mercury compounds most frequently employed at present. Arsenic and mercury in the blood would not have any effect on the Wassermann reaction.

The first patient probably has a relapse type of Wassermann reaction at least and perhaps a relapse syphilis. The patient should be looked over carefully, especially from the standpoint of cardiovascular syphilis and of central nervous system syphilis. He should have a lumbar puncture. This examination will probably reveal the reason for his four plus Wassermann reaction.

It is not unusual for a patient with Charcot's joints to have a persistent Wassermann reaction despite active treatment. After all what is being treated is the patient's syphilis and not his Wassermann reaction.

It is difficult to determine the nature of the third patient's scaly eruption on the palms and soles. It may be that he has a scaly syphiloderm. On the other hand, it may have nothing to do with his syphilis. The same remarks apply here as to the second patient.

The correspondent should read the various articles that have been coming out in the past few years in *Venereal Disease Information* and in *THE JOURNAL* from the Cooperative Clinical Group, various phases of syphilis are handled in these papers. Also the recent outline of the treatment of syphilis by H. N. Cole (*The Use of Antisyphilitic Remedies* *THE JOURNAL*, Dec 26, 1936, p 2123). The Cooperative Clinical Group has found

that the results of continuous therapy, using alternating courses of an arsenical and of a bismuth salt in series of from ten to twelve injections, for a total of three series of each, in an early case of syphilis, give a high percentage of cures. A cure is not necessarily considered in terms of Wassermann reactions but rather in the amount of treatment the patient has had and his freedom from evidence of syphilis thereafter.

REMOVAL OF FLOWERS FROM SICKROOMS AT NIGHT

To the Editor—Plants and flowers in rooms occupied by the sick are generally removed from the rooms at night. Years ago many people believed that night air of itself was detrimental to health and in consequence closed their windows at night. With this shut in condition at night observers of old were probably correct in concluding that certain specific plants or flowers left in such rooms at night gave off particles odoriferous or otherwise that in some way caused more or less mental or physical distress to the occupants of those window-closed rooms. How ever today where rooms occupied at night are as well ventilated as those occupied during the day it seems doubtful to me—ventilation being the same—whether there is any good reason why plants or flowers must be removed from a room at night when so far as can be determined they cause no discomfort during the daytime. It is so easy to be mistaken that I shall be pleased if you will advise me regarding the general opinion on this subject.

G W TYRRELL MD Perth Amboy N J

ANSWER—There are no sound medical reasons why flowers should be removed at night from sickrooms. Conceivably a patient might be sensitized or irritated by flowers in a sickroom, but not more so at night than during the day. Reasons other than medical may be more significant, even though falling into the category of the whimsical. Both the patient and the flowers need to get away from each other to be appreciated. The return of flowers in the morning becomes an event, a break in monotony, a welcome visitor. Few patients would choose to have their human visitors remain indefinitely. Besides getting away from the patient overnight, the flowers may be refreshed by the lower temperatures out of the sickroom.

SENSITIVITY TO HEAVY METALS IN SYPHILITIC PATIENT

To the Editor—A man aged 53 under treatment for latent syphilis has had a course of bismuth salicylate in oil 1 cc intramuscularly each week for twelve weeks. This was followed with neoarsphenamine 0.6 Gm intravenously weekly for twelve weeks. The second course of bismuth was then started (the same bottle of bismuth salicylate). After the second injection there was a generalized punctate pruritic eruption most severe on the extensor surfaces. For the third injection I used mercuric cyanide one-sixth grain (0.01 Gm). After a few days the rash disappeared. He was given two more injections of the mercury when a red papular pruritic eruption appeared generalized but most pronounced on the extensor surfaces. Following this he was given a rest period of three weeks (by his demand). The rash disappeared as before in a few days. Two weeks after the last injection there was a left sided orchitis which subsided in about a week. He was then (three weeks after the last injection) given 1 cc of bismuth salicylate again. The second injection was followed by a rash similar to the first type of rash. Since he refused further hip treatment and since it was over twelve weeks since the last course of arsenic he is now back on arsenic. Repeated urine examinations reveal an occasional trace of sugar both during and after the eruptions. Physical examination is essentially negative. Is it possible that he is sensitive to both bismuth and mercury? What preparation should be used when the present course of arsenic is completed?

M D Michigan

ANSWER—Cutaneous reactions to bismuth are uncommon but are seen frequently enough to make the inference justifiable that this patient is sensitive to the heavy metals. It is not an uncommon occurrence, however to find that some of these patients are sensitive to the local anesthetic which is incorporated in some of the bismuth preparations by the manufacturers. It might be well to make certain of this point by doing a patch test to the solution used and particularly to the anesthetic if any is present in the preparation. Frequently patients who are sensitive to one or two of the metals used in the treatment of syphilis are sensitive to all of them. As this patient is 53 years old and a diagnosis of latent syphilis has been made implying that the spinal fluid and cardiovascular examinations are negative, the fact that will determine the need for continued treatment is the duration of the syphilis. If the infection has been present twenty-five years or more and the patient has only a positive Wassermann reaction to show for it, there is no need of jeopardizing him by continued treatment to the point of developing a blood dyscrasia or an exfoliative dermatitis. If the infection is a comparatively recent one (two or three years in duration) it would be well to discontinue all treatment for six months and then start with small amounts (one-fourth the usual dose) of bismuth noting the reaction. If he again reacts to the mercury and bismuth it would seem advisable to discontinue further treatment.

POSSIBLE LATE EFFECTS OF SPIDER BITES

To the Editor—A married man aged 45 a barber states that about three years ago while on a fishing trip he was bitten on the leg by a spider of unknown variety. There was moderate pain and swelling for perhaps half a day with rather prompt subsidence of symptoms. Since then he has been bothered greatly at more or less frequent intervals by the occurrence of itching and burning wheals and nodules on all his extremities which come on toward the close of day and last most of the night. He insists that he never had the condition before the spider bite and is sure it is a direct result. Please inform me whether it is possible for a spider bite to sensitize a patient and if there is any treatment likely to overcome the condition.

M D North Carolina

ANSWER—Residual symptoms in the form of tingling and burning, or transient spasms in the muscles of the extremities, have been reported to have persisted many months following the bite of the black widow spider, *Latrodectus mactans*. These are relieved by the administration of bromides or other simple sedative therapy. The condition described by the correspondent has not been previously recorded as a result of spider bite poisoning. The patient should be carefully examined for dermatographia, eosinophilia or other signs of allergy, as well, of course, as for local parasites such as scabies or pediculi, and other possible factors that may have complicated the picture.

TREATMENT OF CHRONIC PROSTATITIS AND EPIDIDYMITIS

To the Editor—In November 1935 a man consulted me concerning a urethral discharge of about three days duration. He gave a history of having had gonorrhea some ten years before with a complete cure or so he was told by his physician. In the present illness there was little burning or pain and the discharge was only moderate thin and white. Numerous slides were negative for gonococci. I made a diagnosis of nongonorrheal urethritis and proceeded with the usual treatment. The prostate at this time was tender slightly boggy and moderately enlarged. In December while the patient was out of town for two weeks he suffered with right sided epididymitis and was kept in bed for the most of this time. When he returned this trouble was in the decline but I avoided active treatment of the urethritis for some time. When I felt it safe to do so I proceeded with the treatment at various times using neosilvol mercarbolid ptoass permanganate irrigations neoarsphenamine and zinc sulfate. Besides these I used silver nitrate once or twice sounds and prostatic massage. By June 1936 nearly all symptoms had disappeared but the patient would have a watery discharge every third morning. This would persist for half a day. At this point I referred him to a genito-urinary specialist for examination. Urethroscopic examination revealed two small cysts near the bladder neck which were fulgurated but there was no pus or evidence of infection anywhere in the urethra prostate or seminal vesicles. A check up two months later by the same man showed no change except that the cysts were gone and the urethra was slightly inflamed. Since this the patient has continued to have the slight discharge every third or fourth day and the urethra continues to feel irritated. He has refrained from intercourse and alcohol for long periods without relief. I will appreciate it if you can give me some suggestions of the possible diagnosis and treatment. If I am able to isolate *Trichomonas* what is the treatment in the male? What would you suggest to allay the irritation in the absence of infection or foci of infection? What is the danger if the condition is not checked? I neglected to mention that there is no stricture although the patient had one several years ago. Please omit name and address.

M D Wyoming

ANSWER—The patient had and possibly still has a persistent infection in either the prostate gland or the seminal vesicles or both. One must bear this in mind because of the fact that the prostate on examination was tender, slightly boggy and moderately enlarged, although nothing was said about the prostatic fluid at the time the patient was first seen.

Evidence is presented here that the patient had infection in the seminal vesicles because he developed a right sided epididymitis. The fact that urethroscopy disclosed a few cysts at the bladder neck is suggestive that he had infection in the prostate at that time. Chronic infection in the prostate and vesicles is a common cause for the persistence of a slight urethral discharge and often is a factor in the production of urethral irritation.

The use of heat by rectum is important in the treatment of this group of patients. The heat may be applied to the prostate through the rectum by means of a psychrophore using hot water, an electrical heater, hot rectal irrigations or sitz baths. Many patients object to the use of sitz baths at the time of year mentioned because they believe that sitz baths predispose them to colds. The most convenient way of using heat is by means of an electrical prostatic heater or one might use hot rectal irrigations, but this often upsets the bowel.

Next in importance is careful systematic, regular massage of the prostate and vesicles. This should be carried out on a full bladder. The patient should be instructed to bend over a chair or an examining table so that the prostatic fluid can be obtained at the external urethral orifice. This fluid should be

examined under the microscope for the presence of pus. It might be well to stain the fluid for the presence of organisms. The prostatic heat and massage should be continued until the strippings are free from pus when examined under the microscope.

In this instance there seem to be no reasons why the patient should refrain from sexual intercourse, nor is it necessary to refrain from alcohol.

The correspondent says that the patient has no stricture, although he had one years ago, therefore if repeated microscopic examinations of the prostatic strippings are free from pus, a few sounds should be passed. Local treatment to the urethra is hardly necessary other than the use of a hand injection morning and evening. This injection should contain a mixture of zinc sulfate and alum and phenol (carbolic acid), 0.25 Gm (4 grains) each dissolved in 120 cc (4 ounces) of water. The patient should hold the fluid in the urethra for about thirty seconds.

VITAL RATES IN CANCER AND DIABETES

To the Editor—I am preparing a chart on the vital rates to cancer. Would you please furnish me with (1) the 1936 death rate for cancer (2) the incidence rate for cancer for each year since 1900 (3) the age incidence for cancer deaths and (4) the number of five year cancer cures reported for each year since 1900. Also may I ask your opinion as to why the death rates in cancer are going up? I realize that you may not have the answers to these questions prepared for many years yet I will appreciate your giving me what information is available. What is your opinion as to the increase in the death rates for diabetes mellitus?

EDWARD D MAIRE M D Grosse Pointe Park Mich

ANSWER—1. The death rate from cancer for 1936 is not yet available for the general population of the United States. The standardized death rate from cancer among the industrial policy holders of the Metropolitan Life Insurance Company was 86.2 per hundred thousand as contrasted with a rate of 86.7 in 1935 and 88.2 in 1934. The trend of the death rate among these millions of insured lives is a fair indication of what is occurring in the general population of the United States.

2. Data are not available on the incidence rate of cancer in the United States. Probably a half million persons are afflicted with one form or another of cancer at the present time.

3. The death rate from cancer increases progressively with advancing age, as shown in the accompanying table.

Averages of Annual Death Rates from All Forms of Cancer per Hundred Thousand by Sex and Age, Ages 1 to 74 Years

Age Period Years	Metropolitan Life Insurance Company		Industrial Department		1911 1935
			White Males	White Females	
1 to 74*			75.4	89.6	
1 to 24*			3.1	2.8	
25 to 44*			23.5	51.7	
45 to 74*			352.9	385.1	
1 to 4			3.7	3.6	
5 to 9			2.0	1.7	
10 to 14			1.8	1.8	
15 to 19			3.5	2.8	
20 to 24			4.8	4.5	
25 to 34			9.8	20.9	
35 to 44			41.4	92.1	
45 to 54			157.4	231.3	
55 to 64			416.0	428.0	
65 to 74			765.7	722.4	

* Standardized for age

4. In 1934 there were 2,077 cases of five year cures reported at the Clinical Congress of the American College of Surgeons.

The increase in the crude cancer death rates over the past quarter of a century may be attributed largely to the aging of the population and to the increasing frequency with which cases of the disease are being recognized.

The recorded increase in the death rate from diabetes mellitus over the past twenty-five years has been due to

- The growth of that portion of our population which is particularly susceptible to the disease—older persons city dwellers, and certain foreign race stocks.
- Changes in the social environment that favor the development of the disease—the growing use of machines and higher standards of living.
- The more frequent diagnosis of the disease.

It is to be noted, however, that the diabetes death rate among Metropolitan industrial policyholders has remained stationary for the past five years.

DIAGNOSIS OF MENTAL DISTURBANCE

To the Editor—I am just wondering if you and your staff would be kind enough to give me some information regarding a woman, aged 22 who I think is insane. She is a habitual masturbator has been interested in various religious cults that believe in and teach mental science has gone to college three years and has studied art. She has intervals of intelligence with lapses into vicious murderous tendencies. She has been treated by many of the doctors in Los Angeles ranging from gynecologist genitourinologist and hormonologists to psychiatrists. The onset was sudden when she was taking the mental religious study and at the same time attending cocktail parties. She has been under the care of nurses ten months and has had all the laboratory tests made that are known as far as I know but I do not know the dependability of the various tests. M D California

ANSWER—The patient under consideration seems to have maniacal attacks, the nature of which cannot be determined by the information submitted in the question. Maniacal attacks may be the symptom of an unrecoverable psychosis or a temporary phase of a more benign condition. It is only by careful psychiatric study that the differentiation may be possible and adequate treatment prescribed.

BLACK WIDOW SPIDER BITE

To the Editor—I desire information concerning the late effects of a black widow spider bite. A robust man aged 35, suffered such a bite about six months ago. Within a short time he experienced severe abdominal pain nausea and vomiting and muscular cramps in both arms and legs. He improved under appropriate treatment and was released as well by his physician. The period of treatment lasted about four weeks. However, there has persisted in a mild form cramping pain in the arms and legs as well as abdominal cramps and muscular weakness to such an extent that he is unable to do any work. Is there anything known about the late effects of black widow spider bite? Please omit name. M D, Oklahoma

ANSWER—Paresthesias, numbness, tingling and transient muscle spasms, as well as general weakness, have been noted to persist in some instances of arachnidism for many weeks or months. These residuals are generally most marked in the muscles of the calf, but they may affect the entire lower extremities and occasionally the arms and the abdomen. Their occurrence does not appear to be dependent on the severity of the initial symptoms or on the age of the patient. The eventual prognosis is good, as the severity of these sequelae generally gradually diminishes. Massage and stimulation of the circulation of the affected muscles, mild sedation and reassurance of the patient regarding ultimate recovery may accelerate convalescence.

RABIES VIRUS IN EPILEPSY

To the Editor—Have you any report on the efficacy of antirabic virus as a treatment for epilepsy? A patient brought to my office a clipping from a Chicago paper under the name of Dr. Herman A. Bundesen which stated that beneficial results had been obtained in several cases of epilepsy that have been treated with antirabic virus. M D Nebraska

ANSWER—This question is best answered by giving the pertinent facts in the treatment of fourteen patients with recalcitrant epilepsy by means of antirabic vaccine. None of the patients were taking any medication during the active vaccine treatment. Injections were given daily for twenty-one days. The seizures of eleven patients recurred during and after the treatments. Two patients had no recurrences of any seizures until two months following the conclusion of the injections. The third patient had no seizure during the treatment, but two weeks after the last injection the seizures recurred and finally the patient went into status epilepticus and died. It is thus obvious that no beneficial results have been obtained from antirabic inoculations. Such treatment is therefore not recommended for the convulsive state (epilepsy).

USE OF TETANUS TOXOID

To the Editor—I just read an article about tetanus toxoid alum precipitated. Can you tell me whether the prophylactic action of the toxoid has been proved? JUDAH MINKIN M D Bronx New York

ANSWER—Tetanus toxoid seems to be gaining in recognition as an effective, harmless preventive of tetanus. Investigation has shown that in animals and in man tetanus antitoxin is produced in response to immunization with toxoid. In France such immunization has markedly reduced tetanus in army horses, and centers have been established for immunization of workers exposed to tetanus infection. The introduction of immunization in the army is under consideration. According to Ramon (*Rev d'immunol* 1: 37 [Jan.] 1935) the best results are obtained by the usual three injections of the toxoid alum precipitated followed by a further injection a month or more after the third injection or on the occasion of dangerous trauma.

The immunity is believed to endure for several years. The Council on Pharmacy and Chemistry has accepted Tetanus Toxoid Alum Precipitated for N N R and describes the brands of the National Drug Company and the Lederle Laboratories.

DIET FOR PANCREATIC FISTULAS

To the Editor—What particular diet has been used in helping to close pancreatic fistulas? I believe that diet alone has helped close pancreatic fistulas following marsupialization of a cyst and I should like to know whether this dietary treatment could be used to check the drainage following operation for acute hemorrhagic pancreatitis.

BERNARD J. FINEBERG M D Jersey City, N J

ANSWER—The diet referred to is that described by Wohlgemuth (*Berl klin Wchschr* 44: 47, 1907). It is based on the experimental work of Pavlov and of Boldyreff and consists essentially of an antidiabetic diet containing a low carbohydrate, a moderate protein and a relatively high fat content. More recently the addition of sodium bicarbonate has been advised.

The diet has been used with moderate, but by no means universal, success in the closure of pancreatic fistulas. Its use in the case cited should be worth trial but will probably be about as uncertain as its use in the condition for which it was originally described.

SCLEROSING FLUIDS IN BURSTITIS

To the Editor—Have any of the sclerosing fluids been used much in bursitis particularly prepatellar bursitis? If they have what fluids and what is the usual technic? C T UPCHURCH M D Melcroft Pa

ANSWER—Solution of quinine hydrochloride and ethyl carbamate and solution of sodium morrhuate in 5 per cent concentrations have been used to obliterate bursal cavities. The success of such obliterating injections will depend (1) on the possibility of removing the fluid from the bursal sac and (2) on the absence of severe inflammatory changes in the bursa. In the latter case an acute bursitis may be precipitated. A trial of the sclerosing method is permissible in the "cold" stage but, should a few injections given one week apart be unsuccessful, surgical excision is the most satisfactory treatment.

INTRAVAGINAL SANITARY PADS

To the Editor—Do the intravaginal sanitary pads cause a cervicitis? I have had two cases that cleared up when the pads were discontinued and hot saline douches instituted and recurred when they were again used. M D New Jersey

ANSWER—Ordinarily, intravaginal sanitary tampons do not produce any disturbance in the cervix. Conceivably however if these tampons are used by women who flow profusely a great deal of blood may be dammed back and retained in the upper portion of the vagina. This blood may perhaps irritate the cervix. There are numerous bacteria in the vagina and, since blood is an excellent medium for the growth of many of these organisms, stagnant blood may lead to some disturbances.

VESICLES ON PENIS

To the Editor—I have a young man aged 23 under treatment. He has a vesicular type of lesion on the penis. The lesions appear in crops of three or four vesicles over the corona and prepuce break down into small ulcers and disappear only to recur again. The Frei test for granuloma inguinale is negative. The Wassermann reaction is also negative. I have had this condition diagnosed as herpes prostaticus. Treatment to date has consisted chiefly of hygienic care of the parts washing with a solution of potassium permanganate. He has also had a few injections of antimony and potassium tartrate on the basis of granuloma but this has been of no avail. Could you advise any further treatment? Please omit name. M D Pennsylvania

ANSWER—If these lesions appear on the corona and prepuce, circumcision in all probability would prevent further recurrence. If this is not carried out, keeping the parts clean with a boric acid bath for the penis once or twice a day, followed by a dusting powder, may prevent recurrence.

SKIN SHRINKAGE IN PITUITARY OBESITY

To the Editor—A patient with pituitary dysfunction is being reduced on a high protein low carbohydrate diet and pituitary extract. The patient weighs 250 pounds (113 kg.). What can I do to shrink the skin and prevent flabbiness? The basal metabolic rate is plus 4.

M D New Jersey

ANSWER—How readily and how completely the skin in obesity will shrink to conform to the reduced size of the body depends on the elasticity of the skin and thus in turn on the age of the patient. Little trouble is encountered in patients under 40 years of age. Probably some benefit can be obtained by persistent massage.

Medical Examinations and Licensure

COMING EXAMINATIONS

STATE AND TERRITORIAL BOARDS

Examinations of state and territorial boards were published in THE JOURNAL July 24 page 301

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS *Parts I and II* Sept 13 15 Ex Sec Mr Everett S Elwood 225 S 15th St Philadelphia

SPECIAL BOARDS

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY *Written examination for Group B applicants will be held in various cities throughout the country in April. Oral examination for Group A and B applicants will be held at San Francisco in June.* Sec Dr C Guy Lane, 416 Marlboro St Boston

AMERICAN BOARD OF INTERNAL MEDICINE *Written examination will be held in different centers of the United States and Canada Oct 18.* Chairman Dr Walter L Bierring 406 Sixth Ave Rm 1210 Des Moines Iowa

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY *Written examination and review of case histories of Group B applicants will be held in various cities in the United States and Canada Nov 6. General examination for Groups A and B will be given in San Francisco June 13 14. Applications must be filed not later than sixty days prior to examination dates.* Sec Dr Paul Titus 1015 Highland Bldg Pittsburgh (6)

AMERICAN BOARD OF OPHTHALMOLOGY Chicago Oct 9 and San Francisco June 13 *All applications and case reports, in duplicate must be filed at least sixty days before the date of examination.* Sec Dr John Green 3720 Washington Blvd St Louis Mo

AMERICAN BOARD OF ORTHOPAEDIC SURGERY Los Angeles Jan 14 15 Sec Dr Fremont A Chandler 6 N Michigan Ave Chicago

AMERICAN BOARD OF OTOLARYNGOLOGY Chicago Oct 8 9 Sec Dr W P Wherry 1500 Medical Arts Bldg Omaha

AMERICAN BOARD OF PEDIATRICS Chicago Oct 17 Los Angeles Nov 7 Boston Nov 14 and New Orleans Nov 30 Sec Dr C A Aldrich 723 Elm St Winnetka Ill

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY New York Dec 28 (tentative) Sec Dr Walter Freeman 1028 Connecticut Ave NW Washington D C

AMERICAN BOARD OF RADIOLOGY Chicago Sept 9 11 Sec Dr Byrl R Kirklm 102 110 Second Ave SW Rochester Minn

AMERICAN BOARD OF SURGERY *Part I (written)* Sept 20 Sec Dr J Stewart Rodman 225 S 15th St Philadelphia

Connecticut March Examinations

Dr Thomas P Murdock, secretary, Connecticut Medical Examining Board, reports the written examination held at Hartford, March 9-10, 1937. The examination covered 9 subjects and included 70 questions. An average of 75 per cent was required to pass. Thirty-one candidates were examined, 25 of whom passed and six failed. The following schools were represented:

School	PASSED	Year Grad	Per Cent
Yale University School of Medicine	(1935)	76.9	
George Washington University School of Medicine	(1934)	77.5	
Georgetown University School of Medicine	(1936)	80.6	
Tulane University of Louisiana School of Medicine	(1933)	75.5	
Tufts College Medical School	(1935)	75.5*	
(1936) 75.5, * 76, * 77.9 78.1			
St Louis University School of Medicine	(1932)	78.1	
Cornell University Medical College	(1935)	84.3	
Long Island College of Medicine	(1935)	75	
University of Rochester School of Medicine	(1936)	77.7	
Jefferson Medical College of Philadelphia	(1934)	77.5	
(1935) 80* (1936) 77.7 78.7			
University of Pennsylvania School of Medicine	(1936)	75.6	
Baylor University College of Medicine	(1936)	75	
University of Vermont College of Medicine	(1936)	77.80.2	
Medical College of Virginia	(1936)	77	
Regia Università degli studi di Roma Facoltà di Medicina e Chirurgia	(1935)	75.1 80.6†	
Regia Università di Napoli Facoltà di Medicina e Chirurgia	(1935)	75†	
School	FAILED	Year Grad	Per Cent
Georgetown University School of Medicine	(1934)	73.3	
Boston University School of Medicine	(1936)	72.6	
Tufts College Medical School	(1936)	69	
Medical College of Virginia	(1936)	68.5	
Regia Università di Napoli Facoltà di Medicina e Chirurgia	(1936)	72.5†	
Osteopathy†			

Seventeen physicians were successful in the oral examination for endorsement applicants given in Hartford, March 23. The following schools were represented:

School	PASSED	Year Grad	Endorsement of
Yale University School of Medicine	(1915) ‡	(1932)* N B M Ex	Illinois
University of Illinois College of Medicine	(1928)		
(1930) New York (1933) Arizona			
State University of Iowa College of Medicine	(1933)	(1934) 2) N B M Ex	Iowa
Harvard University Medical School	(1933) N B M Ex		
Columbia Univ College of Physicians and Surgeons	(1933) N B M Ex		
New York University University and Bellevue Hospital Medical College	(1915)*	(1933) New York	
Syracuse University College of Medicine	(1884)	(1884) New York	
University of Rochester School of Medicine	(1932)	(1932) New Jersey	
University of Virginia Department of Medicine	(1932)*	(1932)* Virginia	

Queen's University Faculty of Medicine (1928) Maine
(1929) New York
Medizinische Fakultät der Universität Wien (1915) New York
* License has not been issued
† Verification of graduation in process
‡ Examined in surgery
§ Permitted to appear for oral examination because of his many contributions to medicine during the past twenty years

California Reciprocity and Endorsement Report

Dr Charles B Pinkham, secretary, California State Board of Medical Examiners, reports 46 physicians licensed by reciprocity and six physicians licensed by endorsement from April 21 through June 25, 1937. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
Howard University College of Medicine	(1931)	(1931)	New York
Northwestern University Medical School	(1903)	(1903)	N Dakota
(1909) Utah (1930) (1931) (1933) Illinois (1932) Kansas (1934) Wyoming			
Rush Medical College	(1901) (1931)	(1932)	Illinois
School of Medicine of the Division of the Biological Sciences	(1935)		Illinois
University of Illinois College of Medicine	(1929)		Minnesota
Indiana University School of Medicine	(1927)		Indiana
University of Kansas School of Medicine	(1930)		Kansas
University of Louisville Medical Department	(1912)		Iowa
Tulane University of Louisiana School of Medicine	(1935)		Florida
Harvard University Medical School	(1921)		Illinois
Tufts College Medical School	(1929)		New York
University of Michigan Medical School	(1932)		Michigan
Univ of Minnesota Medical School (1931), (1933)	(1936)		Minnesota
St Louis Univ School of Medicine (1933) Penna	(1934)		Missouri
Washington University School of Medicine	(1925)		New York
(1904) (1935) Missouri			
Creighton Univ School of Medicine (1930) Kansas	(1934)		Washington
University of Nebraska College of Medicine	(1906)		Nebraska
Columbia Univ College of Physicians and Surgeons	(1932)		New York
University of Rochester School of Medicine	(1931)		New York
Miami Medical College Cincinnati	(1909)		Ohio
Ohio State University College of Medicine	(1931)		Ohio
University of Oregon Medical School (1931) (1932)	(1934)		Oregon
Jefferson Medical College of Philadelphia	(1919)		Utah
University of Pittsburgh School of Medicine (1929)	(1933)		Penna.
Medical College of the State of South Carolina	(1935)		S Carolina
Dalhousie University Faculty of Medicine	(1932)		Ohio
University of Toronto Faculty of Medicine	(1923)		Michigan
Johann Wolfgang Goethe Universität Medizinische Fakultät Frankfurt am Main	(1976)		New York
Universität Heidelberg Medizinische Fakultät *	(1923)		Oklahoma

School	LICENSED BY ENDORSEMENT	Year Grad	Endorsement of
College of Medical Evangelists	(1930) N B M Ex		
University of Southern California School of Medicine	(1936) USP HS		
Rush Medical College	(1929) N B M Ex		
Harvard University Medical School	(1933) N B M Ex		
Tufts College Medical School	(1930) N B M Ex		
University of Pennsylvania School of Medicine	(1909) U S Navy		

Maryland (Homeopathic) June Examination

Dr John A Evans, secretary, Board of (Homeopathic) Medical Examiners, reports the written examination held at Baltimore, June 8-9, 1937. The examination covered 9 subjects and included 90 questions. An average of 70 per cent was required to pass. Six candidates were examined, all of whom passed. The following school was represented:

School	PASSED	Year Grad	Per Cent
Hahnemann Med College and Hospital of Philadelphia	(1933)	83	
(1936) 82 84.3 (1937) 85 87 90.1			

Nevada May Report

Dr John E Worden, secretary, Nevada State Board of Medical Examiners, reports the written examination held at Carson City, May 3-5, 1937. The examination covered 11 subjects and included 95 questions. An average of 75 per cent was required to pass. Three candidates were examined, all of whom passed. Three physicians were licensed by reciprocity and one physician was licensed by endorsement. The following schools were represented:

School	PASSED	Year Grad	Per Cent
Rush Medical College	(1937)	88	
University of Buffalo School of Medicine	(1935)	87.6	
University of Manitoba Faculty of Medicine	(1929)	84	
School	LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
John A Creighton Medical College	(1911)	(1911)	Low 12.1
Albany Medical College	(1930)	(1930)	New York
New York University University and Bellevue Hospital Medical College	(1929)	(1929)	New York
School	LICENSED BY ENDORSEMENT	Year Grad	Endorsement of
Harvard University Medical School	(1934) N B M Ex		

Book Notices

The Treatment of Diabetes Mellitus By Elliot P. Joslin M.D. M.A. Medical Director George T. Baker Clinic New England Deaconess Hospital Boston With the cooperation of Howard F. Root M.D. Physician New England Deaconess Hospital Priscilla White M.D. Physician New England Deaconess Hospital and Alexander Marble M.D. Physician New England Deaconess Hospital Sixth edition Cloth Price \$7 Pp 707 with 22 illustrations Philadelphia Lea & Febiger 1937

This book has been conspicuous on the diabetic horizon for the last twenty years. It was conceived during the preinsulin epoch, was developed during the insulin epoch, and now thrives in a period which the author has named the Hagedorn era. Indeed, its revision so soon after publication of the fifth edition was necessitated by the discovery of protamine insulin by the distinguished Hagedorn and his associates of Copenhagen, whose report was published in *THE JOURNAL*, Jan 18, 1936. The Hagedorn era has already been shown to be an improvement for the diabetic patient. Protamine insulin, Joslin says, is the most notable advance in the treatment of diabetes since the discovery of insulin in 1921. The action of regular insulin was dramatic in lowering the blood sugar, but its effect was temporary and most cases required two, three or even four injections a day. With protamine insulin the injections may be reduced to one a day. The discovery of protamine insulin is responsible for the addition of two new chapters in this book and for much revision of the text. Protamine insulin is not perfect, and even more effective insulin compounds probably will follow in its train. It may be even hazardous to transfer a patient who has done especially well with regular insulin for years to protamine insulin, and it requires skill and patience on the part of the doctor and the patient. In long standing cases of severe diabetes the physician should insist on a period of three days' observation with regular insulin before starting protamine insulin. Dr. Joslin and his associates have treated more than 1,200 patients with protamine insulin, which he believes is the insulin for the general practitioner to use with the majority of his diabetic patients. Regular insulin, however, must always be available to supplement it in coma, infections and emergencies. Other excellent features of this monograph were mentioned in the review of the fifth edition in *THE JOURNAL*, April 11, 1936. Perhaps nowhere can one find in English more authoritative information about diabetes. The census reported 28,000 persons as having died from this disease in the United States in 1934. Diabetes has advanced in importance as a cause of death in the United States from twenty-seventh place in 1900 to ninth place in 1934, the diabetic death rate in the registration area of continental United States trebled in the twenty years 1880 to 1900 and doubled in the thirty years 1900 to 1930. A useful feature is chapter twenty-nine, on foods and their composition, in which are tabulated the composition of many foods with respect to the percentage of protein, fat and carbohydrate in them and the number of calories which they yield per hundred grams. There are chapters, of course, on the treatment of diabetes, on diets, on heart disease and diabetes, on pregnancy and diabetes, on diabetic coma, and on complications of diabetes in childhood.

The Glasgow Royal Maternity and Women's Hospital Medical Report for the Year 1935 Prepared by Malcolm D. Black M.B. Ch.B. F.R.C.P.S.G. Registrar to the Hospital Paper Pp 166 Glasgow Aldred & Coghlin Ltd 1936

A medical report of work done in an institution is almost impossible material for adequate review, one is so likely to fall into a critical attitude. This would be wholly unfair, since statistics must be thoroughly sifted and evaluated before comment is ventured on them. The hospital has 175 beds seventy-eight for antepartum cases, seventy-eight for lying-in cases and nineteen for "suspect" cases in an isolation block. Septic cases by arrangement, are transferred to the city fever hospitals. During the year, 4,477 patients were treated in the hospital, 423 per cent of whom had had some antepartum care, while the remainder had antepartum care elsewhere or were admitted as emergencies. Of the patients 3,067 were considered abnormal which was 68.5 per cent of all admissions. This high incidence of pathologic cases is contributed to by the

prevalence of rickets in the population served and by many other factors. In the hospital 3,306 babies were born, 2,863 of these were born alive while 443 (13.4 per cent) were stillborn. Eighty-one maternal deaths occurred in the hospital, giving a gross maternal death rate of 1.8 per cent. This gives an idea of the great number of abnormal cases (68.5 per cent) and of the severity of the complications encountered. A district service also is conducted by the hospital staff and 4,835 women were attended at childbirth in their own homes, 4,656 babies were born, 23 per cent of them stillborn. Two maternal deaths occurred at home, a maternal death rate of 0.04 per cent. Eleven women, first attended at home, subsequently died in the hospital, but their deaths were included in the hospital death rate.

This report is well worth a close and searching study from the standpoint of the pathologic conditions encountered, their treatment and the end results. Thus of 146 spinal anesthesias there were two deaths, six patients died who had chloroform anesthesia, with two deaths definitely attributed to the anesthetic. One patient died as a result of evipan and paraldehyde anesthesia. It is interesting too to note that of 233 cesarean sections done, 173 were classic, with five deaths, while in sixty cases the lower segment operation was done, with one death. Induction of labor was accomplished by artificial rupture of the membranes in ninety-six cases with six deaths, while a medical induction in 120 cases yielded five deaths. The operation of manual removal of the placenta was accompanied by a maternal mortality of 10 per cent. Naturally these figures must be dissected before conclusions are drawn regarding the dangers of the procedures mentioned. Blood transfusion was made available to ninety-two patients, and only two of these died from hemorrhage. The numerous and lengthy tables are well arranged and show a tremendous amount of painstaking effort in their compilation. Summaries of all fatal cases are included. These are interesting and instructive. In seventy-four of the eighty-one deaths that occurred the cause of death was ascertained by necropsy. The maternal and fetal mortality rates are total, no corrections were made. The emergency nature of a large portion of the service is indicated by the fact that 33 1/3 per cent of the maternal deaths occurred in the first twenty-four hours of hospital stay. In many of the admissions there had been untimely intervention on the outside. Many were brought from great distances, e.g., the Western Isles. In those patients who were considered to have had some antepartum care the death rate was 0.74 per cent, while of those who had no antepartum or inadequate care the death rate was 2.59 per cent.

The reader will find an obstetric lesson on every page. The report could serve as a model for other hospitals to follow.

The Digestive Tract: A Radiological Study of Its Anatomy, Physiology and Pathology By Alfred E. Barclay O.B.E. M.A. M.D. Honorary Radiologist to the Nuffield Institute for Medical Research Oxford Second edition Cloth Price \$12 Pp 427 with 296 illustrations New York Macmillan Company Cambridge University Press 1936

This is one of the most important books on the subject. It consists of three main parts accompanied by seven appendices. The first division deals mainly with general technique, emphasizing the use of a routine technique and the importance of a complete examination; moreover, it points out the radiologic risks and their avoidance by careful screening; it proves the necessity of protection and a safe equipment as well as a proper technique of palpation of the abdomen during the fluoroscopy. Different techniques of the radiologic examinations are mentioned. The author concludes the first part with a series of precepts for examination which he divides into "do's" and "don'ts". The second part is devoted to the radiographic examination of the "normal" gastro-intestinal tract; it is divided into anatomy and physiology. Barclay concludes that there is no absolutely normal alimentary tract "it may approximate to the average but there is no fixed standard of normality". He enumerates many factors that may be responsible for these deviations, the most important being respiration and posture. Here the author describes in detail how these factors influence the gastro-intestinal tract. Remarkable is his conception of the radiologic studies, which should always be a record of living anatomy, we are consequently not dealing

with definite and fixed relationships, as in descriptive anatomy, but with extremely changing points. For the same reason of extraordinary elasticity, fixed shape and fixed position of the viscera can most likely be denied. Fascinating are the thorough studies on the movement of the food throughout the entire alimentary tract, especially the experimental studies on the physiology of deglutition as well as the kymographic and cinematographic methods in establishing the knowledge of the gastric and colonic movements. The pathologic conditions of the alimentary tract are discussed and well illustrated in the third division. The essential roentgenologic symptoms are emphasized and the difficulties that may arise in the differential diagnosis are mentioned. The numerous illustrations are adequately reproduced. The chapter concludes with a detailed study of the gallbladder, the different modern techniques of cholecystography are given and the difficulties of interpretation of the roentgenograms are considered. Seven appendices discuss x-ray equipment, the quantity of rays used in diagnosis, the international recommendation for x-ray and radium protection as given by the Congress of Radiology in Zurich in 1934, and the photographic method of estimating exposure to x-rays. Barclay's own abundant experience, combined with his knowledge of previous and recent literature, makes the book valuable to every physician. It is not only instructive but it stimulates interest in various problems.

The Use of the Developing Egg in Virus Research. By F. M. Burnet. Medical Research Council Special Report Series No. 220. Paper. Price 1s. Pp. 58 with 6 illustrations. London: His Majesty's Stationery Office, 1936.

This report, prepared by Dr. F. M. Burnet, was issued by the Medical Research Council on the recommendation of its bacteriologic committee. It deals with a method that has been found useful in the study of human and animal diseases due to infection with filter-passing viruses and other infectious agents, including rickettsia and bacteria (Goodpasture, E. W., and Anderson, Katherine. *The Problem of Infection as Presented by Bacterial Invasion of the Chorio-Allantoic Membrane of Chick Embryos*, *Am. J. Path.* 13: 149 [March] 1937).

Because no filtrable virus has as yet been cultivated in a dead medium, methods for studying them must offer viable susceptible cells or a living host. Woodruff and Goodpasture in 1931 and Goodpasture, Woodruff and Buddingh in 1932 successfully infected the chorio-allantoic membrane of chick embryos with the viruses of fowlpox, vaccinia and herpes simplex and demonstrated that this living tissue provides a sterile medium in which viruses can be cultivated in the absence of contaminants. They also pointed out that the embryonic cells may be quite susceptible to certain viruses to which the newly hatched chick or adult fowl is entirely insusceptible. It was demonstrated also that the lesions induced in the membranes were quite analogous to those found in other hosts, cellular inclusions and general tissue responses being easily demonstrable and characteristic. Since these reports appeared, the membranes of the developing egg have been infected with a number of viruses by several investigators. Burnet lists fifteen viruses that have been reported thus far as successfully used to infect the membrane. The technic consists in incubating fertile hen's eggs for varying periods, usually from ten to fourteen days, then cutting a window through the shell with a silicon carbide disk attached to the chuck of a flexible shaft and operated by a small motor. The shell flap is removed with aseptic precautions, the inoculation made on the exposed membrane, and the opening covered either with a cover slip placed on a ring of petrolatum and paraffin or by replacing the shell and coating it with sterile paraffin. Burnet has introduced the modification of withdrawing the air from the air sac, through a small hole in the shell, thus enlarging, by displacing the contents, the field of operation. He finds that virus activity may be successfully titrated by placing on the membrane varying concentrations and counting the scattered focal lesions. Some viruses multiply best at temperatures lower than the optimum for incubating eggs. Practical applications of the method have been indicated by the use of this technic by Goodpasture and Buddingh and others in the preparation of vaccine for antismallpox prophylaxis. Burnet reports the cultivation of the virus of

human influenza on the membrane. A loss of virulence of one strain of influenza virus, with retention of immunizing power, suggests that experiments along these lines may lead to use of vaccines thus prepared to confer human immunity by intranasal administration. The method is adaptable to the demonstration of antiviral effect of immune serum and has led in this way to possible practical advantage in the poultry industry by the recognition of an attenuated, though immunizing, strain of the virus of laryngotracheitis. It is indicated that the method may have a great future importance, as its use increases, both in research work and in practical applications to prevention and treatment.

Clinical Allergy Due to Foods, Inhalants, Contactants, Fungi, Bacteria and Other Causes. Manifestations, Diagnosis and Treatment. By Albert H. Rowe, M. S., M. D. Lecturer in Medicine in the University of California Medical School, San Francisco. Cloth. Price, \$8.50. Pp. 812. Philadelphia: Lea & Febiger, 1937.

This book covers the entire field of clinical allergy, although particular attention is given to food allergy. The author has done pioneer work in the latter field. His widely known "elimination diets" are given here in detail for adults and children of various ages. In the many pages given to "elimination diets" there is such a variety that a fully balanced diet can be selected without difficulty. Special sections of the book are given to discussions of the wheat-free diet, the milk-free diet and the egg-free diet. Among his own patients suspected of food allergy, the author depends on "elimination diets" modified by definite skin reactions and history of food dislikes and disagreements. He believes that satisfactory skin reactions to all foods productive of clinical allergy are absent in from 60 to 70 per cent of the cases and yet he believes that skin testing with a complete number of foods and condiments is important. The numerous allergens that are used for skin testing are tabulated. The relative efficiency of the scratch test and the intradermal test is discussed. The place that the leukopenic index will finally take in the diagnosis of food allergy is not yet definitely decided. A considerable percentage of negative leukopenic index tests may be found in a group of persons who are allergic to certain foods. The author believes that the problems of food allergy can be solved as rapidly with diet trial, aided if desired by diet diaries, as with leukopenic indexes. There has been a remarkable advance in the knowledge of dermatoses arising from allergy. In the author's experience, practically all cases of urticaria and angioneurotic edema have arisen from allergic causes. The frequency of allergy as a cause of migraine is becoming more generally appreciated. Allergy as a possible cause of idiopathic epilepsy needs more definite consideration. In fact, all people are prone to evidence allergic disturbances at some time, particularly in the presence of a marked family history of allergy. Every physician, therefore, is confronted with allergic problems. Throughout the book, methods of diagnosis and treatment are emphasized. Chapter four has to do with the treatment of food allergy by elimination diets and general measures, and chapter seven is on allergic dermatoses. There are chapters on nasal allergy, ocular allergy, ingestant allergy, pollen allergy, gastro-intestinal allergy, bronchial asthma, allergic migraine and neuralgia, urogenital allergy, and on individual food and drug allergies and their control. There is a botanic classification of foods showing the relation of the groups into which they fall. Special sections are given to wheat allergy, tapoca allergy, egg allergy, milk allergy, allergy to fruits, allergy to vegetables, allergy to ductless gland products, allergy to fish, allergy to spices and condiments, allergy to cottonseed and allergy to drugs. In the appendix there are eighty-three individually reported histories of allergic cases and how they were treated. There are samples of the form for keeping a food diary and another for recording skin reactions. There are numerous recipes in the appendix showing how to prepare foods, for example, rice bread, rye bread, corn pone, salad, candies, preserves and beverages, as well as cereal-free foods. Finally there is an extensive bibliography, which occupies about eighty pages. The interesting subject of allergy is in the developmental stage. There is possibly a tendency at present to embrace a wider field than can be justified by the available knowledge.

Disease in Childhood A Clinical Study The First Year Birth to One Month One Month to Six Months Six Months to One Year By Robert S Frew MD FRCP Physician to the Hospital for Sick Children London Cloth Price \$11 Pp 669 with 89 illustrations New York & London Macmillan and Co Limited 1936

This is a unique volume Dr Frew is convinced that the most important factor in determining the characters that disease assumes in childhood is the age of the child, that although the causes of disease are constant through life, as the anatomy of the individual is constantly changing during childhood, the clinical signs manifest themselves differently at different ages. This is particularly marked during the first year, the period discussed in this volume. Some diseases are confined solely to this period, others display changes even in this short interval, while others have not yet made their appearance. He believes that this method of studying disease in childhood will produce a great advance in our knowledge of children's ailments. The author states that the facts on which the study is based are drawn with few exceptions from cases under his own care. He has analyzed 8,823 consecutive cases seen in the outpatient department and used a large number of other cases seen in the outpatient department, in the wards and in private practice. He has also utilized the results in nearly a thousand necropsies on children performed by himself, besides using the postmortem records of the Hospital for Sick Children Great Ormond Street. Consequently the "personal equation" is unusually pronounced throughout the text and discussion.

The volume, although confined to the first year of life is further subdivided into the sections given in the title, which necessitates considerable repetition. There are many charts, diagrams and tables but comparatively few illustrations. At the end of each age division is a table showing the comparative frequency of the various conditions at this age period. The extensive index is so arranged that each condition discussed can be referred to according to the age period. The bibliography is scanty, as most of the material and observations are the result of the author's personal study.

Because this volume represents a novel method of writing about diseases and conditions of infancy, and because it contains largely a prominent English pediatrician's personal point of view, many of the theories and conclusions are open to considerable discussion and disagreement. For example, much emphasis is placed on the coined term "hyperphlebaemia," meaning an excessive quantity of blood forced into the intracorporeal venous system during birth, before it is ready to receive it. Many of the disturbances of the new-born period are attributed directly or indirectly to this condition, certainly a question.

The Nutritive Value of Indian Foods and the Planning of Satisfactory Diets Health Bulletin No 23 Boards Price 2 Annas 3d Pp 48 Coonoor Nutrition Research Laboratories 1937

This little bulletin should be of interest to those seeking information about the nutritive value of Indian foods and should be of value as a practical guide for nutrition workers in India. It includes a brief summary of the dietary standards of the League of Nations as adapted to the native population of India, and tables which present the average composition of more than 200 common foods grown chiefly in the Coimbatore district. The list also includes some European vegetables grown in Coonoor at an elevation of 6,000 feet. The data reported include moisture, protein, fat, ash, fiber, carbohydrate, calcium, phosphorus, iron, calories and vitamins A, B₁, B₂ and C. The figures for the vitamins were obtained by spectrographic analysis for carotene and by titration for vitamin C, animal assay for vitamin B₂, and reports in the literature for vitamin B₁. The calcium and phosphorus values for different kinds of milk apparently were obtained from Sherman's tables, although no mention is made of this. Some of the food values reported are so different from the values reported elsewhere that one wonders if they are in error. It is doubtful, for example, that oatmeal contains 325 international units of vitamin B₁ per hundred grams. Figures obtained elsewhere would lead one to expect about 65 or 70 units. The reported value for the vitamin A (carotene) content of whole wheat likewise appears to be somewhat high. The maximum carotene content of spinach

grown in India appears to be about one tenth of the values obtained in the United States. Vegetable foods vary considerably in composition, yet these differences are so great that they deserve to be investigated further. The director of the Nutrition Research Laboratories at Coonoor is Dr W R Aykroyd, a well known nutrition expert, so it is likely that additional studies will be made.

Examinations and Their Substitutes in the United States By I L Kandel MA PhD Professor of Education and Associate in the International Institute Teachers College Columbia University With a preface by Walter A Jessup President of The Foundation Bulletin Number Twenty Eight Paper Gratts Pp 183 New York The Carnegie Foundation for the Advancement of Teaching 1936

By grants from the Carnegie Corporation to and through the Carnegie Foundation for the Advancement of Teaching, and under the direction of Dr Paul Monroe international conferences on examinations were held in England in 1931 and 1935. One of the results was the conclusion that because of varying educational and social conditions the problem could be best studied by investigations in each country. Dr Kandel's report presents a summary of the inquiry in the United States.

The volume is divided into four chapters, the first of which outlines the problem and its social setting. The second chapter traces the background of the traditional examination, its development, its operation, its advantages and disadvantages, together with a critical analysis of grading. The third chapter outlines the scientific attack on examinations as to selection and distribution in education, purposes, experiments with new type tests, state wide and nation wide examinations, and various comprehensive studies of determinative methods. The fourth chapter integrates education, examinations and the individual, pointing to the social needs and requirements that should serve as a guide to educational efforts. An appendix gives an account of the international conferences.

Well organized, well written and well printed, this volume deals principally with secondary and collegiate education. The historical background of college and entrance examinations is well covered. The evidence with regard to types of examinations is adequately surveyed. New type tests are favored, but without complete condemnation of the traditional forms. The report is modern in tone and adapted to what are believed to be changing social conditions. It is of importance to teachers and administrators in professional schools because many of the problems of collegiate education are also those of the graduate schools. The interpretation of the principles common to the two is predicated largely on a difference in emphasis of various features and their differential weightings. Of considerable interest to those who deal with admission of students to schools of medicine is the value attached to the cumulative records of individuals throughout common and secondary schools, to which for professional school purposes a similar record of collegiate work might well be attached. The analysis and application of these records deserve serious consideration.

Many of the facts disclosed by the study can well be applied to the professional schools, but it might be well if a similar inquiry was directed toward graduate education, especially in medicine because of the availability of material. The volume is distributed by the foundation and is recommended to those in schools of medicine who take seriously their duties as examiners as well as their responsibilities as teachers.

Les hépatonéphrites Par Maurice Derot et Renée Dérot Picquet Préface du Dr Pasteur Valléry Radot Paper Price 25 francs Pp 100 Paris J B Baillière et fils 1936

The hepatorenal syndrome is a constellation of clinical manifestations caused by a toxic or infectious agent acting simultaneously on the liver and the kidney. The authors state that there is no single causative factor and that no uniform anatomic basis exists for this syndrome except coincidental involvement of the two organs. The individual signs and symptoms of this purely clinical concept are then discussed in some detail. The syndrome consists essentially of jaundice, enlargement of the liver, albuminuria and retention of uric acid in the blood. Various additional features may be present, such as hemorrhages, nervous phenomena and, less often, generalized edema or hemolytic changes. The syndrome, being due to any one of a large variety of causes, has a variable prognosis and treatment is directed to the cause as well as to the more important

presenting signs or symptoms. Although it is doubtful whether a conception of a disease entity can endure unless it is based on some common etiologic factor rather than on mere grouping of clinical manifestations, the lucid manner in which the authors' thesis is presented, as well as the subject matter, should prove of great interest to those who wish to familiarize themselves with points of view distinctly different from those current in our country.

Handbook of Orthopaedic Surgery By Alfred Rives Shands Jr. B.A. M.D. Associate Professor of Surgery in Charge of Orthopaedic Surgery Duke University School of Medicine Durham North Carolina. In collaboration with Richard Beverly Raney B.A. M.D. Instructor in Orthopaedic Surgery Duke University School of Medicine. Cloth Price \$5 Pp 593 with 169 illustrations. St. Louis C.V. Mosby Company 1937.

The teacher of orthopedic surgery has long felt the need of a textbook that would present the subject in a form which could be read and understood by the student whose background is incomplete and whose future plans probably do not include an attempt to specialize in orthopedic surgery. Shands has prepared such a book. The text is easy to read and the illustrations consist entirely of artist's drawings, most of which are diagrammatic enough to show at a single glance diagnostic methods and technique. The arrangement of the twenty-four chapters of the book makes it easy to divide the subjects into a logical sequence for class lectures. Emphasis has been correctly placed on pathogenesis and diagnosis, although in a few instances more is said about specialized types of treatment than would seem to be necessary. In a text designed primarily to teach students orthopedic principles details of surgical technique could well have been omitted. Nevertheless, this is the best textbook of orthopedic surgery now available and sells for a price that the average student can afford. It is wholeheartedly recommended for the medical student, the orthopedic nurse and the general practitioner.

An American Doctor's Odyssey By Victor Heiser M.D. Cloth Price \$3.50 Pp 544 New York W.W. Norton & Co. 1936.

To review a volume which has already sold almost 200,000 copies is what the writers of rubber type remarks would call a work of supererogation. In this volume Dr. Heiser has been able to dramatize successfully the great campaign against epidemics of infectious disease in which, as a representative of the International Health Board, he has been a leader for many years. With the fine sense of the dramatic, a delicate sense of humor and a simplicity and sincerity of expression which are unique among writers in the health field, he has been able to attract great numbers of readers. No doubt much of the attractiveness of the book lies in the fact that the first person is used throughout, so that we feel ourselves part of the remarkable adventures that are depicted and thereby journey vicariously with Dr. Heiser into the far places of this world. The geniality, the judgment and the philosophy of its author come to life in this volume, which will well repay the time that any reader may give to it.

Die bioelektrischen Erscheinungen der Hirnrindenefelder mit allgemeinen Ergebnissen zur Physiologie und Pathophysiologie des zentralnervösen Griseum Von A. E. Kornmüller Kaiser Wilhelm Institut für Hirnforschung Berlin Buch Boards Price 7.80 marks Pp 118 with 33 illustrations Leipzig Georg Thieme 1937.

This important and scholarly monograph deals with the fluctuating electrical currents that can be registered with suitable apparatus when terminals (either silver wires or porous boot-electrodes) are applied to the brains of animals under local anesthesia. Many of the illustrations are specimens of curves so obtained from monkeys and cats. Human encephalograms also are discussed, the Berger rhythm seen when electrodes are applied to the intact skin either occipitofrontally or bitemporally, is discussed on page 79. In particular the author studied the cytoarchitectonics of the cerebral cortex as related to the wave forms obtained from various regions. Thus area 17 of the occipital lobe gives action currents in response to visual stimuli, but if one shifts the electrode beyond the boundary of this cytologically homogeneous region into an adjacent but different region, say area 18 the currents change. The difficult question of cerebral localization is taken up in the final chapter. The bibliography includes recent American work.

Light Therapy By Frank Hammond Krusen M.D. Associate Professor of Physical Medicine The Mayo Foundation University of Minnesota. Second edition. Cloth Price \$3.50 Pp 238 with 42 illustrations New York Paul B. Hoeber, Inc., 1937.

In this edition every chapter has been enlarged, there are new illustrations and many new references appear, more than doubling the number of those in the first edition. There is an increase of nineteen pages in the chapter on the physiology of light and a total of fifty-two new pages. The volume covers the entire field of light therapy, including infra red radiation. It quotes freely many authoritative statements, among which are those of the Council on Physical Therapy of the American Medical Association. The broad and painstaking work of that body, of which the author himself is a member, has done much to place light therapy on a sound basis during the past few years. In view of this fact the introductory sentence of the author's conclusions, "light therapy is still in a chaotic stage, retained from the first edition, does not appear quite warranted any more. The typography of the book is also markedly improved. Krusen's monograph is a useful and safe volume which should be in the possession of all medical men interested in light therapy.

Die "atypische" Pneumonie Eine klinisch röntgenologische und differentialdiagnostische Studie zugleich ein Beitrag zur Frage der "Grippe" und des Frühinfiltrats Von Dr. med. Frank Kellner Facharzt für Lungenkrankheiten leitender Arzt der Tuberkulosefürsorgestelle Kassel Sonder Band VI Immunität Allergie und Infektionskrankheiten. Praktische Ergebnisse der wissenschaftlichen Forschung und klinischen Erfahrung Herausgegeben von Rudolf Degkwitz et al. Paper Price 2.70 marks Pp 52 with 5 illustrations Munich Verlag der Ärztlichen Rundschau Otto Gmelin 1936.

This little volume comes as part of an irregularly appearing monograph series on immunology, allergy and the infectious diseases. Under "atypical" pneumonia the author reviews German roentgenologic literature on the pulmonary shadows frequently mistaken for tuberculous infiltration. He observed seventy cases located in various parts of the lung fields, only twenty-three cases involved the apexes. In thirty-two cases with lesions the shadows disappeared in two months. The clinical course and radiology of these cases and their relation to grip and to tuberculosis is discussed. He erroneously accepts the finding of tubercle bacilli as a decisive criterion in excluding pneumonia. The newer American work on radiography of the chest and the bacteriology of pneumonias has been entirely overlooked. Readers of current American medical journals will find no new point of view.

An Introduction to Pharmacology and Therapeutics By J. A. Cannon M.A. M.D. D.Sc. Professor of Pharmacology and Director of the Nuffield Institute for Medical Research University of Oxford. Fifth edition revised to accord with the British Pharmacopoeia 1932 and the United States Pharmacopoeia 1936. Cloth Price \$1.75 Pp 240 New York & London Oxford University Press 1936.

This little book, which bears a quotation from Oliver Goldsmith on its fly leaf, "Were angels to write books they would never write folios," must be a godsend to a student who is reviewing this subject for examination. It achieves brevity by selection and arrangement rather than by compression. The author aims to give the student who is beginning the study of pharmacology a readable short account of the scope and matter of the subject without making it a mere catalogue of facts. The author says "I can hardly hope that its sphere of usefulness will compensate for the time I spent in its compilation." We sincerely hope that it will.

Le varici Dal Dott. Demetrio Giorgacopulo 1. Auto chirurgo ospedal Regina Elena di Trieste Paper Price 25 lire Pp 131 with 13 illustrations Bologna Licio Cappelli 1936.

This short monograph on the injection treatment of varicose veins is the first of its kind in the Italian language. This is all the more amazing, as Schiassi has been one of the pioneers of the injection treatment combined with multiple ligation. The author discusses the anatomy, physiology and pathology of varicose veins and describes the history, indications, technique of complications, results and failures of the method. He lists all the known sclerosing solutions with the exception of the oleate, but does not seem to profess any special choice. The volume does not contain any information that could not be obtained from the several monographs in the English language. The illustrations are poor and not original.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Life Insurance Misrepresentation that Voids a Policy, "Attended by a Physician" Construed—In her application to the defendant insurance company for a policy of life insurance, the insured represented that she had never had cancer, had not been attended by a physician, and had not had any treatment within the preceding five years at any dispensary, hospital or sanatorium. Within a little less than one year after the date of her application she died of a cancer of the uterus. The plaintiff, the beneficiary under the policy, sued the insurance company to recover the benefits stated in it. The company denied liability, charging that the insured in her application for insurance made false and fraudulent representations concerning her health and the attendance of physicians. From a judgment in favor of the beneficiary, the insurance company appealed to the St. Louis court of appeals, Missouri.

The application for insurance was in two parts: part A dated April 7, 1931, and part B, dated April 15, 1931. On the day following the execution of part A of the application, the applicant went to a hospital. On the same day she was examined by a physician, who made a provisional diagnosis of cancer of the uterus. Her condition, he said, might have been due to something other than cancer. He did not tell the applicant at any time that she was suffering from cancer, and when he first examined her, April 8, she appeared to be in very good health. He made another examination on May 1. The insured entered the hospital on May 4 and a diagnosis of cancer was confirmed on the following day.

It may not be said as a matter of law under the evidence in this case, said the court of appeals, that the representation of the insured that she was not suffering with cancer was fraudulently made. The evidence does not show that she knew, either before or after the making of her application, that she was suffering from cancer. On the contrary, the testimony shows that she was purposely kept in ignorance of it. Even if it may be said as a matter of law that she was suffering from cancer at the time of making her application, it cannot be said as a matter of law that she knew that that was the case. The court could not agree with the insurance company that a misrepresentation made in an application defeated recovery under it, even though the representation was innocently made. The rule in the state of Missouri, said the court, is that where material representations made in an application for a policy of life insurance are warranted to be true, or the policy is conditioned on the truth of the representations or provides that the falsity of the representations shall void the policy, then the representations, if in fact untrue, will void the insurance though the representations were innocently made. But where there is no such warranty or provision in the policy, a misrepresentation, in order to void the insurance, must have been fraudulently made.

The defendant insurance company contended that the representations of the insured that she had not been attended by a physician and had not had any treatment in a hospital within the preceding five years were necessarily fraudulent. The representations of the insured, however, that she had not had any treatment in a hospital within the five years preceding her application for insurance was not untrue, said the court, for the evidence shows that she received no treatment "until long after the making of the application and the issuance of the policy." Nor was the representation of the insured that she had not been attended by a physician necessarily untrue or fraudulent. Questions answered in an application for insurance prepared and submitted by the insurer are always strictly construed against the insurer. To have been "attended by a physician," within that term as used in an application, there must have been an attendance with reference to some disease or ailment of a serious character, affecting the person's sound bodily health, and not in relation to a mere temporary indisposition or an ailment trivial in its nature. If, therefore, the insured was not in fact suffering

from cancer, the representation that she had not been "attended by a physician" was not untrue within the meaning of the term as used in the application. But if she was in fact suffering from cancer, it does not necessarily follow that the representation was fraudulent, for, if she was suffering from cancer, she did not know it, the fact being purposely kept from her. We do not believe, said the court of appeals, that under such circumstances she may be convicted of fraud as a matter of law for assuming that her ailment was not of a serious character but was merely temporary or trivial in its nature.

It is true that the application in this case contains a clause to the effect that the statements in the application shall form the basis of a contract of insurance. Notwithstanding this fact, however, under the express provision of the policy itself, the statements, in the absence of fraud, must be deemed representations and not warranties. So treating them, they are ineffectual to void the policy unless fraudulently made.

Accordingly, the St. Louis court of appeals reversed and remanded the case with directions that a new judgment be entered in favor of the plaintiff conditional on his remitting the assessment for attorneys' fees—*Houston v Metropolitan Life Ins Co (Mo)*, 97 S W (2d) 856.

Autopsies Liability for Performance of Autopsy on Illegal Order of Justice of Peace—Love instituted proceedings under the Texas workmen's compensation act for compensation for an injury allegedly suffered in the course of his employment. During the pendency of the proceedings he died. A claim adjuster for the insurer of Love's employer procured from a justice of the peace an order for an autopsy on Love's body. An autopsy was then performed by the county health officer, assisted by another physician, each of whom was paid \$50 by the insurance company. They furnished the company a copy of the report of the autopsy, which it filed in the compensation proceedings and thus defeated the claim for compensation. Love was not married. His parents were dead. He had lived with his brothers and sisters, but they were not notified that an autopsy was to be performed. They therefore sued the insurance company for damages for having caused an autopsy to be performed on the body of their brother without their consent. The trial court directed a verdict in favor of the insurance company and the plaintiffs appealed to the court of civil appeals of Texas, Beaumont.

The defendant insurance company insisted that the directed verdict in its favor was proper inasmuch as the autopsy was performed by the county health officer on the order of the justice of the peace, who, the insurance company contended, was authorized by statute to order it. Article 968, Code Criminal Procedure, 1925, however, the court pointed out, provides, in effect, that a justice of the peace may hold an inquest when a person dies in prison or is killed or from any cause dies an unnatural death otherwise than under sentence of law and when the body of a human being is found and the circumstances of death are such as to lead to suspicion that he came to his death by unlawful means. Article 970, Code Criminal Procedure, authorizes a justice of the peace, when an inquest is held, to order if he deems it necessary, that the county health officer perform an autopsy to determine whether the death was occasioned by violence and, if so, its nature and character. It is obvious, said the court, that the statutes just cited apply only to securing evidence for the suppression and prosecution of crime. There is, however, not a hint that the autopsy in this case was sought or held for the purpose of detecting a crime, it was sought by the insurance company for the sole purpose of defeating a claim against it for civil damages. The statutes do not authorize an autopsy for any such purpose. The justice was without any authority to order the autopsy, and to perform one under the undisputed facts disclosed by the record was unlawful. The brothers and sisters of the deceased were under a duty to preserve his body and provide for its burial. For that purpose the law gave them the right to possession of the body. Any interference with that right by mutilating or otherwise disturbing the body, without their consent, was an actionable wrong. It was therefore error for the trial court to direct a verdict against them.

The insurance company next insisted that even if the autopsy was unlawfully performed, it was procured by their local claim adjuster, outside the scope of his employment and not by virtue of any authority from the company, either express or implied, and that therefore the company was not liable. It clearly appears, answered the court of civil appeals, that the claim agent in procuring the autopsy was acting as the fully authorized agent of the insurance company, within the scope of his employment and in the exercise of the discretion given him in the investigation of and approval or rejection of claims against his company. But if he was not, still the insurance company is liable, because after the autopsy had been done it approved the acts of its claim agent, paid the physicians for performing the autopsy, and accepted the benefits by receiving the report of the autopsy from the physicians and filing a copy with the industrial accident board, which resulted in the dismissal of Love's claim.

The court of civil appeals accordingly reversed the judgment of the trial court and remanded the case for a trial on its merits—*Love v Aetna Casualty and Surety Co (Texas)*, 99 S W (2d) 646

Malpractice Physician Not Liable for Results of Original Injury—In instructing a jury with respect to the amount of damages to be awarded a patient for the alleged malpractice of a physician in treating a dislocated shoulder, a trial court errs in failing to distinguish between injuries and sufferings resulting from the accident causing the dislocation of the shoulder and those resulting from the failure of the physician to exercise due care in the subsequent treatment. Instructions permitting the jury to consider as an element of damages all the injuries suffered by the patient and to award compensation for all loss and suffering endured by the patient, whether caused by the accident or by the physician's alleged negligence, are erroneous. If the patient is entitled to recover anything, he is entitled to recover compensation only for those injuries which proximately result from the physician's negligent treatment—*Payne v Stanton (N C)*, 188 S E 629

Workmen's Compensation Acts Trauma in Relation to Sarcoma of Spine—In 1926 O'Brien fractured several of his ribs. In September 1934, in the course of his employment with the Salt Lake City Federal Emergency Relief Administration, he fell and injured his left hip, sustaining an incomplete fracture of the left acetabulum. He seemed to be recovering from the injury until, about four months after the accident, he began to suffer pain in his back. Roentgenograms at this time indicated that he had sustained at some previous time a slight compression fracture of his seventh thoracic vertebra. The roentgenologist, while not certain, believed that the fracture was older than the fracture of his acetabulum. In March 1935 an exploratory operation disclosed a sarcoma of the spinal column. O'Brien died about one month later. After an autopsy, a pathologic diagnosis was made "Endothelioma (Ewing's tumor) of the bodies of the lumbar vertebra with metastasis of the regional lymph nodes and pleurae of both lungs. Marked edema of the spinal cord with suppuration." The claimant, O'Brien's widow, instituted proceedings under the workmen's compensation act for compensation in addition to that paid up until O'Brien's death. From an order of the industrial commission denying compensation, she appealed to the Supreme Court of Utah.

The Supreme Court could not agree with the claimant's contention that the order of the commission should be set aside because the medical testimony showed that the trauma probably had caused the tumor. The medical testimony showed that O'Brien's death had been caused by the tumor, but beyond that, as viewed most liberally in favor of the claimant, it indicated only that it was probable that the tumor had resulted from trauma. It is not for this court, said the Supreme Court, to reverse the finding of the commission on the theory that testimony showing probability is so conclusive as to require a finding that the tumor was caused by the accident. If there is evidence both in favor of and against a proposition, it is a matter of weighing evidence which is the prerogative of the commission and not of a court.

Accordingly, the Supreme Court concluded that the commission had not acted unreasonably, arbitrarily or capriciously in finding against the claimant, and so it affirmed the order of the commission denying compensation—*O'Brien v Industrial Commission et al (Utah)* 61 P (2d) 418

Workmen's Compensation Acts Chronic Arsenic Poisoning an Occupational Disease, Not an Accident—The claimant was employed by a canner during the canning seasons, from 1929 until November 1934. She peeled pears and apples, and in doing so her hands were frequently in water and became softened. In November 1934 she noticed an aching pain in her left hand and observed a reddish rash on three of the fingers of that hand. The condition became worse, necessitating surgical treatment, the nature of which does not appear in the record. It was known that a residue of an arsenic spray remained on many of the apples and pears peeled by the claimant. Each year she and many of her fellow employees suffered from a similar eruption. To her knowledge, she had never had a break in her skin or a cut of any kind. Eventually, she applied for compensation to the industrial accident commission of Oregon, but the commission denied her claim. Thereupon she appealed to the circuit court, Multnomah County, and from the judgment of that court affirming the commission's decision she finally appealed to the Supreme Court of Oregon.

The expert medical witnesses agreed that the claimant's condition was due to her employment and they referred to her condition as an "occupational disease" or an "occupational rash." There was medical testimony also to the effect that, in the absence of a visible cut or break in the skin, the poison on the fruit could enter the claimant's system through a minute break in the skin or penetrate the skin through the hair follicles. The Supreme Court held that the claimant had not sustained a personal injury by accident arising out of and in the course of her employment and caused by violent or external means, within the meaning of the workmen's compensation act. Nothing unusual, said the court, had happened in the canning of the fruit. The claimant and her co-workers intentionally handled the sprayed fruit and placed their hands in the water. They knew the nature of the spray on the fruit. The court concluded that the claimant was not entitled to compensation, because she had sustained only an "occupational disease," and an occupational disease is not compensable under the workmen's compensation act of Oregon.

Accordingly, the Supreme Court affirmed the judgment of the circuit court upholding the award of the commission denying compensation—*Ryan v State Industrial Accident Commission (Ore)*, 61 P (2d) 426

Society Proceedings

COMING MEETINGS

- American Association of Obstetricians Gynecologists and Abdominal Surgeons Hot Springs Va Sept 20-22 Dr James R Bloss 418
- Eleventh St Huntington W Va Secretary
- American Association of Railway Surgeons Chicago Sept 20-22 Dr Daniel B Moss 547 W Jackson Blvd Chicago Secretary
- American Hospital Association Atlantic City N J Sept 13-18 Dr Bert W Caldwell 18 East Division St Chicago Executive Secretary
- American Roentgen Ray Society Chicago Sept 13-17 Dr Eugene P Pendergrass 3400 Spruce St Philadelphia Secretary
- Colorado State Medical Society Colorado Springs Sept 22-25 Mr Harvey T Selman 537 Republic Building Denver Executive Secretary
- Idaho State Medical Association Boise Aug 30 Sept 3 Dr Harold W Stone 105 North Eighth St Boise Secretary
- Kentucky State Medical Association Richmond Sept 13-16 Dr A T McCormack 532 West Main St Louisville Secretary
- National Medical Association St Louis Aug 15-20 Dr John T Givens 1108 Church St Norfolk Va General Secretary
- Nevada State Medical Association Ely Sept 24-25 Dr Horace J Brown 120 N Virginia St Reno Secretary
- Northern Minnesota Medical Association Virginia Aug 27-28 Dr J F Norman Crookston Secretary
- Radiological Society of North America Chicago Sept 13-17 Dr Donald S Childs 607 Medical Arts Building Syracuse N Y Secretary
- Utah State Medical Association Salt Lake City Sept 2-4 Dr F M McHugh 17 Exchange Place Salt Lake City Secretary
- Wisconsin State Medical Society of Milwaukee Sept. 14-17 Mr J G Crownhart 119 East Washington Ave Madison Secretary

Current Medical Literature

AMERICAN

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American Journal of Medical Sciences, Philadelphia

193 737 884 (June) 1937

- Blood Cholesterol Response to Intravenous Therapy in Peripheral Arterial Disease H G Jacob New York—p 737
Hematologic Picture of Chronic Ulcerative Colitis Its Relation to Prognosis and Treatment R O Garvin Pittsburgh and J A Bergen Rochester Minn—p 744
*Further Observations on Parenteral Liver Extract Therapy in Pneumonia J A Wilson and W C Carey with technical assistance of Florence Hafner Meriden Conn—p 752
*Use of p Aminobenzenesulfonamide in Type 3 Pneumococcus Pneumonia J H L Heintzelman P B Hadley and R R Mellon Pittsburgh—p 759
Spontaneous Hemopneumothorax Report of Three Cases with Review of Literature H U Hopkins Philadelphia—p 763
Oil of Wintergreen (Methyl Salicylate) Poisoning Report of Three Cases One with Autopsy and Review of Literature C S Stevenson Baltimore—p 772
Clinical Significance of Serum Proteins in Hepatic Diseases Compared with Other Liver Function Tests H Tumen and H L Bockus Philadelphia—p 788
Further Experience in Diagnosis of Hyperparathyroidism Including a Discussion of Cases with Minimal Degree of Hyperparathyroidism F Albright H W Sulkowitch and Esther Bloomberg Boston—p 800
Adrenal Cortical Adenoma with Absence of Opposite Adrenal Report of Case with Operation and Autopsy F D W Lukens H F Flippin and F M Thigpen Philadelphia—p 812
*Effect of Splanchnic Nerve Resection on Patients Suffering from Hypertension I H Page and G J Heuer New York—p 820

Parenteral Liver Extract Therapy in Pneumonia—Wilson and Carey have treated thirty cases of pneumonia with parenteral liver extract. These included eight cases of streptococcal pneumonia and one of staphylococcal, in the remainder the pneumococcus was most frequently found to be the causative organism. Five of the thirty patients died. All had pneumonia with a leukopenia or falling leukocyte count, three had pneumonia occurring in the course of a streptococcal septicemia, and two of these were the only patients to receive serum. They were given polyvalent antistreptococcus serum intravenously. No antipneumococcus serum was used. A leukocyte count of more than 15,000 was present in only eight cases at the beginning of treatment, the rest were below 15,000. The rationale of the use of parenteral liver extract therapy is as follows: parenteral liver extract stimulates leukocytosis, in some pneumonias the blood picture is characterized by a relative leukopenia or a falling white blood count, these cases offer a more unfavorable prognosis, therefore, parenteral liver extract given in these cases should stimulate leukocytosis and as a secondary effect improve the clinical picture and progress. The concentrated liver extract was injected intramuscularly in varying amounts, depending on the severity of the infection and the leukopenia developing during the course of the disease. The injections were made deep into the muscles of the buttock and deltoid regions. The average amount was 6 cc a day. A majority of the patients were kept in oxygen tents as long as dyspnea and cyanosis were present. Expectorants, such as ammonium chloride, were given. Morphine and codeine were given for severe pleural pains. An effort was made to keep the fluid intake between 3,000 and 4,000 cc daily. Liquid and soft diet were given in small amounts frequently. Whisky was prescribed in small amounts for elderly persons. No purgatives were allowed. If constipation became marked saline enemas were given. There was an approximate increase in leukocyte count of 70 per cent and the range was from 6 to 239 per cent. After an injection of concentrated liver extract the leukocyte count gradually rises for seven hours and then gradually falls. All but six patients responded by an increase in leukocyte count. There was a daily drop in the white blood count until liver extract treatment was started. Several patients

showed a marked increase in urinary output the day after parenteral liver extract was given. Pain occurs at the site of the injection, but this is moderate and of short duration.

Sulfanilamide in Type 3 Pneumococcus Pneumonia—Heintzelman and his associates discuss nineteen cases of type 3 pneumonia, nine of which were treated with sulfanilamide and ten with no special form of treatment. These cases occurred from September to March inclusive and the majority were under observation during January. Treatment consisted of the oral administration of sulfanilamide, augmented in a few cases by intramuscular injections of prontosil. Owing to the late arrival in the hospital of some of the patients, the first administration of sulfanilamide was sometimes considerably delayed. There was a general similarity between the two groups, although predisposing factors, complications, age and the like were somewhat more favorable to the treated group. Seven of the nine patients recovered and two died. In the other group of ten patients two recovered and eight died. In a group of thirty-three cases in the Pittsburgh area, but not under the authors' direct observation, nine patients recovered and twenty-four died. The mortality rate for all patients not treated with sulfanilamide was 74 per cent, that for the treated patients 22 per cent. Despite the fact that the number of treated type 3 cases is small and that the treated group was somewhat favored by the factors of age incidence and by the absence of significant complicating features, the nature of the difference in relative mortality in the treated and untreated groups appears to justify continued use of sulfanilamide in the treatment of type 3 pneumonia until a sufficient number of cases have been accumulated to justify a final judgment as to the efficacy of this mode of therapy.

Effect of Splanchnic Nerve Resection on Hypertension—Page and Heuer performed splanchnic nerve resection with interruption of the thoracic sympathetic chain on nine patients. Six were cases of essential hypertension varying in severity from mild to severe and ages ranged from 25 to 48 years, one patient, aged 25, suffered from early malignant hypertension and two, aged 18 and 25, from severe malignant hypertension. Splanchnic nerve resection was well borne in all cases, and there have been no complications or fatalities. The patients have not been harmed by the operation. The reduction in arterial pressure which occurred following operation was marked but within six months it had returned to the preoperative level in all patients. Subjective improvement consisting of lessening in frequency and severity of headaches, ease of fatigue, nervousness, tenseness and irritability occurred in six of the patients with essential hypertension, but in three improvement lasted less than a year. Improvement in those with malignant hypertension was transient. In one case of essential hypertension and two cases of malignant hypertension papilledema disappeared but in the latter cases reappeared within several months. Reduction in intensity of the constriction in the retinal arterioles occurred in all the cases except one of malignant hypertension, demonstrating that arteriolar relaxation occurs in regions other than those denervated. In most of the cases, constriction has returned after several months.

American Journal of Surgery, New York

36 603 792 (June) 1937

- Mammographic Recognition of Intracystic Papilloma of Breast N F Hicken R R Best and J P Tollman Omaha—p 611
Lynch's Simplification of Perineal Excision of Rectum Preliminary Report J M Lynch and G J Hamilton New York—p 618
Simple Technique for Cecostomy R W McNealy and M E Lichtenstein Chicago—p 620
Shock Study of Partially Available Modern Literature of Shock L M Boyers Berkeley Calif—p 623
Rupture of Bladder and Urethra G F Cahill New York—p 653
Subacute Perforations of Peptic Ulcers A M Dickinson Albany N Y—p 663
Intraoral Gastrostomy A L Sorensen New York—p 668
*Use of Pitressin for Control and Relief of Distention W D Frazier Philadelphia—p 672
Valvular Fractures of Lower End of Humerus A R Shands Jr, Durham N C—p 679
Pulmonary Embolism General Surgical Aspects and Measures for Prevention Based on Review of Literature A Bowen Los Angeles—p 694

Pitressin for Control and Relief of Distention—In summing up the status of the clinical use of pituitary preparations for distention Frazier finds that there is no unanimity

of opinion as to their value. No explanation has been offered for the marked variations in their effectiveness. This, of course, includes the period prior and subsequent to the isolation of the vasopressor fraction of the posterior lobe. Before its isolation, extracts from the whole lobe were used and there is adequate explanation for the lack of uniformity of effect of these preparations, in the proved antagonistic action of the two fractions. Since that time, however, only the pressor fraction has been employed. While British and German authors continue to report satisfactory results, American surgeons have not only ceased to use the substance except occasionally but condemn its use in cases in which the distention is associated with peritoneal infection. The reason for this is not obvious unless it implies that there is some essential difference between the commercial preparations here and abroad. In an effort to determine the value of pitressin in postoperative abdominal distention and its associated symptoms, the substance was administered to ninety-four patients. The amount given subcutaneously varied from 0.5 to 1 cc every four hours for as long as ninety-six hours. Only three patients suffered reactions following the injection of pitressin. These were characterized by intense pallor, headache, shallow respirations and a rapid thready pulse. All were transient, lasting from ten minutes to one hour, and the patients recovered spontaneously without the administration of any stimulants. Blood pressure readings were determined on the majority of these patients just before and shortly after one or more injections. There was no marked rise or fall in either systolic or diastolic pressure. Pitressin has proved a valuable agent in the prevention and relief of abdominal distention due to adynamic ileus resulting from operative trauma and peritoneal infection. Reactions are few, mild and transient and associated with no danger to the patient. Its use is recommended in combating this distressing postoperative symptom.

American Review of Tuberculosis, New York

35 713 844 (June) 1937

- Cardiac Failure Secondary to Chronic Pulmonary Tuberculosis. Necropsic and Clinical Study. G. Nemet and M. B. Rosenblatt. New York—p. 713.
- Cardiogenic Theory of Pulmonary Emphysema. New Theory. E. Korol. Lincoln, Neb.—p. 730.
- Comparative Ventricular White Blood Counts in Normal Guinea Pigs. M. Dworski. Saranac Lake, N. Y.—p. 740.
- Comparative Ventricular White Blood Counts in Experimental Primary Tuberculosis in Guinea Pigs. M. Dworski and A. B. Delahant. Saranac Lake, N. Y.—p. 753.
- Erythrocyte Sedimentation Reaction in Chronic Pulmonary Disease. A. B. Robins. New York—p. 763.
- *Blood Changes Following Continuous Daily Administration of Vitamin C and Orange Juice to Tuberculous Patients. Molly Radford, E. de Savitsch and H. C. Sweany. Chicago—p. 784.
- Calcified Lesions of Primary Tuberculosis in Intestine in Adults. H. W. Ferris. New York—p. 794.
- Superimposed Spontaneous Pneumothorax Complicating Treatment of Pulmonary Tuberculosis. J. A. McCloskey. Denver—p. 805.
- Isolation of Pathogenic Bacteria from the Air. Dissertation in Bacteriology. R. Pressman—p. 815.

Blood Changes in Tuberculous Patients Following Vitamin C and Orange Juice.—Radford and her colleagues hoped to enhance the resistance of tuberculous patients by giving them a superabundance of vitamin C. They selected 111 tuberculous patients with far advanced and generally fibroid tuberculosis, under sanatorium care. These patients received no other therapy than routine rest. They were matched up in sets of three patients each which were as nearly comparable as possible, one was used as a control, one received 500 cc. of orange juice daily and the third received 250 mg of vitamin C in its pure crystalline form. This was given in a synthetically prepared orange juice. The control group received only the synthetic orange juice. The original group could not be kept intact throughout, hence the results actually reported are for a period of three months in eighty-five cases, six months in seventy-one and nine months in fifty-six. At the end of the first three months of the experiment, of the cases treated with crystalline vitamin C and those treated with orange juice a definitely greater percentage showed a favorable course as judged by red blood cell count, hemoglobin, lymphocytes, monocyte-lymphocyte ratio and neutrophil-lymphocyte ratio, than did the controls. Also the albumin-globulin ratio appeared more favorable in the treated groups. At the end of six months of daily treatment there was still a marked improvement in

the blood cells as well as in hemoglobin between the treated groups and the controls. After nine months the two treated groups still show better percentages than the controls in red cell counts, and they compare favorably in respect to sedimentation rates and blood fibrinogen at this time. The orange treated group still shows a greater percentage of improvement in the neutrophil-lymphocyte and monocyte-lymphocyte ratios than do the controls, and the vitamin-treated group persists in showing a definitely better percentage of improvement in hemoglobin. The other changes have become quite negative. The improvement in the hemoglobin and red cell figures indicates a possible hematonic effect that merits further investigation. The system adopted offers a means of conducting a clinical experiment in tuberculosis that eliminates the personal factor as much as possible and reduces the results to a virtually numerical basis.

Anatomical Record, Philadelphia

6S 133 260 (May) 1937

- Effect of Continued Theelin Injections on Body Growth and Organ Weights of Young Female Rats. C. B. Freudenberg and F. W. Clausen. Salt Lake City—p. 103.
- Structure of Nephron in Sculpin *Myoxocephalus octodecemspinosus*. A. L. Grafflin. Boston—p. 145.
- Two Reconstructions Explaining Development of Veins of Liver. J. L. Bremer. Boston—p. 165.
- Changes in Alimentary Canal of Urodele Larvae Associated with Excess or Absence of Hypophyseal Tissue. N. D. Schofield and R. F. Bloom. Minneapolis—p. 169.
- Development of Pars Intestinalis of Common Bile Duct in Human Fetus with Especial Reference to Origin of Ampulla of Vater and Sphincter of Oddi. III. Composition of Musculus Proprius. R. A. Schwepker, Jr. and E. A. Boyden. Minneapolis—p. 193.
- Two Simple Nomographs for Estimating Age and Some of Major External Dimensions of Human Fetus. R. E. Scammon. Minneapolis—p. 221.
- Comparison of Some of Methods Used in Studies of Hematopoietic Tissues. A. Kirschbaum and H. Downey. Minneapolis—p. 227.
- Comparative Action of Injections of Estrin and Combination of Estrin and Anterior Pituitary like Substance on Anterior Hypophysis. J. M. Wolfe—p. 237.
- Failure of Thyroidectomy to Influence Follicular Components of Immature Rat Ovary. Olive L. Leonard and S. L. Leonard. Schenectady, N. Y.—p. 249.
- Relation of Lymphoid Nodules to Blood Production in Bone Marrow of Turkey. H. E. Jordan. Charlottesville, Va.—p. 253.

Annals of Internal Medicine, Lancaster, Pa

10 1617 1738 (May) 1937

- Problems of Endemic Goiter. F. von Mueller. Munich, Germany—p. 1617.
- Bloody Pleural Fluid: an Unusual Complication of Cirrhosis of Liver. H. A. Christian. Boston—p. 1621.
- Growing Importance of Cardiac Neurosis. P. D. White and R. E. Glendy. Boston—p. 1624.
- Aortic Stenosis with Especial Reference to Angina Pectoris and Syncope. A. W. Contratto and S. A. Levine. Boston—p. 1636.
- Chlorosis. I. Olef. Boston—p. 1654.
- Lifespan of Erythrocytes. L. Lichtwitz. New York—p. 1664.
- The Minneapolis Giant. H. Gray. San Francisco—p. 1669.
- Organic Disease Obscured by Neurotic Behavior. M. C. Borman. Milwaukee—p. 1683.
- Relation of Erythema Nodosum and Rheumatic Fever. Critical Survey. H. Keil. New York—p. 1686.
- *Relation of Fungus Infection of Grain Crops to Vasomotor Disturbances in Man. J. E. Klein. Chicago—p. 1708.

Fungus Infection of Grain and Vasomotor Disturbances in Man.—Klein suggests that the ingestion of foods subject to fungus infection over a period of years may produce a chronic intoxication by the contained ergot alkaloids and amines, which may be the cause of certain vasomotor disturbances such as acrodynia, Buerger's disease, erythromelalgia, Raynaud's disease and acroparesthesia. It seems advisable that serious attention be given to the problem of reducing these fungus infections of the common cereals by modern chemical treatment of infected seed and by improved milling methods. Plant pathology is of considerable significance in relation to human health and should be systematically studied from this point of view. The author studied the effect of ergotamine tartrate on six white rats. A solution of 25 mg of ergotamine tartrate was injected subcutaneously twice a week for two months. The drug was also administered daily in the drinking water in the proportion of 0.001 Gm to 8 ounces (240 cc) of water. Early in the experiment there was noted a pronounced cyanosis of the tip of the tail in the six experimental rats. A dry gangrene of the tail developed in two rats after the first month. The experimental animals seemed quieter than the four controls. One, however, developed symptoms of excitation rat

about the cage made unusual noises and acted in a strange manner. After two months all the animals were chloroformed and examined post mortem. No noteworthy abnormalities were found on gross examination. On microscopic examination the arteries of the tails of the experimental rats were found to be markedly constricted, so that almost no lumen was apparent. No inflammatory changes were observed. The various theories proposed at present for the explanation of acrodynia do not seem to be satisfying or conclusive. In view of the conflicting theories on the etiology of acrodynia, the theory that it is due to grain fungus intoxication is brought up for consideration on the basis of clinical and experimental data.

Archives of Dermatology and Syphilology, Chicago

35 1011 1212 (June) 1937

- Trombidiosis (Infestation with Chiggers) H J Parkhurst Toledo Ohio—p 1011
Cutaneous Tuberculosis Its Relation to Immune Allergic State F Blumenthal Ann Arbor Mich—p 1037
Psoriasis Statistical Study of 231 Cases C G Lane and G M Crawford Boston—p 1051
Persistent Sinus Tracts of Dental Origin N P Anderson Los Angeles—p 1062
LXXXVIII Effect on Leukocytes of Therapy with Gold Preparation R S Weiss C W Lane and J W Bagby St Louis—p 1074
*Investigation of Fungous Flora of Apparently Normal Skins J G Downing R N Nye and S M Cousins Boston—p 1087
Studies in Psoriasis I Lipid Partition and Albumin Globulin Ratio in 130 Cases II Effect of Administration of Cholesterol (Tolerance Test) on Lipid Partition and Albumin Globulin Ratio I Rosen H Rosenfeld and Frances Krasnow New York—p 1093
Rapidity with Which Spirochaeta Pallida Invades Blood Stream G W Raiziss and Marie Severac Philadelphia—p 1101
Unusual Case of Cutaneous Tuberculosis W H Gordon Fort Stanton N M—p 1110
Burrow of Acarus Scabiei R Friedman Philadelphia—p 1116
Manganese Therapy for Psoriasis E L Oliver and G M Crawford Boston—p 1120
Neurobio is Lipodica Diabeticorum H E Michelson and C W Laymon Minneapolis—p 1150

The Fungous Flora of Apparently Normal Skins—Downing and his co-workers studied 300 scrapings from the skin of fifty male and fifty female patients whose skin appeared to be perfectly normal. The scrapings were taken from the skin from behind the ears, from the corners of the mouth and from between the third fourth and fifth toes. Twenty-two filamentous fungi two of which were pathogenic to man, were isolated from the 300 scrapings. Scrapings from the toes were most productive, yielding twelve fungi, while those from the corners of the mouth produced six and those from the ears only four. The age and race of the patients, the disease and the length of time the patients had been in the hospital had no apparent correlations with the fungi cultured from their skin. Of the fungi obtained, twenty are known only as saprophytes or plant parasites, there is no evidence indicating that their occurrence on the skin was due to anything more than a chance contamination. Two of the fungi, *Epidermophyton floccosum* and *Trichophyton mentagrophytes*, both obtained from toes, were morphologically identical with the two species commonly obtained from lesions of epidermophytosis of the toes. Of the sixteen yeastlike fungi identified, all were potentially saprophytic. The bacterial flora was studied in twenty consecutive cases. The bacterial observations were not remarkable except for the fact that *Staphylococcus aureus* and beta hemolytic streptococci were never recovered from the blood agar plates. From scrapings from the corners of the mouth *Staphylococcus albus* was present in all cultures and was usually predominant. *Streptococcus viridans* was present in nearly all cultures but was rarely predominant. Gram negative cocci were present in three cultures, gamma type streptococci and *Staphylococcus citreus* were each observed in one culture. *Staphylococcus albus* was present in all cultures from scrapings from behind the ears being usually observed in pure culture and being always predominant. *Staphylococcus citreus* was present in four cultures, and gram positive bacilli *Streptococcus viridans* and diphtheroids were each observed in one culture. From scrapings from the toes *Staphylococcus albus* was present in all cultures, being usually observed in pure culture and being always predominant. Gram-positive bacilli were present in four, *Staphylococcus citreus* in three *staphylococci* with gray colonies in two and *Streptococcus viridans* in one.

Archives of Neurology and Psychiatry, Chicago

37 1237 1468 (June) 1937

- Role of Cerebellum in Postural Contractions H W Magoun W K Hare and S W Ranson Chicago—p 1237
Agnesia of Corpus Callosum Its Recognition by Ventriculography O R Hyndman Iowa City and W Penfield Montreal—p 1251
*Reduction of Postencephalographic Symptoms by Inhalation of 95 per Cent Oxygen R S Schwab J Fine and W J Mixer Boston—p 1271
Anomalous Commisures of Third Ventricle (Aherrant Dorsal Supra Optic Decussation) Report of Eight Cases A R Vonderahe Cincinnati—p 1283
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*Evidences of Vascular Occlusion in Multiple Sclerosis and Encephalomyelitis T J Putnam Boston—p 1298
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Marie's Ataxia (Olivopontocerebellar Atrophy) Clinical and Pathologic Considerations G B Has in Chicago—p 1371
Vibration Sense L J Pollock Chicago—p 1383

Reduction of Postencephalographic Symptoms—By combining a modified continuous flow apparatus with the technic of Davidoff and Dyke, Schwab and his associates were able to reduce appreciably the reactions in thirty consecutive post-encephalographic cases. The inhalation of 95 per cent oxygen for three hours was followed by a prompt removal of most of the subarachnoid air during the three hours the patient was in the machine. Of the three hour encephalograms all fourteen showed satisfactory reductions in the air. The air does not return, as shown by the encephalograms taken fifteen hours later. The disappearance of the subarachnoid air was complete in twelve of the fourteen cases and nearly so in two. The procedure resulted in no pulmonary complications. The reactions were reduced in most cases. In eight of the cases reactions were minimal and were unusually short for encephalography. If small amounts of air or oxygen are used—from 30 to 50 cc—in the encephalogram the benefits of the technic are of doubtful value. Lumbar punctures made after the use of the oxygen machine showed a less cellular reaction than when it was not used. The use of solution of posterior pituitary hastens the return of cerebrospinal fluid and reduces the headache. The authors failed to use it in four cases, and the encephalograms showed the same reduction of the air, but the clinical improvement was less noticeable.

Vascular Occlusion in Multiple Sclerosis—By the use of a refined technic, Putnam demonstrated the existence of thrombi in various stages in cases of "encephalomyelitis" and multiple sclerosis. The frequent occurrence of vascular engorgement and perivascular hemorrhages in acute lesions and of vascular obliteration in chronic lesions is confirmed. Previous studies, experimental and pathologic, have indicated that vascular changes such as those observed are adequate to cause the alterations in the parenchyma characteristic of the two diseases. Thrombi also are occasionally to be found in organs other than the nervous system in cases of multiple sclerosis. The primary abnormality is to be sought probably in the clotting mechanism of the blood.

Arch of Physical Therapy, X-Ray, Radium, Chicago

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Arkansas Medical Society Journal, Fort Smith

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California and Western Medicine, San Francisco

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Colorado Medicine, Denver

34 369 440 (June) 1937

- *Hypothyroidism Without Myxedema J W White Pueblo—p 382
 Hypothyroidism P J Connor and F J Maier Denver—p 385
 New Methods in Treatment of Pneumonia J Zarit Denver—p 389
 Endoscopy An Aid in Diagnosis E B Swerdfeger Denver—p 395

Hypothyroidism Without Myxedema—White collected ninety cases in which the basal metabolism rate was below minus 10 up to minus 42.5 without myxedema. The patients, all female, ranged in age from 14 to 68 years. The most common reasons for their seeking medical care were because they "just felt bad," having marked fatigue, nervousness or general aches and pains. Some miscellaneous complaints included sleepiness, palpitation, dyspnea, choking sensation, stomach trouble, gain in weight, sterility, excessive menstruation and amenorrhea. The fatigue of which the patients complained was out of proportion to their activity. Physical examinations were essentially negative. Seventy-nine of the patients were treated with desiccated thyroid. Of these, sixty-four were considered improved in that the nervousness and excessive fatigue disappeared, seven showed improvement and in eight there was no improvement. Of these eight, one improved on thyroxine. One improved after the addition of thelin to the treatment. Two patients treated with desiccated thyroid and compound solution of iodine improved. One treated only with compound solution of iodine showed improvement. The history is the most important factor in making a diagnosis of hypothyroidism without myxedema. The lowered basal metabolic rate was the only positive sign in most cases that otherwise seemed to be quite normal to the usual physical examination. Regardless of whether the thyroid is primarily or secondarily at fault, thyroid medication is efficacious in relieving the symptoms in the majority. The symptoms in some patients returned when thyroid medication was stopped. Some have been able to discontinue thyroid, and it is possible that a rearrangement of the endocrine balance has taken place as a result of the temporary support given a weakened thyroid by the administration of thyroid by mouth. The author feels that it is of the greatest importance to the gynecologists to recognize a hypothyroid condition because it may be a large factor in various forms of functional disturbances of menstruation. It is of importance to the obstetrician at all times. It may be the cause of sterility, and often it is the cause of spontaneous abortion and stillbirths. In considering sterility one must not forget that the male also may be hypothyroid. It is important to recognize hypothyroidism during pregnancy as a factor in controlling the weight of the mother, and also since babies of hypothyroid mothers have a tendency to be larger than those of normal mothers. Children born of a hypothyroid mother may have hypothyroidism. Following birth of a child, a hypothyroid condition may be a most important factor in delaying the return of normal strength.

Georgia Medical Association Journal, Atlanta

26 211 254 (June) 1937

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Journal Industrial Hygiene & Toxicology, Baltimore

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- The Problem of the Fate of Mercury Fumes and Mercurial Compounds in the Organism I Gelman and G Derviz Moscow U S S R—p 215
 Pneumoconiosis in South Wales Coal Miners and Its Relation to Tuberculosis P K Sen Cardiff Wales—p 225
 *Ill Effects of Heat on Workmen J H Talbott D B Dill H T Edwards, E H Stumme and W V Consolazio Boston—p 238

Ill Effects of Heat on Workmen—Talbott and his co-workers examined the fifty-nine workmen who were admitted to the hospital for study during a period of ten weeks. All the men were employed by one of the steel companies in Youngstown, Ohio, and presumably stopped work because of the ill effects of heat. The clinical entities associated with exposure to high temperatures are thought to be heat cramps, heat prostration and heat pyrexia. The heat cramps syndrome was divided into three degrees of severity, myalgia and abdominal cramps are differentially discussed. The age incidence of the various groups was similar. Three fifths of the men included in the study had been idle one or more days before the onset of symptoms. Therefore it appears that idleness, either voluntary or enforced, increases susceptibility to the ill effects of heat. The changes in the concentration of constituents of the body fluids in patients with heat cramps were characteristic of a depletion of body water and sodium chloride. The blood showed an increased concentration of hemoglobin and protein and a diminished concentration of sodium and chloride. The concentration of chloride in urine samples obtained on admission was diminished. During convalescence there was a gain in body weight and a restoration of the disordered equilibrium. The pathogenesis of heat prostration is thought to be peripheral circulatory collapse, and the pathogenesis of heat pyrexia a failure of the heat regulating mechanism. The treatment and prevention of heat cramps involve a replacement of the salt and water lost as sweat during working hours. It is possible that certain other disorders due to heat may be prevented by salting drinking water.

Journal of Infectious Diseases, Chicago

60 257 382 (May-June) 1937

- Relation of Blood Group Specific Substance A to Type Specific Carbohydrate of Pneumococcus Type I H Sobotka E Witekisky E Aeter and Eleanor S Schwarz New York—p 257
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 Viability of Coli Aerogenes Organisms in Culture and in Various Environments L W Parr Washington D C—p 291
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 *Potency of Typhoid and Paratyphoid Vaccines When Freshly Prepared and After Storage Lucy Mishulow Isabelle Mowry and Anne A Stocker New York—p 356
 Relation of Hemotoxin Production to Metabolic Activities of Staphylococci Josephine McBroom Chicago—p 364
 Experiments on Active and Passive Immunity in Guinea Pigs Against Haemophilus Pertussis J A Toomey and W S Takacs Cleveland—p 370
 Bovine Mastitis in Relation to Milk Borne Epidemics D J Davis Chicago—p 374

Fresh and Stored Typhoid Vaccines—In view of the difference of opinion, Mishulow and her co-workers again investigated the potency of vaccines after storage for a period of several years. They selected typhoid and paratyphoid A and B vaccines, since laboratory animals respond readily to immunization with them. The vaccines were prepared and tested individually for agglutinin stimulation in rabbits and for protection against virulent cultures in mice. These vaccines were tested when freshly prepared and at intervals after storage for from two and one-half to three years at 8 to 10°C. Rabbits were given three intravenous injections of typhoid vaccine with a total of one-half the human prophylactic dose. The rabbits were bled one week after the last injection of the vaccine and their serums were tested for agglutinins with the corresponding

antigen There was considerable variation in the individual response of the rabbits in each series tested, but at the end of two and one-half years of storage there was no demonstrable deterioration in the ability of the vaccine to stimulate agglutinins in rabbits There was no difference in the length of time the agglutinins persisted in rabbits that were immunized with the freshly prepared vaccines or after they were stored for one year Weekly rather than daily injections gave better agglutinin response Mice were given one intraperitoneal injection of typhoid and paratyphoid B vaccines respectively These vaccines were freshly prepared or stored for intervals of from one and one-half to three years Ten days later some of the mice in each series (one series received 500 million and the other fifty million bacteria of the vaccine) were tested with five, and an equal number with two fatal doses of the corresponding virulent cultures The same amount of protection was obtained with vaccines that were stored for from one and one-half to three years as with freshly prepared vaccines The amount of protection in most instances corresponded directly to the size of the immunizing dose

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Minnesota Medicine, St Paul
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Regional Ileitis O A Olson Minneapolis—p 367
Mesenteric Lymphadenitis Study of Sixty Cases R E McKechnie 2d and J T Priestley, Rochester—p 370
Insulin in Treatment of Schizophrenia J R Meade St Paul—p 373
Insulin Shock in Treatment of Schizophrenia F Whitmore St Paul—p 375
Diathermic Treatment in Peripheral Arterial Insufficiency G S Reynolds Ab Gwah Chung—p 379
Prognostic Value of Cold Test in Pregnancy J F Briggs and H Oerting St Paul—p 382

Prognostic Value of Cold Test in Pregnancy—Briggs and Oerting carried out the cold stimulus test on 233 consecutive patients entering the antepartum clinic From the family history it was found that ten patients had both a maternal and a paternal hypertensive background In these cases the existence of parental hypertension was corroborated by clinical examination Forty-four patients gave histories wherein one or the other parent suffered from hypertension It was in this group that cardiac and cerebral accidents were assumed to be of hypertensive origin In no instance was there any influence of the length of pregnancy on the cold test response The series was grouped according to their family history of hypertension In the group without familial hypertension only two patients were found to give an exaggerated response In those instances in which one or the other parent was hypertensive, twenty-one were normal reactors, ten were hyporeactors and thirteen were hyperreactors Of ten patients who gave a familial history of hypertension in both parents, all gave a hyperreactor response At the end of delivery only two individuals in the normal reactor group were found to be toxemic The toxemia in these instances was due to an underlying chronic glomerulonephritis No individual in the hyporeactor group gave evidence of toxemia that could be related to essential hypertension The hyperreactors in the group wherein no

familial history of hypertension was obtained showed no evidence of toxemia at the end of pregnancy Of the thirteen hyperreactors giving a history of hypertension in one or the other parent, ten had normal blood pressures when delivered The remaining three came to term with elevated blood pressures and one with signs of toxemia In the group in which both parents suffered from hypertension, all the patients were hyperreactors and nine of the ten patients showed definite alterations from normal at the end of gestation

Public Health Reports, Washington, D C
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Hirschsprung's Disease Indications for and Results Obtained by Sympathectomy A W Adson Rochester Minn—p 859
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General Pattern and Location of Small Intestinal Coils R W Morse Minneapolis and A W Naslund St Paul—p 886
Fundamental Considerations in Operative Treatment of Advanced Intestinal Obstruction with Especial Reference to Management of Cases Complicated by Gangrene of Intestine W D Gatch Indianapolis—p 896
Hernia as an Etiologic Factor in Acute Intestinal Obstruction J H Morris and V S Johnson New York—p 903
Incipient Volvulus of Cecum Associated with Left Sided Colon Report of Case with New V Ray Sign Obtained by Barium Enema E R Easton New York and J E Adams Oak Park Ill—p 920
*Pancreatic Juice as Factor in Etiology of Gallbladder Disease J A Wolfer Chicago—p 928
Equal Division and Distribution of Diet and Insulin in Treating the Diabetic with Surgical Complications and Acute Infections G G Duncan F Fetter Philadelphia and J Durkin Bryn Mawr Pa—p 939
Perforation of Gallbladder Analysis of Forty Six Cases R L Sanders Memphis Tenn—p 949

Pancreatic Juice as Factor in Etiology of Gallbladder Disease—Wolfer believes that embryologic and anatomic evidence indicates that it is possible, in the human being, for a continuous pathway to exist between the pancreatic and biliary systems in a considerable proportion of cases Since the secretory pressure of the pancreas is greater than that of the biliary system, in the presence of obstruction at the papilla, it is possible for pancreatic secretions to mix with bile in the common duct There are many clinical examples proving the fact that the pancreatic juice may enter the gallbladder and that, associated with this phenomenon, necrosis of the gallbladder with or without a biliary peritonitis may exist Experimental evidence clearly indicates that the pancreatic juice may affect the walls of the gallbladder under variable conditions and produce different types of changes Under normal conditions the bile passes through the ducts to be emptied into the duodenum, some entering the gallbladder to be concentrated and later to be expelled into the common duct The pancreatic juice may enter the duodenum by a direct passage or may fuse with the bile in the ampulla Without stasis and with normal anatomic and physiologic mechanisms, even though the duct bile may be mixed with pancreatic juice, no pathologic changes take place in the biliary passages With low grade stasis, if the pancreatic juice content is low and no bacterial contamination is present, no changes may occur in the wall of the gallbladder If, however, the pancreatic juice content is higher, the stasis prolonged and possibly a low grade bacterial contamination present, changes may occur as described by Andrews, Goff and Hrdina When the concentration of pancreatic enzymes in the gallbladder bile is high, the pathologic changes produced will depend on complete or incomplete activation of the pancreatic enzymes in greater or lesser dilution in contact for short or long periods, sufficient time and concentration being necessary for necrosis The cause of selected cases of acute necrosis and acute gangrenous cholecystitis and also cases of chronic cholecystitis with or without stone can be found in a reflux of pancreatic juice into the gallbladder

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

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Evolution of Casualty Clearing Station on Western Front R C Clarke—p 1

Enlarged Prostate from Point of View of Practitioner and Surgeon C F Walters—p 21

Therapeutic Value of Altitude B Hudson—p 35

Role of Central Nervous System in Disease Recent Experimental Work in the U S S R F Bodman—p 41

British Medical Journal, London

1 1009 1056 (May 15) 1937

*Value of Specific Serum in Treatment of Typhoid Fever Report on Seventy Three Cases H Cookson and R V Facey—p 1009

Observations on Benzedrine E Guttman and W Sargent—p 1013

Technic in Operations on Knee Joint E I Lloyd—p 1015

Treatment of Some Errors of Metabolism at British Spas G L K Pringle—p 1017

Postscarlatinal Nephritis Study in Prevention B A Peters and Iris M Cullum—p 1020

Carcinoma of Breast with Widespread Metastases Two Cases of Recovery W B Prowse—p 1021

Specific Serum in Treatment of Typhoid—Cookson and Facey administered Felix's antityphoid serum to seventy-three of 500 typhoid patients, the result of a milk-borne infection in a local outbreak in 1936. With a few exceptions the patients receiving the serum were the more severely affected ones. The majority received serum late in the course of the disease, in a considerable proportion of the cases the average dosage of 47 cc was too low and in a few simultaneous blood transfusion or intravenous saline infusion made it difficult to assess the results. These were considered in relation to effects on temperature and toxemia separately. The authors considered as an arbitrary standard the lowering of a previously high constant temperature within forty-eight hours of the injection of serum, the fall continuing for at least seven days. Effects on toxemia were accepted only when well marked and if evident within forty-eight hours. There was a favorable action on toxemia in fifty-four of the seventy-three cases. In a further eight cases improvement was noted within two to seven days after treatment. Seven of the serum treated patients died. A serum rash was observed in twenty-two of the seventy-three cases. A severe anaphylactic reaction was observed in only one. For sporadic cases or small outbreaks, when proper control is not possible, the evidence so far available warrants the administration of serum at the earliest possible moment and in full doses, irrespective of the severity of the disease. The Lister Institute recommends three doses of 33 cc of the concentrated serum for adult patients.

Edinburgh Medical Journal

44 285 364 (May) 1937

Clinical Recollections and Reflections XIII Acute Otitis Media and Mastoiditis Indications for Operation I S Hall—p 298

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Tuberculosis in Cattle with Especial Reference to Congenital Tuberculosis in Calves A Goston—p 333

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*Diabetes and Tuberculosis D M Dunlop—p 351

44 365 432 (June) 1937

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XIV Certain Problems of Urinary Infection in Practice J R Learmonth—p 385

Fungus Infection of Hands and Feet G H Percival—p 401

Technic of Tissue Culture A J Rhodes—p 410

Studies on Carbohydrate Metabolism in Nervous and Mental Disorders III Disturbance of Glucose Tolerance Test Caused by Hypnotics in Clinical Doses H Tod—p 416

Diabetes and Tuberculosis—Dunlop suggests that the liability of patients having severe diabetes to develop tuberculosis should be constantly kept in mind. The possibility of this complication having occurred should always be suspected and excluded when for no obvious reason, a previously controlled diabetic patient begins to require larger doses of insulin to lose weight and to fail in general health. The danger is particularly present in patients who have suffered from hyperglycemic coma and in diabetic children. Such cases should be

examined at intervals for the specific purpose of excluding tuberculosis, young diabetic patients should be particularly excluded from association with open cases of tuberculosis. With early diagnosis of the tuberculosis and efficient treatment of the diabetes there is no reason to believe that diabetes will have an adverse effect on the tuberculous process. A high caloric, high fat, low carbohydrate diet with sufficient insulin should be used, and, if the case is otherwise suitable, artificial pneumothorax should be induced under sanatorium conditions whenever possible.

Glasgow Medical Journal

9 205 252 (May) 1937

History of Angina Pectoris H Rolleston—p 205

Medical Journal of Australia, Sydney

1 611 646 (April 24) 1937

Study of Myelination and How It Helps in Understanding Influence of Stimulus on Development of Nervous System D W H Arnott—p 611

*Emotional Factors in Health and Disease C Swanton—p 615

Emotions and Functional Disorders of Viscera H M North—p 621

Cerebellar Function in Man J I Hayward—p 625

Emotional Factors in Health and Disease—Swanton suggests that the medical profession in general widen its outlook in the recognition of the significance of emotional factors in the incidence of both health and disease, that is, that there is a dual etiology. For a wider diagnosis one must make some effort to realize more clearly the colossal implications of the struggle in each individual between primitive human instinct and the claims of civilization. Often the physical side is the only important one from the point of view of diagnosis and treatment. Sometimes too the psychologic aspect is the obvious one to attack, the emotional maladjustment being too obvious to ignore, but in between these there is a vast range of conditions in which the diagnosis is vague, and ordinary treatment or treatment on purely physical lines is unsuccessful but for some reason the word neurosis is never mentioned. To be a little more specific, the profession has been very much concerned in the past with the seeds of ill health and but little with the soil. The author does not wish to suggest a psychologic explanation or causation for all illness but simply to issue a plea for the recognition of patients as psychosomatic unities and for the recognition of the multiple etiology of illness. The emotional lives of patients are as worthy of investigation and examination as their physical bodies. Every medical man should have sufficient knowledge of psychophysical interactions to help his patients from both points of view. He needs to know only a little of the general effects of emotional tension and to recognize those cases in which this tension exists. Fortunately a great many practitioners do this very completely without calling it psychology, but it would be a great help to the general public if the field of diagnosis were widened and new forms of treatment correspondingly devised. The profession might then aspire to take away some of the flourishing business of the herbalist, the faith healer and other irregular practitioners who occasionally disturb its peace. For undoubtedly these people often give to patients something which they do not get from their physicians—a crude attempt at a wider diagnosis and general human understanding.

Chinese Medical Journal, Peiping

51 445 580 (April) 1937

Erythrocyte Sedimentation Test Correction for Variations in Cell Volume Applied to Graphic Method with Observations on Its Use in Tuberculosis B H Y Tang—p 445

Journal of Oriental Med, Dairen, S Manchuria

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Hygienic Problems of Water in Manchuria VI Standard of Purity to Be Applied to Well Water in Manchuria Part II T Kodama S Suzuki and M Takeyoshi—p 54

Investigation of Avitaminose A in Standardized Diet Organization C Kobayashi and S Y Li—p 59

Influence of Sympathectomy in Uppermost Thoracic Region on Alveolar Ventilation in Thoracic Cavity Part II K Mori—p 61

New Anthelmintic Raigan in Teniasis S Ryo—p 62

Journal de Medecine de Lyon

18 283 312 (May 20) 1937

*Dactylitis from Pushing Back the Periungual Tissue J Nicolas and J Rousset—p 283

Varicose Eczema A Cutaneous Syndrome Misnamed Favre—p 289 Syphilis and Gravidity J Gate—p 293

*Skin Manifestations in Leukemia J Gate and P Cuilleret—p 299 Antiveneal Treatment in Prisons of Lyons J Lacassagne—p 303

Dactylitis from Pushing Back the Periungual Tissue

—Nicolas and Rousset observed lesions of the ungual matrix which are often caused by misunderstood manicure treatment and by dirty instruments. It often so happens that, after the infection of one finger, other fingers likewise become infected. At its base the epidermic fold that covers the nail is raised and gaping, it is reddened and oozes continually. It is more prevalent in women and may last for months or even years. Through manipulation with pushing and cutting instruments which are rarely cleansed after using an infection invades the superficial wounds and finds a favorable place for thriving and the formation of excrescences. When nail polish is then added it may increase or subdue the infection, depending on its contaminating or disinfecting ingredients. In accordance with the intensity of the inflammatory process and the depth of the lesions, the authors distinguish three clinical forms. 1 The purely inflammatory form, occurring in one or many fingers, assumes the shape of a periungual paronychia with redness, swelling, tension and thinning of the skin. 2 The suppurated form presents a degree of infection higher than the preceding and is essentially a paronychia of the periungual region or of the ungual matrix. It is also of longer duration and often causes complications. 3 The mixed form presents both preceding forms on different fingers. The treatment is directed against the pain and the inflammation with warm baths and moist dressings, while the patient is instructed to cleanse the wounds from two to three times a day with ether followed by a 1 per cent mercuric oxide ointment. A daily application of 2 per cent iodized alcohol will seep into the deep lesions. Excrescences should be cauterized or coagulated and in some cases the extraction of the nail may prove necessary. The practice of aseptic prophylaxis is advocated.

Skin Manifestations in Leukemia—Gate and Cuilleret describe three cases of lymphomatosis in which the cutaneous manifestations may obscure the clinical picture. The first is a case of typical leukemic erythrodermia which in the beginning looked like a psoriatic parakeratosis and later like a premycotic erythema. But the enlarged inguinal and axillary glands and the enormously increased leukocytes pointed to leukemic erythrodermia. The second case was characteristic of leukemic erythrodermia with general pruritus, scratch wounds and pyogenic dermatitis. But what mostly confused the picture were a number of hard nodules, especially on the forearms, which proved, microscopically, to be as many leukemic tumors. Lymphoid nests round the vessels clinched the diagnosis. The third case presented itself as a changeable dermatosis. It began with fever, enlarged spleen, micropolyadenopathy, slight lymphocytosis and cutaneous mucous lesions and gradually changed into an eczematous dermatitis. A biopsy revealed the peribuccal vegetations to be a simple papillomatosis which resisted all medication. Subicterus, loss of appetite, enlarged liver and spleen together with a general adenopathy completed the syndrome. The intention of the authors is to show that in spite of the atypical clinical picture the lesional polymorphism may lead to the notion of an obscure leukemia.

Presse Medicale, Paris

45 745 760 (May 19) 1937

*Localization of Nervous Accidents Resulting from Insufflation of Therapeutic Pneumothorax G Poix and A Jacquet—p 745 Compared Experimental Toxicity of Some Antistreptococcus Substances B N Halpern and R L Mayer—p 747

Accidents Resulting from Therapeutic Pneumothorax

—Poix and Jacquet maintain that accidents from air emboli can happen only when the lungs are wounded and the blood vessels are invaded by the liquid or the air injected. Patients who died after pleuropulmonary interventions showed gas bubbles in the cerebral arterioles which were similar to those in animals that received a few cubic centimeters of air into their vessels. The authors therefore reject the theory of the

pleural reflex and accept that of air embolism. Over the right side of the heart there could be heard for some time an intense continuous gurgling sound accentuated during systole. These sounds gradually disappeared or became modified according to the patient's posture. In 1875 Couty showed the reason why the air accumulates in the right ventricle, others have demonstrated that from there the gas bubbles invade the lung capillaries and, returning to the left ventricle, may give rise to cerebral emboli. The authors have further observed that convulsions or paralyzes are situated mostly at the side opposite to the insufflation. This may be due to the topographic localization of the branches issuing from the aortic arch in accordance with the posture assumed by the patient at the time of the insufflation. With the patient in the ventral posture the gas embolus follows the posterior aspect of the arch and passes into the brachiocephalic trunk. This occurs also when the patient lies on his left side. Paralysis and convulsions develop on the left side. With the patient in the dorsal or ventral posture it is again the left side on which the accidents are mostly localized. In left pneumothorax and the patient in the right-sided posture the embolus enters the left common carotid artery and gives rise to right-sided accidents. If a left or right pneumothorax is insufflated below the clavicle or through the interscapulovertebral region with the patient in either dorsal or ventral posture, the embolus will invade the brachiocephalic trunk and the accidents are left sided. If the patient leaving his horizontal posture sits or stands up, the gas bubbles in the heart cavities may be liberated and may lead to aggravated or immediate accidents. In this manner may be explained late accidents or sudden deaths the moment the patient assumes an upright position. In accordance with the localization of gas emboli, vasomotor disturbances have been observed on the skin in the shape of erythematous blotches, anemic pallor, pallor and sensitiveness of the lingual mucosa and even amaurosis, betraying the presence of gas bubbles in the central artery of the retina. The authors recommend leaving the patient in the horizontal or even the Trendelenburg position the moment nervous accidents become manifest or as long as characteristic heart sounds are heard.

Giornale di Clinica Medica, Parma

18 531 628 (May 20) 1937

*Action of Liver Treatment in Experimental Toxic Anemia from Administration of Aromatic Substances D Campanacci and S Tosi—p 531 Crisis of Reticulocytes and Intensity of Anemia in Course of Malarial Treatment L Pontoni and S Motta Di Mauro—p 553

Descending Pleuro Abdominal Syndromes (Perivisceritis of Upper Crossroad of Digestive Tract Secondary to Pleuritis) G Pellegrini—p 557

Familial Addison's Disease G Borghini—p 587

Liver Treatment in Experimental Toxic Anemia—Campanacci and Tosi induced hyperchromic macrocytic anemia in rabbits by means of subcutaneous injections of hydroquinone, resorcinol phenol or thyroxine. The blood of the animals was rendered normal by the parenteral administration of liver extracts, even in the animals which were simultaneously given the toxic substance. According to the authors, liver extract neutralizes the toxins causing the anemia. The results of the experiments show the relations of experimental toxic anemia, induced by administration of aromatic substances, and hypochromic anemia in human beings, the importance of the toxic factor in the development of hypochromic anemia, and the antitoxic and antihemolytic mechanism of action of liver treatment in anemia. The mechanism was pointed out by Campanacci in 1928.

Polichinico, Rome

44 273 320 (June 1) 1937 Medical Section

Value of Certain Laboratory Methods for Determination of Lipids in Blood Normal Lipemia Determined by Monasterio's Method C Campana—p 273

*Pharmacodynamic Action of Caffeine Intravenously Injected in Normal Persons and Hypertension R Martinetti and A Forconi—p 286 Protamine Insulin in Diabetes Results G Lolli and C Ballatore—p 299

*Preparation and Immunizing Value of Dysenteric Anatoxin D D Aniona M Valensini and E Falchetti—p 313

Pharmacodynamic Action of Caffeine—Martinetti and Forconi studied the effects of caffeine intravenously injected in normal persons and in patients suffering from hypertension

of different types. Immediately after the injection a transient increase of the arterial tension, especially the maximal arterial tension, and tachycardia take place. Both phenomena are more intense in hypertension than in normal conditions. The intravenous injection of caffeine administered to patients suffering from hypertension is followed by transient hyperglycemia and diuresis with increased elimination of urea and chlorides. According to the authors, caffeine when administered in proper amounts has a tonic action on the myocardium, increases diuresis with consequent elimination of toxic substances, and diminishes the spasm of the coronary arteries as well as intracranial hypertension. It does not lower blood tension in hypertension, except when the latter is caused by hyperepinephrinemia. Patients suffering from hypertension are hyperreactive to caffeine. The equilibrium of their circulation and chemical metabolism is unstable. Because of this fact, caffeine administered to the patients, especially if it is given in large doses, acts on the heart rather than on the peripheral vessels, with consequent increase of the blood pressure and lack of development of phenomena of peripheral vasodilatation.

Preparation of Dysenteric Anatoxin—D'Antona and his collaborators say that an anatoxin can be obtained from the toxin of *Shigella dysenteriae*, treated by Ramon's classic technic of addition of formaldehyde and exposure to heat. A good anatoxin is obtained from a good toxin produced by filtrates of liquid cultures or autolysates of solid cultures of *Shigella dysenteriae* of high virulence. The toxin from autolysates is more active than that from filtrates and the technic of producing it is simple. The derivatives of dysenteric toxin treated by formaldehyde are harmless and have flocculating and immunizing properties that make them actual anatoxins. Dysenteric anatoxin, if administered by subcutaneous or intravenous injection, produces immunity, especially if the autolysates used in preparing it contain fractions of the bacterial body. The condition of immunity of the vaccinated animals is proved by the results of the injections of dysentery toxin or of living virulent *Shigella dysenteriae*. The production of agglutinins in the blood serum of the animals vaccinated with anatoxin is scanty. A great amount of specific antitoxin was found in the blood serum of vaccinated horses. The authors advise anatoxin in the prevention of bacillary dysentery.

Prensa Médica Argentina, Buenos Aires

24 1101 1146 (June 2) 1937

- Cancer of Lung Pneumonecromy Exclusively with Local Anesthesia R. Finocchietto and H. Aguilar—p 1101
 *Buccopharyngeal Sepsis Preexisting in Typhoid J. Orgaz—p 1103
 Diagnosis of Pregnancy by Visscher and Bowman Method A. A. Puntel—p 1107
 Thoracic Surgery M. M. Brea—p 1113
 Insulin Histon in Glycemia Use in Treatment of Diabetes A. Biasotti V. Deulofeu and J. R. Mendive—p 1122
 Acute Encephalitis After Measles F. Bazan and R. Maggi—p 1129

Buccopharyngeal Sepsis in Typhoid—According to Orgaz, the most grave buccopharyngeal ulcerations in the course of typhoid are those which develop in patients suffering from preexisting buccopharyngeal sepsis. The latter is the cause of the appearance of bacterial association and of the grave ulcerations of the buccal mucosa. The time of appearance of the ulcerations is unrelated to the stage of the disease. The ulcerations cannot be classified as symptomatic or late ulcerations or complications of typhoid. They are characteristic of the septic buccopharyngeal condition and are of a pyogenic nature and of fatal prognosis. Four cases are reported.

Archiv für Verdauungs-Krankheiten, Berlin

61 113 224 (April) 1937 Partial Index

- Studies on Significance of Bacterial Flora of Stomach H. Kapp—p 113
 Influence of Mode of Preparation on Digestibility of Meat H. Kapp—p 123
 Influence of Short Wave Therapy on Acidity and Motility of Stomach M. Jordaan—p 129
 *Criticism of Histidine Treatment in Gastroduodenal Ulcer M. S. Königsberg—p 137
 *Hiatogenic or Phrenogenic Dilatation of Esophagus H. Strauss—p 153
 Pernicious Anemia and Gastric Carcinoma R. Teufft—p 166

Histidine Treatment in Gastroduodenal Ulcer—Königsberg presents a critical evaluation of the histidine treatment in gastroduodenal ulcer. He shows that the experimental

studies on the basis of which Weiss and Aron introduced the histidine treatment cannot be applied to human subjects and that the patient with ulcer does not suffer from histidine deficiency. The protein splitting digestion ferments are not impaired in patients with ulcer and they are capable of extracting from their food all amino acids, including histidine. Thus the parenteral administration is superfluous and deficiency of amino acids cannot be regarded as an ulcerogenic factor. Histidine therapy is not a nonspecific irritation therapy, and an analysis of the clinical results, with the exclusion of all other factors that may play a part in the treatment, reveals that histidine therapy does not signify a great progress in the treatment of ulcer. The author shows that a rational therapy of gastroduodenal ulcer can be based only on a clear insight into the disease process. Even though the ulcer problem has not been completely solved, the author thinks that the studies conducted by Konjetzny and his collaborators provide a rational explanation of the pathogenesis of gastric ulcer, that is, they explain its development on the basis of a gastritis or gastroduodenitis and consider its treatment as primarily an internal problem. They recommend the administration of a colloidal silver preparation by means of a stomach tube and prescribe a bland diet. The pains are counteracted by means of atropine and belladonna. These medicaments are not intended as a means to reduce the acid secretion but rather as a spasmolytic.

Hiatogenic Dilatation of Esophagus—Strauss reviews his earlier studies on the genesis of the so-called cardiospastic dilatation of the esophagus, pointing out that among five such cases, which he examined post mortem, he detected three in which the dilatation and the mural thickening began two finger breadths above the cardia, that is, at the level of the esophageal hiatus. On the basis of this observation he suggests that in many cases the dilatation of the esophagus is caused by extra-esophageal changes, that is, by changes on the esophageal hiatus. He reasons that such cases should be referred to not as cardiospastic dilatation but rather as "hiatogenic" or "phrenogenic" dilatation of the esophagus. He also mentions hernia of the esophageal hiatus of the diaphragm. He says that a widening of the esophageal opening in the diaphragm (and perhaps hernia) is found chiefly in older persons, whereas a constriction of this opening and possible esophageal dilatation is found generally in younger persons. At any rate, the anamnesis of patients with esophageal dilatation often reveals that the disorder has existed for many years.

Beiträge zur Klinik der Tuberkulose, Berlin

89 411 500 (May 22) 1937

- *Clinical Serologic Investigations on Tuberculosis and Articular Rheumatism R. Brandt and H. Kutschera von Aichberger—p 411
 Unification and Evaluation of Serologic Reactions in Tuberculosis G. Seiffert—p 443
 Influences of Minimal Quantities of Heterobacteria in Course of Experimental Hematogenic Tuberculosis S. Nukada and C. Ryu—p 449
 Respiratory Insufficiency H. W. Knipping—p 469
 Influenza Tuberculosis and Weather Rathling—p 480
 Healing Large Early Tuberculous Disseminations K. Weber—p 489
 Amed Roentgenograms of Lung During Expiration and Inspiration J. Herms—p 499

Serologic Study on Tuberculosis and Articular Rheumatism—Brandt and Kutschera von Aichberger report their experiences with serologic tests in 1,179 cases. Among this number were 305 cases of tuberculosis, fifty of tuberculous pleurisy, 100 of arthritis and 724 controls. All these patients were under hospital observation and subjected to thorough clinical examination for possible tuberculous changes. The serologic tests conducted by the authors were the so-called antigen-antibody reactions, that is, the complement fixation reaction with the antigen of Witebsky, Klingenstein and Kulm and Müller's conglobation reaction for tuberculosis. The intensity of these antigen-antibody reactions is a measure of the antibody formation. In tuberculosis, the reactions are in the beginning negative, they become positive after several weeks, but once they are positive they usually remain so as long as an active disease process exists. The reactions are weakened regularly if cure ensues but in progressing disease only rarely. The latter condition indicates an unfavorable prognosis, for according to Horster it seems to prepare for an

invasion of tubercle bacilli into the blood. By means of repeated tests it is possible to recognize changes in the immunity during the course of the disease. The simultaneous examination of the sedimentation reaction, of the tuberculin sensitivity and of Weltmann's coagulation band is of great help, for in this manner it is possible to gain a deeper insight into the immunobiologic development of the tuberculous process. The serologic antibody reactions are intensified by specific immunization, vaccination with living tubercle bacilli or tuberculin treatment. In persons without clinical signs of tuberculosis, the serologic antibody reactions for tuberculosis are generally negative. Exceptions to this rule are caused either by hidden tuberculous processes or by certain nonspecific processes. The serologic antibody tests are of great diagnostic value, because positive reactions direct attention to hidden tuberculous processes and negative reactions permit the differentiation of nontuberculous processes from tuberculosis. Exudative tuberculous pleurisy produces in the beginning negative tuberculous antibody reactions, but after several weeks they are positive. Acute rheumatic polyarthritis shows the same immunobiologic behavior. A temporary negative phase is always followed by a positive phase. This rule could be corroborated in all cases (twenty-two) that were subjected to repeated tests. On the basis of these observations and of the reports of others, the authors accept the theory of the tuberculous origin of acute articular rheumatism.

Monatsschrift f Geburtshilfe u Gynakologie, Berlin

105 65 192 (April) 1937 Partial Index

- *Drinking Child in Uterus K De Snoo—p 88
- Pelvic Angle of Inclination Angle of Presentation and Shape of Pelvis in Case of High Straight or Oblique Position Guthmann and Brockmann—p 97
- Ash Structure of Uterine Mucosa and Its Microscopic Differentiation H Winkler—p 117
- *Clinical Aspects and Pathology of Granulosa Cell Tumors K von Pallos—p 139
- Newer Points of View on Human Fertility G L Monch—p 154

Drinking Child in Uterus—De Snoo points out that by sweetening the amniotic fluid the fetus can be induced to drink large quantities and that by injections into the amnion it is possible to influence the child directly by means of medicaments. He says that, although this treatment is of slight practical significance, it throws more light on the water exchange in the fetus, particularly in uniovular twins. He cites the case of a woman who was admitted to the clinic with severe hydramnion during the seventh month of pregnancy. However, the hydramnion disappeared and at the normal end of pregnancy two living, well developed uniovular diamnionial twins were born. The quantity of amniotic fluid was normal in both twins. In this case the water apparently had been eliminated toward the mother. Presumably the child drank the water, and after resorption in the intestine it was transported to the mother by way of the placenta. This case was not an exception, for after the author paid more attention to this phenomenon he repeatedly observed that the size of the hydramnion showed fluctuations or entirely disappeared during the fifth and sixth months. To be sure, these cases always concerned uniovular twins. The author thinks that this disappearance of the hydramnion is due to the fact that, with progressing differentiation of the two placentas, the production of amniotic fluid became lessened, in that the vascular communication between the twins was changed and that the disturbance in the circulation, which at first resulted from the reduction in villi and vessels, was again brought into equilibrium. The stasis in the child with the hydramnion was reduced in that the child drank more than was produced and both circulations reached their normal level. The author reasoned that it should be possible to reduce the amniotic fluid by sweetening it, thereby inducing the child to drink more. This was actually accomplished in a woman with hydramnion and narrow pelvis. Following the aspiration of 80 cc of amniotic fluid, the same quantity of a saccharin solution was injected. After this the hydramnion decreased in size the subjective complaints of the woman disappeared and her urine contained saccharin. Delivery followed three days later. The child was slightly edematous. The

blood of the umbilical cord and the urine of the child contained saccharin. The edema of the child had disappeared three days after birth. The author cites and discusses several other cases.

Granulosa Cell Tumors—Von Pallos describes three cases, one of which caused a temporary amenorrhea and two of which caused metrorrhagia. He suggests that the amenorrhea and the secretory phase of the endometrium are probably connected with the formation of lutein hormone by the lipid-bearing cells of the tumor. The hypertrophy of the uterus, the glandular cystic hyperplasia of the endometrium, the metrorrhagia, and the endometriosis in the third case are probably a result of the increased estrogen production of the tumor. The third case was noteworthy also because of the sarcomatous transformation of the stroma of the tumor. Although the granulosa cell tumors are at first benign, malignant degeneration often develops later. For this reason, patients with granulosa cell tumors should be kept under careful control, even after the operation.

Monatsschrift fur Kinderheilkunde, Berlin

70 1 160 (April 7) 1937 Partial Index

- Beginnings of Pulmonary Tuberculosis in Children W Schwenk—p 1
- Process of Swallowing E Hofmann and A Peiper—p 54
- *Epidemic Benign Icterus in Children Popovici-Lupa and V Petrescu Coman—p 57
- Can Whooping Cough Develop Twice? D Gajzago and O Gottehe—p 64
- *Intra Uterine Fracture of Leg Two Cases H J Hartenstein—p 77
- *Treatment of Spasmophilia by Means of Crystallized Vitamin B₁ T Widenbauer—p 82

Epidemic Benign Icterus in Children—Popovici-Lupa and Petrescu-Coman state that epidemics of benign icterus have been observed repeatedly among children. Following a review of the literature on this problem (beginning with Meissner's report in 1864) the authors report their own observations, which they made in the course of two epidemics, the first of which lasted from October 1932 to February 1933 and the second from September 1934 to May 1935. The majority of the patients belonged to the age group from 2 to 7 years. In all patients prodromal symptoms were observed, which persisted for from one to seven days. There were gastro-intestinal disorders (vomiting, colics and diarrhea), general indisposition and fever. In some of the children the fever reached 39 C (102.2 F). Several days after the appearance of the prodromal symptoms the icterus appeared, as a rule only in the form of a conjunctival icterus but occasionally also in the form of a mild icterus of the skin. There was oliguria, dark colored urine and whitish, hard feces. The tongue was coated. The fever usually subsided several days after the development of the icterus. The liver was always enlarged and sensitive to pressure. In many instances the hepatic enlargement persisted for a while after recovery. The spleen was likewise enlarged. Some of the children lost a considerable amount of weight. The disease usually took its course in from one to two weeks, but in three cases it persisted for from three to four weeks. The prognosis is favorable, all children recovered. The treatment consisted of rest in bed, with dietetic and medicinal measures. The diet contained chiefly carbohydrates, vegetables and fruit, methenamine was given in doses suitable to the age of the children. Search for a specific causal agent has not been successful as yet. Following a review of the literature on the problem of the causal agent, the authors say that the failure to discover a source of infection suggests the possibility of bacillus carriers. It is difficult to determine the exact length of the incubation period, but the authors observed that the majority of cases appeared from twenty-one to twenty-eight days after exposure. Others have observed shorter periods of incubation.

Treatment of Spasmophilia with Vitamin B₁—Widenbauer points out that spasmophilia is regarded by many as a manifestation of a deficiency in vitamin B₁ and has been treated with good success by giving yeast. However, since yeast contains also other important substances, such as provitamin D, the author decided to try a crystallized B₁ preparation. He treated ten spasmophilic children with one or two intramuscular injections of 400 pigeon units of crystallized vitamin B₁. In

all except two cases the spasmophilic symptoms disappeared after from twelve to seventy hours. In one case more time was required and in another the treatment failed. In four of the successful cases either no other treatment had been given or only symptomatic treatment in addition to the vitamin, in the other four viosterol had been given in addition to the vitamin B₁. The author hopes that the efficacy of vitamin B₁ will be tried and demonstrated in a larger material of cases of infantile tetany, for he found that its action is more rapid than that of viosterol.

Wiener klinische Wochenschrift, Vienna

50 859 890 (June 4) 1937

- Syphilis in Literature and Poetry Rille—p 859
Anatomic Substrate of Fluoroscopic Picture of Human Hand in Case of Examination by Means of Scattered Rays L Freund—p 864
Crisis in Tumor Research A Greil—p 865
Subaqueous Treatment of Paralytic Conditions H Urban—p 868
Sodium Chloride Intake R Berg—p 872
Relations of Reflexes of Sinus Caroticus to Pathology of Circulation and Respiration D Scherf—p 874
*Genesis and Treatment of Vaginismus J Novak—p 880

Genesis and Treatment of Vaginismus—J Novak says that, whereas formerly changes in the vulva, the vaginal introitus and the hymen were regarded as the cause of vaginismus, it is now generally recognized that vaginismus is of psychic origin, that is, it is the manifestation of fear and aversion against sexual intercourse. To be sure, lesions of the vulva and of the vaginal introitus do occur, but they are usually the results of unsuccessful attempts at coitus. In this connection the author mentions tears, inflammations and a too narrow opening in the hymen. That these factors increase the vaginismus is understandable, but the fact remains that vaginismus is of psychic origin. A confidential discussion will usually reveal the cause of the aversion against coitus, but in some cases a thorough psychoanalysis will be necessary. The cause of the vaginismus must be considered in the treatment, for it is necessary to remove in both partners all the factors that cause the woman to have an aversion against sexual intercourse. The psychotherapy usually does not require psychoanalysis (in the strict meaning of the term) but can be accomplished by a tactful and understanding physician. He should insist on sexual abstinence until all lesions of the genitalia have disappeared. Local treatment should consist in the systematic introduction of Hegar's dilators, but it should never be painful.

50 891 922 (June 11) 1937 Partial Index

- Clinical Aspects and Therapy of Syphilitic Aortitis N von Jagie—p 891
Clinical Aspects and Pathogenesis of Cramps in Calf of Leg J Wilder—p 895
*Pharmacologic Attempts to Reduce Mortality of Nurslings in Generalized (Septic) Infections H Januschke and W Larcher—p 900
Practical Significance of Bacteriologic Diagnosis of Female Gonorrhea Olga Maria Tauber—p 902
Experiences with Histidine Treatment in Gastric and Duodenal Ulcers F Brunn—p 905
Case of Periodically Recurring Pseudologia Phantastica G Pisk—p 908

Reduction of Mortality of Nurslings—Januschke and Larcher state that since the end of February 1936 the cases of bronchopneumonia and otitis have assumed extremely grave forms. While the external symptoms of otitis have disappeared, suppuration of the petrosa has advanced and finally the abdominal organs have become involved. There were symptoms of alimentary intoxication, severe fatty degeneration of the liver and acute appendicitis or peritonitis, and in four out of five cases death resulted. Whereas in the cases of pneumonia and otitis, which occurred during the preceding months, it usually had been possible to support the circulatory apparatus by the systematic administration of digitalis-cafeine until the organism had developed sufficient defense substances to kill the infectious organisms, the digitalis-cafeine treatment failed completely in these cases (occurring after February 1936). Later it was decided to employ in addition to the circulatory remedies substances that would stimulate the organs and tissues that serve bacterial defense. When this was done cure could be effected in all of eight cases.

Nederlandsch Tijdschrift voor Geneeskunde, Haarlem

81 2605 2692 (June 5) 1937 Partial Index

- *Changes in Finger Nails and Alopecia After Gold Dermatitis A J G Belinfante—p 2613
Lesions of Menisci of Knee Joint A Kummer—p 2615
Experimental Hyperchromic Anemia After Gastric Resection L Watman D J Kok and W K Hirschfeld—p 2622
Chemical Method for Determination of Vitamin B₁ in Urine J Goudsmit—p 2632

Changes in Finger Nails After Gold Dermatitis—Belinfante reports two cases in which a generalized exfoliative dermatitis followed treatment with a gold preparation. The clinical picture of the skin disease resembled that of arsenphen amine dermatitis. The histories indicate that the skin disorder responded to internal and local treatment but that control examinations several weeks later revealed a severe alopecia and Beau's transverse lines on the finger nails. A review of the literature convinced the author that the alopecia and the transverse lines on the nails had not been mentioned as a complication of gold therapy.

81 2875 3014 (June 19) 1937 Partial Index

- Cornual Pregnancy J Bijloos—p 2884
*Differences in Healing Between Primordial and Flat Bones M A Roegholt—p 2889
*Combination of Simmonds Disease (Pituitary Cachexia) and Gee-Thaysen's Disease (Idiopathic Steatorrhea) C D de Langen—p 2896
*Prontosil in Quartan Malaria Y Van der Wielen—p 2905

Healing in Primordial and Flat Bones—After reporting the clinical history of a patient who died of osteomyelitis of the flat bones of the cranium, Roegholt compares the osteomyelitic process in flat bones and in primordial bones. He also compares the healing of fractures in these two types of bones in human subjects and in guinea-pigs. He reaches the conclusion that the flat bones and their periosteum react much more slowly than the primordial bones and their periosteum. Moreover, in the flat cranial bones there is a difference in reaction between the external and the internal periosteum in that the external one reacts even less than does the internal one.

Combination of Pituitary Cachexia and Idiopathic Steatorrhea—De Langen describes the histories of two patients in whom pituitary cachexia (Simmonds' disease) occurred with idiopathic steatorrhea (Gee-Thaysen's disease). In discussing these cases, he shows that the two diseases have a number of symptoms in common. Further, he cites investigations recently carried out by Verzar. This author demonstrated that fat resorption in the intestinal canal is influenced and regulated by the hormone of the adrenal cortex. In the discussion of related problems it is pointed out that fat diarrheas occur in various endocrine disturbances. Since it is now generally accepted that the anterior lobe of the hypophysis secretes an adrenocorticotrophic hormone which stimulates the activity of the adrenal cortex, the supposition is justified that the concurrence of the syndromes of Simmonds and of Gee-Thaysen is not an accidental one but rather the result of disturbances in the complicated interrelations between different endocrine organs. Disturbances in the fat resorption occur also in acromegaly, and nontropical sprue has been observed in patients of the acromegalic type. Finally attention is called to differences between nontropical and tropical sprue. The differences cited indicate that nontropical and tropical sprue are not identical to the extent that has been assumed in recent years.

Prontosil in Quartan Malaria—Van der Wielen reports the histories of two patients with dementia paralytica who were subjected to malarial therapy (quartan). The first patient had also a cystitis and this condition was treated with prontosil. It was found that, during the course of the prontosil treatment the plasmodia disappeared from the blood and the attacks of fever ceased. It was assumed that the prontosil treatment was responsible for this and it was decided to administer prontosil to a second patient who underwent malarial therapy on account of dementia paralytica. Here again the fever attacks ceased and the plasmodia disappeared from the blood. Although the two cases suggest that prontosil acts on the plasmodia of malaria, experiences on a larger material will be necessary to arrive at more definite conclusions. Moreover, the author recommends that tests be made to determine whether prontosil will act on the tertian type of malaria and on both types of malaria when contracted through bites.

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NEUROLOGY—PAST AND PRESENT

CHAIRMAN'S ADDRESS

HENRY R VIETS, MD

BOSTON

The beginnings of neurology as a separate discipline of medicine are so clearly defined that one may say Neurology began with Romberg, a hundred years ago. His famous "propedeutic clinic" at Berlin, where systematic neurologic examination and clinical diagnosis were first carried out, was an active institution in 1837, and his textbook on nervous diseases, the first formal treatise on the subject, followed in 1840 and 1846. Almost contemporary in Paris that strange and interesting figure Duchenne of Boulogne was haunting the larger Paris hospitals, delving into case histories and unselfishly devoting himself to neurology and electrophysiology. An even more important Parisian figure was soon to follow in Charcot, who created the greatest neurologic clinic of modern times and gave lessons in visualization which few students could ever forget. Marie and Dejerine carried on the great French tradition even to our times, as did Erb in Heidelberg, following the footsteps of Romberg. In England, Hughlings Jackson and Gowers, building on the sound framework of the German and French schools, brought to virtual completion the foundations of structural clinical neurology as it is known today. In America, Weir Mitchell, physiologically trained by Claude Bernard, Dana, with his textbook of 1892, and J J Putnam added new knowledge to neurology and pointed the way to the advances that were to take place in the twentieth century. Thus by 1900 neurology was well established in most medical schools and hospitals. Although few professorial chairs were founded and neurology was largely taught by the department of medicine, its place in the hospitals was recognized, at least in the outpatient department, and the neurologist was no longer called "the electrician," as he was at the Massachusetts General Hospital in the eighties.

At the turn of the century, therefore, most of the intrinsic nerve and spinal cord diseases were known, the larger tracts had been identified, the motor cortex had been partly demonstrated in animals, and gross anatomy and pathology were beginning to be understood. Brain and spinal cord tumors were soon partly localized, and at least one surgeon had removed a meningioma from the brain, although in opposition to the advice of the attending neurologist. Expert in diagnosis, the neurologist in 1900 was equipped with only a few methods of treatment. Iodides, mercury and bromides were almost

his only defense, and many believed that a brain tumor could never be successfully removed. The only exception was with regard to the surgical treatment of peripheral nerve injury. In this field much had been learned since the American Civil War. In such a state of relative therapeutic nihilism, however, clinical neurology was nearly at a standstill. After a few years of stagnation, just before the Great War, it received a new stimulation from three important sources, all from outside its narrow specialism of clinical neurology.

STIMULATION OF CLINICAL NEUROLOGY BY DISCOVERIES

First to awaken neurology was the discovery of a specific test for syphilis by Wassermann, the identification of tabes dorsalis and dementia paralytica as syphilitic diseases, the diagnosis by examination of the cerebrospinal fluid, and the advent of an astounding pharmaceutical in arsphenamine. Neurologists stirred themselves, lumbar punctures were done, usually with complete surgical regalia, and intravenous treatment was started with quarts of diluted arsphenamine. The younger men soon became adept with their hands and used the new tools with ease, much to the astonishment of their elders. Much of neurosyphilis was allowed to slip away, nevertheless, into the hands of the dermatologists in the "South Medical" department, as it was called, at least at the Massachusetts General Hospital, in those days. Neurology needed other stimuli to keep awake and one, or really two, were soon to follow.

In Liverpool, and later in Oxford, neurophysiology was rapidly being pushed forward by the greatest master of our times, Sherrington. In his "Integrative Action of the Nervous System," published in 1906, much unplowed ground was cultivated and a new, dynamic concept of the reflex functions of the nervous system was set forth. To his laboratory came a pupil from America who ultimately was to establish securely a new branch of medicine, neurosurgery. Inspired by Sherrington and not unmindful of the contributions of Horsley and his teacher Kocher, Cushing had so far advanced the art of neurosurgery by 1914 that surgical treatment was soon offered, and most gratefully accepted, by about 10 per cent of our patients. Here at last was the therapeutic stimulus so badly needed by neurology. Sherrington and Cushing, leading a great band of followers, revolutionized neurology. Without them should we be much further along today than we were in 1914? The force given by these two physicians slowly overcame the inertia of a nearly static part of medicine, which had tended to make neurologists into expert diagnosticians but feeble therapists. Sherrington added the fundamental research point of view by continually augmenting our knowledge of the function of the nervous system and stimulated a host of like minded pupils. Cushing, with his associates and pupils, although at first almost single handed, brought

From the Department of Diseases of the Nervous System Harvard Medical School.
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to neurology a method of treatment which we now find useful in nearly half our patients. Finally came the World War, and after 1919 neurology, taking on its present form, grew rapidly—and the end is not in sight.

PROBLEMS ARISING OUT OF THE WAR

The war brought a host of problems which overtaxed the capacity of the then available supply of neurologists and the few trained neurosurgeons. War neuroses and peripheral, spinal cord and brain injuries were so numerous that, failing neurologists, psychiatrists, physiologists and even psychologists were pressed into action and general and orthopedic surgeons were forced to handle the strange material. Infectious diseases, especially epidemic meningitis, soon tested the ingenuity of the neuropsychiatric division of the medical corps in this country, only to be followed here and overseas by an overwhelming disease, lethargic encephalitis. The lack of adequately trained men was felt on every hand and once the war was over, in 1919, many schemes were proposed to establish neurologic institutes and revamp the inadequate teaching of diseases of the nervous system in our medical schools. There was much discussion, but finally most of the schemes were abandoned. The pressure, however, was too great to be ignored and gradually adjustments were made in both the development of clinics and in teaching

GROWTH SINCE THE WAR

It is not my province to give a complete outline of all the changes that have taken place in neurology since 1919. To many neurologists they have been part of their daily life. The great schools of Philadelphia and New York have been continued, as have those of London, Berlin and Paris. The school in Boston, never perhaps so important as those in Philadelphia or New York, has gradually become revolutionized and it is about this development that I wish to speak briefly, using it as a basis to illustrate the whole subject. I think our experiences in Boston have not been unusual, in spite of the rapid growth in interest shown by the number of workers engaged in research and teaching. There has been, moreover, an expansion of the clinical facilities, and this change at one institution, the Massachusetts General Hospital, may be used to make my point. A similar story might be told of the changes at the Boston City Hospital.

Twenty years ago, two beds in the medical service of the Massachusetts General Hospital, with none definitely assigned to neurosurgery, were considered sufficient for a general hospital of 300 beds. The outpatient department was the home of neurology. Occasionally spinal cord or brain tumor was suspected in a patient and thus use for the two beds was sometimes found. This small unit, not always kept full by the neurologic department, has now grown into an independent one of twenty-four beds, one half given to neurology and the other half to neurosurgery. Residents, house officers, a neuropathologist, a cerebrospinal fluid technician, research physicians, social workers and third and fourth year students have joined the visiting neurologists and neurosurgeons to make up a coordinated unit, diagnosing and treating more than 500 patients a year, one fifth of whom proved to have tumors of the brain. This ratio, I suspect, would not be found in many other hospitals, particularly hospitals that draw on a single city for their supply of patients. It should be pointed out, nevertheless, that nearly half of the patients who enter the neurologic

ward at the Massachusetts General Hospital do not leave without some sort of surgical treatment. The neurologist and the neurosurgeon, therefore, must in the future go hand in hand and the relationship is bound to be closer between neurology and neurosurgery than it ever was between neurology and psychiatry.

The clinical neurologist, treading his way carefully in private practice so as not to disturb his status as a "nerve man" and thereby lose the largest part of his practice with the psychoneurotic and the borderline psychotic, must become in the future, nevertheless, either a psychiatrist with neurologic leanings or a clinical neurologist, closely bound to neurosurgery, neurophysiology and the fundamental sciences of neuro-anatomy and neuropathology. The latter individual would appear to be the proper person to head a neurologic department in a general hospital or medical school. In some instances, in recent times, the neurologic director of a department has been replaced by a neurosurgeon, a neurophysiologist or a neuroanatomist. If such is the case, restraint may be needed to prevent the individual interests of the director in his special field overspreading the whole clinic. As broad as may be the training of a neurosurgeon, one cannot help but view with a little apprehensiveness the effort being made to replace the neurologist by an active surgeon as head of the department. Neurosurgeons may be good neurologists, as certainly the best of them are, but their main interest must necessarily be in surgery and not in the larger clinical field of neurology. The ideal arrangement would be for the man with the broadest outlook to head the department and to have his neurosurgeon on a practically equal footing with himself in the division of the number of patients. There may be exceptions to this, for the man, whatever his departmental label, is more important than the chair in which he sits.

In the year 1936 about 500 patients were discharged from the combined neurologic and neurosurgical services of the Massachusetts General Hospital. While in the hospital, 300 patients were directly under the care of the neurologic staff, while the other 200 fell to the neurosurgical department. It is worth noting that something over 100, or 20 per cent of these patients, suffered from brain tumor and another 5 per cent from spinal cord tumor. Even though the clinic does not admit patients with acute brain trauma, it will be seen nevertheless that 30 per cent of the patients require surgical treatment for neoplastic disease. If there is added to this the patients operated on for various types of chronic nervous disease, repair of peripheral nerves, the diagnostic tests such as ventriculography, and those requiring operations, curative or palliative, for pain, one readily sees that nearly half the work in an active neurologic ward is done by the surgeon. Thus, I am sure, is in great contrast to the situation twenty years ago.

In hospitals in other cities the situation, however, is quite different. The medical department still directs neurology, and neurosurgery, if there is such a separate division, is under general surgery. The time has come when the facilities offered not only for diagnosis but for treatment of nervous diseases is of such importance to the general public that special departments with an adequately trained personnel must be more widely available in this country. Too many patients still enter the hospital with tumors of the brain, already blind from long standing increased intracranial pressure or having had one or possibly more abdominal operations.

prior to the disclosure of a spinal cord tumor as the cause of their discomfort. It is no longer possible for the general physician or surgeon either to diagnose or to treat at least one half of the neurologic cases that appear in his practice. He must have help, and help should be easily available.

If surgical treatment is used on half our patients, we must not neglect the other half of a neurologic group. There is much to be offered now in the treatment of meningitis and of the acute infections of the nervous system, those caused by viruses, and some of the more intrinsic degenerative conditions. If the neurologist keeps at least part of his patients with neurosyphilis, a wide field of therapy is offered and practical cure of half of them is not unlikely. There are, moreover, many new drugs available, such as prostigmin for myasthenia gravis, which are slowly changing our whole therapeutics.

RESEARCH AND TEACHING

Finally, we have additional duties to perform, at least those of us associated with clinics in the larger medical units. Not only must we treat our patients but we have the burden of advancing the subject by research and passing our knowledge on to a future generation by teaching. Much of our research originates outside the clinic, particularly in the laboratory of the neurophysiologist. From Sherrington's laboratory and in this country from the workshop of his illustrious pupil Professor Fulton of the Yale University School of Medicine have come many of the ideas with regard to the function of the nervous system which we have been able to apply to clinical neurology. Problems, too, are continually presented from other clinics in a great hospital by, for instance, the ophthalmologist, the aurist, the orthopedic surgeon and the roentgenologist. The latter, by his expert technical advice, has been able to disclose so much of the bony structure surrounding the nervous system that our diagnostic acumen has been greatly increased. Ventriculography and the more useful encephalography have now become routine diagnostic procedures, augmenting the older examinations of the cerebrospinal fluid and blood. Electroencephalography, the newest product of the laboratory is gradually entering the clinic, with possibly the greatest beneficial value of any advance made in neurophysiology of all time. Even to evaluate the products of the research laboratory requires of the neurologist a wide training in neurophysiology and its associated branches. The neurologist, moreover, should be able to guide the surgeon into profitable paths of therapy—something that has not always occurred in the past. Advancement, therefore, in a neurologic clinic which takes advantage of all the research available can be made only under the guidance of a physician with a wide vision. Fortunately, the neurologists in this country are not by any means taking their positions lightly, and there is evidence on every hand that they are assuming their duty with a steadfast purpose and unselfish devotion. The neurologic clinic in the future will justify itself only if it incorporates physiology, pathology, chemistry and physics in research problems. Similarly, the clinical neurologist must correlate and use all the laboratory data that present themselves from year to year, with that rare and most elusive of phenomena, good clinical judgment.

In addition to research and the development of the modern clinic the teaching of neurology is undergoing a revolution in our medical schools. There is much,

however, still to be done in this field. When one finds that only sixteen of our seventy-five credited medical schools have separate departments of neurology and that only twenty more teach neurology under a combined department of neuropsychiatry, one wonders how much of modern neurology reaches the medical student in the other thirty-nine schools. Even in the sixteen schools with separate departments the number of hours given to clinical neurology is extremely variable. Two schools head the list with 116 and 120 hours. Two give only forty and forty-two hours. The average time of instruction, usually given in the third and fourth years of the course, is slightly over sixty hours. Most of the larger schools have abandoned didactic lectures and only the smaller hold to strict textbook instruction, chapter by chapter. Teaching is best carried out by clinics in the second and third years, section work in an outpatient department in the third year, and clinical clerkships in the fourth year. This has been the scheme of teaching at the Harvard Medical School since the war and is now almost universal in the larger schools. One notes with satisfaction the number of fourth year students at the Harvard Medical School applying for the clinical clerkships, still a voluntary course. Nearly half of the class will take such a course during the next year. A few years ago the number of applicants was only about 10 per cent of the class. Thus we have, in instruction given as the result of voluntary application on the part of students, another index of the growing interest in neurology.

Analysis might be made also of the number of hours given to instruction in clinical neurology in the other twenty schools, where neurology is combined with psychiatry in one department. Such a tabulation from school catalogues is by no means easy, as often the hours are not separately listed, nor are the courses distinct enough to evaluate what part of the course is given over to neurology. One is unimpressed, however, by the fact that psychiatry takes up the larger part of the time, especially in schools where the departmental teaching is almost entirely limited to instruction given in a state hospital for mental diseases. This is the case in some of the smaller medical centers.

In a few medical schools, however, a strong psychiatric department takes over the brunt of the teaching of neurology—perhaps a sound scheme, but one that must leave the student woefully lacking in some of the important features of neurologic training. If one considers that one fifth of the patients in a neurologic clinic have tumor of the brain, how many such patients are likely to be seen in a psychiatric ward? In other schools neurology has been so divided that the department, as such, is not to be found in the school catalogue. Neurosyphilis is in the hands of the syphilologist, neurosurgery is taken over by the surgeon, the neuroses and psychoses fall to the psychiatrist, and all the rest of neurology to the department of internal medicine, save possibly for a few epileptic patients lost in the outpatient department. Can neurology hope to advance with such dispersion of her interests? That, of course, depends in part on the caliber of the men in the various teaching departments. Many internists are good neurologists or have been in the past. Nearly one fourth of Osler's early papers were neurologic in character and it is said that one third of his consultations dealt with obscure neurologic diseases. It seems unlikely, however, at present, with the rapid advancement in other fields of medicine as well as in neurology, that an internist would ever have the time to learn

the complete technic of modern neurologic diagnosis and treatment. Encephalography, for instance, one of our most important diagnostic procedures, will not, in all probability find its way on to the medical wards, as has the more simple maneuver of lumbar puncture.

GROWTH OF SOCIETIES

Each year makes clear the ever increasing complexity of our position and the necessity for a continuation of the control of our own destinies as a unitary part of a great hospital or medical school. Had we not already done so in the past, should we have seen, in the last twenty years, the remarkable growth of the American Neurological Association and this section of the American Medical Association? In 1916, when this section was called to order at Detroit, a mere handful of neurologists and psychiatrists met in a small school-house adjacent to the main meeting hall. At that time there was serious talk of abandoning the section or merging with the Section on Practice of Medicine. The secretary, moreover, in those days, only twenty years ago, had to write to men urging them to present papers. In my last three years as secretary, from June 1934 to June 1936, the situation has so far reversed itself that the handful at times had grown to 200 and only one in three or four of the applicants for a place on the program could be accepted. Witness too the vast amount of research which is reflected in the sixty volumes of *Brian*, the eighty-five volumes of the *Journal of Nervous and Mental Diseases*, and the thirty-seven volumes of the *Archives of Neurology and Psychiatry*, and the enthusiasm shown at the first International Congress of Neurology at Berne in 1931 and at the second in London in 1935 with forty-two countries represented at each and from eight to nine hundred physicians registered.

One notes also the growth and importance of the local neurologic societies, their helpful place as a "trying out" center for papers later to appear at the national association meetings, the development of the neurologic institutes in the larger cities, the publication of collected reprints, case books, smaller journals, such as the one recently inaugurated at Los Angeles, and the year books with their invaluable summaries. Particular attention should be called to the review of neurologic and psychiatric literature, so long carefully edited by Dr. Bassoe and now in other, but equally capable, hands. The yearly publications of the Association for Research in Nervous and Mental Diseases again reflect the interest shown in neurology.

The number of individuals, moreover, working on diseases of the nervous system has become almost appalling. From a scant half dozen physicians gathered together in Boston in 1920, recently eighty-five physicians doing work in psychiatry, neurology, neurosurgery, neuro-anatomy, neurophysiology and psychology met to honor one of their leaders. The trend is noted in the number of students entering the field and the application for certification by the Examining Board of Neurology and Psychiatry. Perhaps the most important sign is the large number of young men and women seeking knowledge in our laboratories, schools and hospitals. For the older neurologists this has come as a great challenge, for these young people crowd in on us and demand the best of training and the largest scope for their potential abilities. We must uphold those standards set by Romberg, Charcot, Sherrington and Cushing if we are to keep faith with our predecessors and do our duty to those who come after us.

6 Commonwealth Avenue

ACTIVE AND PASSIVE IMMUNITY AND PORTAL OF ENTRY IN POLIOMYELITIS

JOHN A. TOOMEY, M.D.

CLEVELAND

Attempts have been made to render *Macacus rhesus* monkeys immune to poliomyelitis by injecting the living virus,¹ killed virus,² virus attenuated by heat,³ virus attenuated by drying,⁴ or virus attenuated by various chemicals (solution of formaldehyde,⁵ sodium ricinoleate,⁶ aluminum hydroxide,⁷ phenol⁴), by injecting weak strains of living virus⁴ or by injecting higher dilutions of more virulent strains.⁴ These antigens have been introduced percutaneously,⁴ intracutaneously,⁸ intratesticularly,⁹ intrasplenically,¹⁰ intracerebrally,¹¹ by way of the gastro-intestinal route¹² and by spraying the nose.¹³ Active immunization has also been tried by injecting virus in combination with immune sera obtained from monkeys,¹⁴ sheep,¹⁵ horses¹⁶ and human beings¹⁷ or by injecting neutralizing sera first and then virulent strains of the virus.¹⁸

The evidence on active immunization is confusing. Animals which have been immunized are presumed to have humoral immunity if virus-neutralizing antibodies are observed in their blood sera and a tissue type of immunity if they survive subsequent intracerebral injections of the living virus. Doubt has been expressed as to whether neutralizing antibodies (humoral) are true measures of immunity, since even though animals may have neutralizing antibodies and a high titer, they usually succumb to the disease when subsequently inoculated intracerebrally with poliomyelitis virus.

- From the Department of Pediatrics, Western Reserve University School of Medicine and the Division of Contagious Diseases, City Hospital.
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1. Flexner Simon and Lewis P. A. Experimental Poliomyelitis in Monkeys. *J. A. M. A.* 54: 1780 (May 28) 1910.
 2. Flexner Simon and Lewis P. A. Epidemic Poliomyelitis in Monkeys. *J. A. M. A.* 54: 45 (Jan 1) 1910.
 3. Shaughnessy H. J. Harmon P. H. and Gordon F. B. The Resistance to Poliomyelitis of Animals Previously Inoculated with Heated Virus. *J. Prev. Med.* 4: 157 (March) 1930.
 4. Aycock W. L. and Kagan J. R. Experimental Immunization to Poliomyelitis. *J. Immunol.* 14: 85 (Aug.) 1927.
 5. (a) Abramson H. L. and Gerber H. Active Immunity in Experimental Poliomyelitis. *J. Immunol.* 3: 435 (Nov.) 1918. (b) Kramer S. D. Active Immunization Against Poliomyelitis. *J. Immunol.* 31: 167 (Sept.) 1936.
 6. McKinley J. C. and Larson W. P. Sodium Ricinoleate and Active Immunity Against Experimental Monkey Poliomyelitis. *Proc. Soc. Exper. Biol. & Med.* 24: 297 (Jan.) 1927.
 7. Rhoads C. P. Immunization with Mixtures of Poliomyelitis Virus and Aluminum Hydroxide. *J. Exper. Med.* 53: 399 (March) 1931.
 8. Stewart F. W. and Rhoads C. P. Intradermal versus Subcutaneous Immunization of Monkeys Against Poliomyelitis. *J. Exper. Med.* 49: 959 (June) 1929.
 9. Jungeblut C. W. and Thompson Riehard. Does the Virus of Poliomyelitis Survive in the Monkey Testicle? *Proc. Soc. Exper. Biol. & Med.* 27: 819 (May) 1930.
 10. Brebner W. B. The Immunization of Monkeys Against the Virus of Poliomyelitis. *Am. J. Path.* 7: 546 (Sept.) 1931.
 11. Flexner Simon and Lewis P. A. Experimental Poliomyelitis in Monkeys. *J. A. M. A.* 55: 662 (Aug. 20) 1910.
 12. Leake J. P. Experimental Poliomyelitis. *Bull. 111 Hyg. Lab. U. S. P. H. S.* 1918: p. 21.
 13. Jungeblut C. W. and Hazen E. L. Failure to Immunize the Monkey Against Poliomyelitis by Prolonged Nasopharyngeal Spraying with Live Virus. *Proc. Soc. Exper. Biol. & Med.* 28: 1004 (June) 1931.
 14. Kramer S. D. Grossman L. H. and Parker G. C. Active Immunity to Experimental Poliomyelitis by Intranasal Route in *Macacus Rhesus*. *ibid.* 36: 370 (April) 1937.
 15. Jungeblut C. W. and Hazen E. L. A Comparison of the Efficacy of Different Methods of Active Immunization in Experimental Poliomyelitis. *ibid.* 28: 10 (Oct.) 1930.
 16. Goldbloom Alton, Brodie Maurice and Moffatt W. Active Immunization Against Poliomyelitis in Monkeys. *Am. J. Dis. Child.* 40: 923 (Oct.) 1930.
 17. Levaditi C. and Landsteiner K. La poliomyélite expérimentale. *Compt. rend. Soc. de biol.* 68: 311 1910.
 18. Rhoads C. P. Experimental Study of a Horse Antipoliomyelitis Serum. *J. Exper. Med.* 53: 123 (Jan.) 1931.
 19. Rhoads C. P. Immunity Following the Injection of Monkey Virus with Mixture of Poliomyelitis Virus and Convalescent Human Serum. *J. Exper. Med.* 53: 115 (Jan.) 1931.
 20. Brodie Maurice and Goldbloom Alton. Active Immunization Against Poliomyelitis in Monkeys. *J. Exper. Med.* 53: 885 (June) 1931.

Certain tissues of the body have no resistance to an infection. On the other hand, certain tissues of the same host are highly resistant to the same infection. The virus of rabies has its portal of entry through the broken skin, and animals and men are immunized against this virus by subcutaneous injections, after which neutralizing antibodies may appear in the blood serums. Animals thus immunized are protected against the rabies virus when inoculated intramuscularly, but despite previous active immunization procedures some animals succumb to minute amounts of virus if subsequently inoculated intracerebrally.¹⁹

Protection against disease is usually only relative, rarely absolute and often easily diminished or lost. In a general way, natural or acquired immunity could be defined as that amount of resistance possessed by the host that protects him against the ordinary exposure dose at the usual portal of entry. In the past, tests of tissue immunity and general resistance against poliomyelitis have been made by introducing the virus intracerebrally or intranasally. When a potent strain of virus is introduced by way of these portals of entry, paralysis of at least some muscle groups will appear in animals that are otherwise naturally immune, but more likely massive quadriplegia will develop, which is often followed by death. Animals rarely escape the disease when a virulent strain is used. Since but few human beings get the disease although many are exposed and since abortive types without paralysis are said to be common, one wonders whether it is logical to test protection by methods that produce paralysis or quadriplegia in every animal used.

Although it has been claimed that immunity has been brought about by inoculating animals with chemically treated virus, it is not certain from reading the reports whether animals thus immunized have been other than merely inoculated with live virus to which some chemical had been added. When living virus has been shown to be attenuated or actually killed, it has lost most of its ability to immunize actively.²⁰ After one reviews the literature, two points seem clear. First, artificial immunity may be established against poliomyelitis if the living virus is injected as the antigen,¹ second, many monkeys acquire the disease during this process of active immunization.

Few children contract poliomyelitis, of these, few have massive paralysis and still fewer die. Yet despite the paucity of cases, the relatively low morbidity and the low mortality rates, such great fear is had for this disease that the use of any efficient method of vaccination against it would have widespread and immediate use. Since there is no way to distinguish susceptible persons from those who are immune and since the factors which predispose toward the disease are unknown, it is obvious that vaccine antigens must be safe. Thus they cannot be viable, and, paradoxically, if they are not viable they seem to be of no value. In fact, not only may it be inadvisable from a practical standpoint to immunize actively with virus antigens but it has been suggested that such vaccines may even be dangerous to human beings.²⁰

THE PORTAL OF ENTRY

If local tissue immunity develops at the site of frequent exposure to noxious materials, then in the study of any disease a knowledge as to the portal of entry

becomes of primary importance in order that one may understand the methods of host protection and immunity. Nature needs no special protection against virus in the brain and cord, covered as they are with thick bone and dura. Hence, intracerebral injections are no gage of either resistance or immunity, since an animal amply protected at the normal portal of entry might easily come down with the disease after this test.

Most American research workers in the field of poliomyelitis consider the first and thirteenth nerves the avenues by which the virus enters the body, notwithstanding the fact that it is not easy to recover the virus from the nasal passages of either man or animal and notwithstanding the fact that to produce the disease in monkeys when the intranasal route is used the nose sometimes has to be prepared or large amounts of from 5 per cent to 10 per cent virus must be carefully instilled into the nostrils for a few days. If the olfactory area is the place where the virus enters, then the virus would have to be breathed in with either the dust or the moisture or from the breath of other individuals. The last possibility does not seem likely, since monkeys never contract the disease from each other nor has a second case ever developed in our contagious wards. (The recent Los Angeles epidemic seems to be the only exception regarding obvious hospital contagion.) In a few experiments I have found that monkeys remained well even after breathing for a short time while a 10 per cent virus vapor suspension was sprayed in their faces.

It has been inferred that after the olfactory connections were severed the disease was not produced when virus was injected intravenously. There is no evidence that the disease is spread by way of the blood stream but, quite apart from this, these experiments have been repeated and it has been found that, when proper doses were used, section of the olfactory bulb did not protect animals after virus was injected intravenously.²¹

To explain why poliomyelitis develops in animals after intravenous injection, it has been suggested that the virus thus injected is excreted onto the nasal mucosa and then reabsorbed by the first and thirteenth nerves, after which the animal gets the disease. That blood vessels experimentally surcharged with the virus may excrete it via the gastro-intestinal tract, the upper end of which is in the stomadeum in the region of the first and thirteenth nerves, and that the virus may even be isolated occasionally from the nasal areas of these animals is admitted. Inferentially, however, the conclusion has been broadly drawn from these and other experiments that if the olfactory area could be blocked the human disease could be prevented. Hence, this area has been sprayed with chemicals as a prophylactic measure on the theory that if it is the portal of entry then spraying it with such chemicals will prevent infection at that point and therefore prevent the disease. Such procedures should and do prevent the experimental disease when the virus is subsequently introduced intranasally, since they prevent the approximation of axis cylinder and virus. However, such procedures (the administration of 1 per cent zinc sulfate intranasally) do not prevent the experimental disease from occurring after a sufficient amount of virus is introduced intravenously,²² nor do they prevent the production of the disease when the virus is introduced by way of the gastro-intestinal tract.

19 Galloway, I. A. The Fixed Virus of Rabies. *Brit. J. Exper. Path.* 15: 97 (April) 1934.
20 Leake, J. P. Poliomyelitis Following Vaccination Against This Disease. *J. A. M. A.* 105: 2132 (Dec. 26) 1932.

21 Toomey, J. A. Section of the Olfactory Nerves and Experimental Poliomyelitis in preparation.

22 Toomey, J. A. Nasal Sprays of One per Cent Zinc Sulfate and Experimental Poliomyelitis in preparation.

Sicard²³ suggested that the virus spreads from the gastro-intestinal tract to the cord by way of the sympathetic fibers. Wickman and even Harbitz and Scheel first thought that the disease must have its entry through and spread from the gastro-intestinal tract. The gastro-intestinal tract is often involved before somatic paralysis appears.²⁴ Reflex changes similar to those which appear in persons with typhoid fever occur.²⁵ The height of the spring and fall curves of the disease occur about the same time as those of typhoid fever, a gastro-intestinal disease.²⁶ Many early symptoms of poliomyelitis are referable to the gastro-intestinal tract. The disease can spread along the sympathetic fibers from the intestine.²⁷ The virus acts differently when injected by way of the gastro-intestinal tract than it does when injected by any other route.²⁸ When the gastro-intestinal tract is disturbed, paralysis is produced almost immediately when the virus is injected intracerebrally.²⁹ When either the virus or enteric toxins are injected intracerebrally nothing happens for days, but when enteric toxins and the virus are combined and injected, paresis or paralysis may occur immediately.³⁰ The agglutinin titer of the blood serum against enteric organisms is disturbed in this disease.³¹ In short, the clinical symptoms of the disease are best understood if a spread is presupposed along the sympathetic, parasympathetic and chorda tympani fibers to the lumbar, cervical and bulbar areas of the cord³² from a portal of entry in the gastro-intestinal tract.

METHODS OF OBTAINING A PASSIVE IMMUNE PRINCIPLE

Many efforts have been made to obtain an efficient passive immune principle. To that end, horses,³³ sheep,³⁴ monkeys,¹² guinea-pigs, rabbits, dogs and goats³⁵ have been immunized with suspensions of virus and the serums of these animals tested for their neutralizing values, with variable results. Artificial serums have usually failed to protect animals that had been previously or simultaneously inoculated intracerebrally with the test virus.

Convalescent human poliomyelitis serum has been used prophylactically and therapeutically,³⁶ and its value has been questioned not only on clinical grounds, but because it failed to immunize animals passively. It has been stated that the virus was fixed in the neurons and that human poliomyelitis convalescent serum might not be able to destroy it there.³⁷ It was likewise thought that the pathogenesis of the disease precluded possible beneficial effects of serum therapy, "since serum would have great difficulty in reaching and penetrating in through the central nervous system, and it could not dislodge the virus apparently fixed to nerve cells and thus prevent further propagation."³⁸ It is fairly certain that controlled clinical and experimental studies have shown that convalescent serum is not very efficient in the treatment of preparalytic poliomyelitis.³⁹ As a result, the opinion is general that neutralizing antibodies are no indication of immunity to experimental poliomyelitis and that passive immunity in the human being is nearly worthless, and convalescent serum is employed only on the basis that it can do no harm and that it may do some good. It has even been intimated that such serum may be harmful.⁴⁰

The fact that animals die of the disease even after treatment with potent serums when the infecting dose is delivered intracerebrally or intranasally does not necessarily mean that the animals lack immunity. Definite immunity may be demonstrated if the infecting dose is delivered at the proper portal of entry. The only animals that are protected from the effects of subsequent intracerebral injections are those that have recovered from a massive attack of the disease following a previous intracerebral injection or intranasal instillation of the virus or following active immunization with multiple subminimal doses elsewhere, and even these may develop the disease if the doses of the homologous virus administered the second time are massive in comparison to those ordinarily used to produce the disease.⁴¹ Even here, immunity, although tissue in character, may be relative.

The technic that I have used in producing the disease by the gastro-intestinal tract has been considered drastic, but even so the clinical disease as it appears in the human being has been reproduced in the monkey by these drastic procedures, and they have provided definite cleartest tests of protection. A normal monkey is not easy to infect by the gastro-intestinal tract. In fact, the normal monkey is immune to poliomyelitis unless the virus is administered artificially (e.g., injected intracerebrally, subserosally or between clamps into the intestine or instilled intranasally). However, an animal can be made so susceptible that even my drastic methods need not be employed, and the disease can be produced merely by placing the virus in the intestine.⁴²

I have mentioned elsewhere the belief that the spread of virus is usually stopped in normal animals by some factor found in the white and not in the gray fibers.⁴³

23 Sicard. Presse med 2 19 1905 cited by Rolleston J D Brain 29 99 1906

24 Toomey J A. An Explanation of the Mechanism of Infantile Paralysis Production in the Human Being Ann Int Med 8 854 (Jan) 1935

25 Toomey J A. Some Reflex Changes in Poliomyelitis Am J Dis Child 46 730 (Oct) 1933. Reflex Changes in Typhoid Fever ibid 48 1296 (Dec) 1934

26 Aycock W L and Eaton P. The Biseasonal Prevalence of Infantile Paralysis Am J Hyg 4 356 (July) 1924

27 Toomey J A. Spread of Poliomyelitis Virus Along Nerve Fibers of Sympathetic System Proc Soc Exper Biol & Med 31 502 (Jan) 1934. Spread of Poliomyelitis Virus from the Gastro-Intestinal Tract ibid 31 680 (March) 1934

28 Toomey J A. The Histologic Aspect of Experimental Poliomyelitis Produced via the Gastro-Intestinal Tract Am J Dis Child 52 1361 (Dec) 1936

29 Toomey J A. Disturbance of Gastro-Intestinal Innervation in Poliomyelitis Am J Dis Child 52 559 (Sept) 1936

30 Toomey J A. Accelerated Production of Poliomyelitis Proc Soc Exper Biol & Med 31 1015 (May) 1934

31 Toomey J A. Changes in Titers of Agglutinins for Enteric Organisms in the Blood Serum in Poliomyelitis J Infect Dis 54 74 (Jan Feb) 1934

32 Toomey J A. Seventh Nerve as a Possible Pathway for the Transmission of the Virus of Poliomyelitis Am J Dis Child 51 58 (Jan) 1936. Experimental Production of Bulbar Poliomyelitis Proc Soc Exper Biol & Med 32 628 (Jan) 1935. Poliomyelitis II. The Bulbar Type Am J Dis Child 50 1362 (Dec) 1935

33 Dixon S G., and Rucker J B. Failure to Obtain Potent Serum from Horse Injected with Poliomyelitis Material J Infect Dis 23 543 (Dec.) 1918. Pettit August. La poliomyélite antérieure aigue. Biologie Gaz d hop 104 221 (Feb 14) 1931. Jungblut and Hazen¹²

34 Pettit A. Sur la preparation d'un serum neutralisant le virus de la poliomyélite. Compt rend Soc de biol 81 1087 1918

35 Howitt B F. Poliomyelitis. I. Production of Antiviral Serums by Inoculation of Goats and Sheep with the Virus of Poliomyelitis J Infect Dis 50 26 (Jan) 1932. Schultz E W. Gebhardt L P. and Bullock L T. Studies on the Nature of the Virucidal Antibodies in Antipoliomyelitis Serum. Proc Soc Exper Biol & Med 28 26 (Oct) 1930. Schultz E W. and Gebhardt L P. Antipoliomyelitis Serum Production in the Horse Proc Soc Exper Biol & Med 28 412 (Jan) 1931

36 Landon J F. Serum Therapy in Preparalytic Poliomyelitis J Pediat 5 9 (July) 1934

37 Brodie Maurice. Distribution of Virus of Poliomyelitis in Cerebrospinal Axis of Monkeys J Immunol 25 71 (July) 1933

38 Brodie Maurice. Role of Convalescent Serum in Preparalytic Poliomyelitis J Immunol 28 353 (May) 1935

39 Brodie Maurice and Park W H. Active Immunization Against Poliomyelitis J A M A 105 1089 (Oct 5) 1935. Fischer A E. Pooled Convalescent Human Serum in Poliomyelitis J A M A 107 985 (Sept 19) 1936

40 Comments. The Serum Treatment of Poliomyelitis J Pediat 10 573 (April) 1937

41 Toomey J A. Second Attacks of Poliomyelitis in Macacus Rhesus Monkeys Am J Dis Child 52 802 (Oct) 1936

42 Toomey J A. The Ingestion of Vitamins A, B, C and D and Poliomyelitis Am J Dis Child 63 1202 (May) 1937

43 Toomey J A. Adsorption of Poliomyelitis Virus by Cholesterol. Am J Dis Child to be published

This seems incongruous since it has been shown that virus spreads over the axons of both medullated and nonmedullated nerves, although medullated nerves must be irritated before infection occurs. The disease was easily brought about some years ago when virus was injected into the sciatic nerves, but subsequent consistent failures brought to light the fact that there was some difference between the animals then used and the animals formerly used.

Probably the difference was due to the fact that the diet of the earlier group was devoid of vitamin D and, since later animals were fed viosterol, and thus possibly had better myelinated nerves of a high cholesterol content, it might explain why the more recently acquired animals did not contract the disease when inoculated peripherally.

The difference in the solid elements between medullated and nonmedullated nerves is chiefly in the cholesterol content, it is high in medullated (35 per cent) and low in nonmedullated fibers (0.7 per cent).⁴⁴ Cholesterol adsorbs or destroys poliomyelitis virus.⁴⁵ When rickets is produced in rats by lack of vitamin D, the nerve myelin becomes involved, since in these animals a foamy condition of the myelin sheath appears, probably the result of edema of the neurokeratin framework.⁴⁶ When rickets is produced in monkeys, probably the nerve myelin and its cholesterol content become involved and the virus is not adsorbed or destroyed. In any event, it is a fact that the disease is easily produced in such animals.⁴² On the other hand, when monkeys have had plenty of vitamin D and inferentially have plenty of cholesterol and good myelinated nerves, the disease cannot be produced via the gastro-intestinal tract. The subcutaneous area of normal skin has a high cholesterol content (19 per cent), and from 750 to 1,100 mg may be found in the total blood volume of an adult. Suggestive indeed in view of certain experiments on blood is the fact that the cholesterol content is increased during pregnancy. Suggestive likewise is the fact that massive amounts of virus must be injected into the blood stream before the disease is produced. Suggestive likewise is the fact that massive amounts of dihydrocholesterol (coprosterol and B-cholestanol) and cholesterol are contained in the normal intestine, which conjugated with virus could easily inactivate it and prevent infection from occurring.

If virus enters by way of the normal gastro-intestinal tract, it might go into colloidal equilibrium with the free cholesterol elements contained in the intestine and be destroyed there. It could also be absorbed by the nerves, but spread to the cord could be prevented by the cholesterolized white fibers in persons with well myelinated nerves, in some persons the virus may not be adsorbed because of deficient myelin, and it could spread over the sympathetic and parasympathetic chains, along nerves that possibly have been previously sensitized to enteric toxins and that have direct communication from the intestine to the lumbar, cervical and bulbar areas.

Thus there might be little or no marked production of neutralizing antibodies if the mechanism of primary defense was carried out in a healthy myelinated nerve, and primary protection would be merely a detoxifying adsorptive colloidal phenomenon. If, however, nerve fibers were diseased or poorly medullated virus might

spread along nerves to cells of origin, causing destruction followed by inflammation,⁴⁶ and neutralizing antibodies might be formed. In experimental work neutralizing antibodies were found to be effective in preventing the disease in monkeys when the virus was introduced by way of the gastro-intestinal tract,⁴⁷ and when this portal of entry is used experimentally it will be found that neutralizing antibodies are a good index of immunity. Since nature heals with the production of antibodies, even though they are quantitatively variable, it still seems logical to try to produce an anti-poliomyelitis serum.

At present there is no evidence of a controlled nature that convalescent poliomyelitis human serum has any value in the treatment of the disease. Certainly there is no reason why it should be given to exposed persons. There is likewise no controlled evidence that convalescent serum will abort an attack of poliomyelitis. A physician therefore who does not use this therapy does not withhold a beneficial procedure from his patient. Before this therapy is discarded, however, it might be wise, as Kramer⁴⁸ suggested, to ascertain if it has any worth when used in massive amounts in the preparalytic stage of the disease.

Since this article was written, Levinson⁴⁹ has reported that he has used massive amounts of convalescent poliomyelitis serum in the treatment of preparalytic cases with good results.

3395 Scranton Road

ABSTRACT OF DISCUSSION

DR JOSEPH YAMPOLSKY, Atlanta, Ga. Dr Toomey has attempted to give an evaluation and a review of the literature on the problems of the active and passive immunity in poliomyelitis. It is apparent that, although 80 per cent of the population seem to possess a natural immunity, the devastating and almost immediate effect of this disease in a few of those who do not possess this immunity becomes at times alarming. The use of chemical agents sprayed intranasally and the injection of Kolmer's vaccine as well as Brodie's vaccine have especially come to our attention in the last decade. As yet I must agree with the author that no definite agent has been produced that is of proved value in active immunization. As to passive immunization, the use of convalescent serum is of special interest. Since it is known that many, or the majority of cases of poliomyelitis are of the nonparalytic type, it would seem to me that its value, if any, would be in the preparalytic state, and how is it possible, except in severe epidemics, to make a definite diagnosis of this stage of this disease? Yet, even in those cases in which serum was used and thought to be of value, its therapeutic results have been questioned by many observers. The problems of immunity in poliomyelitis would be made easier if the exact portal of entry of this virus could be established. The author has again attempted to confirm his theory of the gastro-intestinal entry and he has attempted by experimentation of the use or nonuse of certain vitamins to reaffirm his ideas. Flexner recently again reviewed this subject fully and as yet disagrees with the author as to the theory of the introduction of the virus by the gastro-intestinal tract. Unless this matter is settled fully, some solution of the problem of immunity in poliomyelitis must be awaited.

DR JOHN FITCH LANDON, New York. In support of Dr Toomey's theory concerning the gastro-intestinal portal of entry, it is interesting that Dr L. W. Smith, pathologist at the Willard Parker Hospital during the large 1931 New York City epidemic, examined fifty-six olfactory bulbs from human subjects and found surprisingly little microscopic change in them. Students at the Rockefeller Institute working with monkeys have also recently been impressed by this observation.

⁴⁴ Bodansky, M. *Introduction to Physiological Chemistry*, ed. 2 New York, John Wiley & Sons, Inc. 1930, p. 496.

⁴⁵ Weaver, H. W. (Ohio State University Department of Anatomy). Personal communication to the author.

⁴⁶ Toomey, J. A. *Poliomyelitis Virus and the Degeneration of Peripheral Nerves*. *Am J Dis Child* 53: 79 (Jan.) 1937. Toomey, J. A. *Poliomyelitis Antiserum Obtained from Horses*. *Am J Dis Child* 53: 1492 (June) 1937.

⁴⁷ Kramer, S. D. *Round Table Discussion*. *J. Pediat.* 7: 278 1935.

⁴⁹ Levinson, S. O. *Round table discussion on poliomyelitis at meeting of American Academy of Pediatrics*. June 5 1937. New York.

The author's conclusions concerning the value, and in particular the safety, of prophylactic vaccines are sound. Sufficient data have accumulated to justify his stand that the advisability of employing prophylactic vaccines is very questionable. Interesting are the observations on the relative susceptibility of monkeys in which rickets is produced. However, from a clinical point of view it should be noted that children contracting poliomyelitis usually appear to have been in robust health with little evidence of rickets. The advisability of further trial of convalescent serum in massive doses is obviously a debatable question. Statistical analyses of large groups of cases treated with convalescent serum have in my opinion definitely proved that it is extremely doubtful. It is conceivable that the intravenous employment of serum might do some harm, since the intravenous use of any substance is always attended with some danger. In a fairly large series of cases at the Willard Parker Hospital, general reactions occurred in 18 per cent of the cases in which serum was administered by the intravenous route. The so-called preparalytic or nonparalytic cases show a low mortality and a low incidence of paralysis, so that the efficacy of serum treatment is extremely difficult to evaluate. At the Willard Parker Hospital, where no serum of any type has been employed since the epidemic of 1931, it is interesting to note that in 1932, 1933 and 1934 there were thirty-seven preparalytic cases with five deaths, while in 1935 there were 307 such cases with only two deaths. If we had become discouraged over our relatively poor results in 1932, 1933 and 1934, and had used serum in 1935, it is obvious what conclusions would have been drawn. Although there is no incontrovertible evidence that the intravenous use of serum may be harmful, to those of us who believe that the brunt of evidence is against it and that in the uncertain state of knowledge concerning the disease the foundation stone of therapy still remains complete rest, it seems reasonable to conclude that any disturbance of a patient who is apprehensive and hyperesthetic is a distinctly questionable procedure.

DR PAUL H. HARMON, Chicago. I believe that too many deductions have been made by applying the results of experimentation on monkeys to the human disease. The simplest experiment that would be readily applied to the disease in man would be an attempt to isolate the virus from the intestinal tract. We did a series of these experiments last summer in Chicago. Of twenty such patients, we were unable to isolate the virus in a single instance from the nasopharynx, but were able to obtain it in five instances from the gastro-intestinal tract. It will be argued by some that such an isolation of virus from the gastro-intestinal tract represents virus that has been swallowed. We were able in nine cases to examine olfactory bulbs from fatal cases from that epidemic. Lesions were absent in every case in those olfactory bulbs. All such evidence points to the gastro-intestinal tract as the probable portal of entry of the virus. Another thing that has not been taken into serious consideration so far is the question of strains of virus. We were finally able to establish one such strain in monkeys. It appears that this strain is immunologically distinct from the PMV strain that has so far been used in many laboratory investigations. Animals that recover from the 1936 strain are all susceptible to the PMV strain. That has been the experience of others with local virus strains recently. Trask, in a recent article, has been able to show that there are at least three or four such strains, a situation quite comparable to that of encephalitis in which there is the Japanese type, the St. Louis type and the von Economo type. With regard to the question of vitamins, clinical observations in connection with persons who are susceptible to this disease would argue that lack of vitamins does not predispose to susceptibility to this disease as those who contract the disease most readily are those who seem to be in most robust health. Certainly there is no deficiency of vitamin D in children toward the end of summer or in early fall. The use of serum in this disease has been argued for many years. Apparently we are getting no further with this argument than we were five or ten years ago. I might call to mind the experiences of Schultz and Gebhardt who showed that serum used prophylactically in the severe disease of monkeys cut down the incidence of the disease from 93 per cent to 70 per cent. I might also recall the experience of Levinson in the last four or five year period

in Chicago in which a negligible amount of paralysis was observed in preparalytic cases treated with serum. I believe without a doubt, that serum has a beneficial effect in this disease when used under the proper indications.

DR WILLIAM H. PARK, New York. I think that many know the results obtained by Drs. Aycock and Kramer in the New York 1936 epidemic. In a hospital in Brooklyn every enteric patient was carefully examined, and the exact amount of preliminary symptoms noted. Every alternate patient, taken regularly in order, was given the serum. At the end of the epidemic, both Dr. Aycock and Dr. Kramer reported their experience in an article showing that there were more serious symptoms and, at the end, more slight paralyses in those who had had the serum than in those who had not, and that there was one more death in the group that had had the serum. In the city as a whole, I arranged that we did not give the serum in hospitals. When we calculated the difference between the hospital cases and the outside cases, we found that there was practically no difference except that those getting the serum had, on the average, a little greater paralysis.

DR SIDNEY DAVID KRAMER, Brooklyn. Most physicians feel that the virus of poliomyelitis has its entrance to the body through the upper respiratory tract for the following reasons: 1. In spite of the major difficulties in obtaining a take in the experimental animal from human material, the virus of poliomyelitis has been recovered from the upper respiratory tract sufficiently often to be significant. 2. Efforts to recover the virus from the gastro-intestinal tract under normal conditions have been rather consistently negative, with the exception of the unpublished results just quoted by Dr. Harmon. Dr. Harmon is to be congratulated. Clark and Flexner and Scherp, although employing concentration methods, were unable to recover the virus from the intestinal contents of human beings and animals dying of the disease. 3. Infection of the experimental animal is relatively easily accomplished by the introduction of the virus into the nose, and this contrasts strikingly with the difficulties encountered in obtaining takes when the virus is introduced into the gastro-intestinal tract. Dr. Toomey's success in obtaining takes through the gastro-intestinal tract might readily be explained by the drastic measures he employs. 4. The epidemiology of poliomyelitis is that of a contact disease, like measles and diphtheria, in which it has been shown that etiologic agents enter the body through the upper respiratory tract. Dr. Park has just discussed the experiment conducted by the Academy of Medicine to determine the value of convalescent serum in the treatment of the disease. The results of this large experiment confirmed our own smaller alternate treatment experiment in Brooklyn and Hartford the same year (1931). Our results indicated that those patients who did not receive serum did quite as well as those who did. The same general impression prevails concerning the value of convalescent serum as a prophylactic measure. There is little or no evidence to indicate that human convalescent serum has any prophylactic value, and this in spite of the painstaking experiments of Brebner and Stokes. However, in view of the claims of McNamara and Levinson, were an unlimited amount of potent immune serum made available, it might be worth while reviewing the problem of the therapeutic and prophylactic value of such serum, using much larger doses than have heretofore been employed.

DR JOHN A. TOOMEY, Cleveland. Dr. Landon brings up the question of rickets as a predisposing factor in poliomyelitis. I should have been more clear about this point. Flexner objected to our experiments because of the drastic methods employed to introduce the virus into the gastro-intestinal tract. I wished to put the animal in such a state that its gastro-intestinal tract would absorb virus immediately without using the drastic methods objected to. I found that if I produced rickets in the monkey I did not need to resort to drastic measures to produce the disease. I could not state that rickets proved to be one of the predisposing factors in human poliomyelitis. To one who has always believed that the gastro-intestinal tract was the portal of entry in this disease Dr. Harmon's remarks are encouraging indeed. Dr. Kramer states that poliomyelitis is a contact disease. Why then don't monkeys exposed to other monkeys with the disease contract the infection?

IMPORTANCE OF THE ADEQUATE
TREATMENT OF FRACTURES
IN RURAL HOSPITALS

WILLIAM T HAMMOND, M D

EASTON, MD

An accurate statement as to the exact number of fractures treated annually in the United States is virtually impossible. Estimates vary from 1,000,000 to 1,500,000. Of these a large proportion are treated in hospitals. The American Medical Association has registered 2,900 small general hospitals, many in country districts that each year admit and treat thousands of fracture patients.

When the fracture patients constitute a considerable proportion of the total number of admissions, as in industrial centers, there is generally sufficient equipment and trained personnel present to insure adequate treatment, but in some of the smaller places, where comparatively few fractures are seen, facilities for prompt and efficient care are not always available. Yet statistics of casualty insurance companies show that about two thirds of all major automobile accidents occur in rural sections, demonstrating that our high speed machine age accounts for an increasing number of fractures in country hospitals regardless of our capacity to care for them properly. Many such victims of motor car accidents are strangers, hurt far from home, and hence they have no choice in the selection of a physician. Thus the responsibility for their treatment is entirely on the institution to which they are admitted.

I have visited a number of small hospitals in the past year and made some investigation of fracture treatment. An appalling lack of interest is found in many places, every one with hospital privileges treating fractures of all types, except possibly fractures of the skull, which are referred to the surgeon. Also there seems to exist a belief that any doctor can set a broken bone or, if any attempt is made to segregate fracture work, it is turned over to the youngest and most inexperienced staff member because the tedious and time-consuming attention to detail required over a period of weeks makes such work unattractive to the busy surgeon as well as beneath his dignity in too many instances.

Analysis of a long series of cases in one of the larger hospitals showed that a considerable percentage of the patients admitted for open reduction, onlay, inlay or bone plating were referred from small hospitals, where there was no one sufficiently experienced to attempt such operations. Evidently such cases were treated by men who were not trained in fracture treatment, since a study of the history and x-ray films made obvious the fact that proper early reduction and immobilization would have made operation unnecessary in many instances.

It is true that small communities cannot support a properly trained orthopedic surgeon to supervise the fracture department, yet the need for skilful handling of severe fractures is nevertheless constantly present. Most of the patients who need special care cannot be transported to the larger institutions for treatment because of the elements of expense, time and condition of shock. That many of these small institutions, how-

ever, are in contact with orthopedic surgeons who understand the principles of fracture therapy, some who visit such hospitals as consultants can testify. The situation, then, is about as follows.

There are many small hospitals located in the field of action, with a special group of patients, who, because of the emergency nature of their cases cannot well be moved but who are in need of prompt treatment. At the same time, scattered over the country in the larger hospitals, are experienced orthopedists willing to give assistance. Isn't it only logical to attempt some means of combining forces toward providing sufficiently skilful treatment to give fracture cases the best possible chance for satisfactory results with a minimum of time and expense? I shall try to present here the point of view of one who has wrestled with the fracture problem in a small town, of one familiar with the difficulties in an isolated country hospital. It is the story of how we worked out a solution, a compromise, if you will, but one which keeps our patients in the local hospital, yet gives them the benefit of the experience of an orthopedic surgeon in a nearby city.

For twenty-five years I have been on the staff of one of these country hospitals and for the past fifteen years I have conducted a fracture clinic. The place in question, the Emergency Hospital at Easton, Md., is a fair example of an average country hospital. It is small, of seventy bed capacity, staffed by local physicians. It is situated in an agricultural community without large industries, and it admits annually a small number of fracture patients.

At first thought one would not consider our fracture problem an important one because of the few cases treated. This fact for a long time dulled our sense of responsibility to fracture patients, and it was not until our attention was called to some of the unsatisfactory results that we realized our shortcomings. In our hospital, as in most other institutions of its type, for many years the treatment of fractures was not given special consideration. Each man treated fractures occurring in his practice with no one else paying much attention to them, and it was simply taken for granted that any one who sustained a major fracture was destined to carry some deformity or disability for the rest of his life.

Seventeen years ago our hospital, with the cooperation of the Rotary Club, asked Dr. Robert W. Johnson to conduct a monthly clinic for crippled children. He did so, but for the first two years much of his time was unavoidably diverted from the clinic and spent in the operating room, where he opened and plated many ununited and imperfectly reduced fractures. Finally, he suggested to the staff that our handling of fractures could be improved, and he discussed with us the advisability of appointing one staff member for fracture service, as no one man treated sufficient fractures to stimulate a keen enough interest in the work. It was hoped that with only one individual in charge he would inevitably be interested in his department and that he would visit other clinics and keep himself informed as to the new and approved methods for handling fracture patients. In conjunction the other staff members agreed to refer their fracture cases to the new department and to allow the chief full responsibility for their care. We then went ahead.

The necessary equipment of Balkan frames, traction devices, fracture table and bedside x-ray equipment was procured through the generosity of friends. A room

near the receiving ward was set aside for a fracture room, and Dr. Johnson promised to stand by with advice and assistance whenever necessary.

In the early days of our clinic this advice was eagerly sought. Our consultant was frequently called on the telephone, x-ray films were hurriedly dried and sent him for an opinion. Often he would come across Chesapeake Bay, in all kinds of weather, to advise and help in the management of some difficult case, generally without compensation. Evidently he had faith in the project he had encouraged and was willing to make any sacrifice to insure its success. As a consequence we believed in it, too.

When first established, the fracture service had no official status as a hospital department. It was operated entirely through mutual agreement among the members of the staff. But this informal arrangement placed the burden of proof on the chief of the service and stimulated him to prove the value of the innovation. After some years, during which time the clinic continued to grow and receive the support of physicians in the surrounding territory, it was given the official title of "Fracture Service," and all fracture patients were admitted directly to this department.

Except for automobile accidents, which at present account for 20 per cent of our cases, there is no one factor largely responsible for the manner in which fractures are sustained. They are simply the result of the manifold usual accidents of civil life—falls down stairs or on the street, farm accidents, playground injuries, and so on, but we admit about 200 fracture patients a year.

Before the establishment of the service, most of the elderly patients who had sustained a fracture of the hip were kept at home, as hospitalization then offered little improvement over the treatment given by the family doctor. When these patients were referred to the fracture clinic, our first method of treatment that offered any reasonable hope of union and function was the Whitman spica cast. Satisfactory results were obtained in about 40 per cent, which was disappointing when one considers the length of time the cast is worn and the nursing care employed. The announcement of a simplified technic for the use of the Smith-Petersen nail was received by us with enthusiasm. It is now used almost as a routine. When accurately placed, with the fragments impacted, it has proved to be the most satisfactory treatment we have used. While it is too early accurately to state the percentage of good results, it will far exceed our previous figures. Taking these hip fracture patients out of bed and putting them on crutches in a comparatively short time is a life-saving procedure for a group who find immobilization in a cast almost unbearable. For the same reasons, some type of well leg splint is used in the intertrochanteric fracture. It provides sufficient traction, and the patients enjoy the freedom of a wheel chair much earlier than in other methods we have employed.

In the treatment of fracture of the shaft of the femur we have watched the evolution of traction from Bucks extension to bone calipers, from Kirschner wire to Steinman pin, and in turn have used all of them. At present, when feasible, we are using skeletal fixation with steel pins combined with a plaster cast. Patients treated in this manner are apparently quite comfortable, there is little likelihood of displacement; they require a minimum of nursing care as compared with the suspension and traction method; and their period of hospital-

ization is materially shortened. That is an important item in an institution of limited bed capacity.

While there has been considerable criticism of the promiscuous use of Steinman pin fixation by untrained persons, this technic has given us excellent results in cases of severe comminution and spiral oblique fractures of both bones of the lower leg. The method is not used when fractures can be reduced and held in position in a cast, but when we must choose between a probable gross deformity and the insertion of pins, our choice is the latter.

Seventy-five per cent of the fractures of the humerus have required some type of traction, either ambulatory or with suspension. All our cases with fracture dislocation of the head of the humerus required open reduction, and in most instances resection of the head.

In one group we have a definite routine. I am referring to fractures of the elbow in children. These are all reduced under general anesthesia. After manipulation and reduction, we make anteroposterior and lateral x-ray films before any splint is applied. When the film shows satisfactory reduction, a posterior plaster splint is applied leaving the inner aspect of the elbow exposed. The patient is then required to stay in the hospital at least twenty-four hours for observation.

Fractures of the shaft of both bones of the forearm in adults have been difficult to handle. Various types of traction splints have been tried with indifferent results. Open reduction, when resorted to, has not always been satisfactory. Our best results have been obtained through the use of a half pin in the radius and a pin through the ulna near the olecranon. As a rule, good reduction can thus be secured, and by incorporating the pins in a cast, held until union is complete.

It is only natural that I should experience some embarrassment in presenting this paper before the Section on Orthopedic Surgery. I am not an orthopedist, and before the establishment of our clinic I had no training in fracture treatment. It should therefore be remembered that when I elaborate on the methods used in our hospital it is only for the purpose of showing the general scope of the work and not intended as a treatise on the proper methods of treating fractures.

After observing the good results secured in other clinics, we adopted some of the mechanical devices that utilize pins and wires for skeletal fixation. While their use does entail some hazard, proper selection of cases and a scrupulously careful technic will eliminate most of the dangers. We do not believe, however, that machine shop precision and modern gadgets can replace careful individual attention to reduction, immobilization, frequent observation and follow-up service. To conduct such a service in a small place means hard work and long hours, but there is no other branch of medicine or surgery in which the drudgery of detail is better invested than in the treatment of fractures.

Most of our patients are received in a comparatively short time after injury and we are able to do early reductions. On admission, the patient, unless a condition of shock makes it unwise, is placed on the fracture table, roentgenograms are made, and a plan of treatment is decided on.

All patients are given a physical examination and a routine Wassermann test, and the facilities of the hospital are available as for any other patient. The fracture chart, as approved by the American College of Surgeons, is used as a routine. Serial x-ray studies

are also made when necessary. After reduction, all fractures are roentgenographed in two positions or stereoscopically.

Considerable time will be saved if the fracture chief can interpret his x-ray films and has a knowledge of the proper positioning of patients. Our fracture room has its own x-ray unit, a shock proof bedside machine which is used for fluoroscopic control of reductions, for taking films of most fractures of the extremities and for general bedside work in the wards. We are in most instances independent of the regular x-ray laboratory and thus avoid unnecessary moving of the patients.

The responsibility for improving the treatment of fractures in the small hospitals of the country rests more heavily on the orthopedic surgeons of America than on any other group. More can be accomplished by the individual guidance and assistance of orthopedic surgeons than by fracture committees and hospital surveys although I do not minimize the importance of these organizations when and if they function. But orthopedic surgeons are recognized as authorities on this subject and their opinions are respected by the rural hospital staff and the physicians who refer patients to them. Not only will their advice be valuable to any clinic but their endorsement will ensure for it the recognition necessary for successful operation. In the small hospitals which have met the minimum requirements of the American College of Surgeons, fracture treatment has only recently been given serious consideration. The rules of such hospitals require that most surgery be performed only by those who have been properly trained, yet there is nothing to prevent any one from treating severe fractures. At present the fracture committee is attempting to develop suggestions and regulations for fracture treatment and give this work the recognition it deserves.

One of the most important items in the building up of a fracture service is the cooperation of the hospital staff in referring patients to the clinic. In our hospital we have been fortunate in that most of our colleagues demonstrated a high type of cooperative spirit and willingly relinquished their patients to the fracture department. In this connection the orthopedic consultant can play an important role, he can freely discuss this matter of referring patients and request the support of the staff for the new department, all of which would be difficult and possibly embarrassing for the fracture chief to do for himself.

We have made no appreciable progress in improving the transportation of fracture patients. Ambulances equipped with Thomas splints are not always available. As a rule patients are placed in the first car to reach the scene of the accident and rushed to the hospital. Frequently they are received in a state of shock as a result of the rough handling and the ride.

The best examples of emergency splinting seen by us were contributed by Boy Scouts and telephone crews, who used whatever was available for splinting. Patients given first aid by them arrived at the hospital in good condition. Within another generation the full benefits of the first aid instruction given to the youth of today should be manifest and more intelligent roadside care will be rendered the injured.

SUMMARY

1 As two thirds of all major automobile accidents occur in rural districts, it is necessary that the small hospital treat an increasing number of fracture patients. Present methods are unsatisfactory in many places.

2 Better care of these patients can be provided by a definite fracture service or clinic.

3 The necessary equipment need not be elaborate or expensive and is well within the financial limits of most small institutions.

4 An orthopedic consultant can help materially in building up such clinics because of his acknowledged position of leadership in fracture work.

CONCLUSION

I suggest that orthopedic surgeons use their influence, offer encouragement to the small hospitals and aid them in establishing a fracture service wherever interest is shown.

The successful operation of our fracture clinic for the past fifteen years under the supervision of an orthopedic consultant, but directed by the local chief of the service, proves the practicability of the plan, and it seems probable that the same general scheme must be applicable to many other small hospitals throughout the country.

208 Goldsborough Street

ABSTRACT OF DISCUSSION

DR GEORGE E BENNETT, Baltimore. This represents an ideal set up, which should furnish an example for all orthopedic surgeons. I have had the opportunity of hearing Dr Johnson discuss the development of this fracture clinic with Dr Hammond. It shows what can be done with a very unusual general practitioner who is properly guided and instructed and who has working at his side an enthusiastic orthopedic surgeon who is willing to give the time and the labor to see that he is properly instructed. The development of key men of Dr Hammond's type in small hospitals throughout the United States is one of the matters in which this organization and other orthopedic organizations must become interested. I know of no single unit in a small rural hospital where there has been such a change in the end results of fractures as there has been in this small hospital in Easton, Md. Prior to the development of this unit the hospitals in Baltimore were constantly receiving very badly handled fracture cases from the entire eastern shore of Maryland and now we seldom see one. Dr Hammond is to be congratulated and encouraged, and I hope that every one will be able to make as good a choice in a country practitioner as Dr Johnson in his selection of Dr Hammond as his co-worker.

DR VOIGT MOONEY, Pittsburgh. Dr Hammond's attempt is not always true in the rural hospitals. It is difficult to take up all the phases of Dr Hammond's paper, so I shall show a few lantern slides which will graphically express some of my views on the handling of fractures in rural hospitals. I may state that I am opposed to the open treatment of fractures, especially in children.

Tuberculosis in Children.—At one time it was thought that the first infection type of tuberculosis is established in a high percentage of children before the period of adolescence. This probably was true in many places and apparently is still true in a few densely populated centers, such as Philadelphia. However throughout the greater part of the United States and in some other parts of the world the campaign against tuberculosis in man and animals has so greatly reduced or controlled the number of cases of communicable tuberculosis in both man and animals that large numbers of children now grow to adult life without having had the first infection type of tuberculosis. Indeed, in a few places the situation has been so completely reversed that although formerly from 90 to 95 per cent of the young adults had been infected now only from 5 to 10 per cent react positively to the tuberculin test—Myers, J. A., Diehl H. S., Boynton Ruth E. and Trach, Benedict. Development of Tuberculosis in Adult Life. *Arch. Int. Med.* 59:1 (Jan) 1937.

BENIGN LYMPHOCYTIC CHORIO-
MENINGITISLABORATORY STUDIES WITH THE VIRUS AND
THEIR POSSIBLE BEARING ON THE
INFECTION IN MAN

CHARLES ARMSTRONG, M.D.

AND

JERALD G. WOOLEY, M.D.

Senior Surgeon and Bacteriologist, Respectively United States
Public Health Service

WASHINGTON, D. C.

The virus of benign lymphocytic choriomeningitis was first isolated and described by workers at the National Institute of Health in 1934¹ Traub² at Princeton in 1935 and Lepine and Sautter³ at Paris in 1936 recovered similar strains of virus from white mice, and Rivers and Scott⁴ at New York in 1935 and also Findlay, Alcock and Stern⁵ at London in 1936 isolated strains from human beings with nervous manifestations.

These various strains affected animals in a similar manner and have been shown to be immunologically similar to the original strain isolated by Armstrong¹. The virus is pathogenic for monkeys, guinea-pigs, mice and white rats and is capable of affecting many tissues and organs. For instance, Armstrong, Wooley and Onstott⁶ demonstrated an abundance of the virus in the brain, lungs, kidneys, heart muscle, voluntary muscles, marrow, salivary glands, adrenals, spleen, liver, testicles and blood of infected monkeys. Lillie,⁷ moreover, demonstrated that the presence of the virus in the various organs was accompanied by micropathologic changes.

The symptoms in experimentally inoculated monkeys differ in severity depending on the dose, the strain of virus and the route of inoculation. When inoculated directly into the central nervous system, the virus produces well marked symptoms and often death in monkeys and is usually fatal to mice and guinea-pigs. When it is introduced otherwise than directly into the central nervous system, it is extremely rare according to our experience for symptoms suggesting involvement of the central nervous system to ensue, and this is true even though the inoculation follows local irritation produced by the injection of foreign material into the brain. Monkeys so inoculated may be febrile for a few days, not eat well and appear somewhat ill. However, an afebrile, asymptomatic type of infection with virus demonstrable in the circulating blood has been noted.⁸ Monkeys and mice have been shown also to become immune to intracerebral inoculation after subcutaneous injection of the virus even in the absence of symptoms detectable by usual observations. Moreover, the serum of immune monkeys, as demonstrated by Armstrong and Wooley⁹ and others,¹⁰ when mixed with the virus

in proper proportion is capable of neutralizing the latter, as is shown when the mixture is injected intracerebrally into normal animals.

NEUTRALIZING ANTIBODIES IN THE SERUM
OF MONKEYS

We have demonstrated potent antibodies¹¹ in the serums of sixteen of seventeen monkeys which had been well for various intervals after recovering from an experimental infection with the virus of choriomeningitis, while of eight noninoculated monkeys, sixteen that had received the virus of poliomyelitis and eleven that had been inoculated with the virus of encephalitis (St. Louis type) all had negative reactions except two. The two exceptions had both been for some time either in direct or indirect contact with infected animals. Moreover, one spontaneously infected monkey was actually observed,⁹ hence, the serum virus protection test appears to afford a means of detecting the presence of specific antibodies in the serum of monkeys.

CHORIOMENINGITIS VIRUS AS A CAUSE OF
DISEASE IN MAN

Two strains of a previously undescribed virus were isolated at the National Institute of Health during studies of autopsy material from two cases. One subject had died of encephalitis, St. Louis type, and the other apparently of a staphylococcal invasion of the brain. We could not, however, be certain that the viruses had not been picked up from our transfer animals (monkeys). The similarity of the symptoms and the changes in the spinal fluid in monkeys to those recorded in cases of "aseptic meningitis" in man was, however, pointed out by Armstrong,¹ who later, with Wooley, demonstrated the presence of specific neutralizing antibodies for the virus in the serum of persons who had recovered.

Armstrong and Dickens¹⁰ noted the absence of such antibodies from the serum taken early in the course of an attack of "aseptic meningitis" and their development during convalescence. Rivers and Scott⁴ and Findlay, Alcock and Stern,⁵ moreover, have isolated strains of the virus from human beings with this clinical entity, so that the etiologic rôle of the virus in certain clinical cases of "aseptic meningitis" is established.

PROTECTIVE ANTIBODIES IN HUMAN SERUM

Workers at the National Institute of Health have completed the testing of 1,248 human serums for the presence of antibodies capable of neutralizing the virus of lymphocytic choriomeningitis, 138, or 11 per cent gave definitely positive results. Fifty-eight of the 1,248 serums were from persons whose condition was clinically diagnosed as "aseptic meningitis", in nineteen, or 32 per cent, neutralizing antibodies against the virus isolated at the National Institute of Health were demonstrated.

In some instances the serums were collected too early in the attack for one to have expected the presence of specific antibodies, and it was not possible to secure later samples. There were, however, numerous cases in which the condition was considered to be clinically "aseptic meningitis" in which the results of the protection tests were negative with serum collected well after convalescence and even with repeated samples of serum. Such results might be explained by immunologic differences in strains such as have been observed in the case of certain other ailments due to viruses. However, the

Read before the Section on Nervous and Mental Diseases at the Eighty-Eighth Annual Session of the American Medical Association at Atlantic City, N. J., June 10, 1937.

1. Armstrong, Charles and Lillie, R. D. Pub. Health Rep. 49: 1019-1027 (Aug. 31) 1934.

2. Traub, Erich. Science 81: 298 (March 22) 1935.

3. Lepine, Pierre and Sautter, Valentine. Compt. rend. Acad. d. sc. 202: 1624-1626 (May 11) 1936.

4. Rivers, T. M. and Scott, T. F. M. Science 81: 439 (May 3) 1935.

5. Findlay, G. M., Alcock, N. S. and Stern, R. O. Lancet 1: 650-654 (March 21) 1936.

6. Armstrong, Charles, Wooley, J. G. and Onstott, R. E. Pub. Health Rep. 51: 296-303 (March 20) 1936.

7. Lillie, R. D. Pub. Health Rep. 51: 303-310 (March 20) 1936.

8. Armstrong, Charles. Unpublished data.

9. Armstrong, Charles and Wooley, J. G. Pub. Health Rep. 50: 50-54 (April 19) 1935.

10. Armstrong, Charles and Dickens, Paul F. Pub. Health Rep. 50: 50-54 (June 21) 1935.

11. Wooley, J. G. and Armstrong, Charles. Pub. Health Rep., to be published.

strains of virus already isolated from widely separated regions have all been immunologically similar. Moreover, the fact that we failed in several instances to isolate the virus from material collected at a time when its presence should have been expected is against this interpretation. We have been led, therefore, to feel that the clinical entity "aseptic meningitis" is made up of more than one etiologic entity. The serum virus protection test indicates that approximately one third at least of the fifty-eight cases of "aseptic meningitis" investigated were probably caused by the virus under discussion, for which cases we have therefore suggested the specific designation of benign lymphocytic choriomeningitis. The cases in which protective antibodies for the choriomeningitis virus were not demonstrated were cases of such diseases as tuberculous meningitis, poliomyelitis, encephalitis of the lethargic, St. Louis or postinfection type, or of other ailments of the central nervous system, of unknown cause.

It is to be noted, however, that protective antibodies in the serum were much more frequently observed (11 per cent) than was a history of aseptic meningitis. Many persons with antibodies were carefully questioned by Dr. Wooley and denied a history of any disturbance of the central nervous system whatever. Obviously, then, either the protection test as carried out is not specific for choriomeningitis or the antibodies are the result of a nonrecognized type of infection with the virus.

Careful interrogation of many persons showing antibodies and having no history of any ailment of the central nervous system was made by Dr. Wooley and revealed infections of the upper part of the respiratory tract designated as "grip," "influenza" or "colds" as the only diseases common to the groups.¹² It may therefore be of some significance that of 106 serums from persons with rather recent infections of the upper part of the respiratory tract, thirty, or 28.3 per cent, showed definite protection, an incidence second only to that shown in cases of aseptic meningitis (32 per cent). In this connection it is of interest to note that several proved cases of choriomeningitis began with symptoms of grip or head cold, to be followed a few days later by meningeal symptoms. In view of the fact that the choriomeningitis virus attacks many tissues in animals, these premonitory symptoms in man suggest a systemic type of infection which, as suggested by the history and protection test results, may only exceptionally be followed by involvement of the central nervous system.¹³

AGE INCIDENCE

As already noted, the serum of 11 per cent of the 1,248 subjects gave definitely positive results in the serum virus protection test, 486 of these subjects were known to be over 16, and of these ninety, or 18.7 per cent, showed positive protection while of 345 normal persons 16 or under who lived in orphanages or training schools in Maryland, Virginia or South Carolina and fifty-one ill children from various localities (a total of 396) not one showed strong protection and but five, i. e., 1.2 per cent, a moderate degree of protection. It might also be pointed out that the small number of attacks proved to be due to the choriomeningitis virus all occurred in persons over 20.

This relative infrequency of serologic evidence of infection by the virus of choriomeningitis in children as

compared to that in adults is unexplained, but several possibilities suggest themselves.

1 The adult and child groups in our series may not be representative samples of the general population.

2 Possibly the virus was epidemic about 1921, after which it tended to disappear until recently. This explanation could hold only in case the neutralizing antibodies tend to persist for years after the attack. Evidence on this point is meager, but Armstrong and Dickens¹⁰ reported the persistence of antibodies for three years and eleven months after the supposed attack. Serum collected from the same patient after four years and seven months showed no detectable diminution of antibody content.

3 It is conceivable that immunity in children, like that in mice, is not accompanied by the development of humoral antibodies.

4 Children conceivably may be resistant to infection, lack exposure or both.

METHOD OF SPREAD OF THE VIRUS

We have found it possible to transmit occasional infection in monkeys by intra-urethral and intravaginal instillations.⁶ These observations, together with the fact that we have demonstrated the virus in the urine of infected animals, where it tends to persist, as well as in the testicles and seminal vesicle fluid of infected animals, and the higher incidence of antibodies in man following puberty, at least suggest the possibility that a venereal transmission may constitute one route of infection in this disease. In this connection, it is of interest to note that 3.9 per cent and 1.3 per cent, respectively, of the serums of fifty-one adults in the St. Elizabeths Hospital for the insane and seventy-one sufferers from the St. Louis type of encephalitis in various localities, many of whom were adults, gave positive results with the serum virus protection test, as compared to an incidence of 17 per cent and 19.7 per cent, respectively, of positive protection for serums from 275 inmates of federal penitentiaries and 314 patients at the Marine Hospital. That convicted criminals constitute a group highly exposed to venereal infection is indicated by the fact that the Wassermann reaction was positive in sixty-two, or 22.5 per cent, of the 275 serums submitted to the serum protection test. It is, moreover, known that certain of the serums with a negative Wassermann reaction had been rendered so by vigorous antisyphilitic treatment.

The evidence suggesting a venereal route of infection is, to be sure, in no sense conclusive and is mentioned merely as one possible route of infection to be kept in mind by persons who may have an opportunity to investigate cases of benign lymphocytic choriomeningitis.

The serums submitted to the protection test were largely from male patients, so that it is not possible to make any comparison of the occurrence of antibodies in the serums of the two sexes. A more detailed analysis of our results with the protection test on 1,248 serums will appear shortly in *Public Health Reports*, to which those interested may refer.

CONCLUSIONS

The virus of benign lymphocytic choriomeningitis first described in 1934 has been recovered from man and from animals in several localities of the United States, in England and in France, and the demonstration of antibodies in 11 per cent of 1,248 serums from scattered areas of the United States by the serum virus mouse protection test, which we believe to be specific, indicates that this virus may be of greater importance

¹² Two of the e were laboratory workers at the National Institute of Health whose attendance records could be checked and who had had no recent illnesses other than occasional headaches and grip.

¹³ The histopathology of choriomeningitis in man is unknown since there have been no deaths in proved cases.

as a cause of human infection than the occasional cases of involvement of the central nervous system would indicate

ABSTRACT OF DISCUSSION

DR PAUL DICKENS, Washington, D. C. The authors report a new disease entity, benign lymphocytic choriomeningitis, and separate it from a group of diseases previously designated "aseptic or benign lymphocytic meningitis." The workers of the National Institute of Health and in particular Dr. Armstrong should be given the credit for first isolating and reporting the virus of this disease. The incidence of benign lymphocytic choriomeningitis is not as uncommon as previously supposed if the authors' figures on random sampling of blood serums showing 11 per cent or more positives is taken as a criterion of its prevalence. By analogy this would also indicate that the diagnosis is being all too frequently missed. From an immunologic standpoint there seems to be no doubt that the virus isolated by Armstrong is the etiologic agent in benign lymphocytic choriomeningitis. In a series of cases reported by Armstrong and Dickens, it was noted that during the first two weeks of the disease the serum virus mouse protection test was negative but early in the third week became positive. This fact is important, as the authors state that the diagnosis in certain cases has not been determined, owing to the taking of blood serum for the mouse protection test too early in the course of the disease. It is good practice, however, when one is able to do so, to take the serum early and, if it is negative, to repeat the test after the third week. Should the test then be positive it would be immunologic proof of the disease. I wish to emphasize the fact that there is an almost pure lymphocytic cellular response in the spinal fluid. It was noted that the mouse protection test was positive only in cases in which the cerebrospinal fluid contained 90 per cent or more of lymphocytes, while in the cases in which there was an increase in polymorphonuclear cells as well as in lymphocytes, even though the lymphocytes were above 50 per cent, the test was uniformly negative. I mention this in view of the varied cell count of the cerebrospinal fluid given in the literature on aseptic lymphocytic meningitis, and Dr. Armstrong's statement that numerous patients considered clinically aseptic meningitis gave negative protection tests. The suggestion of Dr. Armstrong that there may be a systemic invasion of the disease without metastases to the central nervous system is interesting. May I ask whether these missed cases may not be considered a source of spread of the disease? All my patients found by Dr. Armstrong to give positive serum-virus mouse protection tests had an initial infection of the upper respiratory tract followed later by symptoms of meningeal irritation sufficient to warrant a spinal puncture. The authors' figures of 28.3 per cent positive in 106 cases of recent infection of the upper respiratory tract is significant and warrants further study. When a new disease first appears in a community the attack rate is highest in the upper age group (the St. Louis epidemic of encephalitis), the succeeding waves attacking the younger group. This may be one reason for the low incidence of the disease in children in this country.

DR JOSEPHINE B. NEAL, New York. I have never seen a case of benign lymphocytic choriomeningitis. I have tried to make the diagnosis but up to the present time have not been able to demonstrate the virus or the antibodies. In consequence I have quite an unprejudiced point of view. Those of us who are working with acute infections of the central nervous system feel that the further we go—I don't like to say the less we know, but rather the more we find that we would like to know. In the literature there has been a tendency to diagnose "benign lymphocytic meningitis" or "benign lymphocytic choriomeningitis" without adequate laboratory confirmation. I agree with both Dr. Armstrong and Dr. Dickens that the diagnosis must be established by the demonstration of the virus or of the antibodies in the convalescent serum. After studying descriptions of these cases I have wondered whether the title "benign lymphocytic choriomeningitis" adequately describes the disease in man. In two cases reported by Findlay and his associates, for instance, there were extensive sensory disturbances and considerable paralysis and one patient of Dr. Viets had some

paralysis that was more temporary in nature. It seems to me that those symptoms indicate a parenchymal involvement which the term "meningitis" does not describe. Moreover, I do not believe that it is possible for us to pass directly from the pathology of the experimental disease in animals, in which it is, I believe, a simple meningitis, to the pathologic condition found when some patient has died during an attack of this disease and a complete histopathologic study has been done on his brain.

DR HENRY R. VIETS, Boston. Some light is gradually accumulating on this syndrome or this disease, if we want to call it such. Thanks to Dr. Armstrong a virus has been found which causes a condition in animals very similar, if not entirely similar, to that which has been seen in man. The history of the disease is of some interest, because Wallgren in 1925 described aseptic lymphocytic meningitis in children, and his work was not accepted generally at the time in the neurologic literature. In this country, Viets and Watts saw their first patients in the fall of 1928 and published two papers in 1929 reporting five cases. Since then I have been interested in the clinical syndrome and have gradually accumulated a good many cases, all of which seem to fall into a group that justifies being classified as a separate disease. Dr. Armstrong has given us enough additional encouragement to call the syndrome a disease, and if we now can add some information from human cases ultimately we shall get a complete picture of this type of meningitis. The only case that has been brought to pathologic examination, so far as I know, is one which Viets and Warren reported in 1937. Unfortunately the patient died before Dr. Armstrong's announcement of the virus, so the patient's blood could not be tested by the method which would be used today, therefore the case must be considered as unproved. The patient, however, showed the clinical manifestations of the disease and the cerebrospinal fluid manifestations were such that we were satisfied with a diagnosis of acute lymphocytic meningitis. Although the disease is seldom fatal, it would seem likely that if one death occurred in the last few years there will be more. The test that should be done in all cases is to check with the virus of Dr. Armstrong or Dr. Rivers before the definite diagnosis is made clinically. This work of Dr. Armstrong is most important. It is not the first time neurologists have been helped by the National Institute of Health.

DR CHARLES ARMSTRONG, Washington, D. C. I am glad that Dr. Dickens and Dr. Viets have mentioned the clinical picture, because at the National Institute of Health we lack clinical material and I felt that it would be presumptuous on my part to discuss the clinical picture before men who have seen so much of it. As regards the questions which Dr. Dickens raises as to the virus spreading through missed cases, I think it is a likely probability. We have in none of these cases been able to trace a contact between known cases. If it is infectious, as we feel it must be, it is possibly through these missed cases or possibly carriers of diseases. Dr. Dickens thinks the respiratory route is a probability, and we certainly couldn't deny that. However, to say that because there is a respiratory symptom it necessarily means that the infection enters by that route is fallacious. We have inoculated the virus directly into the lung tissue and the resulting picture was just about what we got when we put it subcutaneously. A few of our monkeys did, however, develop a rather persistent cough, and there was no very apparent pathologic change to explain the presence of such a cough. So far as I know such a cough has not been recorded in the human cases proved to be due to this disease. As to the age incidence indicating this is a new disease, it may possibly point in that direction. I am not wedded to the name, and it is possible that future experience with this disease in man will indicate that we should at least throw off the "benign" and possibly add "encephalitis" but there is certainly in those human cases that have been proved to be due to this virus considerable variation in the symptomatology. Some cases have been relatively severe others have been very mild. As to the testing of serum, any one should encounter suspected cases we would be pleased if you would send us the serums. All you need to do is draw the blood sterily and send the whole blood without preservatives. We have found that a certain amount of hemolysis makes no difference with the test. We shall be very glad to test such serums.

USE OF PROSTIGMIN AS A DIAGNOSTIC TEST OF MYASTHENIA GRAVIS

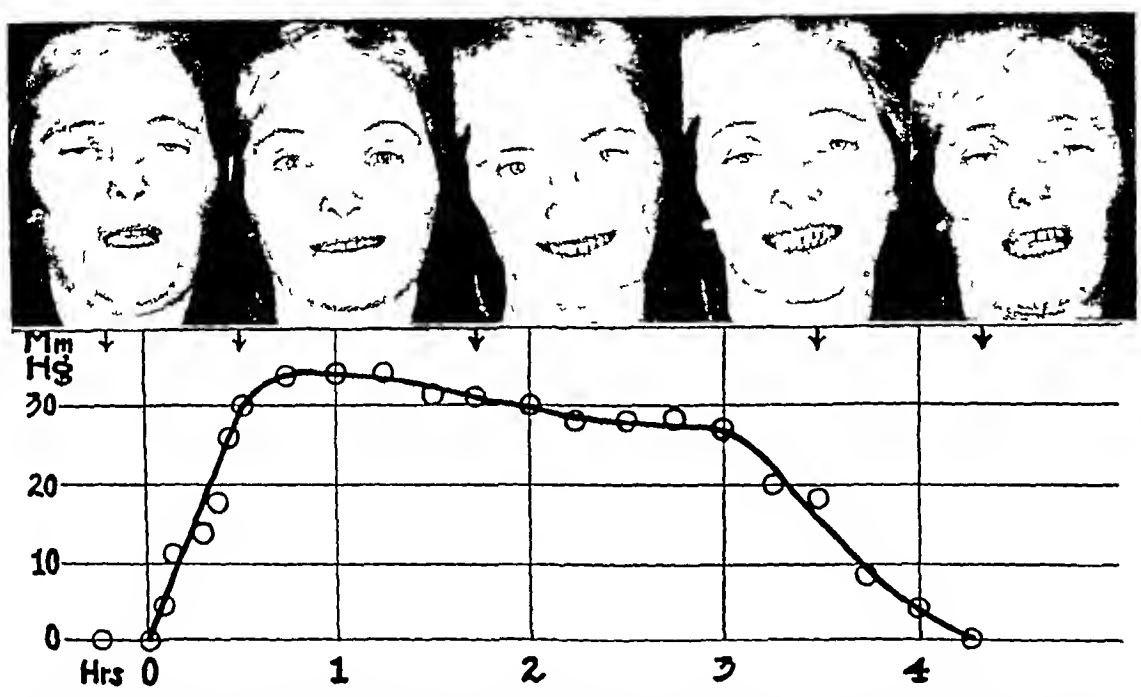
GEORGE D GAMMON, M.D.
AND
HAROLD SCHEIE, M.D.
PHILADELPHIA

That prostigmin relieves the muscular weakness of myasthenia gravis has now been accepted quite generally by all observers who have studied the drug¹ This relief, furthermore, has provided new insight into the mechanisms at fault in the disease The possibility of using the response to prostigmin as a diagnostic test of myasthenia has not, however, been fully appreciated It is true that Viets and Schwab² have found that the weakness due to lesions of the central and peripheral nervous system was not materially improved However,

five cases of progressive muscular dystrophy, two cases of myotonic dystrophy, one case of family periodic paralysis, two cases of amyotonia congenita, five normal adults, and three normal children The patients were studied in the Neurological, Medical and Pediatric services of the University Hospital, diagnoses were made after careful study

In estimating changes in muscular contraction we observed facial movements and, wherever possible, we employed such objective tests as weight lifting, dynamometer tests and the height to which a mercury column could be blown In some cases myographic records were made

As a test dose from 1.5 to 2 mg of prostigmin hypodermically was used, combined with atropine sulfate $\frac{1}{100}$ grain (0.00065 Gm) It should be emphasized that a large dose is required to obtain the desired response Children tolerate about half the adult dose³



The effect of prostigmin on myasthenia gravis. The graph illustrates the height to which a column of mercury could be blown At 0 hours prostigmin 1.5 mg and atropine sulfate $\frac{1}{100}$ grain (0.00065 Gm) were given hypodermically Successive pictures were taken at the points marked by arrows In each the patient was attempting to smile

the effect of prostigmin on the muscular diseases has not been systematically studied We have accordingly examined the action of the drug on the weakness due to a variety of diseases of the muscular system None of the patients obtained any striking relief from prostigmin Therefore myasthenia gravis is the only condition examined thus far in which muscular weakness is consistently and markedly improved For this reason it seems fair to conclude that a response to prostigmin may be used as a diagnostic test of the disease

MATERIAL AND METHODS

The cases studied include four cases of myasthenia gravis, in one of which hyperthyroidism had developed,

EFFECTS OF PROSTIGMIN IN CASES OF MUSCULAR DISEASE AND MYASTHENIA AND IN NORMAL PERSONS

Prostigmin in doses ordinarily employed in the treatment of myasthenia sets up marked fibrillary tremors in the muscles of normal persons and in all these cases of muscular disease except myasthenia While best seen in the eyelids and tongue, the fibrillations occurred irregularly throughout the body and did not selectively affect the diseased muscle The twitching probably results from repetitive contraction of small groups of fibers in response to tonic impulses, since Brown, Dale and Feldberg⁴ have observed that muscle treated with physostigmine gives a multiple response to a single stimulus applied to the motor nerve In the muscular dystrophies the twitching was considerably more marked

Dr Gammon is Godey and Seeger Fellow From the Medical Clinic of the Hospital and the Institute of Neurology the University of Pennsylvania School of Medicine Supported by the Kirby McCarthy Fund
1 Laurent L P E and Walker M D Oral and Parenteral Administration of Prostigmin and Its Analogues in Myasthenia Gravis Lancet 1 1457 1459 (June 27) 1936
2 Viets H R and Schwab R S Prostigmin in the Diagnosis of Myasthenia Gravis New England J Med 212 1280 1283 (Dec. 26) 1935

3 The drug was furnished by Dr R D Shaner of the Hoffman LaRoche Company
4 Brown L Dale H H and Feldberg W Reactions of the Normal Mammalian Muscle to Acetylcholine and to Eserine J Physiol 87 394 425 (Sept) 1936

than in normal persons, indicating probably an increased sensitivity to the drug. In myasthenia gravis, in contrast to these cases, fibrillations almost never occurred, only rarely were they observed in the lids. The absence of a normal reaction suggests that the myasthenic process is generalized and widespread.

While the lack of fibrillary twitching distinguished myasthenia from the other cases examined, a much more striking difference was evident. For the weakness of myasthenia was consistently and spectacularly relieved, as shown in the illustration, but that of the other conditions was either not materially affected or, in some cases, was slightly increased. Thus only one of the seven patients with dystrophy obtained an increase in strength and this was so slight as to require careful measurement to demonstrate the change. The patient with periodic family paralysis was made somewhat weaker.

Thus, of the various muscular diseases that we examined, myasthenia gravis alone responded to prostigmin with significant increase in the strength of muscular contractions. Since, then, others have shown that weakness due to lesions in the central and peripheral nervous systems is also not materially improved by prostigmin, a marked improvement in muscular weakness by prostigmin and the absence of fibrillary tremors is a diagnostic test of myasthenia. In other words, prostigmin appears specific for myasthenic weakness, since it relieves no other condition so far examined. It is possible that prostigmin may find its widest usefulness as a test to differentiate myasthenia from other causes of muscular weakness.

XANTHOMA TUBEROSUM ASSOCIATED WITH TRAUMA AND MILD DIABETES MELLITUS

EUGENE S. SUGG, M.D.
AND
DUDLEY D. STETSON, M.D.
NEW YORK

In reporting this case illustrating the striking lesions of a rare skin disease—xanthoma tuberosum—in a healthy young man we wish to emphasize that the etiology of the various types of xanthomatosis is as yet to be determined. The knowledge of the metabolism of fats, the chemistry of cholesterol and the blood lipids with which xanthoma lesions are associated is confused and imperfect. In this report we shall attempt to discuss only briefly the various theories regarding the causes of xanthoma.

The name xanthoma was first introduced to describe a yellow fibrous or soft tumor which assumed several shapes and sizes found on the skin over various areas of the body. These tumors, which were first thought to be confined to the skin only, are now known to be present in bones, tendons and organs of the body. The orange and yellow plaques, xanthelasma, frequently noted about the eyelids, and the small pea-shaped tuberosities found on the knees and elbows are benign and more or less common. All these yellowish tubercles, papules, plaques and other shaped growths contain cholesterol and may be associated with diabetes mellitus and hypercholesterolemia.

These accumulations which we shall call in this case tubercles, may be due to many causes, such as accidents,

long continued mild trauma, inflammation, or deficiency diseases, while some are neoplastic. Not all of them are yellow, some being reddish brown, some pink and some purplish. All contain the typical foam cell, which is a special type, consisting of a large body of protoplasm with distinct borders and foamy structure. This meshy appearance is due to the removal of numerous lipid droplets in the cytoplasm, which are dissolved during the staining process. These droplets are composed largely of cholesterol and its esters.

Early observers, among them McDonagh¹ and Aschoff,² were of the opinion that xanthomatous lesions were benign neoplasms arising from the endothelial system. Rowland³ was of the opinion that all these tumors, or granulomas containing xanthoma cells, were manifestations of one disease and were due to the disturbance of lipid metabolism.

In 1929 a series of investigations was carried out by Wile, Eckstein and Curtis.⁴ They studied the lipid chemistry of the blood and the various types of xanthoma and showed definitely that they do occur in the presence of a low or normal cholesterol, as well as in the presence of a high cholesterol. Wile further pointed out that one reason for the belief that xanthoma lesions were due to a hypercholesterolemia in the past was an error in lipid chemistry. This error led to the belief that blood overloaded with fat contained a larger amount of cholesterol than it did.

This was due to the difficulty in differentiating that lipid from the other lipids of the blood. Wile and his collaborators further showed that in the absence of diabetes mellitus an increase in alimentary fat had no influence in the course of the cutaneous lesions, but an extreme reduction in the total diet brought about a remission of the nodules.

On the contrary, in the diabetic and the potential diabetic patient the cutaneous nodules disappeared when there was a fall in the value of the circulating lipids. Ingested fat did not seem to affect the involution of the lesions.

The work of Schaaf and Werner⁵ in 1930, of Bloch⁶ in 1931 and of Schaaf⁷ in 1931 has contributed much knowledge regarding the etiology of xanthoma. The observers concluded that in patients with xanthoma there exists a greater or less disturbance in the mechanism which regulated the stable emulsion of fat and lipids in the blood stream. When this balance was upset, a partial precipitation of one or more fractions occurred in order that the balance might be reestablished, the precipitated portions thus set free were stored in the tissue spaces. This regulating mechanism could not be discovered, but these investigators suggested that it might be located in the liver. It should be observed here that in the most severe liver diseases with jaundice there is very seldom found any xanthomatous diseases or lesions.

- 1 McDonagh, J. E. R. *Brit. J. Dermat.* 23: 115, 1911.
- 2 Aschoff, Ludwig. *Dermat. Studien* 21: 23, 1910. *Ber. d. nat. Forsch. Gesellsch. z. Freiburg* 20, 1913. *Lectures on Pathology*. New York: Paul B. Hoeber Inc. 1924. p. 33. *Ergeb. d. inn. Med. u. Kinderh.* 26: 1, 1925.
- 3 Rowland, R. S. Xanthomatosis and the Reticulo-Endothelial System. Correlation of an Unidentified Group of Cases Described as Defects in Membranous Bones, Exophthalmos and Diabetes Insipidus (Christie's Syndrome). *Arch. Int. Med.* 42: 611 (Nov.) 1928.
- 4 Wile, U. J., Eckstein, H. C. and Curtis, A. C. Lipid Studies in Xanthoma. *Arch. Dermat. & Syph.* 19: 35 (Jan.) 1929. *Lipid Studies in Xanthoma. Further Contribution*. *Arch. Dermat. & Syph.* 20: 491 (Oct.) 1929.
- 5 Schaaf, F. and Werner, A. J. *Arch. f. Dermat. u. Syph.* 16: 217, 1930.
- 6 Bloch, Bruno. Metabolism, Endocrine Glands and Skin Diseases with Special Reference to Acne Vulgaris and Xanthoma. *Brit. J. Dermat.* 43: 61 (Feb.) 1931.
- 7 Schaaf, F. *Arch. f. Dermat. u. Syph.* 163: 58, 1931. *Zentralbl. f. Haut u. Geschlechtskr.* 35: 1 (Oct. 20) 1931 (Nov. 3) 1930.

These observers made another important observation—that, in the study of patients with xanthomatous lesions, blood cholesterol or blood fat determinations alone were of no value. Fractional analyses of the various lipid constituents must be made both in fasting subjects and after the introduction of an excess load of fat and cholesterol by the test meal.

Schaaf and Werner further concluded that it seemed plausible that with a disturbance in the lipid fractions



Fig 1—Xanthoma tuberosum of the elbows and forearms. Note flat scaly lesion.

a very slight instability might exist, which might be intensified by trauma, or alteration in the tissues, thereby completing the disintegration of the emulsion and allowing fats, cholesterol and phosphatides to deposit in the skin.

Melicow,⁸ in a review of the subject of the various types of xanthoma, proposed the name xanthic lesions to cover all these different groups. This classification is very comprehensive and will be of great value for further detailed study. He mentions the generalized forms and identifies those clinical forms which come under the general head of constitutional types: (1) Niemann-Pick's disease, (2) Gaucher's disease, (3) Hand-Schüller-Christian's disease, (4) possibly, Tay-Sachs amaurotic family idiocy. These are grave constitutional disturbances, though rare in occurrence. The theory is suggested that xanthic granuloma diabeticorum, xanthic granuloma palpebrarum and multiple xanthic dermatosis might be similar constitutional disturbances, though milder in degree. This observer also mentions the hereditary tendencies, obesity and liver disease as being frequently associated with the xanthomatoses.

As various types of xanthomatous lesions are reported from time to time, the pathology becomes wider and wider in scope, apparently showing a close relationship between a simple skin disease which is harmless and a fatal constitutional disease. As an example of this, one finds within the same group Gaucher's splenomegaly and the simple yellow papule seen about the eyelids, xanthelasma.

REPORT OF CASE

History—W L, a man, aged 27, Italian, a chef examined at the Roosevelt Hospital in January 1936, had been admitted to the dermatologic clinic one month previously for examination because of the yellowish nodules on the skin of buttocks, elbows and knees. These nodules first began to appear about one and one half years previously. They were first noted about six months after he began work as a tile setter, appearing first on

the elbows and knees, where pressure was the greatest during his occupation, and later on the buttocks. When they were first noted they were pea sized and not painful to the touch, but as time passed they grew larger and caused so much discomfort, especially about the knees, that he changed his work to that of a cook. He had continued this occupation for the past year and a half. Since this change the skin lesions had not grown larger or increased in number, in fact some of the smaller ones had disappeared spontaneously and on their sites brownish pigmented spots persisted.

Physical Examination—The patient was exceptionally well developed and obese, the height was 68½ inches (174 cm) and the weight 197 pounds (90 Kg). He had gained about 40 pounds (18 Kg) in the past eighteen months. There was no history of diabetes mellitus in the family or of similar skin lesions. His only subjective complaints were that he could not concentrate on his work and would fall asleep very easily.

The past history was negative except for jaundice of three or four weeks' duration at the age of 10 years and quinsy sore throat two years before admission. The eyes were normal, and the ophthalmologic examination was negative for any fatty deposits. The ears were normal and the teeth in good condition. Large reddish tonsils were noted. A careful examination of the blood pressure, heart, lungs, abdomen and genito-urinary organs did not reveal any abnormalities. The extremities were normal and the neurologic examination did not reveal any abnormal manifestations.

The patient stated that when he first noted the nodules on the knees they were the size of a small pea, they gradually increased in size and number. Some of them fused to form larger ones, and some of those on the elbows fused to form flat ones. The tuberous lesions were typical of xanthoma tuberosum in color, contour and location. These nodules and papules were raised, round and shiny; some were soft and others hard. Several of those on the elbows (fig 1) were pea sized, others were 1.5 cm in diameter, yellowish, and somewhat scaly and hard. These were not painful on pressure but as they grew they fused and flattened. The lesions on the buttocks were more numerous than elsewhere, of a yellowish hue, and raised and varied in size from very small peas to 1 cm in diameter.

The lesions on the knees (fig 2) were most striking in appearance, especially the right knee (fig 3). The smallest pea-sized ones were yellow. Other larger ones were pink and



Fig 2—Xanthoma tuberosum of the knees.

a deeper yellow, while some of the largest ones were bluish and others purplish. The smaller ones were soft and depressible, but the larger ones were harder and fixed. Their sizes varied from 0.5 cm in diameter for the discrete ones to 1.5 cm for the largest ones, which had been formed by fusion and were somewhat flat. All were glistening in appearance. They were not painful to the touch, but the patient stated that when he knelt for any length of time these areas became red and caused discomfort. Three brownish areas are noted in the illustrations, which are the sites of those which have disappeared. At no other part of the body could any similar lesions be found. There are no evidences about the eyes, mucous membranes or tendon sheaths.

Roentgenograms of the skull, lungs and heart revealed nothing of interest, and the changes were within normal limits.

Laboratory Examination—A complete blood count and urinary examination revealed normal conditions. The blood chemistry showed blood cholesterol 170 mg and urea nitrogen 137 mg per hundred cubic centimeters. The blood sugar after ten hours' fasting was 105 mg. The blood Wassermann and Kahn reactions were negative. A dextrose tolerance test was performed with the results as follows: fasting 0.099 mg, after the first hour 0.218 mg, after the second hour 0.164 mg, after the third hour 0.078 mg per hundred cubic centimeters of blood. A second blood cholesterol was found to be 0.199 mg per hundred cubic centimeters of blood. The basal metabolic rate was found to be minus 10. The urinary examinations were negative for dextrose at all times.

Pathologic Examination—A nodule was removed from the right knee for biopsy, the report of which was as follows: The epidermis was elevated and flattened in one zone and the rete pegs were much shortened. In the corium of the adjacent region there were prominent arterioles and capillaries, yellow



Fig. 3—Xanthoma tuberosum of the right knee illustrating large elevated tubules.

pigment was noted in the large monocytes in such foci. The diagnosis was pericapillary histiocytosis of the xanthoma type. A second nodule was removed for further examination, the report of which was as follows: The hematoxylin and eosin stained specimen showed some fibrous tissue with foamy cells. The more definite changes were seen in the sections stained for fat. Here were numerous elongated spindle cells arranged in indefinite bundles, which crisscrossed. These cells contained red globules of a translucent nature (lipoid). The diagnosis was fibroxanthoma.

Course—The patient was placed on a diet of 100 Gm of carbohydrate, 50 Gm of protein and 50 Gm of fat for the following six weeks and he lost 10 pounds (4.5 Kg). There was no apparent change in the lesions during this time. The diet was difficult to control because the patient could not be under proper observation. On his return to the clinic six weeks later we found that he had gained the weight he had previously lost. During this time, however, three of the smaller nodules had disappeared entirely from the knees leaving brownish spots on the sites. The patient was then strongly advised to adhere to his diet and to have 10 units of insulin administered before each meal. On observation one month later, now four months after he was first examined there was no further apparent change in the appearance of the lesions.

Thus our efforts to influence the lesions in this case of xanthoma tuberosum in mild diabetes were without effect.

COMMENT

Several cases of xanthoma diabeticorum have been treated successfully with a low carbohydrate diet, insulin or both. Goldstein and Harris⁹ reported an excellent result with insulin, Templeton and Chouret¹⁰, Azer,¹¹ and Moreland and Dardinski¹² reported that a low diet caused the lesions to disappear. Diet combined with insulin was found of value by Engman and Weiss¹³. Gordon and Feldman,¹⁴ and Stetson and Diasio¹⁵ found diet only of temporary value in treating xanthoma multiplex. Ralli¹⁶ likewise reported that diet was of little value in a case of acromegaly associated with diabetes mellitus and xanthoma diabeticorum.

In studying the metabolism of fats and carbohydrates, and the chemistry of cholesterol and the blood lipids in relation to xanthomatous lesions, the impression is definitely obtained that knowledge is very imperfect. There are so many confusing theories, paradoxes and diverse manifestations that we consider it important to state briefly some of these observations found in the literature.

1 Hypercholesterolemia alone cannot account for the formation of xanthoma lesions, because about 30 per cent of the cases of xanthoma showed no increase in blood cholesterol.

2 Xanthoma has been frequently found in the absence of lipemia.

3 Lipemia is of frequent occurrence in tuberculosis, nephrosis and infectious diseases such as scarlet fever, typhoid and pneumonia, yet xanthoma is a rare occurrence in these diseases.

4 Xanthoma lesions do occur associated with diabetes mellitus and the prediabetic state, but they are so rare that only a few hundred cases have been reported while the number of diabetic patients run into the thousands.

5 If xanthomatous lesions are associated largely with an increased blood cholesterol, as was formerly thought, why are they so infrequently found in liver disease, in which the blood lipids are as a rule markedly increased? Wile remarked long ago that xanthomatosis was almost never encountered with jaundice.

6 Cholesterol is widely distributed and present in all types of food that are eaten daily, but it does not seem to be associated with any specific skin lesion.

7 Jadassohn, in discussing Wile's⁴ paper, reported a case of xanthoma in which the blood lipids were high but he was unable to produce new lesions by traumatizing the skin. Wile⁴ in a further discussion of Jadassohn's remarks mentioned a case in which the lesions of xanthoma had developed from such a trauma as a mosquito bite.

8 The observations of Wile and Duemling,¹⁷ Wein grow¹⁸ and Lane and Goodman¹⁹ all emphasize and

- 9 Goldstein E. and Harris John. Xanthoma Diabeticorum. An Unusual Process of Involution. *Am. J. M. Sc.* 73: 195 (Feb.) 1927.
- 10 Templeton H. J. and Chouret E. E. Xanthoma Diabeticorum. *Arch. Dermat. & Syph.* 24: 604 (Oct.) 1931.
- 11 Azer M. Xanthoma Diabeticorum. *Brit. M. J.* 1: 663 (April) 1924.
- 12 Moreland R. B. and Dardinski V. J. Xanthoma Diabeticorum. *J. A. M. A.* 100: 491-494 (Feb. 18) 1933.
- 13 Engman M. F. and Weiss R. S. Xanthoma Diabeticorum. *Treated with Insulin.* *Arch. Dermat. & Syph.* 8: 625 (Nov.) 1923.
- 14 Gordon W. H. and Feldman M. S. Xanthoma Diabeticorum. *J. Michigan M. Soc.* 23: 231 (June) 1924.
- 15 Stetson D. D. and Diasio F. A. Xanthoma Multiplex. *Arch. Dermat. & Syph.* 18: 348 (Sept.) 1928.
- 16 Ralli Elaine P. Acromegaly with Diabetes Mellitus and Xanthoma Diabeticorum. *Arch. Int. Med.* 47: 329-335 (Feb.) 1931.
- 17 Wile U. J. and Duemling W. W. Familial Xanthoma. *Arch. Dermat. & Syph.* 21: 642-647 (April) 1930.
- 18 Weingrow S. M. Xanthoma Tuberosum. *Arch. Dermat. & Syph.* 25: 1021-1027 (June) 1932.
- 19 Lane C. G. and Goodman Joseph Jr. Xanthoma Tuberosum. *Arch. Dermat. & Syph.* 32: 377-384 (Sept.) 1935.

illustrate the hereditary character of xanthoma. The latter's cases illustrate the importance of trauma in producing xanthoma.⁹ Higman, in discussing the paper of Michael and Nicholas, referred to the work of Lebedev published twenty years before on experimental xanthoma. This had been produced in rabbits after they had been fed lipoids on the site where setons had been placed.¹⁰ The upset balance theory of Schaaf and Werner⁶ and Bloch⁶ seems to be accepted by many observers.

Michael,²⁰ in discussing his paper, did not think that this theory of the imbalance of lipid constituents was altogether so simple. These observers found a case of this imbalance in nephrosis and one in acute yellow atrophy of the liver, in neither instance was there any evidence of xanthoma deposits.

We have presented the conflicting opinions and observations found in the study of this case of xanthoma tuberosum and mild diabetes mellitus with the hope that more extensive investigation of the entire subject of metabolism of fats and carbohydrates, in their relation to dermatology, will be carried on.

CONCLUSIONS

We have made three observations in reporting this case of xanthoma tuberosum in a young man which may throw some light on the etiology of this uncommon skin lesion.

1 The patient was quite obese and had consumed large quantities of fat in his diet for many years, eating as much as a pint of gravy a day for the past several years.

2 His occupation as a tile setter for a period of over two years may have traumatized the elbows and knees. The nodules did not appear until after he began this type of work, and they increased in size and number during that time only.

3 The case might be classed by some clinicians as prediabetic or latent diabetic. The blood sugar readings were 0.218 mg at the end of the first hour and 0.164 mg at the end of the second hour. The urine did not show the presence of dextrose at any time.

In reporting this case of xanthoma tuberosum, possibly in a patient with mild diabetes who has been subjected to chronic traumatism, the question arises with what are we dealing? Are we dealing with a simple disease of the skin due to some unknown metabolic disturbance, or is this a mild form of some grave constitutional disease?

30 East Seventy-Second Street—59 East Sixty-Fifth Street

20 Michael J C, and Nicholas H O. Blood Lipids in Xanthoma. Arch Dermat & Syph 29: 228-239 (Feb) 1934.

The Change in Surgery—An entire change in the character of operative workmanship largely explains the transformation in the surgery of the past decade or two. The accurate and detailed methods in the use of which Kocher and Halsted were for so long the notable examples have spread into all clinics—at least into those clinics where you or I would wish to entrust ourselves for an operation. Observers no longer expect to be thrilled in an operating room, the spectacular public performances of the past, no longer condoned, are replaced by the quiet rather tedious procedures which few, beyond the operator, his assistants and the immediate bystanders can profitably see. The patient on the table like the passenger in a car, runs greater risks if he have a loquacious driver or one who takes close corners exceeds the speed limit, or rides to applause—Cushing, Harvey, Consecration, Medici and Other Papers Boston, Little, Brown & Co., 1928.

THE EFFECT OF FLIGHT ON THE MIDDLE EAR

HARRY G. ARMSTRONG, M.D.
Captain Medical Corps United States Army

AND
J. W. HEIM, Ph.D.
DAYTON, OHIO

Those familiar with aviation medicine are well aware that airplane pilots suffer more frequently from disturbances of the middle ear than from all other occupational diseases combined.¹

The phenomenal growth of commercial air transport, which carried approximately one million passengers in 1936, makes this problem of interest and importance to the general medical profession, for airplane passengers are exposed to the same influences as the pilots during flight and in most instances are much more adversely affected.

ANATOMY AND PHYSIOLOGY

Since the deleterious effects of flight on the middle ear depend entirely on the peculiar structure and functioning of the eustachian tube, a brief anatomic, normal physiologic and special physiologic review of the latter structure will be presented.

Anatomy—The eustachian tube is a slitlike, potential tube extending from the middle ear to the nasopharynx. It is formed of bone, cartilage and fibrous tissue.

The bony portion begins at the upper part of the anterior wall of the tympanic cavity and, gradually narrowing, passes downward, forward and medially for about 12 mm, ending at the angle of the junction of the squamous and petrous portions of the temporal bone.

The cartilaginous portion of the tube extends from the bony portion to the nasopharynx. This section is about 24 mm in length and is formed of a triangular plate of elastic fibrocartilage with its apex attached to the bony portion and its base placed directly under the mucous membrane of the nasopharynx, where it forms a prominence, the torus tubarius. The upper edge of the cartilage is bent laterally and takes the form of a hook on cross-section, open below and laterally. These walls of the canal are completed by fibrous tissue.

The lumen of the eustachian tube is narrowest at the junction of the bony and cartilaginous portions, the isthmus, and expanding rapidly in both directions reaches its largest diameter at the pharyngeal orifice. At rest, the lumen of the cartilaginous portion of the tube is a vertical slit with its walls opposed.

The mucous membrane of the eustachian tube is a direct extension of that of the nasopharynx and continues backward to line the middle ear completely. The mucous membrane of the bony portion of the tube is thin, but in the cartilaginous portion it is thick and very vascular, contains numerous mucous glands and is composed of ciliated columnar cells. Near the mouth of the eustachian tube is a variable amount of adenoid tissue known as Gerlach's or tubal tonsil. The pharyngeal ostium of the eustachian tube is located high up on the lateral wall of the nasopharynx. This opening is triangular, bounded behind by the torus tubarius and in front by the nasal cavity.

From the Physiological Research Laboratory U. S. Army Air Corps Wright Field.
J. Armstrong, H. G. Heim. Our Present Physical Standard for Flying. J. Aviation Med. 5: 107 (Sept.) 1934.

The muscles that are attached to the eustachian tube and their actions are as follows

1 *Levator veli palatini* Origin inferior aspect of the pyramidis ossis temporalis and from the lateral end of the medial lamina of the eustachian tube Insertion downward, medially and forward parallel to the inferior margin of the medial lamina of the eustachian tube, uniting in the soft palate with the corresponding muscle of the opposite side Action elevates the soft palate, narrows the eustachian ostium and dilates the isthmus

2 *Tensor veli palatini* Origin scaphoid fossa of the sphenoid bone, lateral and membranous lamina of the eustachian tube and angular spine of the sphenoid bone Insertion the fibers run downward and forward around the sulcus of the pterygoid hamulus and radiating medially into the soft palate it attaches to the hard palate and to the corresponding muscle of the opposite side Action tenses the soft palate and opens the eustachian tube

3 *Salpingopharyngeus* Origin inferior part of the ostium of the eustachian tube Insertion blends with the posterior fasciculus of the pharyngopalatinus muscle Action raises the upper and lateral parts of the pharynx opens the ostium of the eustachian tube

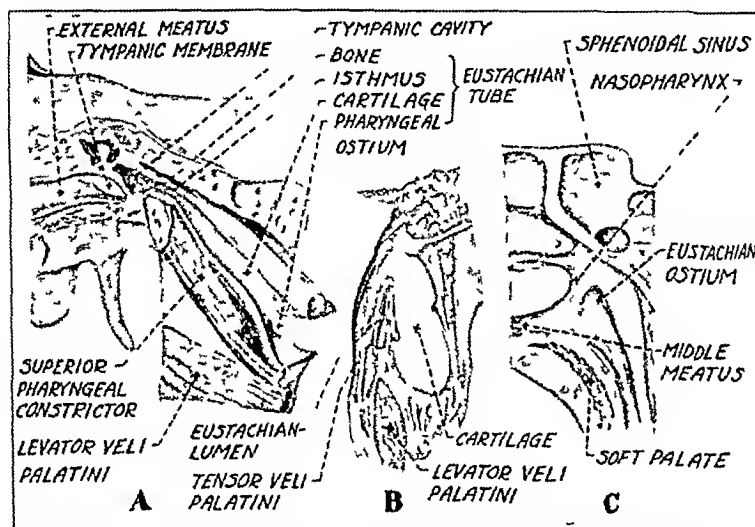


Fig 1—Gross anatomy of the eustachian tube showing (A) longitudinal section (B) cross section near the eustachian ostium and (C) the ostium of the eustachian tube in its relation to the surrounding structures

The gross anatomic features of the eustachian tube are shown in figure 1

Normal Physiology—The eustachian tube drains the middle ear and ventilates it. The motion of the cilia and the flutter-valve like action of the tube favors the motion of material from the ear to the nasopharynx and opposes motion in the opposite direction. The tube, while normally closed, is opened by contraction of its dilator muscles and at such times any air pressure differential existing between the middle ear and the atmosphere is equalized. This contraction may occur during swallowing, yawning and other similar physiologic acts.

Special Physiology—Aircraft flights involve changes in altitude and this in turn involves changes in atmospheric pressure, the relationship between the two being as shown in figure 2. It is to be noted that with ascent, equal changes of pressure involve increasing intervals of altitude. The rates and degrees of atmospheric pressure changes during flight depend on the rates and degrees of ascent or descent, and these factors become important when it is remembered that the ear is an air-filled closed cavity with pressure equalization possible only when the eustachian tube is opened.

Since the physiology of the eustachian tube under marked variations of atmospheric pressure had never been previously reported, we carried out laboratory investigations of this problem on five healthy men covering pressure variation rates of from 54 to 27 mm of mercury per minute (200 to 1,000 feet per minute) through pressure ranges of from 760 to 141 mm of mercury (0 to 40,000 feet altitude).

The results of this study were briefly as follows. Beginning at sea level pressure and decreasing the pressure at a constant rate, a pressure change of from 3 to 5 mm of mercury (110 to 180 feet altitude) was required before any effect was perceptible in consciousness. At this point there appeared a slight sensation of fulness in the middle ears and examination showed the tympanic membranes to be slightly bulged. This bulging and the sensation of fulness increased with the decreasing of pressure until at 15 mm of mercury (500 feet altitude) differential there was a sudden annoying "click" heard and felt in the middle ear, the drum snapped back to or almost to, normal position and the sensation of fulness disappeared. The eustachian tube had been forced open by the excess pressure in the tympanic cavity and the ear pressure relieved by a sudden rush of air from the ear to the nasopharynx.

During the remainder of the pressure decrease this cycle was repeated except that all succeeding "clicks" occurred at intervals of only 114 mm of mercury (435 feet altitude) pressure change. This indicated that it requires 15 mm of mercury excess pressure in the middle ear at sea level conditions to force the eustachian tube open and that it remains open until the pressure is reduced to about 36 mm of mercury, when it again closes, leaving 36 mm of mercury (130 feet altitude) excess pressure in the ear. It had been assumed that, since the pressure altitude curve is not a straight line (fig 2), the eustachian tube would open at equal intervals of pressure but at increasing

intervals of altitude during ascent. Actually the reverse was found to be true, the tubes opening at 425 feet intervals (except the first), which amounts to 114 mm of mercury pressure at sea level but only 35 mm at 40,000 feet. The explanation of this phenomenon is probably based on the fact that air of the higher altitudes, being less dense, passes more readily through the eustachian tubes. These figures are averages based on repeated tests. Actually there was considerable variation between individuals and in the same individual. These variations ranged from 5 to 30 mm at sea level conditions, but the averages for individuals were remarkably constant.

When the atmospheric pressure was increased instead of decreased, a totally different effect was obtained. Here the eustachian tube, acting like a flutter valve remained closed under all degrees of pressure (one subject tested to —470 mm of mercury pressure) and the tympanic membrane finally ruptured.

In the course of these studies, swallowing and other voluntary efforts to open the eustachian tubes were suppressed. However, in a subsequent series of tests it was found that opening the eustachian tubes by voluntary effort immediately equalized the ear pressure completely except that, after a negative pressure of from

80 to 90 mm of mercury or more had developed in the tympanic cavity, it was then impossible for the eustachian muscles to overcome the negative pressure which held the fibrocartilaginous portion of the eustachian tube tightly collapsed, and it was then necessary to decrease the atmospheric pressure below that point before the eustachian tubes could again be voluntarily opened

TERMINOLOGY

Since the condition being discussed is already a recognized occupational disease and seems destined to become of general professional concern, it seems logical to suggest a proper terminology

In the United States the term "aviator's or aviation ear" has begun to appear in the literature, while in Germany the terms "barotrauma" and "tonetrauma" have been suggested. The former are obviously unsuitable and the latter may be criticized as not being descriptive of the disease. We therefore suggest "aero-otitis media" (aero, combining form from the Greek *αἴρ*, *aḗros*, air, + *otic*, Greek *ωτικός*, pertaining to the ear, + *itis*, Greek *ιτις*, inflammation of) as a suitable descriptive term for the new clinical entity about to be described, and that term will be used throughout the remainder of this paper

DEFINITION

Aero-otitis media is an acute or chronic, traumatic inflammation of the middle ear caused by a pressure difference between the air in the tympanic cavity and that of the surrounding atmosphere, commonly occurring during changes of altitude in airplane flights and characterized by inflammation, discomfort, pain, tinnitus and deafness

ETIOLOGY

Aero-otitis media is due to the lack of ventilation of the middle ear during changes of atmospheric pressure to the extent that the tympanic cavity is traumatized. There are two principal causes of improper middle ear ventilation: one a failure to open the eustachian tube voluntarily when necessary, the other the inability to open it.

Failure to open the eustachian tubes during changes in altitude in aircraft flights is most often due to ignorance of the necessity to do so but may be due to carelessness or to being asleep or may arise from the influence of analgesics or anesthetics or from coma. The first two of these instances usually occur among inexperienced pilots and passengers, the third in sleeper airplanes, and the last group on ambulance planes.

Inability to ventilate the middle ear voluntarily is much more prevalent than is generally recognized. Some of the most frequent causes of eustachian stenosis are acute and chronic infections of the upper respiratory tract, nasal obstructions, sinusitis, tonsillitis, tumors and growths of the nose and nasopharynx, paralysis of the soft palate or superior pharyngeal muscles, enlargement of the pharyngeal or tubal tonsil, inflammatory conditions of the eustachian tube or middle ear, scar tissue about the ostium of the eustachian tube following adenectomy, and malposition of the jaws.

The latter two conditions have but recently been recognized. Simpson² states that he has frequently seen considerable scar tissue about the pharyngeal ostium of the eustachian tube as the result of adenectomy when the adenotome had been allowed to pass too far laterally, causing trauma or laceration to the torus tubarius.

The effect of malposition of the mandible in relation to stenosis of the eustachian tube was first reported by Costen³ and later applied to aviation by Willhelmy. They showed that in individuals with endentulous mouths, ill fitting dental plates, marked overbite malocclusion, worn or lack of molar teeth either unilateral or bilateral or with any other condition in which there was a shortening of the vertical position of the lower jaw a compression-stenosis of the eustachian tube was likely to occur from a relaxation of the surrounding soft tissues.

SYMPTOMATOLOGY

The symptoms of aero-otitis media depend on the duration, frequency and severity of the trauma sustained.

Aero-Otitis Media, Acute—Subjective Symptoms. Positive pressure of from 3 to 5 mm of mercury in the middle ear are perceptible in consciousness to most individuals as a feeling of fullness in the middle ear. At about 10 to 15 mm of mercury pressure the feeling of fullness is distinct and somewhat annoying and affects

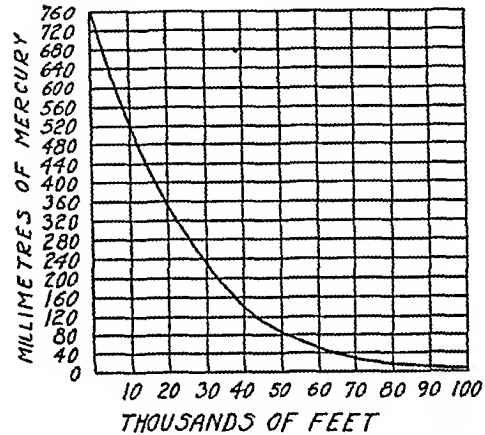


Fig 2—Altitude pressure curve

the hearing by imparting a distant sound and a lessened intensity. Pressures between 15 and 30 mm of mercury usually increase the discomfort and may be accompanied by tinnitus. The latter is of a steady hissing or roaring character or crackling and snapping. In some individuals there may be actual pain and vertigo of a mild nature. Above 30 mm of mercury pressure in the middle ear there is increasing pain, tinnitus and vertigo, which finally becomes unbearable.

In normal cases about 15 mm of pressure is sufficient to force air out through the eustachian tube, which relieves the pressure in the tympanic cavity and consequently the accompanying symptoms. However, this relief is initiated by an annoying "click," which is both felt and heard as the drum snaps back to normal position. In stenosis of the tube the pressure required to force it open varies with the degree of stenosis. In these cases the pressure may be relieved gradually over a period of time instead of instantaneously, and a greater amount of pressure remains in the middle ear after the tube has again closed.

In descent, in which the atmospheric pressure is increasing and the pressure in the ear becomes negative the symptoms are the same as already described except

3 Costen J B. A Syndrome of Ear and Sinus Symptoms Dependent upon Disturbed Function of the Temporomandibular Joint. *Ann Otol Rhin & Laryng* 43:1 (March) 1934.

4 Willhelmy G E. Ear Symptoms Incidental to Sudden Altitude Changes and the Factor of Overclosure of the Mandible. Preliminary Report U S Naval M Bull 34 533 541 (Oct) 1936.

2 Simpson R K. Personal communication to the authors.

that the pressure is never relieved through its own force acting on the eustachian tube because of the flapper-valve like action of the latter. For this reason the greatest difficulty usually occurs during descent in aircraft, and the highest pressure differentials have been seen and studied experimentally under this condition. At about 60 mm of mercury negative pressure the pain in the ear is severe and resembles that of acute otitis media. The tinnitus is marked and there is usually vertigo with beginning nausea. At from 60 to 80 mm of mercury negative pressure the pain is very severe and radiates from the ear to the temporal region, the parotid gland and the cheek. Still higher pressures produce agonizing pain, which seems to localize not in the ear but deep in the substance of the parotid gland. Deafness is marked and vertigo and tinnitus usually increase, but the latter may disappear. At between 100 and 500 mm of mercury pressure the tympanic membrane ruptures.

This occurrence is a dramatic episode in which the patient feels "as though hit along the side of the head with a plank," a loud explosive report is felt and heard in the affected ear, there is a sharp piercing pain on the affected side, vertigo and nausea become marked and collapse or generalized shock follows. With rupture of the tympanic membrane the acute pain quickly subsides, but a dull ache persists for from twelve to forty-eight hours. Hearing is distinctly diminished and vertigo and nausea may persist for from six to twenty-four hours.

With both positive and negative pressures, voluntarily opening the eustachian tube will immediately relieve all acute symptoms, but it is to be remembered that with a negative pressure in excess of about 80 or 90 mm it becomes impossible to overcome this by muscular action, and relief is obtained only by a return to a higher altitude and a pressure difference of less than from 80 to 90 mm of mercury. In cases in which the pressure has already produced trauma, opening the eustachian tube will not relieve the symptoms of that trauma, and they persist until recovery has taken place. The symptoms following trauma to the middle ear depend on the extent and duration of the trauma. Pressures that may be only uncomfortable at first finally become painful. Moderate trauma to the ear is followed by a sense of soreness in the ears and deafness lasting from one to twelve hours. Severe trauma is followed by pain, deafness, vertigo and tinnitus for from four to forty-eight hours. The pain is similar to that of suppurative otitis media, the tinnitus usually of a hissing or roaring character, the deafness of the conduction type and qualitative as well as quantitative.

Objective Symptoms. The objective signs depend on the amount of trauma sustained. In mild cases the drum may appear normal except for a moderate degree of bulging or retraction when a small amount of pressure differential still persists. An increased pressure in the tympanic cavity is denoted by a bulging of the tympanic membrane with a decrease or loss of the light reflex.

A negative pressure in the tympanic cavity is denoted by a retraction of the tympanic membrane with a decrease in size and brilliance of the light reflex and an increased prominence of the short process of the malleus with a foreshortened and more horizontal handle.

Following more severe trauma the drum may be retracted or bulging as already described, and in addition

there is also an inflammation, which in appearance varies from a slight pink tinge to an angry red. In all cases the inflammation is most marked along the larger vessels that follow the malleus handle and around the drum periphery. When the inflammation is severe it cannot be distinguished from acute infectious otitis media and has frequently been mistaken for it.

Traumatic ruptures of the tympanic membrane are usually linear and quite extensive and may involve any portion of it. The margins of fresh ruptures are red and the whole drum is highly inflamed. There is usually a small amount of blood in the external auditory canal. If the labyrinthine wall is visible through the freshly ruptured drum membrane, it is seen to be red, congested and swollen.

Audiometer tests show a variable diminution of hearing, depending on the severity of the injury.

Aero-Otitis Media, Chronic.—**Subjective Symptoms.** In these cases there is a "full and stuffy" feeling in the ears and difficulty in "clearing" them. There is a partial loss of hearing, which is either unilateral or more pronounced on one side and in some instances may vary from day to day. Head noises may be present, but rarely vertigo or pain. The condition is worse after flights, during acute infections of the upper respiratory tract, during changes of weather and during fatigue or debilitated states.

Objective Symptoms. The ear drums are bulging or retracted, usually the latter. The drum membrane is dull, lusterless and slightly thickened and the light reflex is diminished or absent. Hearing acuity is diminished either unilaterally or bilaterally, and in the latter case there is usually a considerable difference between the two sides. This deafness is of the conduction type, the lower tones of the scale being lost first. Rinne's test is negative, Weber's test is positive and bone conduction is prolonged beyond the normal. Examination of the ostium of the eustachian tube shows the presence of a chronic inflammatory process or a mechanical obstruction.

DIAGNOSIS

The diagnosis of aero-otitis media is simple only if the history is known. The different traumatic inflammatory stages closely resemble the various stages of infectious otitis media and, as previously stated, have frequently been mistaken for it. Likewise, chronic aero-otitis media may be easily mistaken for a chronic infectious middle ear process unless a history of exposure to repeated changes of altitude is obtained.

COMPLICATIONS

While trained pilots usually try to avoid flying during periods when they have an acute infection of the upper respiratory tract, because of the discomfort and pain in the ears which almost invariably occurs, nevertheless a considerable amount of such flying has been done. It might naturally be expected in these cases that during descent the intermittent blasts of air from the pharynx to the tympanic cavity would carry with it septic material to the mechanically irritated tympanum and readily set up an acute inflammatory process. While it is possible or even probable that this septic material is carried into the tympanum we have never seen it, nor are there any reports in the literature of this having occurred.

TREATMENT

Prophylaxis.—Those who take up aviation as a profession are, and should continue to be, carefully tested for patency of the eustachian tubes. This may readily

be done by means of the Politzer bag. Those who have stenosis of the tube should be examined for chronic infection of the ear, sinuses, nose and pharynx, the mouth of the tube inspected for mechanical obstructions and the eustachian tube catheterized if necessary. When any of these conditions are found and corrected, it is likely that the tube will become normal. Persons examined during periods of an acute infection of the upper respiratory tract should be reexamined after the infection has subsided before a final decision is made.

Probably the most useful prophylactic measure in all cases is proper instruction of the individual concerned. As long as the patency of the eustachian tube is under voluntary control there is no reason why any person in command of his faculties need experience difficulty at any rate of ascent or descent possible in present commercial aircraft. A simple explanation of the functioning of the eustachian tube followed by instructions as to how to ventilate the tympanum, when to ventilate it and how frequently this as necessary should suffice. Probably the simplest maneuver to actuate the normal eustachian tube is to swallow. It may also be accomplished by yawning, by singing, by shouting, by autoinflation and by contracting the salpingopharyngeal muscles. The last named defies description and can be learned only by practicing the suppression of a simulated yawn, at which time a roaring in the ears will indicate when the effort is successful.

Since the average person swallows involuntarily about every sixty to seventy-five seconds, it can be seen that a rate of climb or descent of 200 feet per minute will usually cause no discomfort, 500 feet per minute slight discomfort and 1,000 feet per minute moderate discomfort even though no effort is made to ventilate the tympanum artificially. Descents above 4,000 feet per minute may catch an individual unaware and create a tympanic vacuum which it is impossible to relieve by any method except a return to higher altitudes.

Chewing gum, eating, drinking or inhaling oxygen reduces swallowing to intervals of from one to thirty seconds. Sleeping and comatose individuals swallow at increased intervals and present a serious problem.

The allowable rate of ascent and descent of commercial airlines is set by the department of commerce at 300 feet per minute, and some such companies limit themselves to 200 feet per minute, although unusual conditions such as weather may require that both of these rates be exceeded to insure the safety of the flight. Those who are suffering from either temporary or permanent stenosis of the eustachian tube should be enjoined from flying except under controlled conditions of gradual changes of altitude through a maximum range not to exceed 2,000 feet. Those with an acute infection of the upper respiratory tract who insist on aerial flights should be prepared by gargling hot physiologic solution of sodium chloride or by having a detergent spray directed well back into the nasopharynx followed by the instillation or inhalation of atropine, ephedrine or benzedrine compounds.

Active Treatment—Relief of pain is the first consideration in acute cases. The tympanum should be gently inflated by Politzer's method if the drum indicates the existence of either positive or negative pressure. Heat, dry or wet, is very effective. The instillation of copious quantities of water into the external auditory canal at from 110 to 115 F followed by dry heat is the method of choice. Inflammation of the ostium of the eustachian tube requires treatment, and hot saline gargles followed

by the instilling or mopping of astringents over that area will shorten the period of discomfort. In severe cases analgesics and even the injection of morphine, from one-eighth to one-fourth grain (0.008 to 0.016 Gm), may be necessary for the first twenty-four hours.

The after-treatment consists of the application of dry heat to the ear and the inhalation or instillation of astringents into the nasopharynx every four hours. A plug of cotton in the external canal seems to add to the comfort, especially during cold weather.

If the condition does not subside materially in twenty-four hours, acute infectious disease of the middle ear should be suspected or a stenosis of the eustachian tube looked for and corrected.

Ruptures of the tympanic membrane should be left alone and treated expectantly.

In chronic aero-otitis media, stenosis of the eustachian tube should be looked for and treatment directed to its relief. Chronic infections of the ear, tonsils, sinuses, nose and pharynx should be considered as possible causative factors and corrected. Mechanical obstruction of the eustachian ostium or tube should be removed. If there is no apparent infection and no obvious obstruction of the tube, a malposition of the lower jaw with compression of the tube may be assumed and the jaw temporarily repositioned by the technic of Willhelmy⁴ for clinical test and, if successful, permanent measures applied.

The eustachian stenosis having been relieved, the chronic inflammatory process in the tube and middle ear usually subsides spontaneously, but this may be hastened by gentle inflation of the ear or if the congestion is marked, by the application of heat to the external ear and nasopharynx. Until the condition is entirely relieved, flying should be avoided as a potential source of irritation.

PATHOLOGY

In acute cases the first change is a passive hyperemia of the mucous membrane of the middle ear and eustachian tube from negative pressures or an ischemia from positive pressures. On relief of the pressure in either case there follows a period of active hyperemia, the degree and duration depending on the severity and duration of the trauma. With high pressures actual traumatic inflammation takes place accompanied by a serous exudate. The mucous membrane becomes congested and swollen, the eustachian tube blocked and the tympanic cavity a closed cavity. The epidermal layer of the tympanic membrane takes part in the reaction and becomes inflamed and may rupture.

Chronic aero-otitis media depends on frequently repeated insults to the tympanic cavity in which the tympanic membrane and the mucous membrane of the middle ear and of the eustachian tube become chronically congested and thickened.

The pain in aero-otitis media is not only local in origin but in severe cases may reflexly or directly affect the facial nerve and its branches and thus produce a neuralgic-like pain which radiates over the distribution of that nerve.

SUMMARY

A new clinical entity is presented which consists of a traumatic inflammation of the middle ear caused by a pressure difference between the air in the tympanic cavity and that of the surrounding atmosphere, commonly occurring during changes of altitude in airplane flights and characterized by inflammation, discomfort, pain, tinnitus and deafness.

A CLINICAL INVESTIGATION OF HISTIDINE THERAPY IN CASES OF PEPTIC ULCER

ROY UPHAM, M.D.
AND
HARRY BAROWSKY, M.D.
NEW YORK

The efficacy of histidine hydrochloride as a therapeutic agent in the treatment of peptic ulcer should be given careful consideration because, despite the existing uncertainty concerning its therapeutic value, there is still a tendency among some physicians to use this remedy. The interest in its therapeutic value is largely the result of the great number of encouraging reports which have appeared in medical literature, although more recent studies have not been so favorable.

To appreciate fully the status of histidine hydrochloride, a knowledge of the literature on the subject is essential. However, because this is voluminous, only the more important contributions will be discussed.

Mann and Williamson¹ have for a number of years carried on experiments, on the intestinal tract of dogs, in transplanting the duodenal secretions to the terminal end of the ileum. As a result of such an operation, "post-pyloric ulcers of the subacute or chronic type similar pathologically to those found in man, were noted, usually in two to four weeks," and the animals also showed other serious effects, such as loss of weight, diarrhea and melena. These authors expressed the opinion that the "diversion of the secretions which neutralize the gastric juice as it leaves the stomach to another portion of the gastrointestinal tract was the cause of the peptic ulcer formation."

In 1933 Weiss and Aron,² using the same technic, reasoned that such an operation prevents further enzyme action, especially proteolytic on the food coming from the stomach, and thus produces an amino acid deficiency which is responsible for the formation of ulcer. Using dogs as controls, they tried the amino acids not synthesized by the body (lysine, tryptophan, histidine and cystine) and discovered that the animals that were given parenterally histidine and tryptophan or histidine alone did not acquire ulcers, although they did have severe constitutional symptoms, such as anemia, loss of weight and diarrhea. Autopsies were performed at the end of three and six weeks on the control dogs that were not treated, and peptic ulcers were observed in both.

The same investigators³ then applied this treatment clinically to a number of patients and reported excellent results. The favorable reports of Weiss and Aron stimulated a number of other investigators to apply histidine therapy clinically. Most of the European clinicians, although each of them had only a small series

of cases, were highly enthusiastic about this form of treatment. Among those reporting excellent results were Blum,⁴ Lenormand,⁵ Hessel,⁶ Bogendorfer,⁷ Spencker⁸ and Smith⁹.

A number of investigators who studied larger series of cases were not as enthusiastic about their results as this group. However, the results that they obtained seemed to favor the use of the product. The first large series—fifty-two cases—was reported by Bulmer¹⁰ of England. In thirty-five cases the ulcers were gastric and in seventeen duodenal. Bulmer obtained 58 per cent of symptomatic and x-ray cures and 19 per cent of clinical improvement with no definite x-ray improvement, and had 23 per cent of failures. He concluded that his patients with gastric ulcer responded more readily than those with duodenal ulcer.

Among the first observers in this country to use histidine were Volini and McLaughlin,¹¹ who, in their initial report, on twenty-one cases, indicated a very favorable response in all the patients treated by this form of therapy. They noted a decrease of gastric acidity in most of them. In a later report,¹² on seventy-three cases, the results described were also favorable. A six months check-up revealed that 79 per cent of the patients were clinically improved and that the treatment of 21 per cent was regarded as a failure, but the results of x-ray examination in only twenty-seven cases became negative for ulcer. Eads,¹³ describing a series of thirty-five cases—thirty of duodenal and five of gastric ulcer—reported six cases in which there was clinical and x-ray evidence of immediate healing, eight in which there was clinical but not x-ray evidence of improvement and twelve in which the use of histidine was a failure. Rafsky¹⁴ and others have also reported favorable results with the use of histidine hydrochloride.

However, more recent studies do not substantiate the favorable results obtained by the early investigators. Sandweiss,¹⁵ for example, treated sixty-seven patients suffering from peptic ulcer, fifty-three of them with a modified Sippy regimen and forty with histidine. Histidine produced remission of symptoms in 50 per cent and the modified Sippy treatment in 51 per cent. However, in a six months follow-up study, 85 per cent of the histidine-treated patients had recurrences, as compared to only 31 per cent of the patients treated with diet and alkalis. As controls, he treated twenty patients by daily injections of 5 cc of distilled water, and 60 per cent became symptom free. In conclusion he stated that the routine use of histidine in the treatment of peptic ulcer is not advisable. However, it may

4 Blum, Paul. Orientation nouvelle de la pathogenie de l'ulcère expérimental gastrique et de la thérapeutique de l'ulcère humain. *Bull. gen. de therap.* 184: 253-260 (June) 1933.

5 Lenormand, Jacques. Acidotherapie amines et epigastralgies à cause non ulcéreuse (action de l'histidine). *Gaz. d. hop.* 107: 255-7 (Feb. 21) 1934.

6 Hessel, George. Die Behandlung des Magen und Zwölffingerdarmgeschwüers mit Histidin. *München med. Wchnschr.* 81: 1890-1891 (Dec. 6) 1934.

7 Bogendorfer, L. Neuartige Ulkusbehandlung mit einem Histidin. *Präparat. München med. Wchnschr.* 81: 1270-1271 (Aug. 17) 1934.

8 Spencker, H. Histidine in Gastric Ulcer. *Deutsche med. Wchnschr.* 61: 713 (May 3) 1935.

9 Smith, David. Histidine in Treatment of Gastric Ulcer. *Br. M. J.* 2: 154 (July 27) 1935.

10 Bulmer, Ernest. The Histidine Treatment of Peptic Ulcer with a Note on Fifty Two Cases. *Lancet* 2: 1276-1278 (Dec. 8) 1934.

11 Volini, I. F. and McLaughlin, R. F. The Histidine Method in the Treatment of Gastrointestinal Ulcer. Preliminary Report. *M. Rec.* 141: 364 (April 17) 1935.

12 Volini, I. F. and McLaughlin, R. F. The Histidine Method in the Treatment of Gastrointestinal Ulcer. *Illinois M. J.* 69: 39 (June) 1936.

13 Eads, John T. Histidine in the Treatment of Peptic Ulcer. *Am. J. Digest. Dis. & Nutrition* 2: 426-430 (Sept.) 1935.

14 Rafsky, H. A. Injection Treatment of Peptic Ulcer. *M. Rec.* 142: 289 (Sept. 18) 1935.

15 Sandweiss, D. J. Treatment of Gastrointestinal Ulcer with Histidine Monohydrochloride (Larostidin). *J. A. M. A.* 106: 1452 (Apr. 11) 1936.

Miss Kanet E. Dambach, R.N., cooperated in this study. From the Section of Gastroenterology, New York Medical College and the Outpatient Department, Metropolitan Hospital.

1 Mann, F. C. and Kawamura, K. An Experimental Study of the Effects of Duodenectomy. *J. A. M. A.* 73: 878 (Sept. 20) 1919.

2 Mann, F. C. and Williamson, C. S. The Experimental Production of Peptic Ulcer. *Ann. Surg.* 77: 409 (April) 1923.

3 Mann, F. C. The Experimentally Produced Peptic Ulcer. *Am. J. Surg.* 7: 453 (Oct.) 1929.

4 Weiss, A. G., Aron, E. and Holtzmann, P. Influence des injections d'acides amines (tryptophane, histidine, lysine) sur la cicatrisation de plaies artificielles de la muqueuse gastrique. *Compt. rend. Soc. de biol.* 113: 1067 (1933).

5 Weiss, A. G. and Aron, E. La carence en acides amines non synthétisables dans la pathogenie de l'ulcère expérimental. *application au traitement de l'ulcère humain.* *Bruxelles med.* 37: 107 (July 16) 1933.

6 Weiss, A. G. La carence en acides amines non synthétisables dans la pathogenie de l'ulcère expérimental. *application au traitement de l'ulcère humain.* *Bruxelles med.* 37: 107 (July 16) 1933.

be used for patients who do not respond to a regimen involving diet, alkalis and antispasmodics because about 50 per cent of such patients became symptom free and an additional 20 per cent were moderately improved. In a later study, Sandweiss¹⁶ concluded that histidine and other forms of injections may produce remissions, but he expressed the opinion that such remissions are due either to "psychic effects" or to "the intermittent nature of the disease." He admitted, however, that most of the patients treated with parenteral injections were on a diet similar to diet 3 (a modified Sippy diet) at the time that treatment was begun and that the administration of alkalis was continued if it had been begun before the injection treatment was instituted.

At the request of the Council on Pharmacy and Chemistry of the American Medical Association, Martin¹⁷ treated forty-one patients with histidine and forty control patients with a modified Sippy regimen. Of the former, twenty-eight were treated with "Larostidin" (Hoffmann-LaRoche) and thirteen with a 4 per cent aqueous isotonic solution of histidine hydrochloride. The results in the two series were similar, 73.2 per cent of the patients treated with histidine and 78.4 per cent of the control patients obtained symptomatic relief. The frequency of relapses in both series was also similar. For example, in a period of observation of from six months to one year, relapses occurred in twenty-six of the histidine-treated patients and in twenty-four of the control group.

"As a result of its consideration of the paper of Martin and others," the Council concluded that, "although there is at present insufficient clinical evidence for its evaluation, histidine hydrochloride shows promise of possible usefulness in the treatment of gastric and duodenal ulcer." However, the Council declared that "Larostidin" (Hoffmann-La Roche, Inc.) was not acceptable for New and Nonofficial Remedies because of the fact that it was marketed with unwarranted therapeutic claims, and it was voted to postpone further consideration of histidine monohydrochloride until adequate clinical evidence of its therapeutic usefulness was available.

Furthermore, not only clinical but experimental evidence as well fails to support the claims made for histidine therapy in cases of peptic ulcer. This was conclusively pointed out by Fontes and Bauer,¹⁸ in experiments which they carried out on dogs, and by Barry and Florey,¹⁹ using the operation of Meckel's diverticulum. The work of Flood and Mullins²⁰ and the experimental researches of Sandweiss, Saltzstein and Glazer²¹ also failed to corroborate the results obtained by Weiss and Aron.

A survey of the literature on the subject reveals the interesting fact that recent investigators do not agree with the highly enthusiastic reports of a large number of early research workers. In fact, they point out that histidine therapy is even less beneficial than the accepted diet-alkali regimen.

Because a careful study of the cases reported shows that the majority of patients who were treated with histidine were at the same time on some form of a modified Sippy treatment, either at the beginning or throughout the course of their treatment, a more exact study seemed imperative. In a clinical study it is extremely difficult to gauge accurately the beneficial effect that the patient receives from this type of therapy because a number of factors are involved which are difficult of control. Therefore, the authors felt that to determine the therapeutic value of this remedy it was essential to rule out as many as possible of the factors that would influence the healing of the ulcer. To accomplish this, a graduated form of therapy was instituted, and to substantiate the study further, a control series of experiments was performed on a similar group of patients.

CLINICAL MATERIAL

Uniformity of clinical material was sought. Practically all the patients presented a similar social background, the majority of them being of foreign extraction, having language difficulty and being subsidized by the Home Relief Bureau. They were all men and ranged from 22 to 52 years of age. Only patients with duodenal ulcer were selected. All were ambulatory. The majority presented the typical duodenal ulcer syndrome, and all had definite hyperacidity. On x-ray examination, all showed the characteristic "duodenal cap deformity." A large percentage of the patients had ulcers of the chronic recurrent variety and had had some other type of therapy previously.

GRADUATED METHOD OF STUDY

The method employed consisted of the daily intramuscular injection of 5 cc of the solution, one group receiving histidine and the control series receiving sterile water. The hypodermic injections were administered by the clinic nurse, and a series of twenty-four injections was given daily.

Fifty patients were treated by this method, twenty-five receiving histidine solution ("Larostidin") and twenty-five receiving sterile water. At the beginning of the treatment all other therapeutic factors, such as diet and the administration of alkalis and antispasmodics, were eliminated. The patients were instructed to remain on a liberal diet. However, if at the end of the first week marked relief was not obtained, they were advised to stay on a modified Sippy diet. At the end of the second week, if they still complained of symptoms, antacids and antispasmodics were added. The majority of the patients welcomed this form of therapy and cooperated to a greater degree than when they received the classic diet-alkali treatment.

RESULTS

In the histidine series, only one of the twenty-five patients studied was completely relieved by the injection treatment. This patient remained on a nonrestricted diet throughout his course of therapy. Twenty-four patients still had definite symptoms at the end of the first week, and these were put on a modified Sippy diet. In this group of twenty-four, thirteen obtained from marked to complete relief within twenty-four to forty-eight hours. At the end of the second week the administration of antispasmodics and antacids to the remaining eleven was begun, but only three obtained definite relief. No relief was obtained by the remaining eight throughout the course of treatment.

16 Sandweiss D J Comparative Results with Dietetic Parenteral and Surgical Treatment in Peptic Ulcer J A M A 108 700 (Feb 27) 1937

17 Martin K A Histidine Hydrochloride versus Diet and Alkalis in Treatment of Peptic Ulcer J A M A 106 1468 (April 25) 1936

18 Fontes G and Bauer R Action de l'ingestion d'histidine sur l'ulcère expérimental du chien Compt rend Soc de Biol 118 6972 1935

19 Barry H C and Florey H W Histidine Treatment of Peptic Ulcer Lancet 2 728 (Sept 26) 1936

20 Flood Charles A and Mullins Clinton R Experimental Peptic Ulcer Am J Digest Dis & Nutrition 3 249 (June) 1936

21 Sandweiss D J Saltzstein H C and Glazer W S The Value of Histidine in the Prevention of Experimental Ulcer in Dogs Am J Digest Dis & Nutrition to be published

The same procedure was followed with the control series. In a group of twenty-five patients treated with sterile water, three obtained complete relief of symptoms despite the fact that they were on a liberal diet throughout the course of treatment. These patients received no other type of therapy. At the end of the first week, the remaining twenty-two were put on a modified Sippy diet because they still had symptoms. Fourteen obtained from marked to complete relief in from twenty-four to forty-eight hours, and two others were definitely relieved on the addition of antacid and antispasmodics, at the end of the second week. Six patients failed to respond to any form of therapy.

In a follow-up study varying from six months to one year, it was noted that ten of the histidine-treated patients had relapses and that eleven of the control series had remissions.

A comparative study of the gastric chemistry was made at the beginning and at the termination of the course of injections but failed to demonstrate any appreciable uniform improvement. Although in some

Response to Graduated Form of Therapy

	Histidine	Sterile Water	Combined
Total cases treated	25	25	50
Marked relief obtained solely from injections	1	3	4
Marked relief obtained only when a modified Sippy diet was added to the treatment at end of first week	13	14	27
Definite relief obtained only when antispasmodics and antacids were added to the treatment by injection and diet at end of second week	3	2	5
Total number responding to treatment	17	19	36
Failures	8	6	14
Follow up, from six months to one year, number of recurrences	10	11	21

cases there was a decrease in free hydrochloric acid at the termination of treatment, in a corresponding number there was an increase. One may expect to find such variations in the chemistry of the stomach of the same person on different occasions. This was convincingly pointed out by Alvarez, Van Zant and Osterberg.²²

X-ray study is of great diagnostic value in cases of duodenal ulcer but proved of little importance in evaluating the healing of the ulcer in our cases. It was repeatedly demonstrated that despite the fact that the patient was symptom free for as long as three months, "duodenal cap deformity" tended to persist in most of the cases.

COMMENT

The graduated form of study, substantiated by a control series, eliminates to a great extent the accepted therapeutic aid which diet, antispasmodics, alkalis and rest give to the patient suffering from peptic ulcer and places histidine therapy to a marked degree on its own merit. Previous investigators did not completely eliminate these therapeutic factors.

However, before giving credit to any form of therapy for the results obtained in any case of peptic ulcer, one must take into consideration several important facts which influence the prognosis. Periodicity of the attacks is characteristic of the disease, and the response to therapy depends therefore in great measure on the duration of the attacks. One may assume that

a goodly percentage of the patients who do not improve after a month's treatment will become symptom free if another form of therapy is instituted. Patients with shorter histories tend to react more quickly and more favorably than those with longer histories. The same holds true for the age of the patients, the younger the patient, the better the response to therapy. It has also been observed that gastric ulcers have a tendency to heal more rapidly than duodenal ulcers. Pathologic factors, such as the degree of scarring, periduodenal adhesions and possible associated duodenitis have an important role. The etiologic factors must also be accorded due consideration. In evaluating the results of the therapy of peptic ulcer, it is extremely important to realize that these factors have a direct influence on the prognosis in a given case and that the therapeutic agent employed is of only secondary importance.

A number of investigators have offered several plausible theories for the good results obtained with histidine therapy. However, in evaluating the results of our studies, we prefer to favor the explanation that the beneficial effects obtained with histidine were merely the response to a form of psychotherapy. This assumption is well borne out when it is considered that four of our patients, three of whom received injections of sterile water, responded very rapidly—within twenty-four to forty-eight hours—to the parenteral therapy alone. This theory was frequently demonstrated to our satisfaction, especially in the group that received sterile water. As soon as the injections were stopped a certain number of the patients had a recurrence of symptoms, and as soon as parenteral therapy was resumed their pain disappeared. It is justifiable to conclude from the results of this study that a certain proportion of patients who have no complicating pathologic conditions will be amenable to some form of psychotherapy. Consequently, credence must be given to the increasingly popular conception that peptic ulcers frequently are merely local manifestations of a generalized psychogenic disease.

SUMMARY

A brief survey of the literature on the use of histidine in the treatment of peptic ulcer revealed the interesting fact that the extremely favorable results reported by early investigators have not been borne out by more recent experimental and clinical research.

With the use of a graduated form of therapy, it was found that the majority of the patients studied obtained definite relief only when a modified Sippy treatment was instituted.

It was found that the injection of sterile water resulted in slightly more so-called cures than the histidine form of therapy. It must therefore be concluded that histidine not only lacks specificity but is no more beneficial than the injection of sterile water in the therapy of peptic ulcer.

An interesting phenomenon observed was that four of the patients (three of whom received sterile water, and the other histidine) responded remarkably well solely to the parenteral method of therapy. Thus, one must seriously consider the value of psychotherapy in some of the uncomplicated cases.

The ease and rapidity with which a patient responds to therapy depends not alone on the remedy used but also and to an even greater degree on the etiologic and pathologic factors involved. Therefore, individualization of therapy is most essential.

45 East Seventy-Fourth Street—322 Central Park West

²² Alvarez, W. C., Van Zant, F. R. and Osterberg, A. E. *Am. J. Digest. Dis. & Nutrition* 3: 162 (May) 1936.

SERODIAGNOSTIC TESTS FOR SYPHILIS
AS PERFORMED BY THIRTY-NINE
STATE LABORATORIES

A COMPARATIVE STUDY

A REPORT OF THE COMMITTEE ON EVALUATION
OF SERODIAGNOSTIC TESTS FOR SYPHILIS

THOMAS PARRAN, MD

Surgeon General U S Public Health Service Chairman

WASHINGTON, D C

WITH H H HAZEN, MD, WASHINGTON, D C, J F MAHONEY, MD, STAPLETON, STATEN ISLAND, N Y, ARTHUR H SANFORD, MD, ROCHESTER, MINN, F E SENEAR, MD, CHICAGO, WALTER M SIMPSON MD, DAYTON, OHIO AND R A VONDERLEHR, MD, WASHINGTON, D C

The results achieved in the first evaluation study of serodiagnostic tests for syphilis in the United States¹ reflected great credit on several of the serologists who had developed original methods. In the first evaluation study a total of 14,238 comparable blood samples and 2,860 comparable spinal fluid samples were tested by thirteen American serologists. It was pointed out in the report of the committee that the actual serologic testing was done under relatively ideal conditions in the laboratories of the originators of the methods and that the results did not necessarily compare with those attained in other laboratories utilizing the same methods.

In the second evaluation study² the committee attempted to meet more closely than was possible in the first evaluation project the conditions encountered in ordinary practice. The efficiency of thirty state, municipal or private laboratories in the performance of serodiagnostic tests for syphilis was measured. The results achieved in many of the state and local laboratories were quite comparable with those attained by the originator of the method employed, who tested comparable specimens as a control measure. It was also obvious that the serologic testing in certain state and local laboratories was highly inefficient.

These observations led the committee to recommend that the United States Public Health Service make an annual comparison of serodiagnostic tests for syphilis done by all state laboratories. It was further recommended that the state laboratories should in turn offer a similar opportunity for comparative testing to the municipal, hospital and private laboratories within each state. It was, however, quite apparent from the results reported by some of the state laboratories that it would be unwise for them to inaugurate a method of control of the local laboratories within their boundaries until they had attained a much higher level of efficiency.

In accordance with the recommendations of the committee, the Surgeon General of the United States Public Health Service invited the health officers of the forty-eight states and the District of Columbia to participate in an evaluation study. The purpose of this project was to determine the efficiency of the performances of the various serodiagnostic tests for syphilis as carried out in those laboratories. The invitation was accepted by the health officers of thirty-nine states. Each health

officer was asked to designate the test or tests the performance of which he desired to have evaluated. The tests specified determined the choice of the methods to be employed as control tests. Thus the laboratories of William A Hinton, Reuben L Kahn, Benjamin S Kline and John A Kolmer were selected and will be referred to in this report as the control laboratories.

The details of the methods utilized for the selection of donors, the collection and distribution of specimens and the tabulation and analysis of reports were similar to those described in connection with the first evaluation study.³ The blood specimens originated from two points, the department of dermatology of the University of Illinois College of Medicine and the department of dermatology and syphilology of the University of Virginia Department of Medicine. Approximately 5 cc of whole blood from each donor was sent to each participating laboratory and to each control laboratory, the special facilities of the postal service being utilized to insure rapid transit and delivery. This necessitated the withdrawal of a single specimen of approximately 250 cc of blood from each donor. Specimen tubes were labeled by code letter and number only. The period of collecting and testing the group of 300 specimens used in this study extended from Nov 1, 1936, to March 15, 1937.

The group of 100 presumably nonsyphilitic donors whose serums were used to determine the specificity (freedom from false positive reactions) of the various tests was, for the most part, made up of medical students between the ages of 20 and 30 years who were apparently free of disease. A control group of this type is, from the standpoint of serologic testing, much more apt to be normal than a group of similar size drawn from hospital patients.

The 200 syphilitic patients used as donors for the purpose of determining the sensitivity (true positive reactions) were selected from the clinics of the department of dermatology and syphilology of the University of Virginia Department of Medicine under the supervision of Dr Dudley C Smith and from the department of dermatology of the University of Illinois College of Medicine under the supervision of Dr F E Senear. Of the donors used in the final tabulation 66 per cent were males and 34 per cent were females. Five per cent of the donors had early secondary infection. The remainder were individuals in whom the disease was of longer standing and who had received varying amounts of treatment.

Of the thirty-nine participating laboratories, twenty-five entered two tests: one complement fixation test and one flocculation test. One laboratory entered two complement fixation tests and one flocculation test. Three participants entered two flocculation tests and one complement fixation test. Two laboratories entered two flocculation tests only. Eight laboratories performed one test, of these five were complement fixation tests and three were flocculation tests. Thus, a total of seventy-four serologic performances was carried out. A total of 11,739 samples was distributed.

In a previous report by the committee¹ the difficulty of finding an adequate method for the rating of doubtful serologic reactions was discussed and cognizance taken of the undoubted value of such observations in treated cases. It is also recognized that doubtful reports on serums of the nonsyphilitic donors used in this study must be looked on as evidence of faulty technic. These factors should, in all fairness, be taken

Read before the Section on Preventive and Industrial Medicine and Public Health at the Eighty-Eighth Annual Session of the American Medical Association Atlantic City, N J, June 11, 1937.
1 The Evaluation of Serodiagnostic Tests for Syphilis in the United States. Report of Results. Ven Dis Inform 16: 189 (June) 1935. J A M A 104: 2083 (June 8) 1935.
2 The Efficiency of State and Local Laboratories in the Performance of Serodiagnostic Tests for Syphilis. Ven Dis Inform 18: 4 (Jan) 1937. Am J Pub Health 27: 15 (Jan) 1937.

3 Evaluation of Serodiagnostic Tests for Syphilis. Ven Dis Inform 15: 387 (Dec) 1934. J A M A 103: 1705 (Dec 1) 1934.

into consideration in arriving at a determination of the value of a serologic test in any laboratory. The committee believes that a laboratory that does not report doubtful reactions in nonsyphilitic individuals should receive credit for doubtful reactions in treated cases of syphilis. Conversely, there should be a deduction for

doubtful reactions reported in cases in the control group of presumably nonsyphilitic individuals. Chart 3 shows the added credits and deductions as in the previous evaluation studies the reports of doubtful reactions are given a negative rating in the computation of percent ages in tables 1 and 2.

In tables 1 and 2 and charts 1 and 2 the tests are divided into two main groups, complement fixation and flocculation. An exact classification of procedure was not possible because of the many departures that were taken from the technics described by the originators of the various tests. For example, relatively few participants utilized a technic that was in strict accordance with the Kolmer, Kahn or Kline methods. Divergence from the prescribed technic involved differences in the quantities of the individual components as well as in their proportion, one to another, a wide range of difference in methods for antigen titration and the establishment of the test dose for hemolysin, complement and antigen, and definite modifications in the treatment of the serum and the general mechanism of the tests. In several instances there was adherence to technical procedures that had been either modified or abandoned by the originators.

It is recognized that anticomplementary reactions in some cases may have been provoked by the hazards of transportation. Many of the participating laboratories reported some specimens as hemolyzed or otherwise unfit for testing, these reports do not enter into the final calculations. Therefore it is felt that the classification of anticomplementary results as unsuitable specimens would serve to avoid penalizing the laboratories in which an effort was made to test a hemolyzed or otherwise unsuitable specimen. It should be observed, however, that in certain laboratories a disproportionately high incidence of anticomplementary reactions was reported.

COMMENT AND RECOMMENDATIONS

One of the essential features in any program for the control of syphilis is the general availability of efficient laboratory diagnostic service. Reliable serodiagnostic testing of blood and spinal fluid specimens is a valuable method for the diagnosis of syphilis and for the estimation of the influence of therapeutic agents. While it is not deemed feasible or advisable to restrict the performance of serologic testing to state laboratories, these laboratories should maintain a sufficiently high standard to provide a model of efficiency for the municipal, hospital and private laboratories within the state.

A study of the tables and graphs reveals that some of the state laboratories are qualified neither to perform efficient serodiagnostic service nor to inaugurate any system of state licensure or approval of local laboratories within their respective states.

On the other hand, it is gratifying to observe that in many of the state laboratories the performance of serodiagnostic tests for syphilis is maintained at a highly efficient level. In many of the laboratories participating in this study the results attained compared most favorably with the control tests as carried out by the originators of the methods. It should be observed however that, in some of the laboratories performing more than one test for purposes of evaluation, one of the tests was performed in an efficient manner while the other yielded poor results. In this connection it should be stated that several laboratories entered tests which they did not use as a routine in order to determine their ability to perform such tests efficiently.

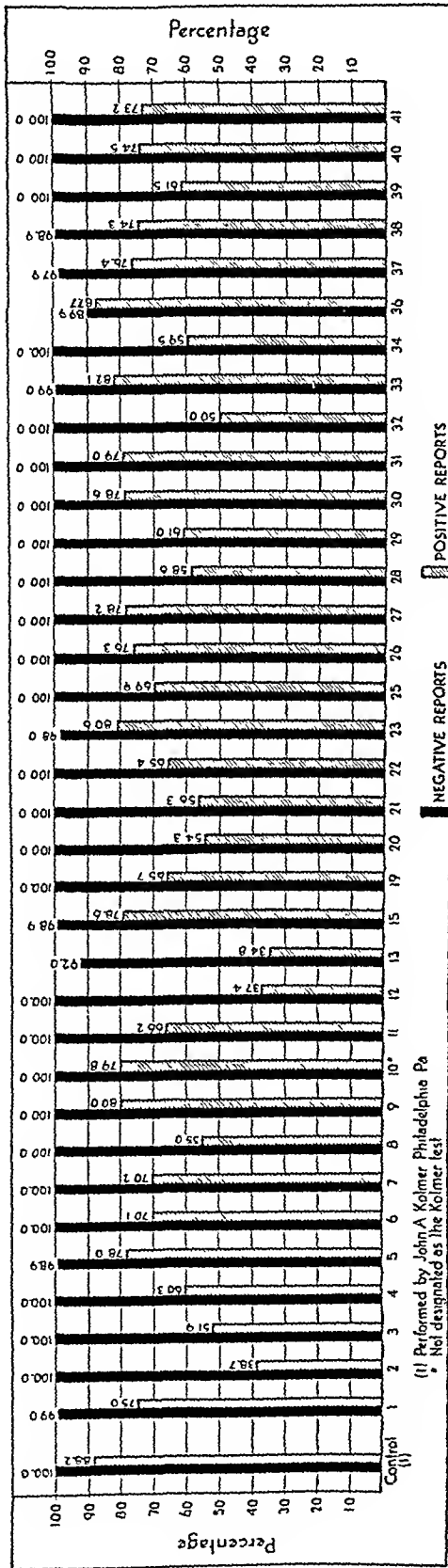


Chart 1—Sensitivity (true positive reactions) of blood tests based on the percentage of positive reports in 200 patients with syphilis contrasted with the specificity (freedom from false positive reactions) of blood tests based on the percentage of negative reports in 100 normal presumably nonsyphilitic persons

A study of the technics employed in the serodiagnostic tests for syphilis submitted by the state laboratories reveals that many of them have deviated greatly from the technics described by the originators of the methods. Many of the tests that were designated as Hinton, Kahn, Kline or Kolmer tests by the performers were so modified that it would be an injustice to the originators of the methods to refer to them as such.

The data derived from this investigation indicate that the routine employment of a single serodiagnostic test, although performed by competent workers, is occasionally unreliable. If a single test is used as a routine the laboratory should be prepared and willing to carry out a second test with a different method on request.

The extraordinary disparity in the results of this study indicates the urgent need for the provision of intensive and extensive training of personnel in certain of the laboratories.

The committee makes the following recommendations to state health officers:

1 That provision be made for adequate training of state and local laboratory technicians in the laboratories of the originators of the methods employed in the respective laboratories, and that in the future only thoroughly competent technical personnel be employed. Funds now being made available to the states under the provision of the Social Security Act and allotted for the training of personnel should be utilized for the tuition and stipend of the state and local laboratory technicians.

2 That a system of periodic inspection of state laboratories by

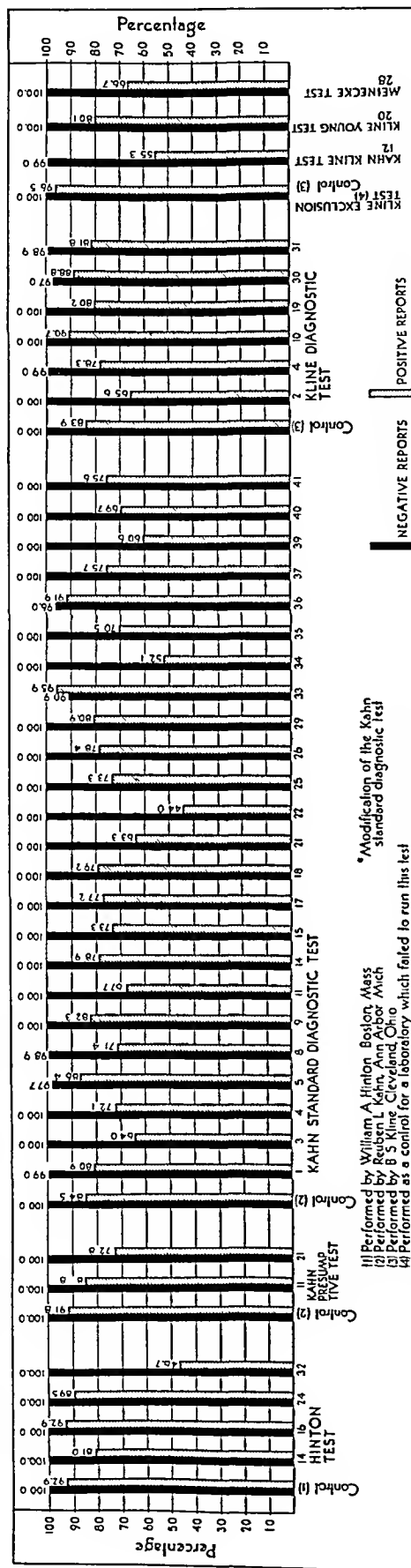


Chart 2—Sensitivity (true positive reactions) of blood tests based on the percentage of positive reports in 200 patients with syphilis contrasted with the specificity (freedom from false positive reactions) of blood tests based on the percentage of negative reports in 100 normal presumably nonsyphilitic persons.

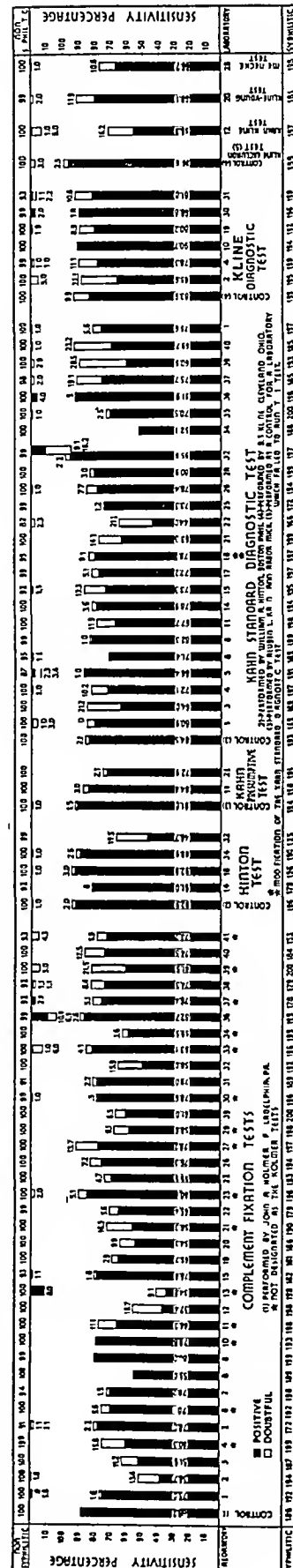


Chart 3—Sensitivity (true positive reactions) and specificity (freedom from false positive reactions) of blood tests for syphilis based on the percentage of positive reports in a group of 200 patients with syphilis and on the percentage of false positive reports in a group of 100 normal presumably nonsyphilitic persons.

thoroughly trained serologists of the United States Public Health Service be inaugurated and made available on the request of state health officers, and that advantage be taken of the system of comparative examination of serodiagnostic tests for syphilis to be extended annually by the United States Public Health Service

3 That the facilities available for special study of serologic methods in the Venereal Disease Research Laboratory of the United States Public Health Service at Stapleton, Staten Island, N Y, be further utilized for the training of personnel from state laboratories

4 That the need is again emphasized for the development by state laboratories of a system of periodic comparative examination of the performance of sero-

unique and efficient manner in which they were carried out. The personnel of the committee indicates again that greater achievements are possible when public health agencies and practicing physicians cooperate in such an undertaking. It was apparent from the results of the second evaluation study that many hospital and private laboratories perform serodiagnostic tests for syphilis in a more efficient manner than certain of our state laboratories. Conversely, some state laboratories performed such tests more efficiently than some of the private and hospital laboratories. I should like to direct attention to the fifth recommendation in the committee's report, namely, "that full advantage be taken of existing local laboratory facilities and that provision be made to approve and subsidize qualified laboratories for the performance of diagnostic services in the control of syphilis." The program of elevating the standards of diagnostic service will not be complete unless hospital and

TABLE 1—Complement Fixation Tests¹

Serologic Tests Performed and Code Numbers of Participating Laboratories	Sensitivity Total Syphilitic Patients (200)					Specificity Normal Presumably Nonsyphilitic Individuals (100)					
	Specimens Examined (Excluding Unsatisfactory and Anticomplementary)	Doubtful Reports	Positive Reports	Percentage of Positive Reports	Unsatisfactory and Anticomplementary Specimens	Specimens Examined (Excluding Unsatisfactory and Anticomplementary)	Doubtful Reports	False Positive Reports	Percentage of False Positive Reports	Percentage of Negative Reports	Unsatisfactory and Anticomplementary Specimens
Complement fixation tests											
Control ²	166		164	88.2	14	100				100.0	
1	192	3	144	75.0	8	100				89.0	
2	194	26	75	38.7	6	100	1	1	1.0	100.0	
3	187	21	97	51.9	13	100	1			100.0	
4*	199	31	120	60.3	1	100				100.0	
5	177	4	138	78.0	23	101				98.9	9
6*	197	11	138	70.1	3	100				100.0	
7	193	3	139	72.0	2	94	1	1	1.1	100.0	6
8	189		104	55.0	11	100				100.0	
9	190		156	82.0	5	99				100.0	1
10*	193		154	79.8	7	100				100.0	
11*	198	21	131	66.2	2	100				100.0	
12*	198	37	74	37.4	2	100				100.0	
13*	198	12	69	34.8	2	100		8	8.0	99.0	
15	182	3	143	78.6	18	98				98.9	
19	181	7	119	65.7	19	100	1	1	1.1	100.0	
20*	184	18	100	54.3	16	100				100.0	
21*	190	31	107	56.3	10	100				100.0	
22*	179	10	117	65.4	21	98				100.0	4
23*	196	10	168	85.6	4	100	2	2	2.0	98.0	
24*	193	9	130	67.9	7	100				100.0	
26	184	14	148	80.4	6	100				100.0	
27*	197	27	154	78.2	3	100				100.0	
28*	168	18	116	69.6	2	100				100.0	
29	200	13	122	61.0		100				100.0	
30*	195	1	154	78.6	4	88	1			100.0	
31	185	4	147	79.0	14	91				100.0	9
32	192	30	96	50.0	8	100				100.0	
33*	195	8	161	82.1	4	100	6	1	1.0	99.0	
34*	195	7	116	59.5	5	100				100.0	
36	195	5	171	87.7	5	99				89.9	1
37*	175	9	136	77.4	22	90	6	10	10.1	97.9	5
38	179	15	133	74.3	21	90	1	2	2.1	97.9	5
39*	200	43	123	61.5		100	5	1	1.1	95.9	
40	184	21	137	74.5	16	100				100.0	
41*	183	9	112	73.2	47	93	4			100.0	7

¹ The sensitivity (true positive reactions) of serodiagnostic tests for syphilis (complement fixation tests) based on their ability to detect syphilis in blood specimens from 200 patients with secondary and late syphilis and the specificity (freedom from false positive reactions) of serodiagnostic tests for syphilis based on their ability to exclude syphilis in 100 blood specimens from normal presumably nonsyphilitic individuals

² Owing to hemolysis breakage leakage or other causes included specimens not received

³ Performed by John A. Kolmer Philadelphia

* Not designated as the Kolmer test

diagnostic tests by municipal, hospital and private laboratories located within the respective states

5 That full advantage be taken of existing local laboratory facilities and that provisions be made to approve and subsidize qualified local laboratories for the performance of diagnostic services in the control of syphilis

ABSTRACT OF DISCUSSION

DR. FREDERICK H. LAMB, Davenport Iowa. This serodiagnostic evaluation study, and the studies that preceded it are symbolic of a definite step forward in the accurate diagnosis and hence in the control of syphilis. No campaign for the eradication of syphilis can succeed unless it is founded on accurate methods of diagnosis. The officers of the United States Public Health Service are to be congratulated not only for sensing the need for such investigations but also for the

private laboratories cooperate in the plan, furthermore the broad scope of the syphilis control program demands the utilization of all qualified local laboratories. It would be disastrous if local laboratories serving hundreds of medium sized and smaller communities should be legislated into extinction. In many communities the clinical pathologist stands as a bulwark between modern and medieval medical practice. Any plan which contemplates the centralization of laboratory diagnostic services in a state laboratory threatens the existence of local laboratories. Moreover, such a plan would deprive the community of the multitudinous services, quite apart from sero-diagnosis, which are so essential to modern, scientific medical practice. The advantages of immediate access to expert assistance in making darkfield examinations and of direct consultation with the clinical pathologists in the interpretation of their reports of diagnostic tests should not be ignored, in fact there is urgent need for the establishment of private or hospital laboratory facilities in scores of communities throughout this

country Such an expansion of diagnostic facilities would greatly elevate the level of medical practice in these areas Any plan for subventionary assistance might well include provision for assistance in the establishment of such local facilities, rather than the further expansion of state laboratory service Therefore, the recommendations of the committee embracing this phase of the problem are most timely and reveal a breadth

but occasionally funds do not permit the state health officer to furnish as high a service as he would like Sometimes lack of quality does creep in and usually the state health officers see the lesser quality in other branches of health work, other than their own When we were invited to cooperate with the U S Public Health Service, it was almost unanimous that we should do so, and the state health officers expected the labora-

TABLE 2—Flocculation and Precipitin Tests¹

Serologic Tests Performed and Code Numbers of Participating Laboratories	Sensitivity					Specificity					
	Total Syphilitic Patients (200)					Normal Presumably Nonsyphilitic Individuals (100)					
	Specimens Examined (Excluding Unsatisfactory and Anticomplementary)	Doubtful Reports	Positive Reports	Percentage of Positive Reports	Unsatisfactory ² and Anticomplementary Specimens	Specimens Examined (Excluding Unsatisfactory and Anticomplementary)	Doubtful Reports	False Positive Reports	Percentage of False Positive Reports	Percentage of Negative Reports	Unsatisfactory ² and Anticomplementary Specimens
Hinton test											
Control ³	196	4	182	92.9	4	100	1			100.0	
14	179	1	148	81.0	21	83				100.0	17
16	196	4	182	92.9	4	100	1			100.0	
24	190	5	170	89.5	10	100	1			100.0	
32	195	33	91	46.7	5	99				100.0	1
Kahn presumptive test											
Control ⁴	194	3	178	91.8	6	100	1			100.0	
11	193	0	168	84.8	2	100				100.0	
21	191	4	139	72.8	9	100				100.0	
Kahn standard diagnostic test											
Control ⁴	193	4	163	84.5	7	100				100.0	
1	189	8	161	80.9	1	100	3	1	1.0	99.0	
3	189	40	121	64.0	11	100				100.0	
4	187	20	142	72.1	3	100	1			100.0	
5	181	2	160	86.4	9	87		2	2.3	97.7	13
6	189		185	71.4	11	90	3	1	1.1	98.9	5
9	193	2	163	82.3	2	99				100.0	1
11	198	23	134	67.7	2	100				100.0	
14	194	7	153	78.9	5	100				100.0	
15	195	26	143	73.3	5	93	1			100.0	7
17	197	10	152	77.2	3	99				100.0	1
18*	197	10	150	79.2	3	99				100.0	1
21	199	28	125	63.3	1	100				100.0	
22	196	35	73	44.0	34	87	2			100.0	13
25	172	2	120	73.3	28	99				100.0	1
26	194	15	152	76.4	6	100	1			100.0	
29	199	6	151	80.9	1	100				100.0	
33	197	5	189	95.9	3	99	16	9	9.1	90.9	1
34	188		90	52.1	12	100				100.0	
35	200	5	141	70.5		100	1			100.0	
36	193	1	182	91.9	2	100		4	4.0	95.0	
37	185	23	140	75.7	15	98	2			100.0	2
39	193	50	117	50.6	7	100	2			100.0	
40	185	43	129	59.7	15	100	2			100.0	
41	197	11	149	73.6	3	100	1			100.0	
Kilne diagnostic test											
Control ⁵	199	19	167	83.9	1	100				100.0	
2	190	43	123	65.5	5	100	5			100.0	
4	198	22	150	78.3	2	99	1	1	1.0	99.0	1
10	194		170	90.7	6	100				100.0	
19	192	17	154	80.2	8	100	1			100.0	
30	196	2	174	88.8	4	99		3	3.0	97.0	1
31	198	21	162	81.8	2	93	2	1	1.1	98.9	7
Kilne exclusion test⁶											
Control ⁶	199	5	192	96.0	1	100	3			100.0	
Kahn Kilne test											
12	197	32	109	55.3	3	100	6	1	1.0	99.0	
Kilne Young test											
20	181	21	145	80.1	19	99	2			100.0	1
Melneck test											
28	193	21	132	66.7	2	100	1			100.0	

¹ The sensitivity (true positive reactions) of serodiagnostic tests for syphilis (Hinton test, Kahn presumptive test, Kahn standard diagnostic test, Kilne diagnostic test, Kilne exclusion test, Kahn Kilne test, Kilne-Young test, and Melneck test) based on their ability to detect syphilis in blood specimens from 200 patients with secondary and late syphilis and the specificity (freedom from false positive reactions) of serodiagnostic tests for syphilis based on their ability to exclude syphilis in 100 specimens from normal presumably nonsyphilitic individuals

² Owing to hemolysis, breakage, leakage, or other causes, includes specimens not received

³ Performed by William A. Hinton, Boston

⁴ Performed by Reuben L. Kahn, Ann Arbor, Mich.

⁵ Performed by B. S. Kilne, Cleveland

⁶ Performed as a control for a laboratory that failed to run this test

* Performed modification of the Kahn standard diagnostic test

of understanding that is highly commendable. The prompt adoption of these recommendations is essential to the success of the venereal disease control program which every right-minded physician earnestly desires.

DR. STANLEY H. OSBORN, Hartford, Conn. This is one place where state health officers are put on the spot in that we were found not to be as good as we thought we were. State health officers try to secure sufficient funds from state governments to operate a reasonably high quality of service,

stories to be shown to be giving a high quality service. Much to our surprise some of them fell below what we had hoped they might show. Again, the dose has had its beneficial results. Two of the men who should be here are not here. Presumably they are home trying to improve the quality of their laboratory service. We are wondering what other things we should aim at in our own departments of health, so that we shall not be exposed before this section as being woefully below what we had hoped we might be. It has taught us that we might also

review the activities of some other divisions or bureaus of our departments, where we think we have reasonably high quality I am sure that if the U S Public Health Service adopts an impartial view of the situation and makes a survey in other activities, as it did in this, it is going to make us look on our own departments with more pride than possibly we are justified in doing today. Those of us who are not in a department of health, but possibly in individual practice, or with individual groups or dispensaries, should also look intimately into their work to see whether perhaps the quality may be improved, before the Public Health Service suggests they should be looked over. It has been a great lesson. Last spring the state health officers met in the city of Washington and there first learned what was coming, and we went home and decided that before we did very many new things we were going to try to improve the quality of the things we were doing.

Clinical Notes, Suggestions and New Instruments

AIR EMBOLISM TO THE SPINAL CORD FOLLOWING ATTEMPTED PNEUMOTHORAX

ABRAHAM WIKLER M.D. JUDAH MARMOR M.D.
AND
ALAN HURST M.D.
NEW YORK

Air embolism to the spinal cord following attempted pneumothorax has, to our knowledge, never previously been described. We believe, therefore, that this case is unique and worthy of report.

REPORT OF CASE

History—A W., a white woman, aged 39, was admitted to the Montefiore Hospital Sept. 23, 1936 with a history of known tuberculosis for the past six months, involving the apex of the left lung. Her complaints on admission were cough, expectoration, and pain in the left shoulder. She was ambulatory, oriented and cooperative, she showed no weakness or limitation of motion of any of her extremities, and the deep reflexes were normal. Sputum examinations were repeatedly positive for tubercle bacilli, and serial roentgenograms of the chest disclosed a progressive fibrocaceous tuberculosis of the left upper lobe.

October 9 an initial left pneumothorax was attempted. The needle was manipulated but no readings could be obtained on the manometer. There was a return of blood through the syringe and the needle was at once withdrawn. Immediately thereafter the patient became pulseless and cyanotic, uttered a peculiar crescendo cry, and did not respond to questions. Her body turned slowly to the right and she groaned incoherently, was incontinent of urine and had a small hemoptysis. The limbs were flaccid, the tendon reflexes in the upper and lower extremities were depressed, and no Babinski or Hoffman sign could be elicited on either side. The eyeballs were deviated upward for a few seconds and then were fixed centrally. The pupils were dilated, regular and equal and reacted well to light. There was a suggestive grasp reflex bilaterally but no sucking reflex. Epinephrine, 5 minims (0.3 cc.), was given hypodermically and the pulse returned, at first slow, later about 90 per minute, regular and of good quality. The respirations gradually increased, and the patient's color improved. After about ten minutes she was able to respond to questions and complained of severe headache, chest pain, nausea, and inability to move her left leg.

When seen the following morning (October 10) the patient was conscious, rational, and oriented in all spheres. She complained of continued weakness of her left lower extremity and of urinary retention. Neurologic examination at this time revealed: 1. Marked weakness and flaccidity of the left lower extremity. 2. Deep reflexes depressed in the left lower extremity, absent abdominals, impaired plantar response on the left with suggestive left Oppenheim and Gordon signs and occasional left Babinski sign. 3. Slight impairment of pain and temperature sensibility in the right lower extremity extending upward to about the eighth dorsal vertebra on the right

and involving also the ninth to eleventh dorsal dermatomes on the left (fig. 1). The sensory impairment in the trunk was more marked than in the extremity. Touch was unimpaired. 4. Impairment in vibratory sensibility in the left lower extremity up to the iliac crest, and slight impairment in position sense in the toes of the left foot.

Twenty-four hours later the patient showed evidence of returning motor power in the left lower extremity. The improvement continued rapidly, so that one week after the initial accident the patient was able to get out of bed and walk about, although with a pronounced limp. The urinary retention had cleared up at the end of twenty-four hours, but some slight difficulty in initiating urination persisted.

Complete neurologic check-up eleven days following the accident (October 20) revealed the following. The mental examination gave entirely normal results. There was a slight limp the left leg being favored. Coordination and skilled acts were normal. There were no abnormal involuntary movements. There was moderate weakness of the left leg as compared to the right. The hamstrings were weaker than the quadriceps; the dorsiflexors of the foot were weaker than the plantar flexors. There was slight hypotonia on the left. No atrophies or fibrillations were noted. The deep reflexes were now increased in both lower extremities but greater on the left than on the right, except for the left ankle jerk, which was slightly decreased. The plantar responses were poor bilaterally, but no pathologic reflexes were elicited except for a questionable left Oppenheim sign. The abdominals were not elicited. The reflexes in the upper extremities were normal.

The sensory observations remained unchanged, except that at this examination the sensory level was several segments higher—sixth dorsal on the right and seventh dorsal on the left. Sensation in the face and upper extremities, including stereognosis, was entirely normal. The cranial nerves were normal. The patient still complained of slight difficulty in initiating urination and defecation.

Subsequent examinations all showed continued and progressive improvement in the patient's neurologic condition.

October 28, nineteen days after the initial incident, the patient still walked with a very slight limp and showed only slight relative weakness of the left leg, although the reflexes were

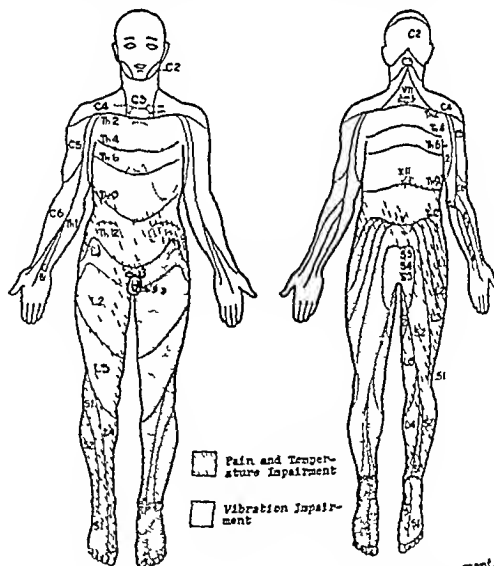


Fig. 1—Pain and temperature and vibration impairment.

as previously noted. There had been marked regression in the sensory disturbances, the vibratory impairment being demonstrable only in the left ankle and toes, while position sense was normal. The diminution in pain and temperature sensitivity was now very slight, but the patient complained of a subjective sensation of "unpleasantness" when the areas of pain and temperature impairment were touched or stroked. There was still slight retardation in initiating urination and defecation.

November 6, after twenty-eight days, the gait was practically normal. There was very slight relative weakness of the left lower extremity, and the deep reflexes in the left lower extremity

ity were still slightly more active than on the right. No pathologic reflexes could be elicited, but the abdominals were still absent. Vibratory sensibility was now normal, but very slight pain and temperature impairment was still present, especially in the area of the sixth to ninth dorsal segments on the right. Dysesthesia was still present but was less marked.

November 25, forty-five days after the incident, muscle power was equal in the two legs, but the deep reflexes on the

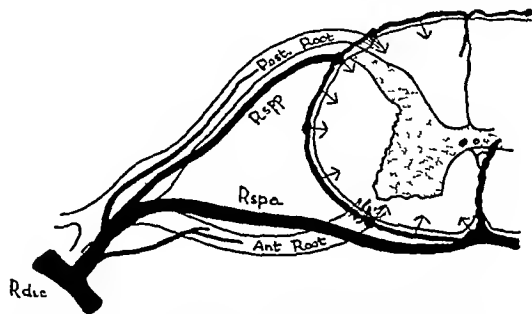


Fig 2—Arteries of a spinal cord segment (modified from Oppenheim, *Textbook of Nervous Diseases for Physicians and Students*). Rdc, dorsal branch of the intercostal artery; Rsa, anterior spinal branch; Rsp, posterior spinal branch.

left were still slightly more active than on the right. The abdominals were not elicited. Dysesthesia was no longer present, but slight pain and temperature impairment was still evident over the sixth to ninth dorsal segments on the right side.

At the time of writing, ten weeks after the accident, there are no abnormal neurologic signs present except for the absent abdominals, and slight hyperreflexia in the left lower extremity.

Laboratory Examinations—Lumbar puncture October 14, five days after the accident, revealed clear, colorless fluid, with no cells, and a negative globulin reaction (Pandy). The initial pressure was 80 mm of water, and the final pressure 40 mm, after removal of 10 cc of fluid. There was no block on jugular compression or abdominal pressure. Total proteins were 34.2 mg per hundred cubic centimeters. The gum mastic curve showed all zeros. Roentgenograms of the spine were negative. Blood counts, blood chemistry, blood platelet count, bleeding and coagulation times were all normal. The blood and spinal fluid Wassermann reactions were negative. Urinalyses were normal. The gastric analysis revealed an achlorhydria.

Summary—In the course of an attempted pneumothorax the patient suddenly went into shock, with loss of consciousness, incontinence, and tonic convulsive movements. On recovering consciousness ten minutes later, she complained of inability to move the left leg. Examination revealed a flaccid paresis of the left lower extremity with pyramidal tract and posterior column disturbances in that extremity, together with spinothalamic impairment in the right lower extremity extending upward to about the eighth thoracic dermatome. There was urinary retention for twenty-four hours. In the course of the next few weeks, recovery took place rapidly and ten weeks after the accident, absent abdominals and slight hyperreflexia in the left lower extremity were the only residual neurologic signs.

COMMENT

The sudden onset of transient shock, unconsciousness and convulsions during an attempted pneumothorax, with puncture of a pulmonary vessel, point indubitably to the occurrence of a cerebral air embolism. The simultaneous onset of paresis of the left lower extremity with level sensory manifestations justifies the conclusion that there was coincidental embolization to the vessels of the spinal cord. The rapid improvement in the neurologic signs is confirmatory evidence in favor of this diagnosis.

The precise localization of the vessels involved and the course taken by the emboli are difficult to state with certainty in the light of our still indefinite knowledge concerning the exact vascular supply of the spinal cord. It would seem in view of the preponderant pyramidal tract and posterior column signs on the left and the spinothalamic signs on the right that we are dealing with a lesion in the distribution of the posterolateral vessels on the left side at the level of the midthoracic cord. The most likely pathway that the embolus or emboli would have to take to involve these vessels would seem to be from the

pulmonary veins into the left side of the heart, thence into the aorta, and out along one of the intercostal arteries on the left side to terminate in branches which communicate with the left posterior spinal artery, in the midthoracic region (fig 2).

In view of the association of the spinal cord lesion with definite, albeit transient evidences of coincidental cerebral embolization, it is of interest to note the work of Herrmann and Vial,¹ who discovered, in experimental embolization of the internal carotid artery in dogs, that those which survived showed diminished or absent reflexes in the fore limbs, with increased reflexes in the hind limbs. Suspecting that emboli were reaching the spinal cord, they injected an aqueous suspension of lycopodium powder into the internal carotid artery and on histologic examination found grains of lycopodium in the vessels of the cervical and upper thoracic cord in thirteen of eighteen cases, the emboli having evidently reached the cord by way of the circle of Willis, down the vertebral arteries, into the anterior and posterior spinal vessels. Whether such a mechanism may have operated in our case we are not prepared to state but it seems less likely than the pathway we have suggested (that is, by way of the intercostal artery).

So far as we have been able to determine, this is the first reported case of air embolism to the spinal cord. Embolization of any kind to the spinal cord is comparatively rare. Most of the reported cases have been in association with subacute bacterial endocarditis,² although a number of cases have also been described of embolic echinococcosis of the arteries of the spinal cord.³

INTESTINAL OBSTRUCTION DUE TO INGESTION OF DRIED PEACH

FRED L. ANDREWS, M.D., AND THOMAS F. WALKER, M.D.
GREAT FALLS, MONT.

A woman, aged 46, was brought to the hospital from the country about 15 miles distant, complaining of pain in the upper part of the abdomen, with nausea and vomiting. The family history was negative. The patient had had the ordinary diseases of childhood. She had three children living and well. Cholecystectomy and appendectomy had been performed in



At right, peach removed from intestine. At left, dried peach shown for comparison.

March 1927. A Colles fracture of the right wrist was sustained in June 1926. All the teeth were extracted several years ago, but no plates were worn.

When first seen at 6 a. m. she was suffering from severe abdominal pain and thought she had "ptomaine poisoning." She had eaten sardines at noon the day before, also the dried half of a peach which, when moistened by the saliva of the month had slipped down her throat. About 7 p. m. the pain began

¹ Herrmann H. and Vial J. *Compt rend Soc de Biol* 116: 523, 1934.

² Harrington A. W. *Glasgow M J* 103: 28 (Jan.) 1925.

³ Rizzi J. *Rev di pat nerv* 45: 397 (March-April) 1925.

in the upper region of the abdomen, gradually becoming more severe. An enema was taken about midnight with no relief.

In the hospital more enemas were given, without relief. One-fourth grain (0.016 Gm.) of morphine was given hypodermically. The vomiting, which was only occasional at first and consisted of fluids which she had taken, became more frequent, projectile in type and fecal in character. The temperature was 99 F, pulse 136 and leukocyte count 25,000 (polymorphonuclears 94 per cent, lymphocytes 6 per cent). Operative procedure was then decided on.

Under spinal anesthesia a low, median line incision was made. The abdominal cavity was filled with a clear, straw colored fluid, and exploration was begun in the upper part of the abdomen. A sausage shaped mass was palpated in the transumbilical line on the left side in the small intestine, but no attempt was made to determine the distance of the obstruction from the stomach. A longitudinal incision 3 inches in length was made in the intestine and a half peach was removed. The peach showed no signs of digestion and was swollen sufficiently to cause a bulging of the intestine and complete blocking. Closure was made with three layers of gastro-intestinal suture.

The patient was put in Fowler's position. The temperature was 99, pulse 90 and respiration 26. Proctoclysis of 5 per cent dextrose was immediately started. There was no apparent surgical shock. No vomiting occurred after operation and convalescence was uninterrupted until the afternoon of the fourth day, when some saliva ran into the trachea while the patient was asleep, causing a fit of violent coughing, awakening her. During this seizure she felt something "pop" and almost immediately sensed that something had happened.

Under nitrous oxide oxygen anesthesia the wound was opened. The peritoneum and muscle fascia had been torn apart, and bile and fecal material welled into the wound. That portion of the intestine previously operated on was brought into the wound, revealing an opening about one-fourth inch long in the previous incision. This loop of bowel was sutured into the wound with rubber tube drains inserted in both directions, four cigaret drains were also placed in the abdomen. The patient died at 4:30 the following morning. Permission for postmortem was refused.

210 Medical Arts Building

Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT

HOWARD A. CARTER, Secretary

BECK-LEE DE LUXE DUO-THERM, MODEL #1207 ACCEPTABLE

Manufacturer: The Beck-Lee Corporation, Chicago

The Beck-Lee De Luxe Duo-Therm, Model #1207, is intended for medical and surgical use. Pads, cuff electrodes and inductance coil attachments are provided for medical applications.

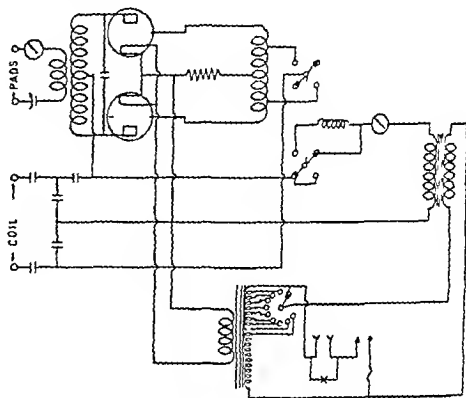


Beck-Lee De Luxe Duo-Therm

Surgical accessories for cutting, desiccation, fulguration and coagulation come as part of the equipment. The machine is housed in a walnut cabinet 21 inches wide, 18 inches deep and 43 inches high. The drawer in the lower part of the cabinet provides storage space for items such as line cord, pads, cable and other accessories. The machine is guaranteed for one year.

Self-rectifying tubes are used in the circuit protected by an input meter, which has on the dial a position to indicate when the tubes are overloaded. The tubes are also protected by a fuse cutout. The wavelength is 15-16 meters for pad and cuff applications and 25-27 meters for the coil technic. The input power is approximately 700 watts under normal operating conditions. Although no method of measuring output power has been adopted officially, the firm rated the output power at 375 watts as determined by the excitation of a lamp load read by a photometer. The temperature rise of the transformer at normal load after a two hour run meets the requirements of the Council.

The firm was asked to present evidence to verify its claims as to the heating ability of the unit. In accordance with the regular procedure of the Council in considering such a device, twelve tests were submitted, six in which the coil technic was used and six with double cuffs. Two vigorous adult male medical students ranging in weight from 150 to 180 pounds were the subjects. A trocar placed in a hard rubber cannula was inserted into the thigh. It was introduced at right angles



Schematic diagram of circuit.

to the thigh and straight down into the depth of the muscular tissue until it was at an approximate depth of 2 inches or until the femur was encountered. The trocar was removed, the rubber cannula being left in situ. Temperature measurements were then taken by means of thermocouples of the hypodermic needle type and introduced through the cannula. The constant junction was immersed in ice enclosed in a quart vacuum bottle. The electromotive force due to the difference in temperature of the junctions was read in millivolts from a Leeds and Northrup portable potentiometer. The thermocouple was calibrated in degrees Fahrenheit against a Bureau of Standards certified thermometer. Initial temperatures were taken and then each student was subjected to a twenty minute application of maximum current intensity consistent with skin comfort. At the end of this period, temperatures were again recorded until the temperatures began to drop. The highest temperature attained was recorded as final temperature in each instance. Oral temperatures were also recorded.

The first six experiments were made with the cuff technic. Two cuffs measuring 3 by 23 inches were wrapped round the thigh equidistant from the cannula, about 7 inches center to center, with one-half inch felt spacing. The next six tests were made with the inductance coil technic. Here three turns of the 12 foot 6 inch cable diameter 1 inch, were wound round the thigh with 1 inch thickness of bath toweling as spacer. There was a space of 2 inches between adjacent turns of the coil. The averages of six tests with the cuff technic and of six tests with the coil technic are given here.

1 Average Temperatures of Six Observations Cuff Technic

Deep Muscle		Oral	
Initial	Final	Initial	Final
100.4	106.5	98.7	99.3

2 Average Temperatures of Six Observations, Coil Technic

Initial	Final	Initial	Final
99.5	107.2	98.3	98.6

The unit was tried out in a clinic acceptable to the Council on Physical Therapy. The clinical results were satisfactory with both technics. The cutting current was also found to be suitable for surgical needs. No claims were made for use of the apparatus in fever therapy. Burns may be produced but can be avoided by the use of ordinary precautions.

In view of the favorable report based on the data obtained by the Council's investigator, using both cuff and coil technics, the Council voted to include the Beck-Lee De Luxe Duo-Therm Model #1207, in its list of accepted devices.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEECH Secretary

DIGITALIS (See New and Nonofficial Remedies, 1937, p 180)

The following dosage forms have been accepted

Capsules Digitalis Leaves Sharp & Dohme 1½ grains Each capsule contains one cat unit

Prepared by Sharp & Dohme Inc Philadelphia and Baltimore

Tablets Digitalis Squibb ½ cat unit Each tablet represents ½ cat unit (approximately ¾ grain)

Prepared by E R Squibb & Sons New York

Capsules Powdered Digitalis Squibb 1½ grains Each capsule represents 1011 U S P XI units

Prepared by E R Squibb & Sons New York

PONTOCAINE HYDROCHLORIDE — *p*-butylamino-benzoyl-di-methylaminoethanol hydrochloride — $C_{16}H_{21}NH_2C_6H_4COOCH_2N(CH_3)_2HCl$ The base of pontocaine hydrochloride belongs to the procaine type. It differs from procaine base in that one of the (amino) hydrogens of the aminobenzoate group is replaced by a butyl group, and the two ethyl groups of procaine are replaced by two methyl groups in pontocaine.

Actions and Uses—Pontocaine hydrochloride is a local anesthetic with actions similar to those of procaine hydrochloride, but it is effective when applied to mucous membranes in lower concentrations. It is used for surface anesthesia in the eye, nose and throat, and in spinal anesthesia in which the anesthesia is prolonged.

Dosage—Solution of pontocaine hydrochloride 0.5 per cent is used in the eye, a 2 per cent solution is applied to the nose and throat. The 1 per cent solution is injected for spinal anesthesia for which purpose the dose is from 1 to 2 cc. (containing from 10 to 20 mg of the salt).

Manufactured by the Winthrop Chemical Co. New York N Y U S patent 1889 645 (Nov 29 1932 expires 1949) U S trademark 282 418

Ampules Pontocaine Hydrochloride Solution 1 per cent 2 cc size Each 2 cc of solution contains pontocaine hydrochloride 0.02 Gm sodium chloride 0.0133 Gm and acetone bisulfite 0.004 Gm

Pontocaine Hydrochloride Solution 0.5 per cent Supplied in bottles of one half fluidounce containing 1½ grains of pontocaine hydrochloride (0.5 Gm per hundred cubic centimeters) and ¼ grain of chlorobutanol (0.4 Gm per hundred cubic centimeters)

Pontocaine Hydrochloride Solution 2 per cent Supplied in bottles of one and four fluidounces containing in each fluidounce 9 grains of pontocaine hydrochloride (2 Gm per hundred cubic centimeters) and 1½ grains of chlorobutanol (0.4 Gm per hundred cubic centimeters). The solution is tinted with methylene blue to prevent accidental use for injection.

Pontocaine hydrochloride occurs as a fine white crystalline odorless powder when applied to the tongue it possesses a slightly bitter taste followed by a sense of numbness permanent in the air at ordinary temperature very soluble in water soluble in alcohol insoluble in benzene and ether. Its aqueous solution (1 in 100) is neutral to litmus. Pontocaine hydrochloride melts at 147 to 150 C. From aqueous solutions alkali carbonates and hydroxides precipitate the base as a colorless oil which solidifies when chilled and melts at 41 to 43 C. Dissolve about 0.1 Gm of pontocaine hydrochloride in 5 cc of water add 1 cc diluted nitric acid and 5 cc of silver nitrate solution a white precipitate results filter and wash the precipitate is soluble in ammonia water.

Dissolve about 0.2 Gm of pontocaine hydrochloride in 20 cc of water divide into two portions to one portion add 0.2 cc of diluted hydrochloric acid 0.2 cc of a 10 per cent solution of sodium nitrite and gradually add to a solution of 0.2 Gm of hetanaphthol in 10 cc of a 10 per cent sodium hydroxide solution a white precipitate occurs (distinction from the anesthetics responding to the diazo reaction) saturate the other portion with hydrogen sulfide no coloration or precipitation results (salts of heavy metals). Dissolve about 0.1 Gm of pontocaine hydrochloride in 1 cc of sulfuric acid the solution is colorless (readily carbonizable substances).

Dry about 0.5 Gm of pontocaine hydrochloride accurately weighed at 100 C for six hours the loss in weight does not exceed 10 per cent. Incinerate about 0.5 Gm of pontocaine hydrochloride accurately weighed the residue is not more than 0.1 per cent. Transfer about 0.3 Gm of pontocaine hydrochloride accurately weighed to a 500 cc Kjeldahl flask and determine the nitrogen content according to the official method described in Official and Tentative Methods of Analysis of the Association of Official Agricultural Chemists third edition page 20 chapter 2 paragraph 22 the percentage of nitrogen corresponds to not less than 9.1 nor more than 9.5 when calculated to the dried substance. Transfer about 0.3 Gm of pontocaine hydrochloride accurately weighed to a suitable Squibb separatory funnel add 25 cc of water followed by the addition of 2 cc of sodium hydroxide solution extract with seven successive portions of ether using 35 cc 30 cc 25 cc 20 cc 15 cc 10 cc and 10 cc respectively wash the combined ethereal solution with 15 cc of water filter through a pledget of cotton evaporate to a thick oil in a stream of warm air and dry to constant weight over sulfuric acid in a partially exhausted desiccator the

weight of *p*-butylaminobenzoyl dimethylaminoethanol obtained corresponds to not less than 87.3 per cent nor more than 88.3 per cent when calculated to the dried substance. Transfer the alkaline aqueous portion from the immiscible solvent extraction to a 400 cc beaker and place on the steam bath for 3 hours add 100 cc of water followed by the addition of 10 cc of nitric acid and 25 cc of silver nitrate solution subsequently boil with continuous stirring and allow to cool in a dark place. Collect the precipitate of silver chloride on a Gooch crucible wash with diluted nitric acid and water followed by alcohol and ether finally dry to constant weight at 105 C the amount of hydrogen chloride calculated from the silver chloride found corresponds to not less than 12.0 per cent nor more than 12.3 per cent when calculated to the dried substance.

Council on Foods

ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COUNCIL ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION AND WILL BE LISTED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED.

FRANKLIN C BING Secretary

LARSEN'S 'FRESHLIKE' STRAINED CEREAL

Manufacturer—The Larsen Company, Green Bay, Wis

Description—A pureed cereal preparation made from processed whole wheat, whole milk, barley, soy beans, wheat germ and salt, requiring only warming for serving and specially intended for infant feeding.

Manufacture—Formula proportions of the dry ingredients are mixed in stainless steel kettles, whole milk is added and the mixture is mixed and heated until the starch grains swell and disintegrate. The mixture is strained twice, mechanically filled into enamel-lined cans and sealed. All of these steps are performed under vacuum. Cans are processed at 116 C for one hour and cooled in water.

Analysis (submitted by manufacturer) — Moisture 80.5%, total solids 19.5%, ash 1.2%, fat (ether extract) 1.8%, protein (N × 6.25) 5.0%, crude fiber 0.09%, carbohydrates other than crude fiber (by difference) 11.4%, calcium (Ca) 0.106%, phosphorus (P) 0.330%, iron (Fe) 0.0013%, ratio phosphorus to calcium 3.11, ratio carbohydrate to protein 2.28.

Calories—0.82 per gram, 23 per ounce

Vitamins—The method of preparation appears to be adequate to retain in high degree the vitamins normally present in the ingredients.

RANNEY'S FINEST BRAND STRAINED UNSEASONED PRODUCTS (PEAS, GREEN BEANS, CARROTS, BEETS, SPINACH, CELERY, TOMATOES, APPLES, PRUNES, APRICOTS, AND VEGETABLES WITH CEREAL AND BEEF BROTH)

Distributor—Ranney-Davis Mercantile Company, Arkansas City, Kan

Packer—The Larsen Company, Green Bay, Wis

Description—Respectively strained peas, spinach, carrots, beets, green beans, celery, tomatoes, prunes, apples, apricots and vegetables with cereal and beef broth, prepared by efficient methods for retention in high degree of the natural mineral and vitamin values. No added sugar or salt. These products are the same as the respective accepted Larsen's vegetables and fruits (THE JOURNAL Aug 26, 1933, p 675, Aug 12, 1933, p 525, Aug 19, 1933, p 605, July 8, 1933, p 125, July 29, 1933, p 366, Sept 2, 1933, p 779, July 1, 1933, p 35, July 22, 1933, p 282, Aug 10, 1935, p 437, July 4 1936, p 38, July 22, 1933, p 283).

SCHAAF'S 'FAVORED FOR FLAVOR' EVAPORATED MILK

Distributor—Frank Schaaf Company, Milwaukee

Packer—Page Milk Company, Merrill, Wis

Description—Unsweetened, sterilized evaporated milk, the same as Page Brand Evaporated Milk (THE JOURNAL, May 30, 1931 p 1872).

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, AUGUST 7, 1937

ERYTHROCYTES IN PERNICIOUS ANEMIA

Notwithstanding the important advances that have been made during the past few years in the treatment of pernicious anemia and in the partial elucidation of the chemical nature of the material effective in the treatment of this disease, the fundamental cause of the anemia remains unsolved. Whipple¹ believes that the underlying cause may be a lack of material needed for the formation of the stroma of erythrocytes and therefore that the cells formed are of subnormal structural strength. Some insight into this question may be acquired when the chemical constitution and the mode of action of the antianemic principle are determined. Another approach to the problem, however, is the study of the chemical composition and the physical structure of erythrocytes from patients with typical pernicious anemia. Possibly the disease is associated with changes in the red cell or, indeed, the anemia may be a result of chemical abnormalities of the cell itself.

A series of studies have been conducted at the Research Laboratory of the Children's Fund of Michigan² to obtain accurate information regarding the chemical composition of erythrocytes from normal subjects and from patients with various types of hematologic disorders. The results recently reported on erythrocytes from patients with pernicious anemia, both in relapse and in remission induced by liver extract, are particularly significant. During relapse some increases in the cation and anion content of the cells were observed, which were due chiefly to the presence of increased amounts of potassium and of hemoglobin. The most striking changes from normal, however, were those in the lipid components of the erythrocytes. There were significant increases in the amounts of cholesterol esters and decreases in the amounts of phospholipid and free cholesterol. Induced

remission of the disease by liver extract therapy was accompanied by a prompt return of the values to normal.

An interpretation of these data is difficult at the present time. There is some evidence³ that physiologic activity in a tissue or organ is associated with an increased content of phospholipid and of free cholesterol, whereas lowered activity, degeneration and retrogression are accompanied by a decreased content of these lipids and an increase in the amount of neutral fat and cholesterol esters present. If this general relationship applies to erythrocytes from patients with pernicious anemia, the foregoing results indicate that these cells are in a state of lowered activity or that they are degenerating and retrogressing.

Further work on this important problem is needed. As stated by the Michigan workers, chemical analyses of the isolated stroma of erythrocytes may yield further and more revealing information.

THE NATIONAL CANCER INSTITUTE

A bill¹ establishing a National Cancer Institute as a division of the United States Public Health Service has passed both houses of Congress. It will become a law when signed by the President. The bill creates a National Cancer Advisory Council and enlarges the functions and resources of the Public Health Service with respect to the study and treatment of cancer. To house the proposed institute, the Secretary of the Treasury is empowered to acquire suitable land in or near the District of Columbia and the appropriation of \$750,000 for the erection and equipment of buildings is authorized. An annual appropriation of \$700,000 is authorized for maintenance and operation. The Secretary of the Treasury is authorized, too, to accept gifts and bequests to further the work of the institute. All this, moreover, is not to replace but to supplement such authority and appropriations relating to the study of the prevention, diagnosis and treatment of cancer as the Public Health Service and other agencies of the United States already have. The responsibility for the operation of the institute is divided between the National Advisory Cancer Council, the Surgeon General of the Public Health Service and the Secretary of the Treasury.

The National Advisory Cancer Council is to consist of the Surgeon General, ex officio, as chairman, and six members appointed by him with the approval of the Secretary of the Treasury from leading medical and scientific authorities outstanding in the study, diagnosis or treatment of cancer in the United States. Each appointive member is to be paid at the rate of \$25 a

1 Whipple G. H. Hemoglobin Regeneration as Influenced by Diet and Other Factors. J. A. M. A. 104: 791 (March) 1935.

2 Williams H. H., Erickson Betty N., Bernstein Samuel, Hummel Frances C. and MacV. Icie G. The Lipid and Mineral Distribution of the Serum and Erythrocytes in Pernicious Anemia. J. Biol. Chem. 118: 599 (May) 1937.

3 Bloor W. R. and Snider Ruth H. Phospholipid Content and Activity in Muscle. J. Biol. Chem. 107: 459 (Nov.) 1934. Boyd E. M. The Lipid Content of the Jelly of Wharton. J. Biol. Chem. 111: 61 (Nov.) 1935.

day for such tune as he devotes to his official duties. The council is to certify to the Surgeon General, for investigation, experiment and study, programs relating to the cause, prevention, diagnosis and treatment of cancer deemed by it worthy of such action. It is to collect and, with the approval of the Surgeon General, make available to physicians and other scientists and to the public the results of studies throughout the world pertaining to cancer. The council is to examine applications for grants-in-aid for research projects relating to cancer and to certify to the Surgeon General, who is authorized to make such grants, such projects as show promise of worth-while results. Tenders to the Secretary of the Treasury of gifts that are limited by conditions named by the would be donors are to be appraised by the council, which is to certify to the secretary for acceptance such gifts as the council believes will further the purposes of the act.

The Surgeon General of the Public Health Service is authorized to provide facilities where training and instruction concerning cancer will be given to qualified persons, and provision is made for paying such persons while they are being so educated and trained. In addition, research fellowships may be established by the Surgeon General for investigators from any part of the world, and the assistance of experts from the United States or elsewhere in matters pertaining to cancer may be employed. Commissioned officers in the Public Health Service may be appointed in such numbers as may be necessary to aid in carrying out the provisions of the act. The Surgeon General may purchase radium and make it available for purposes of the act, and he may, subject to such conditions as the Secretary of the Treasury shall prescribe, lend radium to institutions for the study of the cause, prevention and method of diagnosis or treatment of cancer or solely for the treatment of cancer. Grants-in-aid may be made by the Surgeon General to universities, hospitals, laboratories and other institutions, or to individuals, for research projects relating to cancer certified by the National Cancer Advisory Council as worthy of such grants.

The Secretary of the Treasury is authorized to accept any unconditional gifts or bequests to be used for furthering the purposes of the act and to accept any conditional gifts for that purpose if acceptance is recommended by the Surgeon General and the council.

The act will become effective thirty days after its approval by the President, but in accordance with congressional practice it carries no appropriation and may have to wait until an appropriation is made before it becomes operative.

It is to be hoped that the use of the abundant funds proposed in this act, following so closely on the gift of \$10,000,000 by a private donor to Yale University for cancer research, will hasten the day when the cause of cancer is known and prevention and cure are available.

INFLUENCE OF MINERAL CONSTITUENTS OF BONE ON OSSIFICATION

Although there has been much research on the problem of ossification and its characteristic features, some of the most important aspects of this process remain obscure. Chief among these are the mechanism by which calcium is deposited in the bone matrix and the nature of the immediate stimulus that leads to the formation of bone in a given location. The suggestions offered to answer some of these perplexing problems of ossification have in general taken one of two directions. One theory of ossification may be termed humoral or chemical, and Leriche and Policard,¹ who have championed this hypothesis, postulate "a local calcific surcharge as the determinant of osteogenesis in a suitable fibrous medium." These authors emphasize the rarefaction of bone at the extremities of the fragments that occurs after a fracture. They believe that this liberates calcium in the region and leads to a local excess of calcium, this being an important factor in the union of fractures. The other theory of ossification considers that the process is cellular, or vital, the bone being formed as a product of specific cells (osteoblasts) which, under proper conditions, have the capacity of laying down bone. The two theories agree that bone deposition can occur only in the presence of an adequate supply of calcium and of other bone constituents. The divergence of the two theories lies primarily in the question whether the stimulus for ossification is of chemical (humoral) or cellular (vital) origin.

The experimental approach to the evaluation of these two theories of ossification is obviously easier in the case of the chemical hypothesis than in the study of the cellular or vital theory. Chemical alterations in the environment of the bone structure are much simpler to secure experimentally than are conditions that are optimal for the differentiation of primitive connective tissue into osteoblasts. As a consequence a number of reports have been made regarding the effect of experimentally produced local salt depots on the process of ossification. The evidence has been for the most part inconclusive because of the inability of investigators to control accurately all the variables, such as the influence exerted by the operative procedure necessary for the introduction of the salt. Also it is frequently observed that repair occurs as rapidly in the control as in the experimental fracture.

Recently Bisgard² has described experiments designed to eliminate controversial technique and to assess accurately the influence of an excessive local supply of calcium on ossification. At the same time a study was made to determine whether bone, in the form of partially viable bone, boiled bone or bone ash, might alter the repair process. Autogenous transplants of certain tissues were made to the anterior chamber of each eye of a large number of rabbits and several dogs. In most instances

1 Leriche R and Policard A. *The Normal and Pathological Physiology of Bone* translated by Sherwood Moore and J A Key. St Louis C V Mosby Company 1928

2 Bisgard J D. Ossification Arch Surg 33 926 (Dec) 1936

the grafts promptly became attached to the iris, from which they became vascularized. After this had occurred, aqueous suspensions of either bone salts or bone ash were injected into the anterior chamber of approximately half the eyes. The transplants in the eyes in which salts were not injected served as controls. After varying periods the animals were killed and the grafts were recovered and studied microscopically. The synthetic salts of bone, calcium carbonate, calcium phosphate and magnesium phosphate had no influence on osteogenesis or ossification. In great concentration and in the presence of tissue not in itself osteogenic but regarded as ossifiable, these salts failed to give rise to the formation of bone and in the presence of osteogenic tissue they did not appear to alter the normal process of ossification. On the other hand, bone, regardless of its viability, had a favorable influence on ossification. This was true also of bone ash. The conclusion is drawn, therefore, that bone ash possesses some factor favorable to ossification that is not present in the artificial salt mixture. It may be inferred from these observations that calcium as it exists in bone may be present in a physiochemical or structural form more suitable for use in the process of ossification.

The experiments of Bisgard are of further interest when viewed in the light of recent evidence indicating that the breaking strength of bones appears to be more closely correlated with organic pattern, as reflected in the size of the bone, than with the proportion of inorganic salts.³ It seems possible that observations of this type, supplemented by other data, may serve to bring into closer harmony the two principal theories of ossification and to lay equal emphasis on the importance of each. The process may require both a proper chemical stimulus in the form of a correct balance and concentration of the inorganic salts of bone and the vital activity of the osteoblasts for laying down the correct organic pattern into which these salts may be deposited.

FEDERAL REGIMENTATION OF PHYSICIANS AND HOSPITALS

Senator J. Hamilton Lewis of Illinois introduced in the Senate, July 28, a joint resolution¹ "To provide medical aid for the needy and the stricken with illness who are unable because of poverty to provide treatment and hospitalization, also to establish all licensed medical practitioners as civil officers of National Government." The resolution, which was referred to the Committee on Finance, would in effect relieve the states of all responsibility and expense for the medical and hospital care of the indigent sick and injured within their respective borders and would bring the medical profession and all hospitals under federal control so far as might be necessary for the purposes of medical and hospital relief. Senator Lewis proposes to organize the medical profession and the hospitals of the United

States to care for and treat, at the expense of the federal government and in accordance with rules and regulations promulgated by the Social Security Board all infirm, sick and destitute persons in need of care and treatment and unable to provide it. The resolution outlines the framework of a federal civilian medical corps such as was described by Senator Lewis in his recent address² before the House of Delegates of the American Medical Association at Atlantic City.

Senator Lewis's resolution proposes that for the purposes therein set forth every physician who practices medicine in the United States be a civil officer of the United States government. In effect, every such physician is to be drafted into a federal medical relief service whether he desires it or not, without regard to his citizenship, age, infirmity, education, training or experience. His term of office is to be for life, regardless of good or bad behavior, for no provision is made for suspension or removal from office for any cause, or for resignation. The utmost freedom in choice of physicians is proposed, any person in need of medical treatment and unable to pay for it is to be empowered, if the resolution is enacted, to demand treatment by any physician and the physician is to be bound to respond. A physician having under treatment an impoverished patient in need of hospital care would have authority, in event of the enactment of the resolution, to order his patient's hospitalization by any hospital, and a hospital, on receipt of such an order, would have to receive and care for the patient in a manner best adapted to effect his recovery, so far as the facilities of the hospital would permit.

Bills for medical and hospital services would be sent to the Social Security Board and would be paid if the board found them reasonable and just. The resolution is silent as to the payment of bills in cases in which the physician or the hospital on the one hand and the Social Security Board on the other cannot agree as to the reasonableness and justice of the amount charged.

Any physician and any hospital official or employee who refuses to render the service required of him is to be liable, if this resolution becomes a law, to a fine of not more than \$1,000 or to imprisonment for not more than three months, or both. Similar penalties are proposed for any physician or hospital official or employee making exorbitant charges, for any physician or hospital charging a patient anything in addition to the amount charged the federal government for the same services, and for any person who, in order to obtain medical and hospital services at the government's expense, falsely represents that he is destitute and unable to pay for medical treatment.

The resolution proposes that the Social Security Board be authorized to make such rules and regulations as are necessary to carry out the terms of the resolution. It is silent as to the official organization necessary to

³ Clarke, Miriam F. Bassin, A. L. and Smith, A. H. *Am J Physiol* 115: 556 (May) 1936.
¹ S. J. Res. 188.

² Address of Hon. J. Hamilton Lewis, J. A. M. A. 105: 11 (June 26) 1937.

provide proper supervision and control over physicians, hospitals and patients coming within the terms of the resolution. It makes no provision for the services of dentists or of nurses or for medical and surgical supplies, nor does it provide for any of the other needs of the destitute sick. The resolution contains no indication of the estimated cost of the proposed service and is silent as to the taxes to be levied by the federal government to raise the money necessary to pay that cost.

This joint resolution must pass the Senate and the House of Representatives and be approved by the President before it becomes a law. Introduced at this late date, there is little likelihood that it will be enacted before the adjournment of the present session. Apparently it has been introduced for the purpose of getting the views of its author before Congress and the public.

Current Comment

SERODIAGNOSTIC TESTS FOR SYPHILIS IN STATE LABORATORIES

Elsewhere in this issue (page 425) appears the Report of the Committee on Evaluation of Serodiagnostic Tests for Syphilis. It is a comparative study of efficiency of the performance of serodiagnostic tests for syphilis in thirty-nine state laboratories. Four private laboratories were used as controls. A study of the tables and graphs obtained from the sixty-nine serologic performances on each specimen of blood submitted revealed the fact that some of the state laboratories are qualified neither to perform efficient diagnostic service nor to inaugurate any system of licensure involving approval of local laboratories within their respective states. In many states, however, the efficiency of the performance of the tests was maintained at a high level. It was also evident that the routine employment of a single serodiagnostic test, even though performed by competent workers, is occasionally unreliable. The recommendations of the committee should receive immediate study. It was advised that provision be made for adequate training of state and local laboratory technicians in the laboratories of the originators of the methods employed and that in the future only thoroughly competent technical personnel be employed. A system of periodic inspection of state laboratories by thoroughly trained serologists of the United States Public Health Service should be devised and made available. The facilities for the special study of serologic methods in the Venereal Disease Research Laboratory of the United States Public Health Service at Staten Island should be utilized to a greater extent. Periodic comparative examination of the performance of serodiagnostic tests is desirable. Finally, the committee advised that full advantage be taken of existing local laboratory facilities and that provisions be made to approve and subsidize qualified local laboratories for the performance of diagnostic services in the control of syphilis.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ALABAMA

Society News—The Northwestern Division of the Medical Association of the State of Alabama was addressed recently in Decatur by Dr. Barney Brooks, Nashville, Tenn., on partial gastrectomy, Hon. John J. Peach, Decatur, "Medical Evidence in Court", Dr. Thomas L. Bennett Jr., Florence, "Management of Occiput Posterior", Dr. Frank H. Clements, Birmingham, eye disease, and Dr. Charles E. Abbott, Tuscaloosa, "Urinary Infections in Infancy and Childhood".

ARKANSAS

Personal—Dr. Benjamin C. Middleton, Texarkana, has been appointed health officer of Miller County.—Dr. Fount Richardson, Fayetteville, has been appointed physician to the University of Arkansas.

Polio-myelitis in Pulaski County—Nine cases of polio-myelitis were reported to be under treatment at the Little Rock City Hospital and four deaths had occurred, newspapers reported July 15. In Pulaski County, outside of Little Rock, six patients were still under quarantine July 16 and three had recovered with partial paralysis.

Society News—At a meeting of the Tri-County Clinical Society, Prescott, June 24, the speakers were Drs. John Harry Hayes, Little Rock, on diagnosis of hyperthyroidism, Bryce Cummins, Little Rock, anesthesia, Robert Paul Hughes, Prescott, acute conditions of the abdomen, and Francis W. Regnier, Prescott, metastatic sarcoma of the lung.—The Randolph-Lawrence County Medical Society was addressed at Smithville, June 8 by Drs. Henry B. Hull, Mammoth Springs, on dysentery, Cleo C. Ball, Ravenden, rheumatoid arthritis, and Edwin Dunn, D.D.S., Imboden, pyorrhea.—At a meeting of the Sebastian County Medical Society, June 8, Drs. Joseph F. Shuffield, Little Rock, discussed "Treatment of Nonunion of Fractures and Special Treatment of Fracture of the Patella", and Ewell I. Thompson, Little Rock, "Treatment and Management of Syphilis".

CALIFORNIA

Mussel Quarantine—A quarantine of all mussels from the ocean shore of California extending from the southern boundary of Los Angeles County north to the California-Oregon boundary, with the exception of San Francisco Bay, has been established for the period June 1-September 30.

Society News—Dr. Maurice B. Visscher, professor and head of the department of physiologic chemistry, University of Minnesota School of Medicine, Minneapolis, addressed the Hollywood Academy of Medicine, July 15, on "The Old and the New in the Story of Digitalis".—Dr. Norman Bethune, Montreal, discussed "Experiences in Spanish War Hospitals" at a special meeting of the San Francisco County Medical Society, July 27. At a general meeting, August 10, Dr. Clarence A. Mills, James T. Heady, professor of experimental medicine, University of Cincinnati College of Medicine, will speak on "Health and Disease Aspects of Environmental Effects: The Specific Relation of Air Conditioning to Health".—At a meeting of the San Joaquin County Medical Society in Lodi, June 3, Dr. Salvatore P. Lucia, San Francisco, read a paper entitled "Ancient Greek Physicians".—Dr. Frank H. Krusen, Rochester, Minn., addressed the Santa Barbara County Medical Society, Santa Barbara, June 14, on fever therapy.

COLORADO

New Division of Tuberculosis—Dr. Fred A. Forney, Woodmen, has been appointed director of the new division of tuberculosis of the state department of welfare, with headquarters in Denver. Under a recent law a sum was appropriated to provide care for indigent tuberculous patients in private tuberculosis sanatoriums. This law was passed in lieu of a proposed law to establish a state tuberculosis sanatorium. It was reported. It was supported by the state medical society in view of the large number of tuberculosis sanatoriums in Colorado which have been operating far below their capacity for many years. Under the new plan the state welfare board will hospitalize indigent persons in several of these institutions at a set per diem rate. Dr. Forney graduated at the University Medical College of Kansas City in 1906. A member of the

staff of the Modern Woodmen Sanatorium Woodmen, for many years, he has been medical director and superintendent since last January. He was formerly county physician of Reno County, Kansas, and at one time president of the Kansas State Health Officers' Association.

FLORIDA

District Meeting—The first annual meeting of the Northwest District of the Florida Medical Association was held in Apalachicola July 15 with the following program:

- Dr. Edward Jelks Jacksonville, president Florida Medical Association, Appendicitis
- Dr. Ernest F. Wahl Thomasville Ga. Uses and Abuses of the Electrocardiograph
- Dr. Frederick C. Moor Tallahassee, Collapse Therapy in the Treatment of Pulmonary Tuberculosis
- Dr. Otis W. Britt Chattahoochee Ala. Ray Diagnosis
- Dr. Mark F. Boyd Tallahassee Malaria

The program was arranged by the officers of the Leon-Gadsden-Liberty-Wakulla-Jefferson Counties Medical Society.

ILLINOIS

Memorial to a "Country Doctor"—The dedication of a huge boulder to the memory of Dr. Stewart Craig Thomson took place on the lawn of Byron school, August 1. Dr. Thomson was killed in an automobile accident Oct. 30, 1931, near Byron. The boulder weighs nearly a ton and is inscribed with words commemorating the life and service of Dr. Thomson who exemplified the typical "country doctor," newspapers reported August 1 would have been his sixty-seventh birthday.

New District Health Units—Nine full time district health units have recently been set up in Illinois, the first of twenty to be financed jointly by the state department of public health and the U. S. Public Health Service under the social security act. Following are the names of the newly appointed superintendents and the counties in their districts:

- Dr. Wellington C. Van Wormer Homewood Cook DuPage and Will counties
- Dr. James A. Poling Freeport Stephenson Carroll Jo Daviess Lee and Ogle counties
- Dr. Carl A. Peterson Moline Bureau Henry Mercer Rock Island and Whiteside counties
- Dr. Sandor Horwitz Peoria Marshall Peoria Putnam Stark Tazewell and Woodford counties
- Dr. Loran E. Orr Greenville Cass Logan Mason Menard and Sangamon counties
- Dr. Nettie A. M. Dorris Paris Champaign Coles Douglas Edgar and Vermilion counties
- Dr. Joseph L. Bryan Xenia Clay Edwards Jefferson Marion Wabash and Wayne counties
- Dr. Roland R. Cross Dahlgren Franklin Gallatin Hamilton Saline White and Williamson counties
- Dr. Lewis S. Barger Golconda Alexander Hardin Johnson Massac Pope Pulaski and Union counties

Chicago

The Capps Prize—The Institute of Medicine of Chicago offers the Joseph A. Capps Prize of \$500 for the most meritorious investigation in medicine or in the specialties of medicine. The investigation may be also in the fundamental sciences, provided the work has a definite bearing on some medical problem. Competition is open to graduates of Chicago medical schools who completed their internship in 1935 or who completed one year of laboratory work in 1936. The winner of the prize will be expected to present the results of his investigation before the institute at some meeting in 1938, the time to be designated later. Manuscripts must be submitted to the secretary of the institute, 86 East Randolph Street, Chicago, not later than December 31.

IOWA

Personal—Dr. Harry P. Smith, professor of pathology, State University of Iowa College of Medicine, Iowa City, has received a grant of \$10,000 from the John and Mary R. Markle Foundation for research on blood clotting and the bleeding tendency.

Society News—Dr. Philip A. Daly, Chicago, addressed the Black Hawk County Medical Society in Waterloo June 15 on "The Thyroid Gland in Relation to Pregnancy." At a meeting of the Johnson County Medical Society in Iowa City June 2, the speakers were Drs. Harry R. Jenkinson on "Poisoning from Shoe Dye" and William F. Boiler "Rocky Mountain Spotted Fever." Dr. Henry G. Decker, Des Moines, discussed "The Scope of Neurologic Surgery," before the Madison County Medical Society in St. Charles June 14. At a meeting of the Ringgold County Medical Society in Mount Ayr June 29, Drs. Charles L. Seaman, Mount Ayr, spoke on "Ulcerative Colitis," Elbert J. Watson, Diagonal, pneumonia, and James W. Hill, Mount Ayr, ectopic gestation.

KANSAS

New Health Officers—The following new health officers are announced in the state medical journal: Drs. Leroy S. Ott, Leoti, Wichita County; Otis H. True, Bird City, Cheyenne County; George R. Lee, Yates Center, Woodson County; and Edwin M. Ireland, Coats, Pratt County.

Temporary Injunction to Osteopaths—Federal Judge Richard J. Hopkins granted the osteopaths of Kansas a temporary injunction June 29, in an action filed to compel H. D. Baker, collector of internal revenue in Kansas, to issue them narcotic permits. A recent ruling of the attorney general of the state concurred in by the U. S. Narcotic Division stated that osteopaths in Kansas were not legally entitled to administer narcotics. Permanent ruling in the matter probably depends on the outcome of two test cases, now pending in Kansas courts, concerning osteopaths' rights under the state osteopathy practice act, it is said.

LOUISIANA

Dr. Walton Goes to Mississippi—Robert P. Walton, Ph.D., assistant professor of pharmacology, Tulane University of Louisiana School of Medicine, New Orleans, has been appointed professor and head of the department of pharmacology, University of Mississippi School of Medicine, University, Miss. He will take over the position September 1. It is reported Dr. Walton has been identified with Tulane since 1929, shortly after he received his degree of doctor of philosophy at Columbia University, New York.

New Professors at Louisiana Graduate School—Dr. Walter E. Levy, assistant professor of clinical obstetrics, Tulane University of Louisiana School of Medicine, New Orleans, and professor of obstetrics at the graduate school, has resigned to become professor and head of the department of obstetrics at the Louisiana State University Graduate School of Medicine. Dr. Levy graduated at Tulane in 1917. Dr. William D. Phillips, formerly on the staff at the graduate school of Tulane, has been appointed professor and head of the department of gynecology at Louisiana State and Dr. John F. Dick, also a former member of the staff of Tulane, has been named professor of gynecology and associate director of the department. Dr. Phillips graduated at Tulane in 1909 and Dr. Dick in 1912.

MASSACHUSETTS

Another Million Volt X-Ray Unit—A new million volt x-ray machine was recently installed in the Collis P. Huntington Memorial Hospital, Harvard University Medical School, Boston, for the treatment of patients with cancer.

Officers of Medical Board Re-elected—Dr. Francis R. Mahony, Lowell, was reelected chairman of the Massachusetts Board of Registration in Medicine at its recent annual meeting, and Dr. Stephen Rusmore, Boston, was reelected secretary.

Acting Commissioner of Mental Diseases—Dr. Clifford T. Perkins, Brookline, a member of the state department of mental diseases since 1935, has been appointed assistant commissioner and acting head of the department during the absence of Dr. David L. Williams, commissioner. Dr. Perkins is a graduate of Boston University School of Medicine, 1936.

Personal—Dr. Marshall L. Alling, Lowell, has been reappointed medical examiner of the fifth Middlesex district. Dr. Edward W. Wilder, head of the Willis F. Pierce Memorial Hospital, Madurai, India, who has been active in missionary work in India, was recently awarded the silver Kaiser Medal, a decoration given by the Indian government for distinguished service in social or educational work, according to the *Boston Traveler*. He is a native of Boston. Otto Kraver, of the faculty of the American University of Beirut, Syria, formerly of the University of Düsseldorf and the University of Berlin, has been appointed associate professor of pharmacology, Harvard University Medical School, Boston, for five years beginning next September, according to *Science*.

MINNESOTA

Cardiac Hospital Project—A cardiac clinic for treatment of children susceptible to the development of chronic heart disease has been maintained since December 1935 as part of the Lymanhurst Health Center, Minneapolis, by the Works Progress Administration under the auspices of the city division of health. Since the project was begun, 135 children suffering with incipient heart disease have been treated. The undertaking includes research activities in the laboratory, connected with the clinic and the compilation of records to determine causes and proper correctional procedure for treatment of these cases. The hospital occupies the top floor of the health center. There are two wards of twenty beds each, a study room, children's

dining room, library, enclosed porch for play diet kitchen electrocardiograph room a two bed isolation ward and an administrative suite. The patients range between 4 and 14 years of age are selected from the children attending the heart clinic at Lymanhurst and are admitted through the Minneapolis Public Relief Admitting Service for General Hospital. School nurses and physicians refer children who complain of symptoms suggesting rheumatic infection or who are found to have evidence of cardiac disease during their regular school physical examination. On admission, seventy-seven were found to have potential heart disease, with active rheumatic infection but as yet no signs of heart involvement. The patients are carefully studied through x-ray, electrocardiograph and laboratory examinations. They receive care for an average period of three months and are kept strictly on bed rest until all signs of activity have disappeared. In almost every instance the active rheumatic infection has become quiescent and their general condition has improved under the supervised treatment it is reported. School work is provided from kindergarten to the tenth grade. Follow-up work is carried on after the child is discharged. Dr Francis E Harrington city health commissioner, directs the project, which is supervised by Dr Morse J Shapiro.

MISSOURI

Dr Davis's Slayer Sentenced to Hang—Robert Kenyon was found guilty July 23 of slaying Dr James C B Davis Willow Springs, and was sentenced to be hanged September 2. Dr Davis aged 67 was summoned into the country January 29 on a fictitious call to attend a patient. The Davis family became alarmed after receiving two ransom demands for \$5,000. His bullet-torn body was found in a thicket a week later it was reported.

Hospital News—The construction of a new \$1,080,000 marine hospital in Kirkwood has been approved. Work has begun on a new psychopathic hospital, adjacent to the City Hospital, St. Louis, to be named in honor of the late Dr Malcolm A Bliss. It will be five stories high with accommodations for 186 patients. The Park Lane Memorial Hospital St. Louis has recently been opened. It has a capacity of sixty beds. Dr Frank J Smith is the director.

Health Coordinator Named—Sen James S Rollins Columbia, representing the tenth Missouri district in the state senate has been selected by the federal government to act as coordinator between the state board of health and the state department of education in the public health education program which is to be incorporated into Missouri's schools newspapers report. Senator Rollins' salary will be paid with federal funds it was stated, and his office will be located in the headquarters offices of the state department of health.

MONTANA

State Medical Election—Dr James C MacGregor, Great Falls was chosen president elect of the Montana State Medical Association at the annual meeting in Great Falls July 13-14 and Dr William P Smith Columbus was installed as president. Dr Ernest D Hitchcock, Great Falls, was elected vice president and Dr Thomas L Hawkins, Helena, secretary.

NEW YORK

Cancer Commission Appointed—Members of a commission authorized by the recent session of the legislature to survey the prevalence of cancer in the state and facilities for treatment were recently announced. Six members of the legislature were appointed by officials of that body and the following physicians were named by Governor Lehman: Drs Edward S Godfrey Jr, Albany state health commissioner; James Ewing director of cancer research, Memorial Hospital for the Treatment of Cancer and Allied Diseases New York; and Floyd S Winslow, Rochester, immediate past president of the Medical Society of the State of New York. The commission has an appropriation of \$15,000 and will report to the 1938 legislature.

Medical Minstrels—Alumni of the Syracuse University College of Medicine presented "Medical Minstrels of 1937" after the annual alumni dinner June 1 at the Hotel Syracuse. Nearly 100 physicians took part in the show which included an old fashioned minstrel show musical presentations dancing and a skit called "The Bedside Manner" written by Dr William E Pelow. Among special numbers were solos by Drs Raymond D Markle Waterbury Conn Francis R Irving and Henry Walden Retan dancing by Drs Harry C Myron Jr and Thomas E Walsh a two piano act by Dr John C M Brust and Mr Henry Lupes and a quartet by Drs Raymond

Markle, Charles D Reid Gordon D Hoople and Thomas F Laurie. Dr George L Wright was interlocutor for the minstrel show.

New York City

Three Health Centers Dedicated—Three district health centers for the New York City Department of Health have been dedicated since the first one of the group, that in East Harlem described in THE JOURNAL July 17 page 215. They are the Mott Haven center 349 East One Hundred and Fortieth Street dedicated June 29 the Lower West Side center 303 Ninth Avenue, July 13 and the Greenpoint center 151 Maujer Street Brooklyn July 27.

Changes in Faculty at Long Island College—A department of preventive medicine and community health has been established at Long Island College of Medicine, Brooklyn, under the direction of Dr Alfred E Shipley, professor of clinical preventive medicine and community health, it was recently announced. The new department will conduct most of its work in the Red Hook-Gowanus Health Center through an affiliation recently effected with the New York City Department of Health for training of medical students in public health work. Dr Tasker Howard, professor of clinical medicine has been promoted to be professor of medicine and physician-in-chief to Long Island College Hospital, to succeed the late Dr Luther F Warren. Dr Robert L Moorhead has been appointed professor of clinical otolaryngology to succeed Dr Charles Waldo Stickle, now emeritus professor, and Dr Fedor L Senger, assistant clinical professor of urology has succeeded Dr J Sturdivant Read now professor emeritus. The appointment of Dr Jean A Curran as dean of the school was announced in THE JOURNAL, March 13, page 891.

The Health Exhibits at the New York World's Fair—Plans for a million dollar medical and health exhibit at the New York World's Fair in 1939 were announced recently by Grover A Whalen president of the fair and Louis I Dublin PhD, chairman of the executive committee of the fair's advisory committee on medicine and public health. A design for the building which may be called "A World of Health" has been completed. About 10,000 feet of floor space will be used for a display that "will indicate to man in an entirely new and dramatic manner what to do so that he may take utmost advantage of the store of scientific knowledge now available to insure his health and that of his family." The health building will occupy a triangular plot of land on the "Theme Plaza" will be in the form of a V and will cost about \$425,000. In the center will be the Hall of Man, an oval chamber in which will be a heroic figure of man revealing by transparency the internal anatomy the circulatory digestive and nervous systems and the glands of internal secretion. Here also will be numerous models explaining man's physiology. To the left of the Hall of Man will be the Hall of Medical Sciences, in which will be displays showing various diseases and the means available for protection against them. There will also be a Hall of Public Health and a Theater of Hygiene where lectures will be presented by medical and health authorities. Many models will be so arranged that they can be manipulated by the visitors to show such motions as the articulation of joints, flow of blood and the processes of digestion. In addition to these displays sponsored by the fair the building will have about 70,000 feet of floor space to be "financed by a group of selected sponsors."

PENNSYLVANIA

Personal—Dr Roy W Goshorn Bellwood has been appointed superintendent of the Blair County Hospital for Mental Diseases Hollidaysburg to succeed the late Dr Henry J Sommer. Dr Carl E Ervin chief of the medical department of George F Geisinger Memorial Hospital Danville has resigned to enter private practice in Harrisburg.

Society News—Dr William L Long Philadelphia, addressed the Lehigh County Medical Society, Allentown July 13 on "The Use of Some New Drugs Affecting the Sympathetic and Parasympathetic Nervous System." At a meeting of the Venango County Medical Society in Oil City June 18 a symposium on cancer was presented by Drs Cecil H Hodgkinson Oil City, Paul E Cunningham and Franklin P Phillips Franklin and John C Wilkins and Joseph T Danzer Oil City. Dr Chevalier L Jackson Philadelphia addressed the Schuylkill County Medical Society, Shenandoah June 22 on "Indications for Bronchoscopy." Dr Arvin E Trollinger of the staff of the Veterans' Administration Facility at Coatesville addressed the Chester County Medical Society at the hospital July 20 on insulin treatment of dementia praecox.

Philadelphia

Promotions at Temple—Among promotions recently announced by Temple University School of Medicine were the following

Dr Louis Cohen to be assistant professor of medicine
Dr Morton J Oppenheimer assistant professor of physiology
Drs Wilbur E Burnett and James Norman Coombs assistant professors of surgery

Police Surgeon Attacked—Dr Joseph T Freeman, a police surgeon received a fractured jaw and lacerations of the head in an attack by a group of men who hailed him to have a supposedly injured companion taken to a hospital according to a newspaper report. Dr Freeman lifted the injured man into the rumble seat of his car and when he told others of the group he was unable to take them all he was beaten severely. One man when arrested confessed in court to the attack.

Personal—Dr David Riesman emeritus professor of clinical medicine and professor of the history of medicine, University of Pennsylvania School of Medicine, received an honorary doctorate of laws at the June commencement of the University of Wisconsin—Dr Basil R Beltran has been appointed chief surgeon and medical director of the eastern state penitentiary succeeding the late Dr Mitchell P Warmuth—Dr Rose Hirschler has been appointed professor of dermatology at the Woman's Medical College of Pennsylvania. Dr Hirschler graduated from the college in 1899—Dr Elise Whitlock-Rose recently received a gold medal the annual achievement award of the San Domingo Council Knights of Columbus in recognition of her work at the Notre Dame des Malades Clinic which she founded for the care of indigent women and children

Pittsburgh

Personal—Dr Paul Titus was recently decorated by the Hungarian government with the Commander Cross of the Hungarian Order of Merit in recognition of his work in obstetrics. Dr Titus is secretary of the American Board of Obstetrics and Gynecology

SOUTH CAROLINA

Society News—Drs Benjamin C Bishop and William Thomas Brockman addressed the Greenville County Medical Society, Greenville, July 5, on "Hemorrhoids—When to Treat and When to Operate" and "Nervous Indigestion and What Can Be Done About It" respectively—Dr Keitt Hane Smith, Greenville, addressed the Oconee County Medical Society, June 3, on treatment of urinary infections by mandelic acid—At a meeting of the Fifth District Medical Society recently in Chester the speakers included Drs Stephen W Davis, Charlotte, N C on "Physical Therapy" and Verling K Hart, Charlotte "Bronchoscopy in the Diagnosis of Intrathoracic Conditions"—Dr Isaac A Bigger, Richmond Va, addressed the York County Medical Society, Rock Hill at a special meeting July 8, on "Surgery of the Pericardium and Heart"—Among speakers at the annual meeting of the Eastern Carolina Medical Association at Myrtle Beach July 16 were Drs James Heyward Gibbes, Columbia, "Heart Pains", James C McLeod, Florence, "Management of Acute Injuries", Samuel F Ravenel, Greensboro, N C "The Nervous Child", Joseph Decherd Guess, Greenville "Problems in the Conduct of Labor," and Elbert L Persons, Durham, N C, "An Everyday Approach to Skin Disease"

TENNESSEE

Promotions at Vanderbilt—Promotions recently announced by Vanderbilt University School of Medicine Nashville included the following

Dr Edna H Tompkins to be associate professor of anatomy
Morton F Mason, Ph D assistant professor of biochemistry
Dr Herbert C Francis assistant professor of preventive medicine and public health
Roy J Morton, M S assistant professor of preventive medicine and public health

TEXAS

Society News—At a meeting of the Gray-Wheeler Counties Medical Society in Wheeler recently, the speakers included Drs Joel Zeigler Shamrock on "Blood Transfusions", Elmer W Jones, Wellington "Unilateral Polycystic Kidney" and Harold E Nicholson, Wheeler, "Review of the Vitamins, Their Sources and Uses"—Drs Henry A Petersen and John T Moore, Houston addressed the Hardin-Tyler Counties Medical Society, June 8 on "Trend Toward Socialized Medicine" and "Fundamentals in Treatment of Cancer of the Breast" respectively—A symposium on tuberculosis was presented before the McLennan County Medical Society, Waco, June 8 by Drs Frederick W Hoehn, Walter C Bidelsbach, Wesley W Klatt

and James W Hale, all of Waco—The Dallas Obstetrical Society was recently organized with the following officers: Drs Wayne T Robinson, chairman, Watt W Winn, vice chairman, and Herbert F Laramore, secretary—Dr Joseph H Dorman, Dallas, was elected president of the Texas Railway Surgeons' Association and Dr Ross B Trigg, Fort Worth, reelected secretary at a meeting in Fort Worth in May

WEST VIRGINIA

Personal—Dr and Mrs Cyrus Haymond Maxwell Morgantown, celebrated their golden wedding anniversary July 6 with a reception at their home. Dr Maxwell was born in 1863 and graduated from Gross Medical College, Denver, in 1893 after having been a teacher in Arkansas, Oregon, California and West Virginia. He has practiced in Morgantown about thirty-five years. In 1930-1931 he was president of the West Virginia Medical Association

GENERAL

Oregon License Lost—Dr Roger W Debusk, Madison, Wis., reports that he has lost a license granted to him in January 1935 by the Oregon State Board of Medical Examiners. The number of the license is 2792

Council to Coordinate Birth Control Activities—A central council to coordinate the activities of the American Birth Control League and the Birth Control Clinical Research Bureau has recently been formed. Mrs Margaret Sanger is chairman of the new council which will be known as the Birth Control Council of America and Henry Pratt Fairchild, Ph D, New York, is vice chairman. Members representing the American Birth Control League are Mrs Louis deB Moore, Drs Frederick C Holden and Eric M Matsner, New York, and Clarence C Little, Sc D, Bar Harbor, Maine, alternate. Those representing the Birth Control Clinical Research Bureau are Dr Hannah M Stone, Rabbi Sidney E Goldstein and Dr Ira S Wile, with Dr Abraham Stone as alternate. All are of New York.

Internal Use of Opium Preparations Defined—The use for aural, nasal, ocular, rectal, urethral or vaginal purposes of preparations containing opium or any of its salts or derivatives is not external use, but is internal use and is to be regulated accordingly under a recent amendment by the Acting Commissioner of Narcotics of Article 103 of Narcotic Regulations No 5, as amended. The manufacture, compounding, dispensing, and use for any of the purposes named of any preparation containing opium or any of its salts or derivatives in excess of the quantities allowed for so-called exempt preparations by the Harrison Narcotic Act as amended must conform in every respect with the law and regulations governing the manufacture, compounding, dispensing and use of the same drugs for other internal uses.

Film Shows Radium Refining Processes—A film celebrating the completion of production of the first ounce of radium at the El Dorado Refinery, Port Hope, Ont., from ore taken out of the radium deposits discovered in 1930 near Great Bear Lake in northwestern Canada, was completed and shown during the week of July 8. According to an announcement, the film shows the refining process, which now produces radium crystals at the rate of 35 Gm a month. It also shows ceremonies celebrating the production of the first ounce, attended by Sir Frederick Banting, Toronto, Gilbert LaBine, the mining engineer who discovered the radium deposits and Dr Herbert C Bruce, lieutenant governor of Ontario. Since the discovery of the Canadian ore the price of radium previously controlled by the Belgian monopoly that owns the supply in the Belgian Congo has dropped from \$75,000 to \$25,000 a gram, it is said. It is estimated that the total supply of radium in the world is about 600 Gm of which about 225 Gm is believed to be in the United States.

Society News—Dr George Miller MacKee, New York, was elected president of the Society for Investigative Dermatology at the organization meeting in Atlantic City in June. Dr Joseph V Klauder, Philadelphia, was made vice president. Dr Samuel W Becker, Chicago, secretary and Dr Joseph Gardner Hopkins, New York, treasurer. The society was organized for the purpose of presenting a forum for those interested in the investigative field of dermatology including not only dermatologists but investigators in allied fields who are working with the skin and its appendages—Dr William P Healy, New York, was chosen president elect of the American Radium Society at the annual meeting in Atlantic City in June and Dr Edward H Skinner, Kansas City, Mo., was installed as president. Other officers elected were Dr Lawrence R. Taussig, San Francisco, and Maurice Lenz, New

York, vice presidents and Frederick W. O'Brien Boston secretary—The Central Association of Obstetricians and Gynecologists will hold its ninth annual meeting October 14-16 at the Hotel Adolphus Dallas Texas

FOREIGN

Exhibition of Summer Camps—A National Exhibition of Summer Camps and Youth Welfare was opened in Rome June 20 and will continue to September 30. It is announced that the exhibition is designed to give a complete idea of what is being done in Italy to foster the moral and physical health of the younger generation.

The Marking of Thermometers—A law has recently been adopted in Czechoslovakia requiring that fever thermometers be "hall marked" according to a report from the U. S. Department of Commerce. Henceforth only mercury type thermometers with the official Czechoslovak "hall mark" can be sold and used by the local medical profession.

Prize for Medical Reports—The Académie Duchenne de Boulogne Paris, is offering a prize of 10,000 francs for reports of work in the medical sciences by an independent worker of French nationality. The prize will be awarded the first Thursday in December and reports must be sent by October 1 to the Secretariat of the Académie Centre Marcelin Berthelot 28 Bis rue Saint-Dominique Paris 7.

Society News—The ninth International Congress of Psychotherapists will be held at Copenhagen October 2-4. Further information can be obtained from Prof. Poul Bjerre 4 Engelbrektsgratan Stockholm. The "Congres International du Tourisme du Thermalisme et du Climatisme" will have a meeting in Paris at the exposition grounds October 14-17 at which Dr. Guy Hinsdale White Sulphur Springs W. Va. will represent the United States. The International Spa Congress will be held in Budapest October 7-14. The Royal Medical Society of Budapest will celebrate its centenary, October 6-8.

International Medical Week in Switzerland—The *Swiss Journal of Medicine* has organized the third International Medical Week to be held at Interlaken from August 29 to September 4. One day will be spent at Berne under the auspices of the medical faculty of the University of Berne. Among the lecturers listed on the program are:

Dr. Hugh W. Cairns, London Results of Treatment of Intracranial Tumors
Dr. Otto Loewi, Graz Austria Chemical Transmission of Nerve Impulses
Dr. Hans Spemann, Freiburg Germany New Observations on the Manner of Animal Development
Dr. Hans C. Hagedorn, Copenhagen Denmark Advances in Insulin Therapy
Dr. Leopold Lichtwitz, New York Disturbances in Regulation of Carbohydrate Metabolism

For information address the *Journal Suisse de Médecine* Klosterberg 27 Basel.

CORRECTION

Forty-Two Years a Secretary—The *JOURNAL*, June 12, page 2045, reported that Dr. Thomas Douglass Ozark Ark. had been secretary of the Franklin County Medical Society continuously for forty-three years with the exception of the year 1922, when the late Dr. Edward W. Blackburn Ozark held the office. Dr. Blackburn was vice president and not secretary, as recorded in the news item.

Government Services

Changes in Public Health Service

The following appointments and commissions have been announced in the U. S. Public Health Service:

Dr. Richard S. Bolten assistant surgeon reserve corps Lewisburg Pa.
Dr. Leo D. O'Hane assistant surgeon reserve corps Leavenworth Kan.
Dr. William Walcott passed assistant surgeon reserve corps Washington D. C.
Dr. Jeff T. Anderson as passed assistant surgeon reserve corps Fort Leavenworth
Dr. Wightman R. Duke assistant surgeon reserve corps at New Orleans
Dr. Dale C. Cramer as a sistant surgeon reserve corps San Francisco
Dr. Martin A. Ruona assistant surgeon Springfield Mo.
Dr. John A. Lewis Jr. as assistant surgeon reserve corps U. S. Marine Hospital Cleveland
Dr. Jack L. James assistant surgeon reserve corps Leavenworth
Dr. Wixom S. Sibley assistant surgeon reserve corps U. S. Marine Hospital Cleveland

Foreign Letters

LONDON

(From Our Regular Correspondent)

July 10, 1937

The Promotion of Clinical Research

The Medical Research Council is inviting applications for a second series of studentships and fellowships intended to encourage young British medical graduates of special ability and original mind toward becoming investigators in branches of medical science. The field includes investigation into disease in patients with experimental work of an immediately relevant kind. Six postgraduate studentships are offered for graduates who have already held house appointments. Each selected student will receive \$1,000 per annum in a period not exceeding twelve months for personal maintenance while undertaking such approved courses of study as may be best calculated to advance his training in methods of research. This study may include modern languages and such advanced physiologic, pathologic and special clinical work, under recognized teachers, as may form a suitable preliminary to research work to be undertaken later. The approved course may not include studies of which the purpose is to enable the student to pass further examinations.

The council is also offering four research fellowships for candidates of similar qualifications who already have had some experience in research methods. Each will be tenable for one year at \$1,250 per annum and will be renewable in approved instances at the rate of \$1,500 for a second year. They are intended as probationary appointments for research in clinical science or experimental pathology. Research expenses may be provided in addition to the stipend.

The National Physique

Improvement of the national physique has become a foremost political problem. In the House of Lords Earl Stanhope, president of the Board of Education moved the second reading of the physical training and recreation bill, which has already passed through the Commons. He said that the demand for increased opportunities for physical training and fitness, particularly among the youth, was a striking phenomenon of the present day. Viscount Dawson (president of the Royal College of Physicians) stated that the bill was necessary in the interest not only of the present generation but of future generations. In the past, nature secured a fit race by killing off the unfit. Now we were gradually undoing nature's efforts by our greater sense of humanity toward the weak. He did not doubt that this was the right policy, but it increased the necessity to create fitness. A national college of physical training was the pivot of the scheme. There students would learn technique and men who were going to take up physical education as a whole time job could be trained. Organizers and leaders of voluntary organizations could receive a shorter and less strenuous training.

Turning to the need for adequate nutrition Viscount Dawson said that the distribution of undernutrition was patchy. In the London elementary schools the children were for the most part well nourished, even in the poorest districts. On the other hand in the distressed areas, where unemployment was rife, undernutrition could be found. But it had to be remembered that many heads of households had never been taught how to choose food and spend their earnings to good advantage. Further, few knew how to cook. One of the best investments that the government could make would be to provide traveling vans to go about the country, from which lectures could be given on the choice and cooking of food.

Replying for the government Earl Stanhope agreed that undernutrition was due more to lack of education than to lack

of money. In Czechoslovakia the improvement of physique among all classes, and particularly among the working classes, by voluntary methods was remarkable. This was due more to physical training than to better nutrition.

The Measurement of Daylight in Rooms

Some 2,000 scientists and industrialists visited the National Physical Laboratory to see the progress that had been made in practical scientific research during the past year. They were received by Sir William Bragg, president of the Royal Society and chairman of the general board of the laboratory. In the photometry department has been perfected a factor meter which automatically measures the amount of daylight penetrating into rooms. By means of two photo-electric cells the intensity of light in a room is compared with that of the sky vault. It is thus possible to tell at a glance how good or how bad is the lighting of a room. The daylight factor is beginning to be used extensively by the authorities in deciding on slum clearance schemes, for the instrument has the advantage of not being subject to errors of judgment on the part of the user. The minimum daylight factor considered suitable for working conditions is 0.2 per cent. In some of the Glasgow slums the factor is as low as 0.003 per cent.

Another apparatus is used for testing the sensitivity of the eye to colored light, with special reference to colored street lights. It has been suggested that the eye may work most efficiently by the light of some particular color. To test this theory a cinema film of a street scene was prepared in which various objects appear and disappear. This is projected on a screen by means of lights of different colors. The time taken by observers to notice the various objects is measured for the different colors.

Some Improvement in Road Accidents

The National "Safety First" Association is able to announce some improvement in the number of road accidents, owing partly to its efforts, though the toll taken by the roads is still appalling. Until 1930 the number of road casualties increased in almost the same proportion as the number of automobiles. But compared with 1930 the 1936 statistics showed an increase of 20 per cent in the number of automobiles, while there was a decrease of 18 per cent in the number of pedestrians killed. These figures are valuable because for the first time in the comparison of road casualties the increase in the number of automobiles is taken into account. In the case of children the improvement is even more marked, for there has been a reduction each year since 1930 in the number of their fatalities, and this in 1936 was 25 per cent below the level of that year. But there is an increase of 69 per cent in the number of cyclists killed, which is attributed to the increased popularity of cycling. It is more than twenty years since the movement for greater safety on the roads was begun and the original safety code recommended is now the official highway code. But the accident problem is so great that there is still much work for the association, though more and more of its work is being officially undertaken.

Provident Nursing Scheme for London

A scheme by which in London the working class can have services of nurses in their homes by the provident payment of one cent a week has been brought forward. Speaking at an inaugural meeting, Lord Horder, chairman of the council, said that the reason so small a subscription was adequate was that it could be collected in bulk at the place of employment. Home nursing was the only health service which still remained uncovered by the provident principle. London was lagging behind many of our large cities where the system had been established and proved successful. What are called "district nurses" are already provided by charity for the same purpose, but it has proved necessary to ask for payment from patients of what they can afford.

PARIS

(From Our Regular Correspondent)

July 3, 1937

Benign Spontaneous Pneumothorax

At the May 21 meeting of the Societe medicale des hopitaux, two unusual cases were reported by Prof. E. Rist, one of the leading tuberculosis specialists in Paris. The first patient, a youth of 17, first noticed a severe thoracic pain without much dyspnea. A few days later a hemorrhagic pleural exudate was found at the base of the right side of the thorax. Fifteen days after the exploratory puncture, all the accompanying fever and signs of the exudate had disappeared. Radioscopy revealed only a slight diminution of diaphragmatic movements and a normal pulmonary shadow. After an interval of thirty-three months, during which all examinations had been negative, radioscopy revealed a complete right pneumothorax and a slight pleural exudate. This observation cleared up the origin of the previous hemorrhagic exudate as being due to a benign spontaneous thorax with hemorrhage. The second patient, a medical student, gave the history of having had a serofibrinous pleurisy. Six years later a sudden severe pain in the chest accompanied by dyspnea was noted. The following day a complete total right pneumothorax was found, which disappeared rapidly, followed by apparently complete recovery. In this case there had been an old tuberculous pleurisy followed by a spontaneous benign pneumothorax on the opposite side. In the discussion, Dr. Cathala reported a case in which bleeding from the right nipple in a young girl was followed by a benign spontaneous pneumothorax of the same side. The question arose whether there was any relation between the two in the form of rupture of tiny angiomas. Dr. Jacob reported a case of spontaneous benign pneumothorax accompanied by syncope and a large hemorrhagic pleural exudate. There was also a history of a severe hemoptysis, of short duration, followed by apparent cure. Radioscopy had been negative during this attack.

Nonoperative Treatment of Pulmonary Tuberculosis

At the May 21 meeting of the Societe medicale des hopitaux a paper was read by Leon-Kindberg and Weiller on the division of bandlike adhesions and associated intrapleural chrysotherapy rapidly efficacious artificial pneumothorax. They stated that the two chief obstacles in securing results from an artificial pneumothorax, are, first, band or bridle-like adhesions between the lung and the parietal pleura and, second, the irretractability of the pulmonary stump (collapsed lung). To overcome the first of these the Jacobus technic has been of great aid, but it is often difficult to carry out. Leon-Kindberg has called attention to the good results obtained by injecting gold salts intrapleurally, at first alone and, later, combined with intrapleural procedures. These two methods are now regularly employed at the Beaujon Hospital. The results were illustrated by lantern slides. By applying this method in half of the cases in Leon-Kindberg's service, its efficacy could be compared with cases in the other half of the service, not so treated. The importance of the combined gold salts therapy and intrapleural division of bands is especially evident when collapse therapy as a whole is considered. In the discussion, Professor Rist agreed with the authors as to the efficacy of early pneumothorax treatment. Four fifths of the cases thus treated have shown the benefit of early pneumothorax therapy within six months and half of these in less than three months. About one fifth of the patients have shown evidence of its efficacy later than six months after beginning the early pneumothorax treatment. This late appearance of a beneficial result may be due to faulty technic in giving the pneumothorax treatment, improvement occurring later, when a more correct technic is used. Improvement follows division of bandlike adhesions, and the benefits of the pneumothorax treatment manifest themselves only after the establishment of an artificial pleural cavity.

Icterohemorrhagic Spirochetosis

Two papers on icterohemorrhagic spirochetosis were read at the May 7 meeting of the *Société médicale des hôpitaux*. The first paper reported three cases in coal miners and was presented by Rimbaud, Janbon and Bordenave of Montpellier, in southern France. Apparently the disease raged in a mild endemic form, fifteen miners having shown symptoms during August 1936. Four of the fifteen died. In the first of these three cases, the chief clinical features were a febrile syndrome with myalgia and injection of the conjunctivae, marked icterus, a blood urea of 110 mg per hundred cubic centimeters, and a meningeal reaction. The second patient presented a febrile syndrome with myalgia, a subicteric hue, a less marked meningeal reaction (14 lymphocytes), a blood urea of 150 mg per hundred cubic centimeters, which did not appear until the twenty-eighth day, and positive Martin-Pettit serodiagnostic reactions. In the third case, in addition to the febrile and myalgic syndrome, purpura and phrenic neuralgia were noted. The blood urea rose to 170 mg per hundred cubic centimeters and the spinal fluid contained seventy-four mixed cells. The serum reactions of Pettit and Martin were positive. Relapse of symptoms occurred twice during the period of observation. Attention was especially drawn by the authors to the high blood urea in the three cases, as well as to the incidence of this form of infection in miners. This raises the question as to whether icterohemorrhagic spirochetosis should be considered as a professional, i. e., industrial, disease. In the 1936 law it is so regarded, but its possible occurrence is limited to those who work in the sewers of large cities, like Paris. Hence the authors maintain that in view of their observations it is necessary to include miners in those who can benefit from such a law.

In a second communication by the same authors, two cases of the disease are reported in which icterus was absent. Such a typical form of icterohemorrhagic spirochetosis, without hemorrhages or icterus, are difficult to recognize clinically. The first patient was a dish washer in a restaurant situated on the bank of a little river in southern France. The onset was sudden, in the form of chills followed by profuse perspiration, headache, dysphagia, and generalized pain in the muscles and joints. The admitting diagnosis was influenza, bronchitis and pharyngitis. During the patient's stay in the hospital the constant absence of icterus was noted, but the urine examination revealed the presence of bile salts and pigments. The temperature varied from 103 to 104 F. The blood urea was normal but there were symptoms resembling those of meningitis. The serum reactions of Pettit and Martin were positive. The second patient was a girl, aged 16 years. The onset and initial syndrome were quite analogous to those of the other patient. There were, however, a morbilliform erythema, a blood urea of 100 mg per hundred cubic centimeters, no icterus or bile salts or pigments in the urine, and a secondary meningeal syndrome with 216 leukocytes of mixed formula in the fluid obtained by spinal puncture. The serum reactions of Pettit and Martin were strongly positive.

Echinococcus of the Liver

At the June 2 meeting of the *Académie de chirurgie* a contribution to the study of echinococcus infection in France was made by Dr F. Deve, an internist. He reported that surgeons of Besançon had observed seventeen cases, to which Wilmoth added another, making a total of eighteen cases, seventeen of which were from the departments of France adjacent to western Switzerland. All eighteen patients had been born and raised in that portion of France. In addition to these three other isolated cases had been reported from northern and central France. The clinical picture is that of a chronic icterus with hepatomegaly and splenomegaly and the striking anomaly that

not only are the general condition and appetite good but there is no accompanying rise of temperature. In the majority of cases the complement deviation and intradermal tests with the hydatid liquid are positive. Any doubt regarding the diagnosis is cleared up by biopsy at operation. Surgeons should be familiar with the special appearance of the lesions, as was shown in sections of tissue presented by Deve at the meeting. There are no ordinary cystic single or multilocular earmarks of the disease. It forms a tumor-like, more or less colloid, mass, which explains why it is often diagnosed as a cancer of the liver. The essential feature is the presence of firm, sclerotic tissue, literally riddled by many cavities the size of a pinhead. Near the central zone the mass shows evidence of softening and necrosis, leaving a turbid bile-stained liquid lying in a tiny cavity in which neither hydatid cysts nor membranes are ever found. At its periphery one finds constant infiltration, with necrosis, of the fibrous sheaths of the bile ducts as far as the hilus of the liver, thus greatly resembling the picture of a malignant growth. The jaundice is the result of extrinsic pressure on the bile ducts at the hilus and the intracanalicular invasion of the bile passages by the echinococcus formations. When the abdomen is opened the gross appearance of the liver strongly resembles that of a cancer, but the nodules present special pathognomonic features. They are harder than those of a cancer, more boardlike, cartilaginous, and often accompanied by a thick sclerotic hepatitis of chondroid aspect. A biopsy soon reveals the nonmalignant character of the lesions.

Noncancerous Consolidations in Pulmonary Cancer

To make an early diagnosis of cancer of the lung, one must always bear in mind that the neoplasm begins in the bronchi, according to Ameuille and Fauvet, who read a paper at the May 14 meeting of the *Société médicale des hôpitaux*. When evidence of consolidation of the lung itself is found, this means that the neoplasm is already at an advanced stage, the primary bronchial cancer having invaded the surrounding lung tissue. However, the special point of the paper was to call attention to the existence of consolidation of a noncancerous character. Two cases were described. In the first patient, the diagnosis of a cancer, well localized in a left sided bronchus, was made with the aid of iodized poppy-seed oil. It was accompanied by complete absence of respiratory sounds in the middle third of the left lung. There was also evidence of consolidation in the right middle lobe. At necropsy the diagnosis of the left bronchial cancer was verified but the area in the right lung proved to be a focus of gangrene and pneumonia not directly related in any way to the lesion on the left side. In primary bronchial cancer one frequently sees areas of atelectasis around the cancerous areas in the lung. This collapse of the lung may be quite extensive and is the direct result of the blocking of the corresponding bronchus by the neoplasm. Such atelectases may appear suddenly and the clinical picture is like that of acute massive collapse of the lung. A diagnosis of cancer of the left lower main bronchus was made in the second case, which had been under observation for ten months. The first clinical sign had been a sudden hemoptysis, in a man 50 years of age. Bronchography with the aid of iodized oil and examination of biopsy specimens obtained by endoscopy showed a cancer of the bronchi of the right median and lower lobes. Following a slight hemoptysis in November 1936, radiography revealed a total collapse of the lower fourth of the right lung and a less complete similar condition of the lower portion of the right upper lobe. A similar collapse occurred four months later, even though the bronchi were not obstructed. In both of these two attacks of collapse the normal lung shadow reappeared soon afterward showing that such transient atelectasis was not of cancerous nature and that the bronchi were

not obstructed. These two cases show that one must keep in mind the occurrence of such concomitant pulmonary collapse attacks in patients who have a bronchial cancer, in order to be able to estimate accurately the degree of invasion of the lung tissue in cases of pulmonary cancer.

Undulant Fever of Bovine Origin

One of the first cases of undulant fever of bovine origin in France was reported by Professor Ledoux of Besançon in 1928, and since then numerous cases have been observed in all parts of France. Between 1928 and 1932, twenty-five cases were found in three departments of that portion of France which is close to Switzerland. In a paper read at the May 25 meeting of the Académie de médecine Professor Ledoux and his associates reported seventy-two additional cases from the same three departments. In the majority of the seventy-two recent cases it was not difficult to trace the manner in which contamination took place, but in several there had been no contact with infected animals and no contaminated milk ingested. Nearly always, undulant fever of bovine origin is the result of lack of washing of the hands on the part of those who come in contact with infected animals. Undulant fever as seen in eastern France is of a milder type, as a rule, than that of southern France. However, severe infections with bone and liver complications have been seen. There is a likelihood that the disease will assume a more severe character in eastern France in the future, with the rapid increase in importation of sheep into this part of the country. The cattle will soon become contaminated by contact with infected sheep, and hence a strict control of all animals brought from other departments has become imperative.

BERLIN

(From Our Regular Correspondent)

June 19, 1937

The Sickness Insurance Societies

By recent regulations, the duties of the supervisory medical consultants in the sick insurance, a group which already exert an influential role, are substantially expanded. This measure has long been contemplated. The status of the medical consultant is explicitly defined as that of a sociological-medical adviser to the insurance societies. One of the aims of this medical service is a harmonious accord between the conflicting interests of the individual insured person, the insured as a group and the societies themselves. Accordingly, the consultant becomes a sort of medical welfare worker and adviser to the individual insured who stand in need of help but he is legally prevented from making any unauthorized demands on or misusing the societies' funds. There should be the closest cooperation between the consultant and the insurance society. Since the physician is not yet regarded as an employee of the society, there exists no status of superior or subordinate between him and the society's officials. Each party is supposed to repose the fullest confidence in the other and to keep the other mutually informed by verbal communication. If an insurance official disagrees with the opinion or proposal of a medical consultant, he should inform the latter in person if possible of his dissension.

The consultant will render his professional opinion only in conjunction with his regular duties and according to his best medical judgment with due consideration of the legal requirements of the sick insurance. He must submit a detailed written report of all follow-up or verifactory examinations. The consultant must observe professional secrecy even after his services to the sick insurance have ceased, but this secrecy does not apply in his dealings with the insurance societies, the governmental health officials and so on, on the contrary, the consultant must supply the societies with all relevant data.

The duties of a supervisory medical consultant may be outlined as follows: 1 Follow-up examinations of persons inca-

pacitated for work, judgment of the nature and extent of the disability and recommendation of special tests indicated. The consultant selects the patients for whom follow ups are necessary from among persons claiming sick benefits and in the order designated by the society. In general, the insurance society obtains a case record from the attending physician, in urgent cases a report may be made by telephone. The attending physician is invited to participate in the follow up examination. The attending physician is to be informed of the consultant's opinion and of any relevant observations with regard to diagnosis and recommended treatment. All statements by the consultant must be so phrased that the reputation of the attending physician will be safeguarded before the insured patient. The consultant must take especial care that his relations with attending physicians and with the League of Insurance Physicians of Germany remain free from needless friction and he must endeavor to cultivate cooperation. 2 Follow-up examinations at the request of the attending physician, to verify the diagnosis. 3 Advice, on request, with respect to admission of a patient to a hospital, a sanatorium, convalescent home or similar health station. 4 Supervision of the time a patient remains in hospital and so on. The consultant may examine the patient within the institution in the presence of the attending physician. At such examinations the authority of the attending physician must remain intact, the routine of the institution must not be interrupted except when absolutely necessary. 5 Opinions if requested on the feasibility of special procedures and of the use of therapeutic substances.

In addition, the medical consultant advises the insurance society on all questions pertaining to public health in general, especially by helpful suggestions with respect to the campaigns against tuberculosis, venereal diseases, cancer and deformities as well as with respect to the care of diabetic patients, the welfare of mothers and infants, eugenics and racial and social hygiene. He likewise supervises the care of patients who remain in their own homes. He must keep accurate records of his medical activities, including statistical tables and detailed transcripts of all prescriptions written.

News of the Universities and Student Bodies

Despite the fact that only a short time ago the universities and student bodies were reported on (*THE JOURNAL*, May 8, p 1664, and May 15, p 1728) several interesting new developments have occurred. A maximal quota of students is prescribed for the various universities with a view to a reduction of the number of matriculants. Of late the revision of the present arrangement of semesters has been discussed and it has been pointed out that the time required for academic training would be substantially shortened if a system of three terms per annum were adopted in place of the present two semesters. Such a change, it is urged, would in turn facilitate the earlier marriages of university graduates and assure a larger number of children of such marriages. Meanwhile the required time of attendance at the gymnasiums and so on, namely, the time spent at school before matriculation in a university, has actually been shortened by about a year. But now the national minister of public instruction comes forward with a rejection of the proposal to revise the present two semester schedule. He justifies his stand on the grounds that the members of the university faculties must first of all be allowed ample time in which to carry on their own research activities. Since teaching imposes a heavy burden on the professors and other faculty members, research activities can be carried on profitably and systematically only within a continuous period during which these men are relieved of teaching duties, and this period should be as long as is practically possible. In addition there fall within the so-called vacation period a number of examinations, excursions and scientific field trips which make demands on a professor's time. From the standpoint of the students' welfare

too a sufficient interval between semesters is necessary, since it can be spent in reviewing the material studied during the school year and in the acquisition of practical experience. In fine, the real danger to scholarly preparation and diminution of scholarly activities that inheres in any overburdening of either teachers or pupils must be guarded against.

All German students who contemplate matriculation in a university for the summer semester 1937 must submit beforehand to physical examination by a physician attached to the Nazi party's bureau of public health. A "health album" will be made out for each person examined and this document will consist in the main of data on the genetic background of the prospective matriculant's family.

By the terms of a recent decree issued by the minister of public instruction acting in collaboration with other high officials and with the foreign office, Jews of German nationality are no longer permitted to take the doctoral examinations and are thus automatically excluded from graduation. The honorary renewal of the diploma, long a customary part of a doctor's jubilee celebration, also is now denied to Jews. Jews of mixed blood may, however, take their degrees. For students of medicine and dentistry who are of Jewish extraction special provisions are made, since for them graduation can take place only subsequent to licensing as physicians and dentists. All persons classed as "Jewish hybrids" are afforded the opportunity to acquire the doctor's degree (but, as mentioned before, they may not be licensed as physicians or dentists) on condition that after passing the state examination they obtain permanent positions abroad. In such cases authentic proofs must be forthcoming that the position in question is already secure and permanent or that the prospects for obtaining such a post are certain. The candidate who receives his degree under the foregoing circumstances must be made to realize explicitly that he has no possible chance of securing a license to practice in Germany. The new decree also provides that the minister of public instruction himself shall examine the character of each doctoral candidate with particular regard to the candidate's political activities. Non-German Jewish hybrids are placed on a par with other foreigners and may obtain the doctor's degree in medicine without any condition. But persons who have been legally deprived of German citizenship through revocation of naturalization or otherwise do not enjoy the status of foreigners, not only is it impossible for persons in this category to receive a degree, degrees already held by them are automatically invalidated with the loss of citizenship.

As to actual university instruction, the idea of a free course of study for all students is under discussion. Perhaps a simplification of the complicated system of matriculation and tuition fees will be the next development.

The National Bureau of Student Guidance has been raised to the status of a main bureau of the Nazi party. The supervision of all German university students is thus incorporated within the party and the partisan control of student life consolidated.

In the place of the various student publishing bureaus there is now a single "Students' Press Service," which is the official news agency of the national bureau. The bureau purposes to carry on a reorganization of the universities and of the entire field of learning on the basis of the Nazi weltanschauung. The bureau interests itself in such matters as the reorganization of student academic affairs, the struggle for the "new pattern of existence" and the "new educational ideals of academic youth." In an article contained in the first number of the bureau's new student news publication it is stated that the selection of matriculants in the university will in future be based primarily on political considerations. To the selective process of former times, which was based on individual intellectual promise without regard to the collective national life is now opposed the present day method of selecting matriculants in the univer-

sities, namely, by way of the Hitler Youth, the work service and the army and navy.

The new student paper is also authority for the statement that at Heidelberg 67 per cent of the students belong to one or another of the Nazi organizations. This figure or one slightly lower may be regarded as average for the entire German reich.

Formerly the alumni of a university were accustomed to maintain relations with their student societies by membership in alumni associations of so called old grads. Today there is but one recognized such alumni organization, the Nazi "Students' Campaign Auxiliary." This group constitutes a sort of students' benefit society, each member pays in a monthly contribution which goes to the aid of university students. This collection of funds from the alumni, in addition to being an idealistic gesture of cooperation, contributes materially to the formation of the new academic life. In April of this year, for example, the influx into the auxiliary took place at the rate of from 100 to 200 new members each day.

VIENNA

(From Our Regular Correspondent)

June 9, 1937

Health Exposition in Vienna

A great health exposition called "The Foundation of Life and Health" opened in Vienna in May, to continue till the end of June. The enterprise was planned by cooperating groups including the Vienna department of health, the sick insurance and the pharmaceutical and chemical industries. The most important exhibit is that of the German Museum of Hygiene, Dresden. The Ministry of Public Health presents its exhibits under the title "A Healthy Citizen in a Healthy Country." Detailed diagrams, tables, charts, pictures and objects are used to illustrate the multifarious governmental activities in the fields of care of the health, preservation of health and restoration of health. Particular sections are gotten up to depict how the state seeks to protect the workers at various occupations, while other sections deal with public health service in general, institutions for the sick, and rescue methods. General and special welfare agencies also receive adequate representation. Among other exhibits of unusual interest are those of the Alpine Rescue Service, the Aerial Protection Service and the Food Inspection Commission. The Ministry of Public Instruction provides an array of posters, photographs and graphic charts, all of which serve to illustrate various aspects of the hygienic education of youth. This exhibit covers the successive phases of formal education from the kindergarten, through the elementary and secondary schools up to the university. Most instructive are the Ministry of Social Service Administration's demonstrations of the various methods of establishing the purity of a community's drinking water. This department also has on display an interesting collection of pictures and charts which illustrate the campaigns against various diseases. All these exhibits are enjoying a throng of visitors. The greatest interest, however, is evoked by the "glass man" from the German Museum of Hygiene. This exhibit, officially styled "The Miracle of Life, consists of a manikin so constructed as to permit a comprehensive idea of the wonders of the human organism. From supplementary diagrams and pictures and from the incredibly faithful preparations the visitor learns of the 222 bones which form the human skeleton, that four tibias are able to support the weight of eighty persons, and similar facts. A noteworthy model of the circulatory apparatus demonstrates how the heart keeps the organism supplied with blood and how the circulatory reflux takes place: a pump constructed in the exact form and proportions of the human heart drives a colored fluid representing the blood through tubes of red and blue glass corresponding exactly with the principal blood

vessels By this device the work of the heart, which in three minutes pumps some 25 liters of blood through the body, is demonstrated with the utmost clarity The astonished observer learns that in twenty-four hours a performance requiring many horse power is accomplished A cube of 1 meter filled with the corresponding number of correctly shaped and colored imitation erythrocytes and leukocytes illustrates the number of blood corpuscles in a cubic millimeter The million times over magnifications permit one to observe the actual mechanics of the blood and one learns that if all erythrocytes of one human organism were placed together end on end they would form a chain 200,000 kilometers in length (a distance equal to five times around the earth's equator) The finer structures of the lungs are shown by colossal magnifications of the alveoli and the observer is informed by the accompanying legend that each human being possesses 300,000,000 such pulmonary alveoli In another section the anatomy and relative size of the brain are portrayed Instructional models illustrate the anatomy and physiology of the auditory apparatus, including the labyrinth, and show how disturbances may arise within it The sense of smell is only moderately developed in human beings One learns that the olfactory surface in man is barely 250 square millimeters in area, whereas that of the dog, an animal endowed with an excellent sense of smell, is about ten times greater In other representations of the human organism the onlooker is able by pressing a switch to illuminate the sets of interrelated organs and to study the fine structure and coordination of the various parts There is also a consecutive series of human embryos and fetuses in transparent visualization which portray development from conception to parturition The phenomenon of conception is illustrated by large pictures There are also preparations of the finer histologic structure of the brain as well as a gigantic model of that organ in which more than 1,000 small colored lamps are connected in a maze of wires Each wire represents a particular path of conduction, by pressing the corresponding button the related systems of nerve tracks become illuminated Not only the layman but also the physician may profitably observe the various ramifications of the motor, sympathetic and reflex systems as well as the paths of nervous conduction which control speech, hearing and vision This model alone is a real curiosity, a miraculously accurate histologic and pathologic representation of the brain

In addition to the central section of the exposition there is an exposition of prophylactic hygiene in which is illustrated everything that contributes to the prolongation of human life For the bulk of this material, eugenics is the dominant theme There are exhibits on the care of children and adolescents, dental hygiene, proper nutrition, first aid in emergencies, social insurance and the study of the curative forces of nature ultra-violet "emanations from ice and snow," for example Every province of public health service likewise finds representation here The importance of the modern sewerage system, the fight on disease, the care of premature infants, the comparative values of various foods and the milk and grain economies are brought before the visitor in an easily comprehensible form

Medical "Jubilee Week"

A few days ago the Gesellschaft der Aerzte of Vienna, reputed to be the oldest and most renowned medical organization in the world, celebrated its centenary Among its members have been most of the great physicians of the old Austria, men whose names are among the most illustrious in the history of medical science The role of this society in the development of the entire medical field is too well known to be dwelt on here Many of the most significant pioneering steps of medical research were first made known to the world in the sessions of this venerable body the laryngoscope and total extirpation of the stomach and larynx by Billroth, cocaine as an anesthetic for the eye by Koller, the first utilization of roentgen rays

for therapeutic purposes by Freund, the epochal discovery of the causes of puerperal sepsis by Semmelweis, and so on In the 4,000 sessions of the Gesellschaft der Aerzte 15,000 demonstrations have taken place and 3,000 substantial reports submitted, all of which contributed to scientific research and improved public hygiene On the occasion of the society's centenary, a medical festival week was held during which the various scientific organizations centered in Vienna held extraordinary festival sessions Eminent visitors appeared as guests at these meetings to deliver special jubilee lectures The following list contains the names of the principal speakers and their topics Professor Dr de Langen of Utrecht, the circulation Professor Verebely of Budapest, the biology of tumors, Professor Stoeckel of Berlin, radical surgery of the vagina, Professor von Mueller of Munich, the arthritic diathesis, Professor Clairmont of Zurich, pulmonary actinomycosis, Professor Sauerbruch of Berlin, the development of medical science in the nineteenth and twentieth centuries, Professor Wagner of Berlin, ovarian disorders, Professor Pfaunder of Munich, childhood pathology, Professor Wessely of Munich, myopia, Professor Kahler of Freiburg-in-Breisgau, tonsil problems All these speakers are honorary members of the Gesellschaft der Aerzte Besides these lectures there were other lectures and demonstrations by the active Viennese members Professor Fraenkel discussed pathologic aspects of cancer, Professor Wagner-Jauregg the pathology and therapy of tabes dorsalis, and Professor Lorenz "The World Without Cripples" A surprise marked the session of the Society of Internal Medicine when Professor Leriche of Strasbourg discussed "New Trends in Surgery and Medicine," for his paper contained several novel observations made in research on the sympathicus

The celebration was climaxed by the conferring of honorary doctoral degrees by the Faculty of Jurisprudence and Philosophy of Vienna University on the most prominent three members of the Gesellschaft der Aerzte Professor Dr Wagner-Jauregg, Professor Eiselsberg and Professor Horst Meyer The scientists were extended official greetings from the government by the president of the republic and the mayor of Vienna In addition to the academic functions the 600 visiting physicians were regaled with so comprehensive a program of receptions, balls, excursions and other social diversions that no visitor could possibly have left Vienna without a feeling of having been thoroughly entertained

Marriages

VERNON ATWILL TURNER, Bristol, Tenn, to Miss Elizabeth Josephine Parsons of Crookston, Minn, at Bluefield, W Va April 30

ADELBERT LEROY SPILLER JR, Grayville, Ill, to Miss Anna Scharp of Cleveland in Princeton, Ind, in May

THADDEUS MARIA McNAMARA JR, Bakersfield, Calif, to Dr VIRGINIA PETWAY of Atlanta, Ga, recently

SEYMOUR FISKE to Dr CORNELIA FRANCES ROBERTSON, both of New York, in New Fairfield, Conn, July 3

GEORGE BRONAUH EWING, Smith's Grove, Ky, to Miss Anna Geraldine Keen of New York, May 29

JOHN WALTER MARTIN JR, Cleveland, to Miss Evelyn Barbara Spears of Red Bank, N J, June 29

WILLIAM MARTIN SULLIVAN JR, to Miss Alice Elizabeth Campbell, both of Passaic, N J, May 29

JOHN MCCOLLOUGH SMITH Morrilton, Ark., to Miss Margaret Angehr of Clarksville, June 17

OTTIS DEWEY SEABAUGH to Miss Dorothy Achilles, both of Webster Groves, Mo, June 5

WHITMAN MEAD REYNOLDS to Miss Phebe Root, both of Greenwich, Conn, May 22

COVAN JOHN PEISEN to Miss Almeda Garn, both of Des Moines, Iowa, June 18

Deaths

William Joseph Hogan, Torrington, Conn., Yale University School of Medicine, New Haven, 1898, member of the Connecticut State Medical Society, fellow of the American College of Surgeons, attending surgeon and chief, surgical staff, Charlotte Hungerford Hospital, consulting surgeon to the Litchfield County Hospital, Winsted, formerly member of the board of education, and health officer, aged 61, died, May 22, of arteriosclerosis and hypertension.

Reese Q. Lillard, Lebanon, Tenn., University of Nashville Medical Department, 1890, University of Tennessee Medical Department, Nashville, 1891, formerly secretary and executive officer of the state board of health, member of the Tennessee State Medical Association, at one time United States Commissioner, director of the census and United States marshal for the Middle District of Tennessee, aged 74, died, May 3, in the Vanderbilt Hospital, Nashville.

Edward Warren Sikes, Freeport, Ill., Hahnemann Medical College and Hospital, Chicago, 1902, member of the Illinois State Medical Society, president of the Stephenson County Medical Society, on the staffs of the Evangelical Deaconess Hospital and St. Francis Hospital, served during the World War, aged 61, died, May 5, in the Presbyterian Hospital, Chicago, of acute ascending suppurative hepatitis.

Gustave Lippmann, St. Louis, Rheinische Friedrich-Wilhelms-Universität Medizinische Fakultät, Bonn, Prussia, 1892, formerly assistant professor of pediatrics, St. Louis University School of Medicine, member of the American Academy of Pediatrics, aged 68, on the staffs of St. Louis Children's Hospital and the Jewish Hospital, where he died, May 23, of carcinoma of the stomach.

Willard Mercer Lane, Washington, D. C., University of West Tennessee College of Medicine and Surgery, Memphis, 1914, Howard University College of Medicine, Washington, D. C., 1916, assistant professor of surgery at the Howard University College of Medicine, on the staff of the Freedmen's Hospital, aged 50, died, May 10, in the Johns Hopkins Hospital, Baltimore.

Lucien Carl Feemster, Tupelo, Miss., Memphis (Tenn.) Hospital Medical College, 1897, member of the House of Delegates of the American Medical Association in 1915, member of the Mississippi State Medical Association, past president of the board of health of Nettleton, formerly on the staff of the Tupelo Hospital, aged 64, died, May 25, of cerebral hemorrhage.

Daniel Francis Hayes, Chicago, Northwestern University Medical School, Chicago, 1912, assistant clinical professor of surgery, Loyola University School of Medicine, fellow of the American College of Surgeons, served during the World War, on the staffs of St. Anne's and Cook County hospitals, aged 48, died, May 11, of coronary thrombosis.

Charles A. Donaldson, Tucson, Ariz., Cleveland College of Physicians and Surgeons, Medical Department of the University of Wooster, 1885, member of the American College of Radiology and the Arizona State Medical Association, formerly a practitioner in Minneapolis, past president of the Hennepin County (Minn.) Medical Society, aged 74, died, May 3.

Henry Harlan Langdon, Cincinnati, University of Cincinnati College of Medicine, 1925, member of the Ohio State Medical Association, acting superintendent of the Cincinnati General Hospital, served during the World War, aged 40, died, May 6, in the Christian R. Holmes Hospital, of teratoma of the testicle with metastases to the lung.

Warren C. Goodwin, Philadelphia, University of Pennsylvania Department of Medicine, Philadelphia, 1902, assistant demonstrator of anatomy at his alma mater 1906-1911, member of the Medical Society of the State of Pennsylvania, aged 73, died, May 24, in the Presbyterian Hospital, of hypertrophy of the prostate and pulmonary abscess.

Henry Milnor Joy, Calumet, Mich., University of Michigan Department of Medicine and Surgery, Ann Arbor, 1892, past president of the Houghton County Medical Society, fellow of the American College of Surgeons, served during the World War, formerly member of the state board of medical examiners, aged 67, died, May 15.

William Bailey Murphy, Snow Hill, N. C., University College of Medicine, Richmond, Va., 1903, past president of the Greene County Medical Society, at one time vice president of the Medical Society of the State of North Carolina, aged 59, died, May 4, in the Duke Hospital, Durham, of lymphatic leukemia.

Edward Genung Nugent, Rochester, N. Y., Columbia University College of Physicians and Surgeons, New York, 1897, past president of the Monroe County Medical Society, for many years on the staff of the Rochester General Hospital, aged 66, died, May 9, of arteriosclerosis and coronary occlusion.

Harry Griffith Hirschle, Canton, Ill., Northwestern University Medical School, Chicago, 1912, served during the World War, past president of the Fulton County Medical Society, on the staff of the Graham and Murphy Hospital, aged 49, died, May 14, in Rochester, Minn., of pneumonia.

William McKee Johnstone, Morrisville, Vt., University of Vermont College of Medicine, Burlington, 1906, past president of the Vermont State Medical Society, secretary of the Lamoille County Medical Society, aged 59, on the staff of the Copley Hospital, where he died, May 12, of pneumonia.

William Herbert Prescott, Franklin, Mass., Harvard University Medical School, Boston, 1888, member of the Massachusetts Medical Society and the New England Society of Psychiatry, for many years connected with the City of Boston institutions department, aged 76, died, May 5.

Anna Isabelle McKamy, New Albany, Ind., Northwestern University Woman's Medical School, Chicago, 1897, member of the Indiana State Medical Association, formerly on the staff of St. Edward's Hospital, at one time city health officer, aged 73, died, May 12, in Mattoon, Ill.

Edward Griffith Maupin, Portsmouth, Va., University of Virginia Department of Medicine, Charlottesville, 1877, College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1878, member of the Medical Society of Virginia, aged 86, died, May 18.

Clyde Robert McConnell, Dayton, Ohio, Ohio Medical University, Columbus, 1904, formerly member of the board of education of Deercreek township, on the staff of St. Elizabeth Hospital, aged 66, died, May 29, in the Miami Valley Hospital, of carcinoma of the pylorus.

John Henry Schaeffer, Philadelphia, Medico-Chirurgical College of Philadelphia, 1903, served in the medical corps as a member of the draft board during the World War, aged 61, died, May 17, in the Episcopal Hospital, of acute streptococcal pharyngitis and laryngitis.

Frank H. Lattin, Gaines, N. Y., University of Buffalo School of Medicine, 1899, formerly health officer of the town of Gaines, and county coroner, for many years a member of the state legislature, aged 75, died, May 23, of cerebral hemorrhage and arteriosclerosis.

John Marion Hooper, Batesville, Ark., Memphis (Tenn.) Hospital Medical College, 1896, member of the Arkansas Medical Society, county health officer, served during the World War, aged 67, died, in May, of injuries received in an automobile accident.

William Ethelbert McConnell, Pittsburgh, Harvard University Medical School, Boston, 1921, fellow of the American College of Surgeons, surgeon to the Western Pennsylvania and Montefiore hospitals, aged 42, died, May 16, of coronary occlusion.

Edward Brent Houston, Murray, Ky., Louisville (Ky.) Medical College, 1907, past president and secretary of the Calloway County Medical Society, part owner of the Keys-Houston Clinic Hospital, aged 56, died, May 9, of cerebral hemorrhage.

Ira D. Kelsheimer, Paxton, Ill., Northwestern University Medical School, Chicago, 1907, served during the World War, secretary and past president of the Ford County Medical Society, aged 57, died, May 29, of coronary thrombosis.

Cyrus Rutherford, Newman, Ill., University of Pennsylvania Department of Medicine, Philadelphia, 1877, for many years a member and president of the school board, formerly mayor and county coroner, aged 86, died, May 2, of pneumonia.

Nathan Walser Mackie, Yadkinville, N. C., Washington University School of Medicine, St. Louis, 1928, also a druggist, aged 37, died, May 21, in the Hugh Chatham Memorial Hospital, Elkton, of chronic nephritis and cirrhosis of the liver.

Carlton Rogers Jewett, Buffalo, College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1881, for many years visiting physician to the Sisters Hospital, aged 85, died, May 20, of cerebral hemorrhage.

Jacob Dwight Harding, Ogden, Utah, Northwestern University Medical School, Chicago, 1907, member of the Utah State Medical Association, on the staff of the Dee Memorial Hospital, aged 61, died, May 5, of coronary occlusion.

Robert Crump King, Chicago, College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1903, member of the Illinois State Medical Society, aged 60, died, May 31, of heart disease.

James John McDevitt, Worcester, Mass., University of the City of New York Medical Department, 1886, formerly police surgeon and a member of the board of health of Boston, aged 76, died, May 29, of pneumonia

Enoch George Klimas, Philadelphia, Temple University School of Medicine, Philadelphia, 1915, formerly instructor in medicine at his alma mater, aged 49, died, May 11, of cirrhosis of the liver and chronic nephritis

Robert Watson Hart, Surgeon, U. S. Public Health Service, San Francisco, Medical Department of the University of Cincinnati, 1914, fellow of the American College of Surgeons, aged 47, died, May 18

John H. Gregory, Eldorado, Ill., Rush Medical College, Chicago, 1896, member of the Illinois State Medical Society, served during the World War, aged 63, died, May 23, of carcinoma of the stomach

James Robert Gibson, Inman, S. C., University of Tennessee Medical Department, Nashville, 1892, aged 70, died, May 16, in the Mary Black Memorial Hospital, Spartanburg, of coronary occlusion

John Donald MacPherson, College Point, N. Y., University of the City of New York Medical Department, 1887, on the staff of the Flushing (N. Y.) Hospital, aged 76, died, May 2, of pneumonia

Robert Yantis Littleton, Stout, Ohio, Hospital College of Medicine, Louisville, Ky., 1895, member of the Ohio State Medical Association, member of the local school board, aged 70, died, May 15

Albert N. Legg, Philadelphia, Jefferson Medical College of Philadelphia, 1908, for many years on the staff of the Lankenau Hospital, aged 53, died, May 20, of pulmonary tuberculosis

George C. Essick, Congress, Ohio, College of Physicians and Surgeons, Baltimore, 1893, aged 69, died, May 31, in the Kinney and Knestrick Hospital, Wooster, of chronic interstitial nephritis

Lucian Rufus McCollom, New York, Long Island College Hospital, Brooklyn, 1897, aged 64, died, May 22, in a hospital at Port Washington, N. Y., of chronic myocarditis and arteriosclerosis

David Michael Koontz, New Kensington, Pa., Jefferson Medical College of Philadelphia, 1889, aged 73, died, May 1, in the Westmoreland Hospital, Greensburg, of cerebral hemorrhage

Carl Eugene Neal, Cardington, Ohio, Starling-Ohio Medical College, Columbus, 1914, member of the Ohio State Medical Association, aged 46, died, May 4, of a self-inflicted bullet wound

Edward Joseph Nook, Kalamazoo, Mich., University of Michigan Medical School, Ann Arbor, 1930, city physician, aged 34, died, May 22, in the Borgess Hospital, of pneumonia

John Ezra Myers, Springfield, Ohio, Medical College of Ohio, Cincinnati, 1880, past president of the Clark County Medical Society, aged 83, died, May 3, of cerebral hemorrhage

Edman Payson Fish, Waterville, Maine, Medical School of Maine, Portland, 1900, on the staff of the Sisters Hospital, aged 62, died, May 2, in La Grange, Fla., of aortic aneurysm

Samuel Newton Burchfield, Titusville, Pa., Chicago Homeopathic Medical College, 1887, aged 76, died, May 9, in St. Vincent's Hospital, Erie, of hypertrophy of the prostate

George Thomas Mountford, Coalinga, Calif., Northwestern University Medical School, Chicago, 1909, served during the World War, aged 51, died, May 2, in San Francisco

James LaFayette Houston, Comer, Ala., Vanderbilt University School of Medicine, Nashville, Tenn., 1898, aged 65, died, May 23, of injuries received in an automobile accident

James Smith McIlhenny, Washington, D. C., Columbian University Medical Department, Washington, 1896, aged 72, died, May 25, in Birmingham, Ala., of coronary occlusion

James W. Jones, Garfield, Ga., University of Georgia Medical Department, Augusta, 1892, member of the Medical Association of Georgia, aged 71, died, May 17, of heart disease

Calvin L. McCoy, Cleveland, Cleveland Homeopathic Medical College, 1901, aged 65, died, May 25, in the Grace Hospital, of hypertension and cerebral hemorrhage

Adeline Eliza Colt Merriam, Hartford, Conn., Bellevue Medical College of Massachusetts, Boston, 1881, aged 95, died, May 28, of chronic myocarditis and arteriosclerosis

Jay W. Newell, Denver, Ind., Kentucky School of Medicine, Louisville, 1880, member of the Indiana State Medical Association, aged 78, died, May 5, of heart disease

Richard W. Bamber, Waterport, N. Y., University of Buffalo School of Medicine, 1883, aged 83, died, May 9, of coronary thrombosis and cerebral hemorrhage

Mattie Isabel Foster Hill, El Paso, Texas, University of Toronto Faculty of Medicine, 1892, aged 66, died, May 11, of cerebral hemorrhage and hypertension

Charles Miesse, Chillicothe, Ohio, Miami Medical College, Cincinnati, 1892, on the staff of the Chillicothe Hospital, aged 66, died, May 22, of pneumonia

George Ramsdell Pancoast, Palmyra, N. J., Jefferson Medical College of Philadelphia, 1884, aged 76, died, May 22, of chronic myocarditis and nephritis

Ernest L. Haffner, Fairport Harbor, Ohio, St. Louis College of Physicians and Surgeons, 1895, served during the World War, aged 65, died, May 5

Albert N. Seidel, Cleveland, Cleveland Medical College, 1895, aged 68, died, May 4, in the Huron Road Hospital of bronchopneumonia following a fall

Wilbur Fisk Culpepper, Senoia, Ga., University of the City of New York Medical Department, 1884, aged 80, died, May 17, of hypostatic pneumonia

Jacob Goldenberg, New York, University and Bellevue Hospital Medical College, New York, 1903, aged 69, died, May 23, of coronary thrombosis

Samuel J. Patterson, East Palestine, Ohio, University of Louisville (Ky.) Medical Department, 1895, aged 74, died, May 26, of cerebral hemorrhage

Ringgold Scott Mitchell, Washington, Ind., Kentucky School of Medicine, Louisville, 1888, aged 85, died, May 27, as the result of fracture of the hip

Frank Elliott Kendall, Saranac Lake, N. Y., University of the City of New York Medical Department, 1880, bank president, died, May 10

Solomon Goldenkranz, New York, University of the City of New York Medical Department, 1888, formerly coroner, aged 69, died, May 17

Walter Atlee Hickman, Marblehead, Mass., University of Pennsylvania Department of Medicine, Philadelphia, 1895, aged 63, died, May 13

George Jesse Lund, Los Angeles, Rush Medical College, Chicago, 1882, fellow of the American College of Surgeons, aged 77, died, May 10

John I. Groves, Champaign, Ill., Hahnemann Medical College and Hospital, Chicago, 1880, aged 83, died, May 1, of mitral insufficiency

Henry Benton Johnson, Pomona, Kan., Rush Medical College, Chicago, 1902, also a druggist, aged 66, died, May 1, of angina pectoris

William Alexander Hatfield, Kokomo, Ind., Curtis Physio-Medical Institute, Marion, 1895, aged 69, died, May 7, of pneumonia

Robert Sidney Lucke, Omaha, Rush Medical College, Chicago, 1884, aged 74, died, May 1, in Santa Ana, Calif., of heart disease

William A. E. Cummings, Glens Falls, N. Y., Albany (N. Y.) Medical College, 1884, aged 77, died, May 5, of lobar pneumonia

Julia E. Blatch, St. Louis, American Medical College, St. Louis, 1891, aged 66, died, April 11, of chronic interstitial nephritis

Elmor C. Jefferies, Rea, Mo., St. Joseph Medical College, St. Joseph, Mo., 1888, aged 78, died, May 9, of chronic myocarditis

James Monroe Capps, Bakerville, Tenn., Vanderbilt University School of Medicine, Nashville, 1895, aged 72, died, May 4

David Patton Burleson Jr., Spruce Pine, N. C., Medical College of Virginia, Richmond, 1935, aged 27, died, May 16

Daniel Phelan, Kingston, Ont., Canada, Queen's University Faculty of Medicine, Kingston, 1877, aged 83, died, May 2

Gail Barr Dunkle, Los Angeles, Jefferson Medical College of Philadelphia, 1897, aged 63, died suddenly, May 5

Riley Park McElroy, Ada, Ohio, Baltimore Medical College, 1903, aged 66, died, May 13, of pneumonia

Lewis Minot Daniels, Columbia, S. C., Leonard Medical School, Raleigh, N. C., 1913, aged 46, died, May 2

Carl Hagen, Silver City, N. M., Hospital College of Medicine, Louisville, Ky., 1891, aged 78, died in May

Sidney D. Lawson, Kansas City, Mo., Ensworth Medical College, St. Joseph, 1908, aged 55, died in May

Bureau of Investigation

PISO'S IN NEW RAIMENT

Piso's Labels Show Interesting Evolution in Nostrum Industry

"Piso's for Coughs," formerly "Piso's Cure for Consumption," "Piso's Cure" and "Piso's Remedy, a Medicine for Coughs and Colds," "prepares for winter" in a new, cream-colored package, according to the June 5, 1937, issue of *Drug Trade News* a newspaper devoted to the drug industry. *Drug Trade News* which reproduced the repackaged Piso's cough preparation, might (but, of course, it did not) also have reproduced the evolution of the Piso label, as shown by the accompanying illustrations.

The Piso remedy has long been known to the files of the Bureau of Investigation. Before the passage of the Food and Drug Act (1906), which specifically prohibits false statements in or on the trade packages of 'patent medicines,' Piso's was advertised as a "cure for consumption." After the act became operative, Piso's "cure" became "a medicine for coughs and colds."

Samuel Hopkins Adams, in his "The Great American Fraud" series, which ran in *Collier's* some years ago, said:

Piso's Consumption Cure extensively advertised a year or two ago is apparently withdrawing from the field so far as consumption goes and the Piso people are now more modestly promising to cure coughs and colds. Old analyses give as the contents of Piso's Cure for Consumption alcohol chloroform opium and cannabis indica (hasheesh). It is therefore another of the remedies which cannot possibly cure consumption but on the contrary tend by their poisonous and debilitating drugs to undermine the victim's stamina.

The United States Department of Agriculture on Feb. 8, 1913, published a report on an action filed against the Piso



The center picture is of a recent carton and bottle of Piso's the others are much older one calling the thing a cure and a later one a remedy

Company in the District Court of the United States for the Western District of Pennsylvania by the United States attorney for that district. According to the federal report, analysis of the Piso nostrum showed the following results: "total solids, 65.32 per cent, sugar, 64.89, ash, 0.007, petroleum extract from acid solution, 0.084, chloroform extract from alkaline solution 0.028, chloroform, 0.1866 chloroform in 1 ounce, 7/100 minimum. The flavoring agents are methyl salicylate and chloroform with indications of oils peppermint and bitter almonds."

Some years back, when Piso's Cure contained "1/2 grain extract cannabis indica 5 minims chloroform and other valuable ingredients," Piso's was a "trustworthy remedy" in all diseases of the throat and lungs with symptoms simulating those of consumption. Recommendations to "consumptives" by the exploiters of the "trustworthy remedy" included: "We earnestly recommend outdoor exercise, regardless of weather. If you are unable to take such exercise on horseback or on foot exercise in a carriage."

Also noteworthy was the statement "Medicines which cause expectoration must be avoided," when contrasted with a May 29, 1936, report of the Federal Trade Commission, which stated "The Piso Co., Warren, Pa., agrees to stop asserting that 'Piso's for Coughs' is a competent treatment or effective remedy for coughs, unless the allegation is limited to the preparation's value as an expectorant cough mixture."

A Food and Drug Bulletin published by the North Dakota Regulatory Department for August 1933 describes Piso's for Coughs as a green syrup in a brown bottle chloroform present alcohol, none. Just what the "trustworthy remedy" contains today, only the Piso Company knows. And only the Piso Company would know how "working internally," Piso's destroys the cold germs and breaks up infection.

However the Piso Company, Warren, Pa., has "repackaged its cough preparation, using a cream color. The bottle is by the Brockway Glass Company."

MISBRANDED "PATENT MEDICINES"

Abstracts of Notices of Judgment Issued by the Food and Drug Administration of the United States Department of Agriculture

[EDITORIAL NOTE: The abstracts that follow are given in the briefest possible form: (1) the name of the product; (2) the name of the manufacturer, shipper or consigner; (3) the composition; (4) the type of nostrum; (5) the reason for the charge of misbranding; and (6) the date of issuance of the Notice of Judgment—which may be considerably later than the date of the seizure of the product.]

Pinerva Pine Needle Bath Salts—Pinerva Laboratories, Inc., Milwaukee. Composition: Essentially baking soda (49 per cent) common salt (48 per cent) traces of pine needle oil and a red dye with a small amount of water. For rheumatism, gout, etc. Misbranded because of fraudulent therapeutic claims and because represented to be composed essentially of substances derived from pine needles.—[N J 24096 November 1935]

Novak's Female Drops—John Novak Co., Chicago. Composition: Essentially extracts of plant drugs including cramp bark, glycerin alcohol (38 per cent) and water flavored with clove oil. For female disorders. Fraudulent therapeutic claims.—[N J 24067 November 1935]

Novak's Oil—John Novak Co., Chicago. Composition: Essentially alcohol (52 per cent) chloroform and winter green (each 57 per cent) menthol, oleoresin of red pepper, ammonia and water. For rheumatism, lameness, toothache, etc. Fraudulent therapeutic claims.—[N J 24067 November 1935]

Komet—John Novak Co., Chicago. Composition: Essentially volatile oils including camphor, menthol and winter green with turpentine oil (19.4 per cent) in a mixture of petrolatum and wax. For rheumatism, sciatica, lumbago, stiff neck, etc. Fraudulent therapeutic claims.—[N J 24067 November 1935]

Pyrol—Kip Corp., Ltd., Los Angeles. Composition: Essentially petroleum and zinc oxide with small amounts of cartholic and salicylic acids and essential oils including wintergreen. For boils, piles, ulcers, eczema, etc. Fraudulent therapeutic claims.—[N J 24072 November 1935]

Mastin's Vitamin Tablets—Vitamin Corp., Mastin & Co., New York. James F. Stras, LaCrosse, Wis. Composition: Essentially yeast, calcium glycerophosphate (17 grains per tablet), calcium carbonate (17 grains per tablet), a small amount of an iron compound, nuxvomica extract (0.2 grain per tablet) and a laxative plant extract. For run-down conditions, etc. Fraudulent therapeutic claims.—[N J 24118 November 1935]

Anti Pyrexol—Kip Corp., Los Angeles. Composition: Essentially zinc oxide, small amounts of cartholic acid and essential oils including wintergreen in an ointment base. Antiseptic. Fraudulent therapeutic claims.—[N J 24076 November 1935]

Saratoga Ointment—G. F. Harvey Co., Saratoga Springs, N. Y. Composition: Essentially zinc oxide, boric acid and a small amount of eucalyptol in a petrolatum base. Antiseptic. Fraudulent therapeutic claims.—[N J 24070 November 1935]

Seavigor—Seavigor Co., New York. Composition: Essentially seaweed. For run-down conditions, etc. Fraudulent therapeutic claims.—[N J 24085 November 1935]

Red Raven Spills—Red Raven Corp., Red Raven, Pa. Composition: An artificially carbonated solution of sodium phosphate. For chronic constipation, biliousness, etc. Fraudulent therapeutic claims.—[N J 24071 November 1935]

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT HOWEVER REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS BUT THESE WILL BE OMITTED ON REQUEST.

DIFFERENTIAL DIAGNOSIS OF MIGRAINE

To the Editor—A white man aged 50 complains of recurrent attacks of severe retching, vomiting and headache. He had fever on the ship on which he came to this country in childhood, he worked for many years over a coke oven in a candy factory, nothing else in the history is relevant. The attacks started ten years ago at which time they came every year or two and lasted seven or eight hours. For the past two years the attacks have occurred about every two or three months each attack lasting about twenty-four hours. A period of marked and increased helching precedes each attack for about ten days. The attack starts with frontal headache for five hours (accompanied by spots before the eyes) after which the retching and vomiting begin even though nothing is ingested. The vomitus consists of bile stained fluid of small amount, vomiting is not projectile, there is no abdominal pain or soreness (except after the prolonged vomiting), the stools and urine are of normal color, there is no jaundice, the temperature is normal, examination of the eye grounds, neurologic examination and physical examination give negative results. During the attack the blood pressure is 200/120, 190/100. In the interval between attacks it is 155/110, 140/100, 160/100, 140/90. There is no diarrhea. Deafness of the right ear was discovered accidentally about eight years ago, it is middle ear deafness. The blood Wassermann reaction has been negative twice. Sometimes the patient has headaches and no vomiting attacks. There is rarely much or any nausea. The attacks are apparently becoming more frequent, and since they incapacitate the patient for a few days each time it would be desirable to prevent their recurrence.

MD New York

ANSWER—Under the circumstances one must rule out by a process of elimination such conditions as the gastric crises of tabes, cholecystic disease, intracranial neoplasm or aneurysm, paroxysmal hypertension, duodenal ileus and migraine. Less likely as possibilities are lead encephalopathy, hyperthyroidism, allergy, and carbon monoxide poisoning. The long duration of the complaint, without development meanwhile of objective signs of any real significance, would seem to exclude everything except disease of the gallbladder, duodenal ileus and migraine. As a matter of fact, the evidence favors migraine in a patient with a tendency to hypertension, even though the symptoms had their onset at a period in life later than usual and the pain is not unilateral. Granted that an adrenal paraganglioma can be excluded with reasonable certainty, the increased blood pressure at the time of the seizure might be the result of the pain and retching in a hyperreactive individual. The symptoms are not consistent with any form of heat injury, granting that he still works over a coke oven.

One should search for further clinical and roentgenologic evidence of duodenal ileus and cholecystic disease. A history of sick headaches in a parent, grandparent or sibling would strengthen the possibility of migraine, especially with the satisfactory exclusion of disease in the gallbladder and duodenum. Relief afforded by the hypodermic injection of ergotamine tartrate (1 mg.) at the onset of a seizure would be of further diagnostic value. Granted that the condition is not due to any demonstrable disease or toxemia suggested, treatment with the alkaloid or along other approved lines, with the probable inclusion of vasodilators, should be carried out.

SEBORRHEA OF SCALP IN WOMEN

To the Editor—A blonde school teacher has a severe dry, scaly seborrhea of the scalp. The dryness and severity of the condition are aggravated I believe by too frequent visits to the beauty shop. Recently an area of alopecia about the size of a half dollar (30 mm.) has developed over the parietal area. Bearing in mind that she is very blonde and takes great pride in her appearance, will you kindly send me information concerning treatment that will be most efficacious. She has a permanent wave. Kindly omit name.

MD Iowa

ANSWER—Present-day modes of hair dressing are undoubtedly unhygienic. Pasting the hair down favors infection. Brushing, the most valuable form of massage, is prevented by the fear of disturbing waves. Argument is futile and the physician must work under this handicap.

An examination of the scales, both by direct soaking with potassium hydroxide and by culture on Sabouraud's medium should be made before instituting treatment. If no unusual organism is found, try to persuade the patient to shampoo the hair Friday evening, followed by the application of a stimulat-

ing ointment such as salicylic acid 1 Gm., precipitated sulfur 3 Gm. and juniper tar 3 Gm. in sufficient rose water ointment to make 30 Gm. The ointment is to be rubbed in thoroughly in small amounts between the parted hair. On Sunday evening this can be washed out, and a lotion of chloral hydrate 6 Gm. resorcinol monoacetate 6 Gm., spirit of formic acid 20 cc. and sufficient spirit of myrcia to make 120 cc. may be applied once daily during the week. The ointment application is to be repeated the following week end. If this program is rejected, the lotion alone may be of some benefit. Instead of brushing, a thorough massage should be given the scalp once a day.

The patch of alopecia may be due to brittleness of the hair, in which case it will disappear as the scalp recovers its general health, or it may be a beginning alopecia areata. If it does not disappear with a few months of treatment, it should be given a dose of ultraviolet rays sufficient to cause a decided erythema followed by peeling. After peeling takes place the treatment should be repeated with an appropriate increase in its strength.

If ultraviolet rays are not available, the bald spot may be painted with a mixture of one part of phenol to four of lactic acid. As soon as the skin recovers from one application, this is to be repeated.

The patient's general condition should be investigated and any abnormality treated.

BLOOD VOLUME INDEX

To the Editor—Will you let me know the best method for determining the red cell volume index, especially in children. I mean the average size of the red cells in a patient as compared with their normal size. The methods of Haden and others are accurate but require a large quantity of blood and are therefore unsuitable for children. Sanford and Magath's volume index tube, though requiring a less amount of blood, is also unsuitable. If the Van Allen hematocrit tube is used Stitt (rd 8) advises that the blood mixed with a small quantity of anticoagulant be drawn up until the bulb is about one-third full. I fail to understand why such vague amounts should be used in carrying out a delicate test. With the Daland hematocrit in which no anticoagulant is used it is not understood why the height of the red cells is to be multiplied by 2 for obtaining the volume percentage, moreover the blood is apt to coagulate in these tubes. If the projection method is used the cells at the periphery of the field are distorted and therefore give a wrong reading. Recently it has been given out that a Baltimore firm has developed a new method for obtaining more accurate results. In these circumstances I would greatly appreciate a detailed description of the test that would be most satisfactory. Kindly omit name and address.

IRFLEY, India

ANSWER—These objections to the projection method and to the Daland hematocrit are quite understandable. The height of the column of red cells in the latter was probably multiplied by 2 in order to obtain a figure roughly in proportion to normal.

With the Van Allen hematocrit, blood is drawn exactly to the top of the calibrated column and then a small amount of anticoagulant is added. The latter must be isotonic with the blood, but its amount need not be measured, for, during centrifugation, the red cells from an accurately measured amount of blood are thrown to the bottom of the calibrated portion of the tube and the height of this column is read. The chief source of error with the Van Allen tube is the difficulty of preventing leakage. The sealing device supplied is not always adequate even when fresh rubber pads are used. A more accurate method, which requires a minimal quantity of blood, has been described by Guest and Siler (*J Lab & Clin Med* 19:757 [April] 1934), but this involves the use of a special centrifuge head and measuring microscope, the instrument described by Mason (*J Lab & Clin Med* 20:318 [Dec] 1934) is somewhat more practical.

Perhaps the Baltimore method to which reference is made is the Wintrobe hematocrit (*Am J M Sc* 185:58 [Jan] 1933). This is a tube of uniform bore, sealed at one end, on which is etched a millimeter scale 10 cm. in height. Blood is first mixed with an anticoagulant (12 mg. of dry ammonium oxalate and 0.8 mg. of dry potassium oxalate, per cubic centimeter of blood) and then the tube is filled with the aid of a capillary pipet. Centrifugation is carried out at 3,000 revolutions per minute for thirty minutes. One cc. of blood is needed for this instrument. This amount can be obtained from the finger but is more easily secured by venipuncture. After the red cells have been packed completely the height of the column of red cells is read.

Whatever method for centrifugation may be used the mean size of the red cells is determined by dividing the volume of packed red cells by the red cell count. The volume of packed red cells as measured in cubic centimeters per thousand cubic centimeters of blood, divided by the red cell count in millions, gives the 'mean corpuscular volume' in cubic microns. Normally the mean corpuscular volume averages 87 cubic microns.

Values above 92 cubic microns indicate macrocytosis, those below 82 cubic microns microcytosis (Wintrobe M M Anemia—Classification and Treatment on the Basis of Differences in the Average Volume and Hemoglobin Content of the Red Corpuscles, *Arch Int Med* 54 256 [Aug] 1934). It is better to express red cell size in this absolute measure but one may still calculate the "volume index," which gives the mean red cell size in proportion to an arbitrarily fixed "normal." For volume index, 424 cc per hundred cubic centimeters of blood is taken as the equivalent of 100 per cent packed red cells that is, the volume of packed red cells as determined is divided by 424 and multiplied by 100. This gives the volume of packed red cells in proportion to "normal." This value divided by the red cells in percentage of "normal" (red cell count divided by 5 and multiplied by 100), gives the volume index.

SPIDER BITES

To the Editor—A number of spider bites have occurred during the last twelve months most of which are of the black widow species. My textbook contains only short sketches of the spiders the symptoms of their bites and the treatment. How can the species be determined—the one producing immediate severe constitutional symptoms and the one or more producing necrosis? What will relieve the pain of the black widow bite? Why should the bite of the black widow produce no constitutional symptom of any consequence in one patient when the bite was on the buttocks and bare skin? I administered calcium gluconate 10 per cent in the muscle and vein about one hour after the bite and no other drug was given. Where can I obtain a textbook on the American spider? I have found morphine almost useless in doses ranging up to 3 grains (0.2 Gm.) during a twenty four hour period in the relief of pain. I have tried magnesium sulfate in the vein also with unsatisfactory results even when combined with morphine in heavy doses. Hot baths and local applications of heat also have been used. Must the patient suffer violently for a period of twenty four to thirty six hours or is there something more that can be done? One of my friends gave his patient antivenin or antiserum and this is now available. His patient did not get what he considered satisfactory results. Any suggestions as to treatment or other information will be appreciated.

THOMAS F HUDSON M D Luvora Ark

ANSWER—Of all of the hundreds of species of spiders found in this country, it appears that *Latrodectus mactans*, or black widow spider, is the only one apt to produce severe systemic symptoms. A general description of the various kinds of spiders is contained in *The Spider Book* by John Henry Comstock, published in the Nature Library in 1920 by Doubleday, Page & Co, but a more recent monograph on spider poison is presented in *Le venin des araignees*, by J Vellard, published by Masson & Cie in 1936. The literature on spider bite poisoning, with special reference to North America, may be found in three articles by Emil Bogen (*Arch Int Med* 38 623 [Nov] 1926, *Ann Int Med* 6 375 [Sept] 1932, *California & West Med* 45 31 [July] 1936).

Latrodectus mactans is a shiny, coal black spider, usually brilliantly marked with red or yellow or both. The female, which is always the one responsible for the bites reported, is often half an inch in length and may stretch its slim, glossy black legs over as much as 2 inches. The markings vary somewhat, the most constant being a bright red patch, shaped like an hour-glass, on the ventral surface of the abdomen. Its unesthetic coarse, straggly, three dimensional web aids in its recognition.

Local lesions have been reported in some instances of black widow spider bite but are exceptional and may often be ascribed to associated infection, local treatments or special allergy or idiosyncrasy of the subject. On the other hand, the ejection of the poison is under control of the spider and does not occur with every bite, so that numerous instances are recorded in which the bite was not followed by any symptoms, local or general. Local necrotizing lesions have been reported most often from *Glyptocramum gasteracanthoides* of Peru a gray orbweaver, and *Aranea audax* of Argentina, but in this country only a few instances have been reported from bites of the tarantula the trap door spider or other large hairy forms and spider bite as a cause of local lesions, although frequently suspected, has rarely been proved.

The intravenous injection of 10 cc of 10 per cent calcium gluconate or other calcium salts, repeated as required, generally relieves the acute pain even more effectively than the intravenous injection of magnesium sulfate, which also has been recommended, but this may be supplemented by hot baths or hot applications, spinal puncture, and the administration of convalescent or immune animal serum. The inadequacy of opiates in controlling the acute symptoms of arachnidism has been repeatedly remarked, but sedatives may be useful in conjunction with the foregoing more specific treatments and in the care of the residual paresthesias that sometimes persist. Local treatment should be confined to a simple antiseptic application, as

the scarification and cauterization or suction useful in other kinds of venomous bites seem to have no effect on the systemic development of arachnidism and only increase the danger of local infection.

POPLITEAL ARTERY PULSE—MOUTH AND RECTAL TEMPERATURES

To the Editor—What is the proper method of obtaining the popliteal artery pulse? In what percentage of cases is it palpable? Is it the mouth temperature (of 98.6 F) or the rectal temperature (of 99.6) that is considered the normal temperature of the body? Why are rectal thermometers marked to indicate normal at 98.6 when the real normal for that region is 99.6?

M D New York

ANSWER—The proper method of obtaining the popliteal artery pulse is to flex the knee, thus relaxing the popliteal fascia that overlies the artery. With the knee flexed, the palpating finger may be deeply pressed into the popliteal space at a point that marks the junction of the middle and upper thirds of the space. As a general rule the pulsations of the artery may be felt at this point unless they are obscured by an excessive amount of fat or, occasionally, by fluid in the popliteal bursa. It should be remembered that the artery is rather deeply situated is covered by the vein and nerve and is protected by a heavy fascia and fat and connective tissue, hence its pulsations are not as easily felt as those of much smaller arteries that are more superficially placed.

Strictly speaking it is impossible to give any single figure that represents the "normal temperature of the body." This is true because the temperature of different parts of the body taken at the same time will show a variation and the temperature of the same portion of the body taken at different times during the day will show variation. When one speaks clinically of the normal temperature of the body, one actually means the normal temperature of the body in the places where it can be conveniently measured.

The measurement of the temperature in degrees Fahrenheit, several times during the day in a large number of normal persons resulted in readings of 98.96 for the rectum, 98.45 for the axilla and 98.36 for the mouth. It should be remembered that these are averages and that the actual readings in the same person will sometimes vary as much as from 1.5 to 2 degrees in twenty-four hours. The mean of these averages is 98.59 and from this comes the figure 98.6 on the clinical thermometer. This figure represents the mean normal temperature of the body in those places in which it can be conveniently measured.

SYPHILIS IN PREGNANCY

To the Editor—In October 1935 a married woman aged 18 had an abortion at two months after taking a bus trip to West Virginia and back. The long trip seemed sufficient reason for the abortion. She made a good recovery from the abortion. In September 1936 she was referred back to me for a hazy left cornea (interstitial keratitis) and a Kahn test. This was 4 plus and she has been getting nearsphenamine from September to December together with bismuth salicylate in oil. She reported pregnancy in October 1936 and her abdomen is now somewhat enlarged. In January 1937 I started mercurosal intravenously and will give it for a month or six weeks. Then I expect to return to nearsphenamine and the bismuth compound. If her baby is apparently normal and at full term should she nurse it? I can find no other member of the family with a Kahn positive reaction. Perhaps it is an inherited condition in the patient. Please discuss the case. Please omit name. M D Michigan

ANSWER—It seems probable that this young woman has an acquired rather than a congenital syphilis and considering her age and recent marriage it is doubtless not an old infection. The absence of syphilis in the family is against congenital infection.

The abortion may or may not have been due to her syphilitic infection and while most terminations of pregnancy due to syphilis occur later in pregnancy this is not an infallible rule.

She should be treated actively throughout pregnancy, as a recent infection is dangerous to the fetus. The percentage of fetal syphilis is much higher in women who have syphilis with a positive Wassermann reaction than in those in whom this test is negative. The treatment indicated should be adequate. Some believe that nearsphenamine may be continued throughout pregnancy but others feel that there is danger of a serious reaction late in gestation and prefer the use of heavy metals in the later weeks.

When the infant is born a cord Wassermann test should be done and if possible a roentgenogram of the long bones be made to diagnose any presence of a syphilitic infection. The positive cord Wassermann is a reliable test but the negative reaction is not conclusive and blood should be secured later for a repetition of the test. The examination of the placenta often does not give positive evidence either for or against the presence

of fetal syphilis. The safest course to pursue is to give the new-born infant a course of antisyphilitic treatment.

There is no reason why the mother should not nurse her baby so far as the transmission of this infection is concerned. Naturally the treatment of the mother should be carried to its conclusion after the baby is born.

The main objective of the treatment of the prospective mother is not so much to effect a cure in her as to prevent transmission of the disease to the fetus. A woman treated prior to pregnancy is less apt to give birth to a syphilitic infant than one in whom the treatment is begun after conception has taken place. The earlier in pregnancy the antisyphilitic treatment is started the higher the percentage of favorable results for the fetus will be.

Once a woman is syphilitic, she should receive treatment in each successive pregnancy as there is always some possibility, though a diminishing one, that the fetus may be affected if antepartum treatment is not administered.

ERYTHROBLASTIC ANEMIA

To the Editor—A boy aged 13 is the only normal offspring the two living children a girl of 7 and one of 3 months appear to have erythroblastic anemia (Cooley) and we are assured that the deceased boy and girl (aged 19 months and 3 years respectively) were victims of the same disease. The parents are healthy Italians. They know of no relatives afflicted with the disease, their Wassermann reactions are negative. We are unable to discover any dietary deficiency or any intoxicating agent. The older child has received extensive x-ray therapy to the spleen, liver and long bones. She presents a muddy yellow color and a definite mongoloid facies. The recent appearance of these familiar characteristics in the youngest child prompted the mother to seek medical advice. In addition the spleen is enlarged in the older child it occupies about a third of the abdomen and is very hard and slightly nodular in the infant it may be felt only during the inspiration and is moderately hard and smooth. There is no enlargement of the liver and only slight enlargement of the cervical lymph nodes in the older child. There are no other physical manifestations and the mother insists that there have been no other symptoms. The laboratory data are as follows:

Older child

Red blood cells	1,950,000	Small lymphocytes	40 per cent
Hemoglobin	50%	Large lymphocytes	40 per cent
Color index	1.3	Neutrophils	44 per cent
Platelets	93,600	Eosinophils	0 per cent
Bleeding time	3 minutes	Basophils	0 per cent
Coagulation time	3 minutes	Neutrophilic myelocytes	16 per cent

The infant

Red blood cells	2,785,000	Small lymphocytes	66 per cent
Hemoglobin	55%	Large lymphocytes	0 per cent
Color index	1	Neutrophils	24 per cent
Platelets	860,000	Eosinophils	0 per cent
Bleeding time	3 1/2 minutes	Neutrophilic myelocytes	8 per cent
Coagulation time	4 minutes	Basophils	0 per cent
		Basophilic myelocytes	2 per cent

Blood smears of both children reveal numerous nucleated red blood cells (normoblasts and megaloblasts), polychromatophilia, stippling, anisocytosis and poikilocytosis. The fragility test and icterus index were not done. The urine and feces are normal in both cases. Roentgenograms of the skull of the infant reveal no abnormality but the conditions found in the older child are fairly characteristic: the bony cortex is thin and the medulla is considerably thickened with prominent trabeculations. No definite abnormality was observed in the long bones. We are looking forward to your opinion of the diagnosis and would greatly appreciate your suggestion as to the treatment of these cases.

D. T. MARTIN, M.D.
E. A. SCHENKAYNER, M.D.
Donaldsonville, La.

ANSWER—This family of children belonging to the race that originated along the north shore of the Mediterranean presents a severe and progressive type of anemia. That the disease is familial and that all the children had markedly enlarged spleens and a mongoloid facies suggest erythroblastic anemia or Cooley's disease. No mention is made of thickened and somewhat porous bones at the vault of the skull, though the other symptoms mentioned suggest the disease. Cooley concedes that polymorphism of the red cells is characteristic and that the presence of nucleated erythrocytes is one of the most striking features of the blood examination. He also believes that hemoglobin is destroyed by fragmentation and that it is irregularly deposited in the cells.

Cooley's disease must be differentiated from sickle-cell anemia or secondary anemias following malaria or hereditary syphilis. The familial nature of the disease with anemia, splenomegaly and leukocytosis and peculiar though characteristic changes in the blood should confirm the diagnosis of erythroblastic anemia which has already been made.

As far as treatment is concerned the various remedies advised in anemia, such as iron, bone marrow and liver have

been administered by mouth, intramuscularly and intravenously. Transfusion and splenectomy have been tried. All methods of treatment up to now have given only symptomatic or temporary relief.

ALLERGY IN INFANT

To the Editor—I have under my care an infant aged 20 months who presents the following problem. Shortly after birth he became covered with eczema and had numerous gastro-enteric upsets. The family history disclosed a maternal grandparent who suffered from bronchial asthma. The child is definitely allergic to milk, eggs, carrots and certain fish. He becomes markedly eczematous and has gastro-enteric disturbances within a day after eating any of the allergens. He has been fed on soy bean formulas (Sobee) and a generally restricted diet until the present time. Thus far he has progressed normally as regards height, weight, dentition, walking and mental development. His skin remains clear and there are no abdominal symptoms while he abstains from the foods mentioned. My difficulty lies in the administration of vitamin D. The child becomes ill with any of the fish liver oils. Viosterol without natural oil produces the same result. Recently crystalline vitamin D was given him (Drysol Winthrop) with the same result. During the summer no particular difficulty was experienced as regards prevention of rickets as the baby was kept outdoors whenever the sun was shining. During the winter I noted for the first time restlessness, rosy head sweating and a tendency toward bowed legs. Ultraviolet irradiation has been used sporadically but the family cannot afford exposures as often as necessary and have too much pride to accept this treatment at my expense. Have you any suggestions? Would violet irradiation alone suffice to cure this impending disease?

M. D. New York

ANSWER—It often happens that children may be allergic when young infants and then change as they grow older. One of the things that is difficult to overcome is prejudice that develops because parents knowing that a child reacted to certain substances, do not want to try these later, at which time the baby may tolerate them.

In this particular case, concentrated vitamin D in small doses, gradually increased should be tried again.

Ultraviolet irradiation alone will suffice to prevent and cure this condition. Drs. Alfred Hess, Steenbock and others have shown that a single erythema dose of ultraviolet rays once a week ordinarily prevents rickets.

To cure rickets, irradiation two three or more times a week is necessary. Irradiated cereals, bread and other foods should be added to the diet. A disturbance of the calcium-phosphorus ratio increases the need for vitamin D so that it may be necessary to add extra calcium or phosphorus to the diet. In this particular instance it might be advisable to determine the serum calcium and inorganic phosphorus so that, if a low calcium is found, calcium gluconate or lactate may be given 1 Gm. two or three times a day. If phosphorus is found to be low, acid sodium phosphate, 1 Gm. two or three times a day, should be given. It is assumed that the child has adequate vitamin C intake.

COBRA VENOM IN PARALYSIS AGITANS

To the Editor—I have read recently in the press of Dr. Macht's cobra treatment of paralysis agitans and would appreciate some information regarding it.

NATHANIEL H. KOPLIN, M.D., Trenton, N. J.

ANSWER—Cobra venom has been employed by French and other European investigators and by Macht and his collaborators in the United States for the relief of the severe pains of advanced malignant disease, neuralgias and chronic arthritis (Macht D. I. Therapeutic Uses of Snake Venom *Am. Rec.* 144:537 [Dec 16] 1936). Macht's pharmacologic studies on animals demonstrated that the drug produces analgesia through its action on the pain areas of the brain. He has also found that cobra venom antagonizes the convulsant action of certain drugs in animals (Macht Experimental and Clinical Study of Cobra Venom as an Analgesic, *Proc. Nat. Acad. Sci.* 22:61, 1936). Further studies along these lines supported the experimental work of Cicardo (Modifications de l'excitabilité nerveuse par action du venin de cobra, *Compt. rend. Soc. de biol.* 120:732-733 1935) and suggested a trial of the drug for the relief of the severe pains due to contractures in advanced Parkinson's disease. In presenting this experimental work before the recent meeting of the American Physiological Society, Macht stated that six cases of Parkinson's disease, which he studied, responded favorably to the treatment. Relief was obtained in three patients complaining of severe pain and in all six cases there was an amelioration of spasticity and tremor. This investigation is still in its experimental stage. It must be understood however that cobra venom is in no sense a cure for paralysis agitans but should be regarded only as a new and nonnarcotic agent which may prove to be helpful in combating some of the distressing symptoms of the disease in its advanced stages, particularly the spastic rigidity and pain.

POSSIBLE MALINGERING OR FEVER OF
UNKNOWN ORIGIN

To the Editor—An unusually well and healthy girl aged 15 years active well built and well muscled a dark brunette and a vixen who knows far more about the ways of the world than her parents has a fever of 102 to 103 F about every two or three weeks which lasts from six to eight hours. Misbehavior is not remotely suspected. In these attacks she seems ill goes to bed and stays out of school for two or three days saying that she is not sufficiently recovered to go to school. After the fever is gone she appears to me to be well enough to go to school. In a recent attack she stayed away from school for ten days. During her absence from school she helped her mother with the washing, drove around with her father in his truck and cleaned the snow off the sidewalk, certainly not signs of being ill enough to miss school. The patient began to menstruate about eighteen months ago but has missed four periods at different times and reestablished them spontaneously. Pelvic examination gives the appearance of a diseaseless virgin. I removed the patient's tonsils two months ago because I felt that the operation was locally indicated. Symptomless large diseased chronic hypertrophic tonsillitis following a history of several attacks. Operation was done in my office with procaine hydrochloride and healing was rapid and uneventful. There was no other disease of the eyes ears nose or throat. The chest is well formed. There is no sign of disease but just to check up a chest roentgenogram was taken which was normal. In the recent attack the Vidal reaction was negative the Kahn reaction was negative and the blood was negative for tularemia. The patient not in my hands had an appendectomy in one of these attacks a year ago. The abdominal pain was negligible at the time. The last two attacks have been accompanied by headache and pain in the back of the neck. Salicylates were given and recovery was complete to my notion in less than twelve hours although not to the patient's notion. After the last attack the red blood corpuscles numbered 5 400 000 the white blood corpuscles 8 500 the differential count was normal and the hemoglobin value 15 Gm. The urine repeatedly has been normal. There are no abdominal symptoms or signs. There is no adenitis. Neurologic examination gives normal results. The skin is clear throughout not even an acne being present. One reason besides the failure to find a physical basis for her attacks for my belief that she has some way to produce them is that they come when her mother has scolded her when there is a written examination at school or at some such time. The patient states that she does not take any drugs or do anything to produce the fever. The mother cannot find any drugs around the house. I watch the thermometer when it is in her mouth but there is no need for this. The fever is there all right—her whole body is hot her face is red and the pulse is around 120—but there is no sweating. I can only think of one legitimate explanation—the patient is very nervous in the attacks—possibly she involuntarily produces a fever through a nervous shock or whatever one might call such a phenomenon. The girl is very clever. I think she is fooling me. How is she doing it?

M D Michigan

ANSWER—The patient should be hospitalized for at least a long enough period to determine the presence of some organic physical disease. From the observations reported one cannot make a diagnosis of malingering. It is suggested that while the patient is being hospitalized the following regimen be instituted: absolute observation twenty-four hours daily, search her bed table and belongings for any drugs or objects that may produce a rise in temperature. This is best done when the patient is taken out of her room on some pretext or other. The temperature should be taken rectally every three hours. Constant, diligent search should be made for evidence of Malta fever abscess formation sinus disease and low grade pyelitis cystitis or kidney disease. She may have to be hospitalized for at least four weeks or more. If and when her method is determined the entire mechanism of the behavior must be explained to her. It is unusual for a girl 15 years of age to refuse to go to school. Organic physical disease should not be overlooked.

EOSINOPHILIA

To the Editor—I have recently discovered a decided eosinophilia in two members of the same family. In both of these cases the causes usually given for an eosinophilia can be ruled out. Might this be a familial characteristic? Could it be due to some chronic streptococcal focus of infection? Counts in the two cases range between 9 and 15 per cent. The reason for this query is more than mere medical curiosity, since in one of the cases I am trying to make a diagnosis of an obscure chronic condition. Any lead you may give me will be greatly appreciated.

HAROLD C MILLER M D Eglon W Va

ANSWER—To answer the specific questions first it is not likely that this is a familial characteristic. Certain isolated instances of unexplained eosinophilia have been reported but it has not been observed as a familial trait. Likewise chronic streptococcal infection is a most unlikely cause. As a general rule the eosinophils diminish or disappear in the presence of infection or intoxication and their reappearance is looked on as a favorable sign of recovery.

The question does not state which of the causes of eosinophilia may be ruled out in these cases.

Of the parasitic causes, trichinosis is the most common but it is sometimes forgotten that the eosinophilia may persist for as long as two to three years following the infestation. Less common parasitic diseases encountered in this country are hook-

worm disease and echinococcal disease. Bilharziasis or filariasis is not likely to occur in a native of West Virginia. The ordinary intestinal parasites do not as a rule produce eosinophilia.

Allergic and so called anaphylactoid states are commonly associated with eosinophilia. The most common of these are bronchial asthma and pollen sensitization but the tendency runs through the whole group and any allergic state may be considered a sufficient cause. Urticaria, Quincke's edema, migraine and even dermatographia are often so affected.

Many of the skin diseases provoke eosinophilia. It is frequently associated with psoriasis and many observers have stated that any chronic dermatitis may be the causative factor.

Still more rarely eosinophilia occurs in connection with myelogenous leukemia and an eosinophilic leukemia has been described. Certain drugs, notably those which produce a skin rash have been known to produce it. In a small percentage of cases of Hodgkin's disease and after x-ray treatment eosinophils may appear in relatively large numbers.

SEBACEOUS CYSTS

To the Editor—I have a patient who has used massage cream on his face for years. He is a rancher and is exposed a great deal to the sun and has a light complexion. His face is covered with small and large collections of sebaceous material. However there are no blackheads as these collections of sebaceous material are covered with a thick layer of dead skin. What is the best method to relieve this man of his condition?

M D Texas

ANSWER—In view of the fact that these collections of sebaceous material are covered with a thick layer of dead skin one must assume from the meager description given, that they are probably multiple sebaceous retention cysts (cystic acne?).

Puncture of one of these lesions with a fine knife such as an iris knife, and the expression of the retained secretion should reveal the wormlike sebaceous contents. The cautious use in competent hands of fractional x-rays, 75 roentgens each week for from six to eight doses may be effective in causing resolution of these lesions. Brisk washing with soap and water preceded by contrast compresses of hot and cold water is important treatment. The use of mild sulfur lotions such as *lotion alba* are further adjuncts to therapy. Creams or greasy applications to the face should be prohibited.

OSTEOGENIC SARCOMA

To the Editor—A man aged 50 generally in perfect health recently suffered a mild contusion of the left knee just below the patella. The injury actually occurred about ten days before he came to my office. About three days after the original injury the patient noticed some slight swelling in the knee which extended both above and below the joint. The pain was slight and the movement of the knee was only slightly impaired. He continued his work which was that of a common laborer. About three weeks after this injury the swelling had increased so that at this time the swelling was about twice the size of the normal knee. Roentgenograms were taken and it was discovered that in the distal end of the femur an apparently abnormal condition was present which looked either like osteomyelitis or a bone tumor. Following this a biopsy was done and the diagnosis by a competent pathologist showed it to be an osteosarcoma. Amputation in the upper third of the thigh was done. The patient recovered without subsequent complications. In going over the man's history I find that fourteen or fifteen years ago he was kicked by a mule on this knee. It has never shown any signs of injury or disability of any sort. What in your opinion is the relationship of the sarcomatous condition of this bone to these two injuries? Is it possible or probable that the injury fourteen or fifteen years ago could have any relation to the development of the sarcoma at this late date?

M D Oregon

ANSWER—The exact etiology of osteogenic sarcoma is not definitely established. In a large majority of cases there is a history of previous injury at the site of the lesion, and this fact has led many authorities to believe that trauma may be the exciting cause. Similar injuries are incurred however by countless people without the development of sarcoma. Fractures of the long bones, which are severe and definite local injuries are practically never followed by sarcoma.

Cohnheim's theory is that at some stage in the embryonic development the cell becomes isolated while still possessed of great energy of growth and of great potentiality to reproduce tissue. The cell may lie dormant for years and when stimulated may begin to grow rapidly (quoted from Campbell). Other authors believe that the origin of tumors lies in a profound change in the character of the cells. The majority of physiologists believe that bone is formed by a specially differentiated cell from the mesodermic layer, a mesoblast, whose only function is to form the tissues produced by the evolution of bone.

In the case described it is possible that the injury of fourteen years ago might have produced an alteration in some of the bone cells and that these cells were stimulated by the recent

injury, with the resulting sarcomatous proliferation. Any such theory, however, cannot be scientifically proved in this particular case.

The question of the relationship of malignant neoplasms to previous traumas is of course a subject of tremendous medico-legal importance but it has not yet been definitely established.

HAY FEVER WITH NERVOUSNESS AND INSOMNIA

To the Editor—I should like your advice concerning a case of hay fever. It is rather peculiar and I have not had much success with this patient. He has been troubled since 1925 with hay fever which begins May 20 and ends June 20. He states that he is able to mark the dates on a calendar in that they begin precisely on the specified dates. He lived in Illinois until 1931 when he moved to Pittsburgh. There he was given irradiation to the nose with marked improvement of his condition. In 1935 he moved to Virginia and last May he began to have skin lesions suggesting urticaria with evidence of angioneurotic edema. However he had gotten a shot of 1 cc of poison ivy several days before the eruption and swelling took place. He was given ultraviolet therapy and left for Philadelphia where he was seen by a doctor who made skin tests. Several days ago I repeated the skin tests and the results were as follows:

Bermuda grass	2+	False ragweed	±
Goldenrod	±	June grass	4+
Lamb's quarters	5+	Timothy	3+
Orchard grass	3+	Oat	±
Johnson grass	1+	Chicken feathers	1+

The remainder of the tests were negative. However the chief reason for his visit to me is apparently insomnia. He states that he must exhaust himself physically before he can get any rest. Physical examinations at several places have been relatively negative. I do not get the food reactions obtained in Philadelphia. I suggested a pollen mixture of the positive obtained with injections to begin immediately. Whether or not this will affect his insomnia I do not know. I should like any suggestions that you may care to offer.

M D Virginia

ANSWER—Nervousness and insomnia have been described as among the 'minor allergies' although allergy is to be considered an unusual cause for such symptoms. Presumably other more common causes for insomnia have been ruled out in this case. If one is to assume therefore, that hypersensitivity is the cause for the nervousness and insomnia one must look to other causes than pollen as a source of the trouble since the symptoms are present perennially. While pollen treatment (grasses) should be carefully used this should be done because of the definite hay fever symptoms present.

Regarding the other allergic factors the patient should be protected from feathers and possibly house dust by covering the pillows and mattresses in the room with a rubberized casing that is impervious to the finest dust. This should be constructed so that it is almost air tight. It is possible that the insomnia may be induced by stuffiness of the nose from the inhalation of allergens. (No mention is made whether the patient has perennial nasal symptoms.)

Since the skin tests with foods are reported negative it would be advisable to continue the study by the use of elimination diets and the determination of the leukocyte reaction after certain foods as milk, wheat and eggs. Literature on the subject of allergic study by elimination diets may be obtained in Albert H. Rowe's 'Food Allergy' (Philadelphia: Lea & Febiger, 1931). The rationale and technique of the leukopenic index studies may be found in Warren T. Vaughan's recent publications on the subject (*J. Allergy* 5: 601 [Sept.] 6: 78 [Nov.] 1934; 6: 421 [July] 1935; *J. Lab. & Clin. Med.* 21: 1278 [Sept.] 1936).

PLAYING WIND INSTRUMENTS IN PULMONARY TUBERCULOSIS

To the Editor—A patient who has been under treatment for pulmonary tuberculosis for the last three or four years has taken pneumothorax for the last two and one-half years and the condition now seems to be well arrested. He would like to play some wind instrument such as the saxophone and would like your opinion as to the advisability of his doing so. I understand that some sanatoriums have musical organizations including reed instruments.

JOSEPH O. RUDE, M.D., Petersburg, Alaska

ANSWER—The nature and extent of the pulmonary lesion before artificial pneumothorax was instituted will influence the decision in this case. If it was a primary lesion in the pneumonic stage and is now well under control almost any activity could be undertaken. On the other hand if it was a secondary or reinfection type of lesion that showed evidence of progressiveness and cavities had formed the playing of a wind instrument should be discouraged.

While it is true that, in occasional institutions for the tuberculous orchestras and bands have been organized such activities on the part of patients with pulmonary tuberculosis are not generally recommended. If the musicians are selected from patients who have extrapulmonary disease such as that of the

bones and joints there could be no objection provided the general health would permit of such activities. It is true that almost any clinician who deals largely with tuberculosis can cite instances in which persons with pulmonary disease have since played wind instruments extensively or have actually done considerable singing over the radio while the diseased lung was collapsed by artificial pneumothorax and even after it has reexpanded.

After all the main factor in the control of the tuberculous lesion is immobilization or minimum activity of the involved organ. While the patient's lesion is well arrested by artificial pneumothorax there is the possibility that lesions are present in the contralateral lung which have not yet reached such proportions as to cast shadows on the x-ray film. These lesions may remain under control because of the natural defense mechanism of the body and never become clinically significant or roentgenologically demonstrable but it would not seem wise to recommend activities that would require unnecessary use of the lung tissue. It would appear far safer to advise the patient against the use of any wind instrument.

VACCINATIONS FOR ORIENT

To the Editor—A patient of mine contemplates a trip to Japan and China starting in August and would like preventive inoculations such as are available for whatever infections she might encounter on such a journey. I have already started typhoid paratyphoid inoculations and shall revaccinate her against smallpox. Could you inform me as to what other preventive inoculations are available for what might be encountered in Japan and China?

C. WENTWORTH HOYT, M.D., Hingham, Mass.

ANSWER—No other preventive inoculations are customary for adults. If revaccination against smallpox is not immediately successful it should be repeated several times until there is a high degree of probability that immunity actually exists. Since most of the health hazards in the Orient arise from contaminated food and water the patient should be instructed to eat only freshly cooked foods and to drink only boiled water. Raw fruits and vegetables are particularly to be avoided.

TOXICITY OF VARNISH FOR BEER BARRELS

To the Editor—I have under my care a man aged 42 who is employed in a brewery. His job for the past two months for six hours daily five days a week has consisted of working in a beer standard (a wooden enclosed container holding twenty-two barrels of beer). He and another man varnish these standards and then burn the varnish in with blow torches. The only means of ventilation is a ventilator about 3 inches in diameter set in the roof of the standard. This is inadequate and the fumes very rapidly become thick so that after ten minutes of the work they must lie down on the floor for fresher air. The varnish is supposed to be thinned with pure grain alcohol but lately they have been given denatured alcohol to use which he has been told will not do them any harm from the fumes liberated. Lately he finds that he has been gagging easily is dyspneic on slight exertion coughs up blood streaked material in the morning perspires freely is quite weak and has developed pain and tenderness to the left of the sternum. He has also lost 5 pounds (2.3 kg.) in three months. General physical examination is negative. I should like to know what harm working in the conditions described can do to him and whether pure grain alcohol would be a safer diluent for the varnish. I would appreciate an early answer in your column.

M. D. Minnesota

ANSWER—Unfortunately the term "varnish" does not represent any one substance of fixed consistency. There are many classes of varnish with highly diversified ingredients chiefly natural and synthetic gums as the solid portion of the varnish which in turn are dissolved in or thinned by an even greater diversity of liquid agents. By way of example may be cited the constituents of one type of varnish: phthalic anhydride, fatty acids, glycerin, rosin, tung oil, hydrogenated naphtha, petroleum naphtha, xylene and butanol. Other types of varnishes contain comparable agents with respect to toxicity and may instead contain toluene and rarely benzene.

Compared with most of these substances less harm may be expected from either pure grain alcohol or some classes of denatured alcohol. If these standards are in fact enclosed as described the combined vapors from the constituents of almost any varnish are likely to be sufficiently concentrated to be dangerous. Furthermore the use of blow torches as described for burning the varnish into the wood may be expected to give rise to additional harmful substances and particularly irritants to the eyes, mucous membrane and skin in case high temperatures are utilized such as may break down the solid constituents of varnishes. It is not believed that the mere changing of the thinning solution will be adequate for righting this situation. From the description of the operation provided in the query it may be desirable that positive pressure respirators should be worn at all times during the varnishing procedure. The clinical manifestations indicated are of a type commonly asso-

ciated with mixed toxic vapors. If any substantial percentage of benzene, toluene and xylene or solvent naphtha is present as an ingredient and has produced harmful results this may be shown in a leukopenia together with an anemia. In any event, a careful blood examination should be made.

INFECTIOUSNESS OF SYPHILIS—INHERITANCE OF COLOR BLINDNESS

To the Editor—I am frequently asked by the employer of a syphilitic patient in whom the infection is newly acquired but untreated when it is safe for him to return to work and of course associate with and eat with other employees. Granting that treatment is started I have advised the employer that it is safer for the associate workers for the patient to be given about three injections of neosarsphenamine before he is allowed to return to work and where the work consists of handling food as in a restaurant about six injections. I realize that many factors enter into these cases but my question concerns the average case of early syphilis that is found in a clinic where most of the patients are WPA workers. I would appreciate your opinion as to the wisest course to follow for all concerned. 2 If the mother is color blind does it necessarily follow that all her children will be color blind?

M D Virginia

ANSWER—1 The chances of acquiring syphilis from ordinary association are recognized as being remote. The disease is transmitted most frequently in the serous discharges from primary or secondary lesions. The chances therefore of a patient with early primary syphilis transmitting the infection through food are not great. No arbitrary number of injections, however, can insure the noninfectiousness of the disease. It is probable that the proposed number of injections would be adequate to prevent any chance infection of healthy individuals.

2 No

POTASSIUM CHLORATE IN DENTIFRICES

To the Editor—What are the names of the dentifrices and gargles that contain potassium chlorate?

M D Massachusetts

ANSWER—This is a partial list of products which have been found to contain potassium chlorate:

Alkalol the Alkalol Company Taunton Mass
Anti-Vinzing Remco Products Company Fairmont W Va
Dr Cates Cato Tooth Paste Cato Chemical Company St. Louis
Gingasoil Gingasol Laboratories Inc. Winner S D
King's Ceko Dental Paste C G King & Co. Providence R I
Lorty Antiseptic Tooth Paste B F Allen Company New York
Pebecco Tooth Paste Lehn & Fink Inc. Bloomfield N J
Potaska F M Pease & Son Lee Mass
Pyo-Rem and Pyo-Rem Dental Cream Pyo-Rem Chemical Company Inc. Los Angeles
Tonsiline Tonsiline Company Canton Ohio

These nonproprietary preparations also contain it:

Gargle of Potassium Chlorate with Iron N F VI
Tablets of Potassium Chlorate N F VI
Camphor Potassium Chlorate and Belladonna Powders P R B II
Troches of Potassium Chlorate P R B II

SODIUM CHLORIDE INTAKE IN DIABETES

To the Editor—How and where could I find some information regarding increased sodium chloride intake in diabetes and its effect on the disease and the patient?

M D Ohio

ANSWER—Recent reports by Glass and Beilless, McQuarrie, Thompson and Anderson, McLain and Wilder, and others of the effect of increased intake of sodium chloride in diabetes are reviewed and references given in editorial articles 'Diseases of Metabolism and Nutrition' by Wilder and Wilbur (*Arch. Int. Med.* 59:342 [Feb.] 1937, 57:429 [Feb.] 1936). Another study of the subject has appeared lately from D. Adlersberg and M. Wachstein (Pankreas und Kochsalzstoffwechsel [Experimentelle und klinische Untersuchungen], *Klin. Wchnschr.* 16:85 [Jan. 16] 1937).

ARTIFICIAL SCARLET FEVER IMMUNIZATION

To the Editor—Please evaluate the present status of active artificial immunization against scarlet fever. Has immunization with scarlet fever streptococcus toxin been accepted by conservative authorities as a sound procedure suited to general application? Is it felt that there is risk of cardiac damage in children from the administration of scarlet fever toxin for purposes of immunization?

PAUL J. BROWN, M.D., Terre Haute, Ind.

ANSWER—Inoculation with scarlet fever toxin for the purpose of active immunization against scarlet fever is a procedure that has been accepted by most contagious disease hospitals. The method is used also in many general hospitals to protect student nurses and for large numbers of children housed in various institutions.

Health authorities in Milwaukee and in Gary, Ind., are enthusiastic in their approval of the Dick method for active

immunization against scarlet fever. Private physicians often hesitate to recommend inoculations of scarlet fever toxin because of their fear of unpleasant reactions. If scarlet fever toxin is injected intracutaneously instead of subcutaneously, it is reported that satisfactory results are secured with smaller doses of toxin and no constitutional symptoms occur.

The possibility of cardiac damage as a result of the administration of scarlet fever toxin is seldom considered.

Scarlet fever toxin injections do not establish immunity to streptococcal infections.

ALTERNATIVE FOR MAN AND DOGS

To the Editor—A veterinary surgeon showed me an alternative and reconstructive veterinary preparation which he said was excellent for dogs consisting of mercuric iodide, sodium iodide and sodium cacodylate. Would this be equally effective in man? Can you suggest a prescription in appropriate dosage for human patients and a vehicle that would be pleasant?

J. B. H. Waring, M.D., Wilmington, Ohio

ANSWER—There is no incompatibility in the ingredients and the following prescription might be suggested as possibly as pleasant a method of administration as might be devised:

R Mercuric iodide	0.075 Gm
Sodium cacodylate	1.5 Cm
Sodium iodide	100 Gm
Distilled water	200 cc
Syrup of acacia	600 cc
Syrup of glycyrrhiza	to make 1200 cc

Label: One teaspoonful in milk three times a day after meals.

ANTIRABIC TREATMENT AFTER DOG BITE

To the Editor—A child aged 2½ was bitten by a dog on the nose and face. The wounds were deep and extensive. The dog was not thought to be mad but the veterinarian who examined the dog would not make a positive statement to that effect. My advice was that since there was some doubt the child should be treated as though the dog were rabid. The wounds were cauterized with fuming nitric acid and dressed and the first dose of the serum was given. The injections were continued for six consecutive days. On the seventh day the veterinarian reported that the dog positively was not mad. I then stopped the treatment. Was I justified in my action or should I have carried the full fourteen doses to completion? I am unable to find any comment on this particular phase of the treatment in any of the literature.

M D Louisiana

ANSWER—On the assumption that the veterinarian's report is correct there of course would be no point in continuing the injections. However, the period is entirely too short a time in which to rule out absolutely the possibility of rabies. All possibilities considered, therefore, the maximum safety would have been attained by completing the prescribed course of treatment.

NATURE OF WORMS IN DOGS AND DANGER TO MAN

To the Editor—My dog is infested with worms as proved by the examination of a veterinarian. He found the adult worms or the ova of the roundworm tapeworm and hookworm. Are these worms identical with the roundworm tapeworm and hookworm found in man? Is there any danger of human infestation from such a dog?

M D Iowa

ANSWER—Intestinal worm parasites that infest dogs are not identical with those found in man. Observations made by many veterinarians tend to show that there is no danger of contaminating human beings with canine parasites where good hygiene prevails. However, for the protection of infants and young children, veterinarians advise keeping canine pets free from parasites.

INHERITANCE OF BLUE EYES

To the Editor—If both mother and father have blue eyes does it necessarily follow that all their children will have blue eyes? Are there any cases on record in which this is not the case?

M D Virginia

ANSWER—Genetically speaking, blue eyes are blue because they lack pigment in the front of the iris. If in the eyes brown pigment is present even if it cannot be detected except with the aid of a microscope such eyes are genetically "brown." It is difficult for any but an expert to distinguish blue eyes from some of the lighter types of brown eyes such as grays or greens. If both parents have blue eyes in the genetic sense they can have only blue eyed children. It would be unwise for persons other than experts to attempt diagnosis of blue eyes in cases in which apparent exceptions to the rule occur.

TREATMENT OF YAWS AND PELLAGRA

To the Editor—Kindly advise me whether bismuth compounds and/or neosarsphenamine would be indicated in the treatment of yaws? Would bismuth compounds and/or neosarsphenamine be indicated in the treatment of pellagra?

D D S California

ANSWER—Bismuth compounds and neosarsphenamine are indicated in the treatment of yaws but not in pellagra.

Medical Examinations and Licensure

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ALABAMA Montgomery June 28 Sec Dr J N Baker 519 Dexter Ave., Montgomery
ALASKA Juneau Sept 13 Sec Dr W W Council Box 561 Juneau

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ARKANSAS Basic Science Little Rock Nov 1 Sec Mr Louis E Gebauer 701 Main St Little Rock Medical (Regular) Little Rock Dec 20 Sec Dr L J Kosminsky Texarkana Medical (Eclectic) Little Rock Dec 2 Sec Dr Claience H Young 1415 Mam St Little Rock

CALIFORNIA Sacramento Oct 18 21 Sec Dr Charles B Pinkham 420 State Office Building Sacramento

CONNECTICUT Basic Science New Haven Oct 9 *Prerequisite to license examination* Address State Board of Healing Arts 1895 Yale Station New Haven

DISTRICT OF COLUMBIA Basic Science Washington Dec 27 28 (probable dates) Sec Commission on Licensure Dr George C Ruhland 203 District Bldg Washington

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GEORGIA Atlanta Oct 12 13 Joint Sec State Examining Boards Mr R C Coleman 111 State Capitol Atlanta

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MARYLAND Medical (Regular) Baltimore Dec 14 17 Sec Dr John T O Mara 1215 Cathedral St Baltimore Medical (Homeopathic) Baltimore Dec 14 15 Sec Dr John A Evans 612 W 40th St Baltimore

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WISCONSIN Basic Science Madison Sept 25 Sec Prof Robert N Bauer 3414 W Wisconsin Ave., Milwaukee Medical Madison Jan 11-14 Sec Dr Henry J Gramling 2203 S Layton Blvd Milwaukee

WYOMING Cheyenne Oct 4 Sec Dr G M Anderson Capitol Bldg, Cheyenne

NATIONAL BOARD OF MEDICAL EXAMINERS SPECIAL BOARDS

¹Examinations of the National Board of Medical Examiners and Special Boards were published in THE JOURNAL July 31 page 382

Connecticut (Homeopathic) March Examination

Dr Joseph H Evans, secretary, Connecticut Homeopathic Medical Examining Board, reports the written examination held in Derby, March 9, 1937. The examination covered 7 subjects and included 70 questions. An average of 75 per cent was required to pass. Four candidates were examined all of whom passed. The following schools were represented:

School	PASSED	Year Grad	Per Cent
New York Medical College and Flower Hospital	(1936)		88.9
Hahnemann Med College and Hospital of Philadelphia	(1936)		78.5*
803	83.4*		

* License has not been issued

Kansas June Report

Dr J F Hassig, secretary, Kansas Board of Medical Registration and Examination, reports the written examination held at Topeka, June 15-16, 1937. The examination covered 10 subjects and included 115 questions. An average of 75 per cent was required to pass. Seventy-six candidates were examined, all of whom passed. Ten physicians were licensed by reciprocity and one physician was licensed by endorsement. The following schools were represented:

School	PASSED	Year Grad	Per Cent
Northwestern University Medical School	(1937)	88.4	90.6
School of Medicine of the Division of the Biological Sciences	(1936)		89.7
University of Kansas School of Medicine	(1937)		79.3
81.9	82.2	84.6	84.7
84.7	85.1	85.4	85.6
85.8	86.3	86.4	86.6
86.6	87.2	87.3	87.4
87.5	87.6	87.7	87.8
87.8	88.1	88.2	88.2
88.2	88.3	88.4	88.6
88.6	88.7	88.7	88.8
88.8	89.2	89.2	89.2
89.2	89.2	89.2	89.3
89.3	89.5	89.6	89.7
89.8	90.0	90.1	90.2
90.4	90.5	90.6	90.7
91.1	91.1	91.1	91.1
91.2	91.7	93	97.5
98.7	(1937)	2*	
Creighton University School of Medicine	(1937)		88.9
University of Nebraska College of Medicine	(1936)		86.9
New York University University and Bellevue Hospital Medical College	(1937)		86.9
Baylor University College of Medicine	(1937)		87.4
89.1			

School	LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
University of Colorado School of Medicine	(1936)		Colorado
Chicago College of Medicine and Surgery	(1917)		Illinois
Northwestern University Medical School	(1934)		Illinois
(1935) Michigan Missouri			
State University of Iowa College of Medicine	(1933)		Iowa
Washington University School of Medicine	(1934)		Missouri
Creighton University School of Medicine	(1935)		Nebraska
University of Pennsylvania School of Medicine	(1934)		Missouri
University of Texas School of Medicine	(1917)		Texas

School	LICENSED BY ENDORSEMENT	Year Grad	Endorsement of
Washington University School of Medicine	(1930)	N B M Ex	

* Average grades not reported

Book Notices

The Thyroid and Its Diseases By J H Means MD Jackson Professor of Clinical Medicine Harvard University Boston Being an Account Based In Large Measure on the Experience Gained in the Thyroid Clinic of the Massachusetts General Hospital Cloth Pn e \$6 Pp 602 with 73 Illustrations Philadelphia Montreal & London J B Lippincott Company 1937

Although the preface to this monograph states that it is in no sense an encyclopedic treatise on the subject and represents only the personal experiences of a considerable group of workers in a single thyroid clinic (that of the Massachusetts General Hospital), this book cannot be said to lack in completeness. The motive behind the work of the clinic has always been twofold to care for the patient in the best possible way and to learn from him something new about his disease. These purposes, of course, coincide perfectly with the highest type of medical practice and clinical research. The initial fundamental discussion of the thyroid and its diseases takes up about one fourth of the book. The gross and microscopic anatomy of the gland, the chemical nature and actions of the hormone so far as known, the relation of the thyroid itself to other endocrine glands and the pathology are considered in detail. The general symptomatology of disturbances of the thyroid and the methods of examination for thyroid disease are perhaps especially useful to medical students and to those physicians who have need to refresh themselves on the present methods of approach to thyroid disease. Specific disorders are considered in a number of chapters on simple goiter, myxedema, toxic goiter, nodular goiter, malignant goiter and thyroiditis. The grouping of the subjects is satisfactory and each chapter is closed with a brief summary and bibliography, which includes probably all the more important publications on that particular subject. The surgery of toxic goiter includes no detailed description of surgical technique but contains many points of importance for the medical and surgical preoperative and post-operative care, the operation itself and the anesthesia. In the final chapter, on fact and fancy in matters thyroid (a term which the author does not like very well), some luxury is allowed in attempting to forecast some of the future lines along

which thyroid investigations may proceed. This is a satisfactory addition and might well even be expanded in the future. Certainly no physician dealing with thyroid diseases can afford to be without this monograph.

The Little Things in Life. The Vitamins, Hormones and Other Minute Essentials for Health. By Barnett Sure, Ph.D., Professor of Agricultural Chemistry in the University of Arkansas. Cloth. Price \$2.50. Pp. 340. New York & London: D. Appleton Century Company Incorporated, 1937.

The late Lafayette B. Mendel of Yale often referred to certain food substances such as vitamins and organic salts as "the little things" in nutrition. The author has made use of the same thought in the title of the present volume. The subject matter comprises a description of the vitamins, hormones and other substances which in small amounts, are essential to life. The book is written in nontechnical terms, primarily for the public. A glossary of medical terms is appended. In general the information provided is sound and technically correct. The author presents an interesting historical account of the modern developments in the field of vitamins. A long chapter is devoted to a description of the use of vitamin preparations in various ailments. The author concludes that considerably more clinical evidence will have to be available as a guide to the medical practitioner before he will know definitely the value of vitamin preparations in the treatment of diseases other than the well known deficiency diseases. Tables of the vitamin content of foods are included, but these are of the older type which denote the relative amounts of the vitamins present by plus and minus signs. The chapters on hormones and on topics other than the vitamins are not as authoritative as they might be. The chapter on allergy appears to be inadequate for the importance of this subject and in relation to the other topics in the book. There are probably many more persons who are treated for hypersensitivity toward some substances than are treated for vitamin deficiency. On page 119 goat milk is erroneously reported to be much more digestible than cow's milk. The author acknowledges the assistance of Professor Hastings of the English Department of the University of Arkansas for help in editing a great portion of the manuscript. One wonders if some of the definitions presented in the glossary have been given as careful attention as the greater part of the text. Acidosis on page 323 is defined as "an acidic state of the blood and tissues symptomatic of some other disturbance in the body which upsets the normal acid-alkali balance." The book on the whole is well organized about the author's central theme, which is "Since they can make or break the human organisms, the little things in life actually are the big things in life."

Diseases of the Newborn. By Abraham Tow, M.D., Adjunct Professor of Pediatrics, New York Polyclinic Hospital and Postgraduate Medical School. Cloth. Price \$6.50. Pp. 477 with 53 illustrations. New York: Oxford University Press, 1937.

Unlike the many textbooks written about certain other medical subjects there has been a real paucity of those confining their subject matter to diseases of the new-born. There has been a tremendous increase in medical interest in the new-born during the past ten years owing to a considerable extent to the fact that the pediatrician has assumed more and more the control of the nursery services, that is, the infant from the time of birth. As a result a voluminous literature has developed. The author states that the volume is an attempt to organize this material and to present it in such a fashion that it will be of service to the general practitioner, the obstetrician and the pediatrician. The author has had years of experience in the new-born service at the New York Polyclinic Hospital and so in discussing a controversial subject he expresses his opinions in an attempt to clarify the matter. These opinions are well balanced and logical and coincide with the ideas of the majority of pediatricians. The textbook is concise yet complete and the style of writing makes for easy and interesting reading. It is well illustrated and on good paper. The table of contents and index are detailed so that a small item can be looked up quickly. An excellent and detailed bibliography is appended to each chapter. The discussion is confined to the first month of life except where it is necessary to extend it for purposes of clarification. The book includes, besides diseases of the new-born, a chapter on general con-

siderations of the normal new-born, another on the premature infant and still another on infant feeding during the first month. There is a discussion of the hypoglycemic cyanosis and convulsions of infants born of diabetic mothers and its treatment, a subject only recently creeping into pediatric literature. The author plainly, firmly and logically states his position on controversial points such as the treatment of intracranial hemorrhage.

Funktionelle Pathologie. Eine klinische Sammlung von Ergebnissen und Anschauungen einer Arbeitsrichtung. Von Dr. Gustav von Bergmann, ordentl. Professor der Inneren Medizin und Direktor der II Med. Universitätsklinik Berlin. Second edition. Paper. Price 25 marks. Pp. 547 with 73 illustrations. Berlin: Julius Springer, 1936.

This is the revision of a book which early established itself as a useful volume in this field. It begins with a chapter entitled "Klinische Reformation," in which the author points out that conditions have changed considerably in Germany and that the whole future depends on keeping the German people in health—this to be assumed as a holy task. The book is a collection of available data dealing with functional pathology based on studies of the available periodical literature. As with most German books, the references are frequently to medical preparations which have no standing and no use in the United States. The final chapter is largely concerned with psychic effects on human function, the volume concluding with emphasis on the fact that modern medicine depends on the consideration of the human being invariably as a social organism. The book is a beautiful illustration of the great difficulty under which the modern German scientist labors to steer a suitable course between scientific and political influences.

Accidents and Their Prevention. By H. M. Vernon, M.A., M.D., Member of the Technical Advisory Board, National Institute of Industrial Psychology, London. Cloth. Price \$5. Pp. 336 with 61 illustrations. New York: Macmillan Company, Cambridge University Press (n.d.).

This book should be read by all who are interested in the subject of safety, since it presents a comprehensive study of accidents of many kinds on the road, at home, at work, at play, with an account of preventive methods already used and suggestions for further methods of avoiding accidents. Numerous charts and graphs furnish clear cut analyses of important factors in accidents. A particularly interesting feature is that comparison of accidents in various countries permits a better analysis of accident causes and the results of different methods of prevention. A discussion of susceptibility to accidents is particularly valuable. It is clearly shown that a small percentage of people have most of the accidents and that psychological tests for accident proneness have definite value. These tests are not always conclusive, however, so it is advisable to keep accurate records of all accidents, even the most trivial. These records are probably the best means of identifying the accident prone individual. A relationship between physical condition of an individual and accident proneness is important, since some easily determined conditions, such as high blood pressure, impaired vision, obesity and alcoholic indulgence, are associated with a high accident rate. The discussion of traffic accidents is unusually comprehensive and is important to all who are interested in traffic safety. The value of education in preventing accidents is shown by the decreasing rate among school children compared to the increase among adult pedestrians. The author closes with a statement that from 50 to 90 per cent of accidents are preventable by legal control or education.

Physicians and Medical Care. By Esther Lucile Brown, Department of Statistics, Russell Sage Foundation. Boards. Price 75 cents. Pp. 202. New York: Russell Sage Foundation, 1937.

This is a helpful compilation of information not readily available in any other single work. The survey of medical education traces stages in its evolution, describes the work of the American Medical Association and calls attention to the weakness of the present curriculum, with regard to obstetrics, psychiatry and medical economics. The growth of graduate education in recent years is emphasized and the recent provisions for certification of specialists are described. There is a tendency in the discussion of graduate work for practicing physicians to follow previous writers in ignoring the fact, which is briefly

mentioned, however, that such education in organized form is only twenty years old and can scarcely be expected to have reached and benefited all practicing physicians. There is a brief history of the growth and work of the various councils of the American Medical Association, and the conventional criticism that "Its Journal has appeared to be opposed to many honest experiments that were being undertaken by groups of physicians and foundations in the interest of more extensive medical service." There is no recognition of the fact that the various branches of the Association are conducting, under principles laid down by the House of Delegates, more experiments than all the foundations and similar organizations in existence. A treatment of the number of physicians and the demand for their services makes use of some unreliable statistics of the Committee on the Costs of Medical Care, although the writer quotes from publications of the Bureau of Medical Economics in which these errors are corrected. It is perhaps unfair to criticize the position, which has been so generally adopted by others, that the distribution of physicians according to the population of the towns in which they are located measures the availability of medical service. The material of the Committee on the Costs of Medical Care which is used in describing groups has also been shown to be inaccurate. There is a description of some of the plans for low income groups developed by medical societies, and the book closes with at least a partial endorsement of compulsory health insurance, in which the position of the American College of Surgeons, the Michigan State Medical Society and the California Medical Association is somewhat inaccurately reported. In spite of these defects, the book represents a decided improvement over most of the writings on medical matters issued by foundations.

Archiv und Atlas der normalen und pathologischen Anatomie in typischen Röntgenbildern. Die Hirnkammerformen bei Hirntumoren. Von Dr. Otto Dyes Dozent für Röntgenheilkunde Würzburg. Fortschritte auf dem Gebiete der Röntgenstrahlen Ergänzungsband LII. Herausgegeben von Prof. Grassley. Iaper. Price 16 marks. Pp 79 with 105 illustrations. Leipzig Georg Thieme 1937.

This brief monograph deals with the shape of the cerebral ventricles as affected by tumors of the brain. The ventricles were visualized by roentgenograms after they were filled with air, a procedure which the author, in accordance with German usage, persists in calling the Bingel-Dandy method although priority for both encephalography and ventriculography seems to belong clearly to Dandy. After a preliminary chapter on the normal form of the ventricles, which follows closely the work of Torkildsen, the various alterations that are caused by tumors of the brain are clearly outlined and numerous illustrative cases from the clinic of Tonnus are reported. Although there is nothing new in this material, dealing as it does with matters familiar to the workers in all the large clinics of this country and to every roentgenologist, the presentation is clear and systematic and the work should be useful to roentgenologists and neurosurgeons.

Medicolegal Cases. Abstracts of Court Decisions of Medicolegal Interest 1931-1935. Compiled by the Bureau of Legal Medicine and Legislation American Medical Association. Cloth. Price \$5.50. Pp 888. Chicago American Medical Association 1936.

Abstracts of important court decisions of medicolegal interest have been published in THE JOURNAL since about 1900. Some years ago, in response to recurrent demands for the republication of the abstracts in book form, an initial volume was prepared embodying abstracts that had appeared in THE JOURNAL during the calendar years 1926 to 1930. The present volume contains the abstracts that were published during the calendar years 1931-1935 inclusive. It constitutes, as did its predecessor, a mine of medicolegal information of civil and criminal interest. A comprehensive seventy-three page index makes readily available all the important points in the approximate 900 court cases abstracted. Anesthetics, autopsies, compensation of physicians, dental practice acts, hospitals, insanity, insurance, malpractice, medical practice acts, narcotics, optometry practice acts, pharmacy practice acts, privileged communications, trauma and workmen's compensation acts are a few of the 375 principal references found in the index. Physicians and others interested in solving medicolegal problems will find this book a most useful addition to their reference libraries.

Human Physiology. A Practical Course. By C. G. Douglas. M.C. D.M. and J. G. Priestley. M.C. D.M. Second edition. Cloth. Price \$4.25. Pp 229 with 32 illustrations. New York & London Oxford University Press 1937.

This book is intended mainly for the use of medical students in courses in physiology, it gives detailed directions for various experiments that can be done on human subjects. Unfortunately, many of these experiments are of a kind which, in the United States, would be reserved for courses in physiologic chemistry. If one leaves these out of account there remains little that will be of help to American teachers of physical physiology excepting those already addicted to the use of Douglas bags and bicycle ergometers. The nervous systems and special senses are omitted, as the authors point out in their preface, but this is a field in which many medical students particularly need more experience. So, for instance it would be interesting to apply simple tests that would reveal, even if they did not diagnose exactly, the disturbed mental state of a person in an anoxia chamber or during voluntary hyperpnea. The book contains some instructive figures and useful references to recent physiologic literature, it should be a welcome addition to a physiologic library.

Practical Orthoptics in the Treatment of Squint. By Keith Lyle. M.A. M.D. M.Chir. Assistant Surgeon Royal Westminster Ophthalmic Hospital London and Sybil Jackson Senior Orthoptist Royal Westminster Ophthalmic Hospital London. Foreword by Charles Leonard Crompton. M.A. M.D. M.R.C.P. Surgeon Royal Westminster Ophthalmic Hospital London. Cloth. Price 12s 6d. Pp 211 with 68 illustrations. London H. K. Lewis & Co. Ltd. 1937.

In England there is an Orthoptic Board, which regulates the training and qualification of nonmedical orthopticians, who are pledged to work under the guidance and supervision of ophthalmologists. These orthopticians are given a year of training, at the end of which time they must satisfy the examiners of the board as to their efficiency. Kyle and Jackson have written a practical manual for them, in which they have largely avoided theoretical discussions as well as controversial subjects. The result is one of the clearest and simplest expositions of the subject. The necessary instruments are illustrated and clearly described in this book, together with the indications for the proper time and method of usage. The management of various types of squint is discussed at some length, but simply and clearly. Cases are frequently cited to illustrate the points. The book can be read advantageously by all ophthalmologists as well as by orthopticians.

Eugenical Sterilization. A Reorientation of the Problem. By The Committee of the American Neurological Association for the Investigation of Eugenical Sterilization. Abraham Myerson M.D. and others. Cloth. Price \$3. Pp 211 with 8 illustrations. New York Macmillan Company 1936.

A special committee appointed by the American Neurological Association developed this report, aided by a grant from the Carnegie Foundation. The report evaluates critically the whole question of inheritance of mental diseases, feeble-mindedness, epilepsy and crime, and derives from its study certain recommendations of importance. The committee does not consider that our knowledge of human eugenics is sufficient to warrant sterilization of people who themselves are normal in order to prevent the appearance of such conditions in their descendants. It does not consider that there is at present any sound scientific basis for sterilization because of immorality or character defects. It suggests that any laws concerning sterilization passed in the United States should be voluntary and regulatory rather than compulsory, moreover, that these laws should be applicable not only to patients in such institutions but also to those in private institutions and those at large in the community. Selective sterilization, it is felt, should be considered in cases of the following diseases: (1) Huntington's chorea, hereditary optic atrophy, familial cases of Friedreich's ataxia, and certain other disabling degenerative diseases recognized to be hereditary, (2) feeble-mindedness of familial type, (3) dementia praecox (schizophrenia), (4) manic-depressive psychosis, and (5) epilepsy. It is obvious that much additional research is necessary. The book concludes with an excellent bibliography and an index.

Autopsy Diagnosis and Technique A Manual for Medical Students Practitioners Pathologists and Coroners' Physicians By Otto Saphir M.D. Chairman Nelson Morris Institute for Medical Research Chicago Foreword by Ludwig Hektoen M.D. Cloth Price \$5 Pp 342 with 65 Illustrations New York & London Paul B Hoeber Inc 1937

Modern medicine has grown largely on the basis of knowledge acquired in postmortem work. The student in the medical school sees postmortem examinations made by competent pathologists, but only a few learn the actual technic of the necropsy. When the physician goes into practice, however, he may actually be called on to make a postmortem examination. In any event, it may be necessary for him to comment expertly on the results of such examinations. At various times, articles have appeared in periodical medical literature describing the technic of the postmortem examination, notably one by E. R. Leacock in *THE JOURNAL* some years ago. In this manual the technic is modified from that of Rokitsansky. The outline is presented as a guide to the method of making the examination and of interpreting the gross appearances observed at that time. The book is well written, is profusely illustrated, and is supplemented by excellent charts and tables and a fine index.

Federal and State Control of Milk Prices By James A. Tobey Jr. P.H. Member of the New York District of Columbia and United States Supreme Court Bars. Cloth Price \$2 Pp 42 Chicago International Association of Milk Dealers 1937

This little book appears as a companion to the author's "The Legal Aspects of Milk Control," published in 1936. The earlier work was a digest of laws regulating milk and its products, and the present volume is a review of the constitutional status of laws fixing prices and regulating the production and distribution of milk. Most of this type of legislation has arisen since 1933, especially under the Agricultural Adjustment Act. The author devotes an entire chapter to an outline of the New York law. The consensus of milk dealers in New York is that the price control of milk in that state has not abolished price cutting, has not benefited either the consumer or the dealer, and is not uniformly enforceable. Perhaps as a consequence of this attitude the emergency milk control law in New York was not reenacted in 1937. The milk control laws in other states are discussed briefly in comparison with the New York laws. There is appended a table of cases that were tried before federal and state courts.

Prognosis Volume II Cloth Price 10s 6d Pp 410 London The Lancet Limited 1937

This is a continuation in book form of the series of articles on prognosis which have appeared in the *Lancet*. In this volume, among other subjects, certain acute and chronic infectious diseases of the bones and joints, some digestive disorders, and diseases of the ear, nose and throat and of the respiratory tract are discussed from the standpoint of their immediate and late prognosis. It is obvious that the outlook in most diseases depends on a large number of factors, including the age and state of the patient, the stage of the disease and the treatment. These factors are considered in most of the brief descriptions of the various disorders. They may be helpful to some clinicians, but the vast majority of experienced practitioners find a much more reliable index in the relatively impalpable factors absorbed from their own past experience.

The Larynx and Its Diseases By Chevalier Jackson M.D. Sc.D. LL.D. Professor of Bronchology and Esophagology Temple University Philadelphia and Chevalier L. Jackson A.B. M.D. M.Sc. Professor of Clinical Bronchology and Esophagology Temple University Philadelphia. Cloth Price \$8 Pp 5.5 with 221 Illustrations Philadelphia & London W. B. Saunders Company 1937

A book of this type on the clinical aspects of diseases of the larynx has long been needed. In spite of the authors' implied apology for the literary structure, it is simply written and easily read, the only obvious criticism of this aspect is the unnecessarily frequent use of "very." Following the discussion of the anatomy and physiology of the larynx and general considerations of laryngeal disease and anomalies there are excellent discussions of injuries, inflammations and tumors, helpfully divided into chapters, to which access is easily had through the table of contents or the adequate index. The illustrations, largely from the authors' own experience, are excellent and

add immeasurably to the volume. This book would seem to be invaluable to any one who might wish to approach the larynx from either a diagnostic or a manipulative angle.

British Masters of Medicine Edited by Sir D. Arcy Power K.B.E. FRCS F.S.A. Consulting Surgeon and Archivist to St. Bartholomew's Hospital London. Cloth Price \$3 Pp 242 with 34 Illustrations Baltimore William Wood & Company 1936

This is a collection of essays that appeared originally in the *Medical Press and Circular*. The book comes with multiple authorship, each of the great British masters being discussed by a current writer attached to the institutions made famous by those whose biographies are presented. Thus the reader will find available fine brief biographies of the great figures whose names have become eponyms, including Harvey, Sydenham, Pott, Jenner and Bright. The qualification of Dr. Power as an editor insures the reader of an accurate and interesting volume. The life of Osler is presented in brief by Miss Reid.

Leitfaden der Blutmorphologie Manual of Blood Morphology. Précis de morphologie sanguine. Von Dr. Par. Lydia Schudel. Boards. Price 6.80 marks. Pp 45 with 13 Illustrations. Leipzig Georg Thieme 1936

This brief manual presents in English, German and French brief descriptions of the various formed elements of the blood, associated with excellent colored plates. The manual should be most useful to laboratory workers everywhere.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Life Insurance Streptococcic Septicemia in Relation to Trauma and Preexisting Splenic Anemia—The plaintiffs were beneficiaries under a policy of life insurance issued by the defendant insurance company, whereby it promised to pay double indemnity if the insured's death resulted from bodily injuries, effected directly and independently of all other causes through external, violent and accidental means, and not, directly or indirectly, from diseases in any form. On March 2, 1934, the insured, who had "splenic anemia and pseudo leukemia" accidentally injured his left hand, sustaining an abrasion about the size of a dime. His family physician applied mercurochrome and bandaged the hand, and repeated the procedure the next day. On March 4 he was taken to a hospital. There it was observed that he was anemic, that the abrasion had become inflamed and swollen, and that there was a large red streak extending from his hand upward on his arm. He complained of considerable pain in his left arm and hand. His temperature, which was 101 degrees Fahrenheit on admission, rose to 105 degrees before he died, March 10. The insurance company paid the face value of the policy but refused to pay double indemnity. The plaintiffs, the beneficiaries, thereupon brought suit. From a judgment in favor of the plaintiffs the insurance company appealed to the Supreme Court of Louisiana.

The record showed that "splenic anemia and pseudo leukemia" is a serious blood disease, which lowers the resistance of the individual to infection. The physician who made the first examination of the insured's blood, Dec. 16, 1933 testified that at that time he believed that the chronic blood disease would eventually be fatal but he could not say whether the expectancy of life would be several months or several years. Three expert medical witnesses testified that streptococcic septicemia or "blood poisoning" resulting from a streptococcic infection of the hand, caused the insured's death. The insured's family physician testified that the streptococcic septicemia had hastened the insured's death. An expert medical witness for the insurance company, however, testified that he was unable to affirm or deny that the insured died of streptococcic septicemia because a microscopic examination of a culture of the insured's blood in order to isolate the streptococcic germ, had not been made. The mortality rate in streptococcic septicemia, it was agreed, even in normal and healthy persons, is high.

The Supreme Court, in deciding that the plaintiffs had proved by a preponderance of the evidence that the insured's death

had resulted from external, violent and accidental causes, independent of all other causes including diseases in any form, relied on, among other cases, *Illinois Commercial Men's Ass'n v Parks* (C C A) 179 F 794, wherein the court said

The phrase resulting directly, independently and exclusively in death' refers to the efficient or as some courts speak of it the predominant cause of death at the time it occurs

The provision in the policy that death must not result "directly or indirectly, from diseases in any form" had no particular significance, as its only purpose was to emphasize the preceding language of the policy, that death must result from "bodily injuries, effected directly and independently of all other causes through external, violent and accidental means" The court admitted that numerous court decisions hold that where death results from an accidental injury and a preexisting disease or infirmity acting together, recovery is not allowed, but in those cases the accidents complained of would not ordinarily have produced death without the intervention of disease In the instant case, said the court, there was an accidental injury, the history and clinical record showed that streptococcal septicemia resulted from that injury, and the insured's death was typical of streptococcal septicemia Under those circumstances, the insured's death would naturally be expected to occur even though he had no preexisting bodily infirmity or blood disorder The court concluded that the septicemia and not the chronic blood disease had caused the insured's death

Accordingly, the Supreme Court affirmed the judgment in favor of the plaintiffs *De Bleur v Travelers Ins Co (La)*, 170 So 14

Accident Insurance Restrictions on Insurer's Right to Autopsy—The defendant insurance company agreed to pay certain benefits to Hemrich or his beneficiary for 'loss resulting, directly and independently of all other causes from bodily injuries sustained and effected solely through accidental means' Hemrich fell, fracturing the lower end of the fibula of his left leg, Jan 17, 1935 Subsequently the leg became swollen and congested and "a clump formed under the knee space" Varicosities appeared in the leg and a clot formed in the left groin Hemrich died on February 25 from what his attending physician stated was thrombosis of the pulmonary artery, attributable to the fall, which injured the inside lining of the veins, where a clot of blood formed

The policy gave the insurer a right to an autopsy Accordingly, the agent of the insurance company, two days after Hemrich's death, informed the widow's attorney that an autopsy was desired and referred the attorney to a Dr Nixon of the Swedish Hospital for a consent form suitable for the widow to sign Dr Nixon furnished a consent form that would give, if executed, consent for the Swedish Hospital to make "such an autopsy and examination of the decedent's body as the hospital desired for a complete study of pathological changes in the internal organs, to complete the record of the case from a general scientific standpoint that in the future patients might benefit from the knowledge gained" The Swedish Hospital however, was in no way entitled to nor did it intend to procure any kind of an autopsy the autopsy was desired solely for the insurance company On being advised by her attorney that the proffered consent form seemed to contemplate an autopsy covering the whole body, unlimited as to time and intended for general clinical purposes, the widow refused to sign it Later in the day, about 4 30 p m the insurance company's agent served on the widow, in the absence of her attorney, a written request, asking her "To consent to performance of an autopsy on the body of the insured, now deceased" The funeral had already been set for the next day The widow again refused to consent The insurance company thereafter declined to pay any benefits under the policy The widow brought suit and recovered judgment in the trial court and the insurance company appealed to the Supreme Court of Washington

The insurance company questioned the sufficiency of the evidence adduced at the trial to indicate that death occurred under such circumstances as to charge it with liability under the policy The Supreme Court thought, however, that the testimony of the attending physician as to the cause of death was sufficient to take the case to the jury and to enable it to

pass on the matter The court thought also that an instruction was proper which told the jury that if it found that the accident set in motion some latent physical defect or started systemic disorders, and if Hemrich died as a result, it should find that within the meaning of the policy his death was caused by reason of the accident If the accident produced a change in or upon the body of the insured that caused his death, manifestly the accident was responsible for the death

The insurance company contended also that the refusal of the widow to consent to an autopsy relieved the company of liability The weight of the authorities, replied the Supreme Court, is that under a policy such as the one in this case the insurer is entitled to have an autopsy made provided it is seasonably made and reasonable as to time and scope The evidence the court concluded, was sufficient to warrant the submission to the jury of the question as to the reasonableness of the demand made by the insurer and as to the time and scope of the proposed autopsy The Supreme Court approved an instruction which told the jury that if the demand for an autopsy was not seasonably and reasonably made, it should find for the widow, since she was justified in refusing the demand, that in order for the demand to be reasonable and seasonable, the autopsy must have been reasonably necessary to determine the cause of death and must have been made within and under the terms of the policy and for the sole purpose of determining the cause of death, and that it was the duty of the insurance company to make a demand in accordance with the terms of the policy and in a manner and method in keeping with the proprieties of the occasion The insurance company objected to this instruction contending that the form of the demand was not an issue in the case This contention, replied the Supreme Court, is not tenable Two written demands were made One of them, on its face, was made by and on behalf of the Swedish Hospital, which was not interested in the matter, both demands contained language bearing on the question of the timeliness and scope of the requested autopsy which under the facts of the case, called for a finding by the jury as to the reasonableness of the demands The burden, concluded the Supreme Court is not on the beneficiary to initiate proceedings for an autopsy, nor to provide the language of the form to be used in making a demand for one, that is the duty of the insurance company if it desires an autopsy

The Supreme Court accordingly affirmed the judgment of the lower court in favor of the widow—*Hemrich v Aetna Life Ins Co (Wash)* 63 P (2d) 432

Society Proceedings

COMING MEETINGS

- American Association of Obstetricians and Abdominal Surgeons Hot Springs Va Sept 20 22 Dr James R Bloss 418
Eleventh St Huntington W Va Secretary
- American Association of Railway Surgeons Chicago Sept 20 22 Dr Daniel B Moss 547 W Jackson Blvd Chicago Secretary
- American Congress of Physical Therapy Cincinnati Sept 20 24 Dr Richard Kovacs 1100 Park Ave New York Secretary
- American Hospital Association Atlantic City N J Sept 13 18 Dr Bert W Caldwell, 18 East Division St Chicago Executive Secretary
- American Roentgen Ray Society Chicago Sept 13 17 Dr Eugene P Pendergrass 3400 Spruce St Philadelphia Secretary
- Clinical Orthopaedic Society Chicago Sept 30 Oct 2 Dr H Earle Conwell 215 Medical Arts Bldg Birmingham Ala Secretary
- Colorado State Medical Society Colorado Springs Sept 22 25 Mr Harvey T Sethman 537 Republic Building Denver Executive Secretary
- Idaho State Medical Association Boise Aug 30 Sept 3 Dr Harold W Stone 105 North Eighth St Boise Secretary
- Kentucky State Medical Association Richmond Sept 13 16 Dr A T McCormack 532 West Main St Louisville Secretary
- Michigan State Medical Society Grand Rapids Sept 27 30 Dr L Fernald Foster 311 Center Ave Bay City Secretary
- Mississippi Valley Medical Society Quincy Ill Sept 29 Oct 1 Dr Harold Swanberg 510 Maine St Quincy Ill Secretary
- National Medical Association St Louis Aug 15 20 Dr John T Givens 1108 Church St Norfolk Va General Secretary
- Nevada State Medical Association Ely Sept 24 25 Dr Horace J Brown 120 N Virginia St Reno Secretary
- Northern Minnesota Medical Association Virginia Aug 27 28 Dr J F Norman Crookston Secretary
- Radiological Society of North America Chicago Sept 13 17 Dr Donald S Childs 607 Medical Arts Building Syracuse N Y Secretary
- Utah State Medical Association Salt Lake City Sept 24 Dr F M McHugh 17 Exchange Place Salt Lake City Secretary
- Wisconsin State Medical Society of Milwaukee Sept 14 17 Mr J G Crownhart 119 East Washington Ave Madison Secretary

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers in continental United States and Canada for a period of three days. Periodicals are available from 1926 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them. Titles marked with an asterisk (*) are abstracted below.

Alabama Medical Association Journal, Montgomery

G 373 408 (June) 1937

Modern Conception of Congestive Heart Failure W G Harrison Jr
Birmingham—p 373

Angina Pectoris C R Bennett Eufaula—p 377

The Functional Patient J B McLester Birmingham—p 381

American J Digest Dis & Nutrition, Fort Wayne, Ind

4 215 280 (June) 1937

Hepatic Lesions Presumably Secondary to Pancreatic Lithiasis and Atrophy Report of Two Cases A M Snell and M W Comfort
Rochester Minn—p 215

*Hydrogen Peroxide as a Depressant of Gastric Acidity C U Culmer
A J Atkinson and A C Ivy Chicago—p 219

Contribution to Etiology of Gallstones. III Study of Hydrogen Ion Concentration of Gallbladder Bile and Its Effect on Gallstones M Feldman S Morrison C J Carr and J C Krantz Jr Baltimore—p 223

Peristaltic Rush Studied with New Apparatus W C Alvarez
Rochester Minn—p 225

Office Procedure for Rapid Estimation of Pepsin and Its Clinical Significance H Barowsky H Tauber and I S Kleiner New York—p 229

Abnormalities of Rotation of Midgut Report of Four Cases G Danielus Chicago—p 231

Further Refinements in Method of Administering Colon Bacillus Vaccine Therapy and in Therapeutic Use of Sodium Ricinoleate (as Related to Chronic Functional Diarrhea Chronic Headache Chronic Toxic Verigo and Unstable Colon) J G Matcer and J I Baltz Detroit—p 237

Infant Feeding—Individualized versus Routine I N Kugelmass New York—p 240

Trichomonas Hominis Infestation Case II W Soper St Louis—p 245

Colitis Ulcerosa Graves No Amibianas Etiologia Diagnostica y Tratamiento Medico F Gallart Mones and P Domingo Sanjuan abstracted by J A Bergen and A E Mendes Ferreira Rochester Minn—p 247

Causes and Treatment of Peptic Ulcer P Campiche San Francisco—p 250

Intestinal Motility in Rats Anesthetized with Ether G A Emerson Morgantown W Va—p 255

Hydrogen Peroxide as Depressant of Gastric Acidity

—Culmer and his associates studied the effect of hydrogen peroxide on gastric secretion under controlled laboratory conditions and also in a few human subjects. Lavage of the stomach with hydrogen peroxide solution (from 0.5 to 3 per cent) produced a decrease in the acid of the gastric contents when either a meal or subcutaneous injection of histamine was used to stimulate acid secretion. This decrease was observed in the percentage of acid in the gastric contents and in the total milligrams of acid. The stronger the solution of hydrogen peroxide used the greater was the decrease of acid response. This decrease varied widely in different subjects and also from time to time in the same subject. However one of the dogs and two of the five human subjects consistently showed increases in acid secretion rather than decreases. The mucous secretion was always augmented. At times there was a complete absence of free acid (but no instances of complete absence of total acid) in response to histamine stimulus. However, it was the exception rather than the rule. While no chemical analyses for content of mucus were made it was obvious that generally an increase in mucoid or mucous secretion paralleled a decrease in acidity. This observation certainly was true in those tests in which no free acid was found. To obtain a significant reduction in acid secretion in peptic ulcer in response to histamine or a meal concentrations of from 1 to 2 per cent of peroxide must be employed. Even then stimulation as observed by Hurst with very weak solutions, may occasionally occur. A 3 per cent solution is too irritating. When the weaker solutions are used, the return of the secretory response to normal

is relatively rapid. In the case of a "susceptible" stomach, however, a 0.5 per cent solution applied every other day will reduce acid secretion significantly. However it might cause active ulcers to bleed for a patient with gastric ulcer showed bleeding with 1 and 2 per cent solutions and one of the dogs with a "normal" stomach showed marked bleeding after 3 per cent. Although it would be desirable to have some simple and innocuous method for reducing the secretion of acid by the stomach the authors do not feel that the use of hydrogen peroxide can be recommended without considerable reservation.

American Journal of Diseases of Children, Chicago

53 1425 1660 (June) 1937

Epidemic Myalgia or Pleurodynia Clinical and Bacteriologic Studies R R Macdonald Barbara Hewell and M L Cooper Cincinnati—p 1425

Salicylate Poisoning Explanation of More Serious Manifestations Katharine Dodd Ann S Minot Nashville Tenn and J M Arena Durham N C—p 1435

Streptococcal Meningitis and Abscess of the Brain Complicating Scarlet Fever Report of Three Cases in Which Patients Recovered M B Gordon A M Litvak and V Caronna Brooklyn—p 1447

Children's Electrocardiograms I Measurements for 100 Normal Children Eleanor M Hafkesbrung Catherine E Drawe and R Aslman New Orleans—p 1457

*Id II Changes in Children's Electrocardiograms Produced by Rheumatic and Congenital Heart Disease Catherine E Drawe Eleanor M Hafkesbrung and R Ashman New Orleans—p 1470

Study of Lead IV in Normal Children and in Ambulatory Children with Cardiac Disease C R Messeloff and Anne Ponterantz New York—p 1485

Inactivation of Poliomylitis Virus by Ultraviolet Irradiation J A Toomey Cleveland—p 1490

Poliomyelitis Antiserum Obtained from Horses J A Toomey Cleveland—p 1492

*Factors Influencing Results of Tonsillectomy and Adenoidectomy Study of 540 Children Correlating Preoperative Complaints the Age of the Child Type of Tonsils and Microscopic Study of Tonsils with Postoperative Results I M Epstein El Paso Texas—p 1503

Familial Metaphysal Dysplasia H Bakwin and A Krida New York—p 1521

Pulmonary Pathologic Conditions in Infancy and Childhood Clinical Survey from Bronchoscopic Point of View V K Hart Charlotte N C—p 1544

Changes in Children's Electrocardiograms—Drawe and her colleagues made electrocardiograms of 100 children with rheumatic heart disease and of fifty children with congenital heart defects and compared the averages for the different intervals with the electrocardiograms of 100 normal children. The principal abnormalities of the P wave in the electrocardiograms of children with rheumatic heart disease are definite and conspicuous notching widening and slight increase in height. The PR interval is definitely prolonged in a large percentage of cases of rheumatic heart disease. The abnormalities of the QRS complex are relatively slight. Only a slight tendency to right axis deviation was shown in the electrocardiograms of children with mitral stenosis and insufficiency. The children with aortic regurgitation showed a definite tendency to left axis deviation. The incidence of shifts of the RST segment is increased. Abnormalities of the T waves consisted of low T waves in all leads diphasic T waves in lead I and low, rounded notched and inverted T waves in lead II. The QT interval is often definitely prolonged in cases of rheumatic heart disease. Not all children with rheumatic heart disease have abnormal electrocardiograms. The main abnormalities of the P wave were in the group with the congenital defect in increase in the width and height and these were found chiefly in the electrocardiograms of children with pulmonary stenosis and tetralogy of Fallot and to a lesser degree in children with interventricular septal defects. The PR interval was slightly prolonged on the average. The average duration of the QRS in the electrocardiograms of children with congenital heart defect was longer than that in the electrocardiograms of normal children. This increase in duration was due mainly to the influence of the children with pulmonary stenosis. Notching and slurring of the QRS occurred frequently in the electrocardiograms of children with pulmonary stenosis, occasionally in those of children with interventricular septal defect and rarely in those of children with patent ductus arteriosus. All the electrocardiograms of children with pulmonary stenosis showed extreme conspicuous or definite right axis deviation ranging from 99 to 179 degrees. The T waves averaged considerably higher than those in the electrocardiograms of the

normal group. Abnormalities of the T waves are occasionally found, consisting of inversions of T and deep inversions of T_s. The QT interval was slightly prolonged in a few instances.

Results of Tonsillectomy and Adenoidectomy—To determine, if possible, what points in the history of the case and in the appearance of the throat are significant with reference to the clinical result obtained and to arrive at a more certain method of prognosis and more specific criteria for both prognosis and indications for tonsillectomy and adenoidectomy, Epstein observed 540 children between the ages of 2 and 13 years before and at intervals for two years after these surgical interventions. Histologic sections of the tonsils of 152 of these children were studied. Practically all these tonsils showed a greater or lesser degree of infection or connective tissue scars or both. Large tonsils were almost always infected. Tonsils that were cryptic usually contained more caseous material. Tonsils with much caseous material almost invariably had cryptic abscesses. Whether the tonsils were buried, cryptic, smooth, large or small bore no relation to the preoperative symptoms or to the degree of success of the operation. Excellent results were obtained with children of all ages in the relief of sore throat and of cervical adenitis, good results in the relief of mouth breathing, fairly good results in the relief of cough, and fair results in the relief of frequent head colds. Except in cases of tonsillitis or pharyngitis, the results for all complaints were only fair in children less than 6 years old. With the complaints of a cough and head colds the results were especially poor, particularly in children less than 4 years old. More consistently good results may be expected if the operation of tonsillectomy and adenoidectomy is postponed until the child is 6 years of age or older, especially if head colds or a cough is the complaint, except in the estimation of mechanical obstruction, the appearance of the tonsils in children is unimportant to the physician in arriving at a decision as to the advisability of the operation.

American Journal of Hygiene, Baltimore

25 421 618 (May) 1937

- Influence of Variations in Exposure in Amebiasis Quantitative Study A V Hardy New York—p 421
Rickettsia Diseases Varieties Epidemiology and Geographic Distribution H Zinsser Boston—p 430
Tetanus Immunity Resistance of Guinea Pigs to Lethal Spore Doses Induced by Active and Passive Immunization P A T Sneath E G Herslake and F Scruby Toronto—p 464
*Studies on Relationship Between Yaws and Syphilis T B Turner New York—p 477
Specific Fertility and Contraceptive Rates in New York City and Chicago R Pearl Baltimore—p 507
Vomiting Sickness of Jamaica British West Indies and Its Relation to Akee Poisoning E O Jordan and W Burrows Chicago—p 520
Dilution Egg Counting in Comparison with Other Methods for Determining Incidence of Schistosoma Mansonii J A Scott—p 546
Incidence and Distribution of Human Schistosomes in Egypt J A Scott—p 566

Relation Between Yaws and Syphilis—Turner studied the relation of yaws and syphilis to each other observing the clinical manifestations and the epidemiology of syphilis among a representative sample of an urban population in Baltimore and that of yaws among a representative sample of a rural population in Jamaica. The relation of both syphilis and yaws was observed among an urban population in Kingston. The disease phenomena produced in laboratory animals by organisms obtained from yaws and syphilis patients living in each of these communities were also studied. Easily recognizable differences were elicited between the two diseases. These differences cannot be explained on the basis of differences in factors such as race, the age of the person at the time of infection, the port of entry of the organism or the social and economic status of the affected individuals. Certain climatic factors seemed to play a part in determining the distribution of yaws but there was no clear evidence that these factors materially modified the course of either yaws or syphilis in the patient. Typical cases of each disease were found among persons living in the same environment in Kingston, Jamaica. The inoculation of rabbits with spirochetes from cases of each disease produced, in these animals, lesions which differed according to the disease from which the patient was suffering. Each of thirteen strains of yaws spirochetes studied gave rise to the same type of lesion in rabbits. Each of eight strains

of syphilis spirochetes recovered from persons living in Jamaica produced lesions which, while similar to each other, were readily distinguishable from those produced by yaws spirochetes. The ability to produce characteristic lesions in the rabbit was not lost on serial passage in this animal over a period of three years. It is concluded that *Spirochaeta pallida* possesses pathogenic properties which differ from those of *Treponema pertenue* and that the differences noted between yaws and syphilis in man are due, in part at least, to inherent differences in the causative agent of each disease.

American J Obstetrics and Gynecology, St Louis

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- Lymphatics of Mucosa of Fimbriae of Fallopian Tube J A Sampson Albany N Y—p 911
Demonstration of Gonadotropic Substances in Blood and Urine C F Fluhmann San Francisco—p 931
Identification and Significance of Spirochetes in Placenta Report of 105 Cases with Positive Findings H G Dorman and P F Sahyun, Beirut Syria—p 954
Chronic Uterine Distention and Its Relation to End of Gestation S R M Reynolds Brooklyn—p 968
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*Standardization of Anterior Pituitary Hormones J B Colip Montreal—p 1010
Sarcoma of Vulva F J Truessig St Louis—p 1017
Technic of Timing Human Ovulation by Palpable Changes in Ovary Tube and Uterus R L Dickinson New York—p 1027
Resection of Presacral Nerve in Treatment of Obstinate Dysmenorrhea C Cotte Lyons France—p 1034
Pathology and Treatment of Inflammatory Diseases of Cervix The Pelvic Tonsil J R Goodall and R M H Power Montreal—p 1050
Biologic Assay of Estrogenic Factors in Pregnancy Urine M A Goldberg New York—p 1093

Standardization of Anterior Pituitary Hormones—Colip contends that, irrespective of the number of physiologic effects that may be demonstrated for various anterior lobe preparations and irrespective of the apparent purity in a physiologic sense of this or that extract, the number of active principles in the normal gland in the living subject must of necessity be few (three or four). He does not believe that any one has as yet obtained an anterior lobe extract without some modification of the active principle or principles present in the living gland having taken place. He visualizes the naturally occurring anterior lobe hormone or hormones as rather large protein molecules to each of certain prosthetic groups of which some specific physiologic effect may be related. Such a view allows the hope that some day simpler compounds having specific physiologic effects may be obtained in crystal line form. These would not be true hormones but breakdown products resulting from controlled hydrolytic or other processes yet to be discovered. Meanwhile it becomes most essential that some system of biologic standardization of extracts should be agreed on, particularly so that experimental clinical studies can be satisfactorily made and the results of such adequately evaluated. As yet there is not enough information to allow absolutely rigid standards but an attempt can be made, and in the course of time methods of testing which are universally acceptable may be agreed on.

American Journal of Ophthalmology, St Louis

20 565 674 (June) 1937

- Scleromalacia Report of Case F A Kiehle Portland Ore—p 56
Lectures on Glaucoma II Operative Treatment of Glaucoma R E Wright Madras India—p 571
Complete Retinal Detachment (Both Eyes) with Especial Reference to Allergy as Possible Primary Etiologic Factor R M Baybutt Oklahoma City—p 580
Uveitis Role of Intra Ocular Typhoid Antibody Content in Treatment A I Brown Cincinnati—p 583
*Defective Central Vision Following Successful Operations for Detachment of Retina A B Reese New York—p 591
Aniseikonia Clinical Study G Hardy St Louis—p 599
Contact Glasses G M Bruce New York—p 605
Rhino-genic Origin of Sympathetic Ophthalmia B Waldmann Oradea Iute Nagyarad Roumania—p 618

Vision Following Operations for Retinal Detachment—From the statistics of Dunnington and Macne compiled from patients operated on for retinal detachment at the Institute of Ophthalmology, New York Reese deduces that approximately normal vision (20/30) is obtained in only about one third of the successful cases and that the duration of the detachment is a factor in the visual result. From the microscopic exami-

nation in the routine cases of retinal detachment which come to enucleation, it is well known that cystic spaces frequently occur in the macular region and, to a lesser extent, elsewhere in the retina. This change is usually considered a very late sequel, and its occurrence has been noted almost invariably in eyes in which other pathologic changes were present, so that it is difficult to say to what extent detachment alone was responsible for the cysts. Twelve cases of simple serous detachment of the retina, ranging in duration from less than two weeks to four years, all showed cysts in the macula. It was here that they seemed to appear first and to attain their largest size. The cysts present in the retinas in the twelve cases seemed to be secondary to the detachment. No inflammatory element was present. There was a history of trauma in only three of the cases. Glaucoma was present in four of the cases. An operation for reattachment of the retina was performed in two cases but the changes incident to this did not seem to be a factor in the formation of the cysts. The edema of the retina and the cyst formations were probably due to the altered retinal circulation, which permitted a stasis of tissue fluids. This is more prone to appear in the macula first and more severely because this area is relatively avascular. When a detached retina becomes reattached, the gradual disappearance of the edema probably accounts for the slow progressive improvement in central vision and in the peripheral fields, which may take place over a period of months. If cyst formations in the macula have led to a destruction of the neurons, a permanent defect in central vision is to be expected. The presence of cysts in the macula or elsewhere in the retina cannot be recognized clinically as such by the ordinary ophthalmoscopic examination. When present, they may appear as poorly demarcated, grayish to yellowish white foci or as a rarefied area described usually as a "hole." In cases of detachment of the retina, the author finds that a cystic degeneration of the macula can be recognized if this area is sufficiently close to the underlying choroid to permit a reflection of a sharp narrowed beam of light from the choroidal surface. This beam of light, which is afforded by the usual ophthalmoscope, is directed to one side of the macular region to be studied and the observer shifts his head until the incident rays reflected from the choroid are detected in the nonilluminated field. This is comparable to retroillumination of the cornea by reflected light from the iris in slit lamp examination. In more advanced cases there may be an irregularly round rarefied area at the fovea surrounded by cystic spaces and apparently formed by their confluence. Such so-called holes can, of course, be seen by the ordinary ophthalmoscopic examination, but the cystic element around their periphery can be made out best by the method of retroillumination. In most instances, what was diagnosed clinically as a hole in the macula certainly represented conglomerate or confluent cysts.

American Journal of Physiology, Baltimore

119 221 428 (June) 1937

- Transmission of Impulses Through a Sympathetic Ganglion W B Cannon and A Rosenblueth Boston—p 221
Curarization Fatigue and Wedensky Inhibition A Rosenblueth and R S Morison Boston—p 236

Anatomical Record, Philadelphia

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- Differential Staining A Petrunkevitch New Haven Conn—p 267
Observations on Nature of Parafoveolar Cells in Thyroid Gland of Dog Preliminary Note Emelia M Vicari Ithaca New York—p 281
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Development of Parathyroids in Dog with Emphasis on Origin of Accessory Glands M C Godwin Ithaca N Y—p 305
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Hyperplasia of Interstitial Cells in Testes of Mice Receiving Estrogenic Hormones W U Gardner New Haven Conn—p 339
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Recovery of Rats on Refeeding After Prolonged Suppression of Growth by Underfeeding C M Jackson Minneapolis—p 371
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Retrocaval Ureter Case J C Wren Chapel Hill N C—p 389

Annals of Surgery, Philadelphia

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- Technic of Colpoperimetorrhaphy L E Burch and J C Burch Nashville Tenn—p 881
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Status of Vaginal Hysterectomy in Gynecologic Surgery C H Tyrone New Orleans—p 901
Satisfactory Method of Repairing Crucial Ligaments F P Strickler Louisville Ky—p 912
Effects on Bone of Presence of Metals Based on Electrolysis An Experimental Study C S Venable W G Stuck and A Beach San Antonio Texas—p 917
Internal Fixation in Fractures of Neck of Femur W C Campbell Memphis Tenn—p 939
Congenital Lymphatic Diseases Lymphangiomas A O Singleton Galveston Texas—p 952
Fibro Angioma of Spleen Report of Case in an Infant of Four Months L W Grove Atlanta Ga—p 969
Suppurative Adenitis of Iliac Lymph Nodes of Hemolytic Streptococcus Origin L Frank Louisville Ky—p 975
Study of Wound Healing M R Reid Cincinnati—p 982
Is Adequate Masking Essential for Patient's Protection? J S Davis Baltimore—p 990
Pathogenesis of Local Tetanus C C Green Houston Texas—p 998
*Origin and Growth of Renal Calculi A Randall Philadelphia—p 1009

Theory of Origin of Renal Calculi—Randall has tried to work back to what might be called a study of calculogenesis the stone's conception, its embryonic growth its fetal life cycle, up to the point at which size and symptoms made it a clinical entity. The first postulate made was that there must be an initiating lesion that precedes the formation of a renal calculus. A second postulate was necessary as to where such a lesion might be expected to be found. The renal papilla performs a complicated function is open to multiple physiologic variations and is known to suffer recognized insults that lead to pathologic changes, therefore it was postulated that the initiating lesion was to be looked for on the renal papilla. The general impressions obtained by a study of specimens are that there occurs a definite damage to the epithelial lining of the collecting tubules, and that the nearer one goes toward the tip of the papilla the more noticeable the changes are, that there is a marked damage to the ground substance of the interstitial connective tissue and of the basement membrane of many of the collecting tubules. Here and there the ground substance is broken up and granular and has a necrotic appearance. These changes appear to be followed by the deposition of calcium and calcium plaque formation. In places the calcium is deposited in damaged epithelium of the collecting tubules, but the primary deposit appears to be in the basement membranes leading to the formation of ringlike structures. No evidence of infection is seen in any of the sections presented. The most significant conclusion to be drawn is that the answer to the secret which has shrouded in mystery the true etiology of primary renal calculus is to be sought in an increasing knowledge of the physiology and pathology of the renal papilla.

Archives of Internal Medicine, Chicago

59 931 1114 (June) 1937

- Monocytic Leukemia Report of Six Cases and Review of 127 Cases E E Osgood Portland Ore—p 931
*Poisoning from Cutaneous Application of Iodine Rare Aspect of Its Toxicologic Properties W B Seymour Jr New Haven Conn—p 952
Chronic Relapsing Latent Meningeal Plague K F Meyer C L Connor F S Smyth and B Liddle San Francisco—p 967
Phosphatase Activity Inorganic Phosphorus and Calcium of Serum in Disease of Liver and Biliary Tract Study of 123 Cases C A Flood Ethel Benedict Gutman and A B Gutman New York—p 981
Carbohydrate Metabolism in Epilepsy L J Pollock and B Boshes Chicago—p 1000
Retention and Utilization of Small Amounts of Orally Administered Iron W M Fowler Adelaide P Barer and G F Spielhagen Iowa City—p 1024
Coccidioides Infection Part I E C Dickson San Francisco—p 1029
*Serum Phosphatase in Jaundice A Cantarow and J Nelson Philadelphia—p 1045
Blood Review of Recent Literature S M Goldhamer I H Bethell R Isaacs and C C Sturgis Ann Arbor Mich—p 1051

Poisoning from Cutaneous Application of Iodine—The case that Seymour reports is the only one in the literature in which one of the severest types of cutaneous reaction was noted exfoliative dermatitis. Whether or not this reaction

was due to the iodine-tuberculosis (pneumothorax) relationship is an interesting question. Lass demonstrated that the intracutaneous administration of a solution of sodium iodide to normal subjects caused no reaction, whereas nine of fifteen patients with pulmonary tuberculosis so tested showed local reddening and wheal formation. His work and the case of exfoliative dermatitis presented seem to indicate that there may be factors other than that the iodides facilitate lysis of the tissue formed by inflammatory reaction which must be taken into consideration. The fact that the patient with exfoliative dermatitis did not show any reaction to iodine until six applications had been made suggests that sensitivity was being established which finally manifested itself in severe cutaneous and systemic disturbances. In five of the fourteen cases reported in the literature coryza was associated with iodism, thus making it conclusive that the reaction was due to iodine. These persons must have been extremely sensitive, as the total minimal dose of iodine in the form of potassium iodide required to produce symptoms of iodism is from 60 to 75 grains (4 to 5 Gm), and in these persons milligram quantities were used. Toxic manifestations were cutaneous and systemic. The mortality rate was 46.9 per cent. Death was attributed to the exfoliative dermatitis in the present case.

Serum Phosphatase in Jaundice—Since there still appears to be some difference of opinion regarding the clinical significance of an increase in the phosphatase content of the serum and its value in differentiating between hepatocellular and obstructive types of jaundice, and since this important question can be settled only by the accumulation of observations on large numbers of patients, Cantarow and Nelson carried out serum phosphatase determinations for thirty-one patients with obstructive and twenty-two with hepatocellular jaundice. There was a wide overlapping of phosphatase values in the two groups, which became even more pronounced when the present data were combined with those reported by other observers employing the same methods. It appears that this procedure is of no value in differentiating between these two types of jaundice.

Canadian Public Health Journal, Toronto

28 259 310 (June) 1937

- New Case Finding in Tuberculosis Methods Used in Rural Province of Saskatchewan H C Boughton Saskatoon Sask.—p 259
The Mouse Protection Test in Standardization of Antimeningococcus Serum G Rake Toronto—p 265
Nurses and Nursing Elizabeth L Smellie Ottawa Ont.—p 270
Scarlet Fever Toxin in Epidemic Control A Somerville High River, Alta.—p 275
*Epidemic of Bacillary Dysentery R J Gibbons Vancouver B C—p 278
Classification of Causes of Fetal Death A H Sellers Toronto—p 282

Epidemic of Bacillary Dysentery—Gibbons discusses an outbreak of bacillary dysentery in a lumber camp in which there were 160 men, twenty-three women, twelve school children and four children of preschool age. From Oct 30, 1936, when the first case was recorded, until Nov 15, 1936, twenty-two cases had been reported to the first aid attendant. Enquiry revealed that the reported cases represented but a proportion of the total, for a number of men who had experienced a mild attack had not reported to the first aid station nor had any of the cases occurring in the women and children been reported, since these did not come under the care of the first aid attendant. Since less than half of the men were available for questioning on the day on which the camp was visited, no accurate attack rate can be recorded, but it is estimated that inclusion of all the unreported cases would show that about 35 per cent of the community had been infected. The clinical manifestations of the disease in this outbreak were acute diarrhea with abdominal cramps and tenesmus, fever, headache, anorexia and emesis in some cases. The severity of the symptoms varied widely in individual cases from mild diarrhea only to the acute symptoms. *Bacillus dysenteriae* Flexner and *Bacillus dysenteriae* Sonne were isolated from stool specimens of cases. The infection was food borne and was attributed to the contamination of food supplies by flies. The flies carried the infectious agent from an area, adjacent to the kitchen and food storage rooms, which had been polluted by sewage through a break in the sewerage system. This is the first outbreak involving *Bacillus dysenteriae* Sonne reported from British Columbia.

Iowa State Medical Society Journal, Des Moines

27 239 278 (June) 1937

- The Development of Asepsis Alice Humphrey Hatch Des Moines—p 245
Roentgen Diagnosis of Primary Intrathoracic Tumors D M Earl Iowa City—p 247
Avulsion of Tibial Tubercle in the Adult Report of Case L M Overton Des Moines—p 250
Prophylaxis and Early Diagnosis of Heart Disease I Rheumatic Fever A G Felter, Van Meter—p 252

Journal of Lab and Clinical Medicine, St Louis

22 877 984 (June) 1937 Partial Index

- Precipitins for *Streptococcus Haemolyticus* in Rheumatoid Arthritis Serums Margaret Straub Neil and E F Hartung New York—p 881
Nature of Antipernicious Anemia Principle II Identification of 5,6 Quinone of Dihydroindole 2 Carboxylic Acid in Liver Extract H R Jacobs Chicago—p 890
Id III Response of Case of Pernicious Anemia to Oral Administration of Tyrosinase Tyrosine Mixture H R Jacobs Chicago—p 897
*Is Lasting Active Immunity Against Diphtheria Obtainable with Single Injection of Alum Precipitated Toxoid? H W Straus Brooklyn—p 893
*Control of Rectal Bleeding in Convalescent Ulcerative Colitis Patient W Z Fradkin Brooklyn—p 896
Blood Lipid Studies in Case of Xanthomatosis Associated with Hepatic Damage A Charnutin and S Ludewig Charlottesville Va.—p 903
Further Studies on Oral Immunization to Colds G E Rockwell H C Van Kirk Cincinnati and H M Powell Indianapolis—p 912
Production of Chronic Arthritis by Indole and Other Products of *Trypophan* Putrefaction J C Forbes and R C Neale Richmond Va.—p 921
Effect of Antipernicious Anemia Substances on Guinea Pig Reticulocyte tosis and Review of Literature W H Bachrach and S J Fogelson Chicago—p 925
Chemical Demonstration of Small Amounts of Blood in Urine K Larsen, Copenhagen Denmark—p 935
Estimation of Cholesterol in Blood Supplementary Notes on Method Utilizing Bernoulli Reaction E Obermer and R Milton London England—p 943
Rapid Methods for Preparing and Staining Bone Marrow E M Schleicher and E A Sharp Detroit—p 949
Oxidative Micro-Estimation of Plasma Total Lipid E M Boyd Kings Ion Ont.—p 956
*Microflocculation Test for Syphilis J A V Davies Boston—p 959
Micromethod for Determination of Blood Cholesterol M Puyan and C W Walter Boston—p 968

Immunity Against Diphtheria—The results of Schick tests and control tests that Straus carried out on forty-seven children after the single injection of concentrated alum precipitated toxoid in a dose of 0.5 cc show that three months after the injection two of the thirty-six persons tested gave positive reactions. At the retests, twelve months later, two of the previously negative subjects showed mild reactions, while two who had previously shown positive reactions were now negative. An additional eleven susceptible children immunized in another institution were all found to be Schick negative at the retest. Five of these were retested after eleven months and six after twenty-seven months. The superiority of these results over those reported previously suggests the importance of the method of preparation of the immunizing material. This question must be thoroughly investigated before a physician is advised to forego the great advantages of the single injection method.

Control of Rectal Bleeding in Ulcerative Colitis—For the control of rectal bleeding in ulcerative colitis patients Fradkin administered by rectum a mixture consisting of 20 per cent kaolin, 10 per cent liquid petrolatum and 70 per cent of a gel of aluminum hydroxide. Treatment with this mixture stopped the bleeding and decreased the number of bowel movements. Since the lesions are found in the distal half of the colon it was decided that 10 ounces (300 cc) of the mixture would be ample for one treatment. When a patient passed three or more stools in twenty-four hours, the medication was administered without a preliminary saline irrigation. Otherwise a small, low saline enema was given about two hours before the treatment. Six ounces (180 cc) of the mixture was diluted with 4 ounces (120 cc) of warm water. The treatments were carried out three times weekly, and then gradually reduced to once a week, as improvement was noted. The mixture was instilled slowly, taking fifteen to twenty minutes for the procedure. The blood streaks disappeared after the third or fourth week. In a few cases only four or six treatments were necessary. When blood streaking recurred, one or two weeks

of treatments readily controlled it. Twenty-six patients convalescing from acute attacks of ulcerative colitis were treated. The average number of treatments which were necessary to control the passage of blood streaked stools was 114. The average number of weeks required for treatments was 7.7. Sigmoidoscopic examinations were repeated as soon as the patients reported no visible blood in the stools. These observations in the majority of cases revealed clean, reddened, granular mucous membranes with only occasional superficial ulcerations which oozed slightly on manipulation. After further treatments, these lesions healed promptly leaving a pale, pink, granular mucosa.

Microflocculation Test for Syphilis—In view of the practical advantages possessed by the Hinton test, Davies modified it in such a way that 0.2 cc of serum could be used for a microtest and, in addition only 0.05 cc for a capillary test. Both tests employ the regular Hinton antigen emulsion, and the reaction which takes place is essentially the same as that in the Hinton flocculation test. By centrifugating the incubated mixture before reading the results advantage is taken of the fact that the "positive" floccules in the Hinton reaction rise to the top of the tube and tend to aggregate at the meniscus, where they are readily detected when present. Although similar in essential points, the microtest and the capillary test are described separately. In an evaluation series of tests on 300 blood specimens sent out under the auspices of the United States Public Health Service, each method demonstrated a sensitivity of 91.9 per cent and a specificity of 100 per cent. In a larger number of tests conducted in the routine of an infants' and children's hospital, the method has been found dependable and practicable. For emergencies, the tests appear to give accurate readings in one hour.

Journal of Nervous and Mental Disease, New York

85 637 764 (June) 1937

- Personality and Chronic Arthritis G C Booth New York—p 637
Experimental Method for Production of Decerebrate Rigidity in Dogs by Vascular Occlusion R R White, Rochester N Y—p 663
Reaction of Certain Psychotic Types to Alcohol Preliminary Report L F Tripp and P G Schube Boston—p 668
The Social Background of Occupational Neuroses E Harms Baltimore—p 689
Sigmund Freud as a Neurologist Some Notes on His Earlier Neurobiologic and Clinical Neurologic Studies S E Jelliffe New York—p 696

Journal of Nutrition, Philadelphia

13 567 700 (June 10) 1937

- Hemoglobin Regeneration in Anemic Rats in Relation to Iron Intake with Suggestions for Improvement of Bio Assay Technique for Measuring Available Iron Margaret Cumrick Smith and Louise Otis Tucson Ariz—p 573
Effect of Galactose on Human Respiratory Quotient and Alveolar Carbon Dioxide T M Carpenter Boston—p 583
Editorial Review Nutritional and Metabolic Significance of Certain Organic Acids A H Smith and J M Orten New Haven Conn—p 601
Influence of Parathyroid Hormone Urea Sodium Chloride Fat and of Intestinal Activity on Calcium Balance J C Aub Dorothy M Tibbetts and Regina McLean Boston—p 635
Dietary Production of Syndrome of Deficiency in Vitamin B₁₂ Nellie Halliday and H M Evans Berkeley Calif—p 657
Food Intake of Young Rats Held at Nearly Constant Body Weight by Restriction of Dietary Protein C M Jackson Minneapolis—p 669
*Vitamin E G J Martin Winona Minn—p 679
Adsorption of Vitamin B by Plant Tissue (by Solanum Melongena Linn and Raphanus Sativus Var Longipinnatus Bailey) When Pickled with Salt and Rice Bran C D Miller, Honolulu Hawaii—p 687

Vitamin E—In investigating the antisterility effect of vitamin E on fifty-eight rats, Martin found that a great difference exists between the amount of vitamin E required for antisterility effect and for growth and that the concentrate formerly considered to contain one vitamin actually contains at least two—one growth stimulating and one having an antisterility effect. The evidence presented favors the possibility of a multiplicity of factors. Two different preparations showed no growth effect and yet showed an antisterility potency in females of proved sterility. The preparation of crystalline α -tocopheryl allophanate from which pure vitamin E was regenerated by Evans and his co workers, should permit definite proof of this point when the preparation is available in sufficient amounts. Growth and antisterility may be due to slight alterations in a basic structure.

Journal of Pharmacology & Exper Therap, Baltimore

60 97 234 (June) 1937

- Pharmacologic Study of Certain Thiobarbiturates O M Grunhitz A W Dox L W Rowe and M C Dodd Detroit—p 125
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Pharmacology of Metasynephrin E M Boyd Kingston Ont—p 174
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Comparative Study of Several Ultra Short Acting Barbiturates Nembutal and Tribrom Ethanol H W Werner T W Pratt and A L Tatum Madison Wis—p 189
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Investigation of Possible Protective Action of Calcium Gluconate in Aspirin Poisoning H G Barbour and Janet A Porter New Haven Conn—p 224
Action of Morphine and Its Derivatives on Contractions of Leech Muscle Due to Acetylcholine Choline and Nicotine J H Quistel and M Tennenbaum Cardiff Wales—p 228

Kansas Medical Society Journal, Topeka

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- Management of Injuries of Face and Jaws with Especial Reference to Common Automobile Injury E C Pridgett Kansas City Mo—p 240
*Insulin Shock Therapy Critical Review R T Morse, Topeka—p 248
Acute Abdominal Disease C F Dixon Rochester Minn—p 253

Insulin Shock Therapy—Morse reviews some publications dealing with insulin shock therapy in schizophrenia. Sakel, according to Glueck adheres strictly to a biochemical hypothesis, which he sums up accordingly: 1 The insulin puts a barrier between the cell and external stimuli thus putting the cell at rest and enabling it to recuperate. He assumes that by keeping the pathologically conditioned cell pathways in abeyance the original, normally conditioned pathways have a chance to reestablish themselves. 2 The profound, almost annihilating assault which the cell experiences during the insulin shock perhaps actually eliminates the recently established pathologic pathways and in the course of recovery from shock, only the older, well established prepsychotic pathways become reanimated. 3 A general detoxication of the entire organism occurs through the effect of the insulin on the entire metabolic status. Glueck believes that 'although the therapeutic approach is essentially of a biochemical nature, its effects so far as they lead to a modification of psychopathologic states can in no way be looked on as identical with those characteristics of a strictly causal therapy, such, for instance, as the psychoanalytic therapy of a hysterical phobia. On the contrary, one gains the impression of a radical and fairly rapid generalized disturbance of the vegetative, neurologic and psychic integration of the patient, which calls forth in its turn a rapid reintegration immediately on the neutralization of the hypoglycemia. But in addition to the important role which the sugar metabolism plays in this catabolic and anabolic process psychic factors seem also to be of considerable importance.' He is of the opinion that the repeated insulin shocks may serve to clear the atmosphere, so to speak, of the neurotic and psychotic state, especially in view of the fact that these experiences of acting out are followed by an amnesia and thus escape ego and superego criticism with its subsequent guilt and shame. Glueck divides recovered patients into two groups: one with a distinct emphasis on the virtues of repression and an attitude that the past was best buried and the other with a definite preference for the so called working through and reintegration. If such is the case, a study of the tendency to relapse in these two groups should be of great interest.

Maine Medical Journal, Portland

28 131 158 (June) 1937

- Some Aspects of Injection Treatment of Hernia S A Cobb Sanford—p 131
Protamine Zinc Insulin in Treatment of Diabetes Mellitus E R Blaisdell Portland—p 133
The Medical Examiner System of Maine G L Pratt Farmington—p 135

Missouri State Medical Assn Journal, St Louis

34 185 218 (June) 1937

- The Country Doctor President's Address R A Woolsey, St Louis — p 185
- The Individualism of Medical Practice Address of President Elect D S Conley Columbia — p 187
- Treatment of Diabetes Mellitus with Especial Reference to Diet and Use of Protamine Insulin W H Olmsted St Louis — p 188
- Hypersensitivity to Pituitary Extract G F Pendleton W G Ball and W Rhode Kansas City — p 194
- Polynuritis of Pregnancy Treatment with Vitamin B₁ Case Report G W Forman St Joseph — p 197
- *Hypertension Caused by Food Allergy O Liston Oak Grove — p 199
- Some Eye Conditions of Interest to the General Practitioner C P Dyer St Louis — p 202

Hypertension Caused by Food Allergy—Liston is convinced that certain foods ingested by individuals sensitive to them will cause overstimulation of the vasoconstrictor nerves of the arterioles, thus raising the blood pressure as long as any of the food remains in the system. Furthermore, he feels justified in stating that most of the vasoconstrictor action is on the arterioles, for he has repeatedly seen blood pressure of a duration of years fall to normal within four days after removal of the offending food, and thus in persons whose arteries were sclerosed and tortuous. He has one patient sensitive to pork who cannot eat eggs fried in lard without a rise in blood pressure. Another patient was sensitive to wheat, and ingestion of any wheat caused a marked swelling of the tongue with an increase of 60 mm of mercury in blood pressure. He has worked out the cause of the hypertension in about fifteen such patients. In all cases he uses either the elimination diet or skin tests of the foods for hypersensitivity.

Nebraska State Medical Journal, Lincoln

22 205 244 (June) 1937

- Mammography Preoperative Visualization and Diagnosis of Breast Tumors by Contrast Roentgenograms N F Hicken Omaha — p 211
- Peripheral Vascular Disease V Thrombo Angitis Obliterans C W McLaughlin Jr Omaha — p 214
- Operative Lengthening of Lower Extremities F Teal Lincoln — p 219
- Fixed Impaction in Fractures of Femoral Neck C F Ferciot Lincoln — p 222
- Hallux Valgus Study of End Results of 339 Bunionectomies W R Hamsa Iowa City — p 225
- Skin Eruptions Due to Nupercaine and Pantocain O J Cameron Omaha — p 229

New England Journal of Medicine, Boston

216 1003 1050 (June 10) 1937

- Diseases of Inhabitants of the Commonwealth H D Chadwick Boston — p 1003
- Galactose Tolerance and Urobilinogen Tests in Differential Diagnosis of Painless Jaundice F W White Boston — p 1017
- Chemistry and Legal Medicine J T Walker Boston — p 1024

New York State Journal of Medicine, New York

37 1005 1094 (June 1) 1937

- Differential Diagnosis in Pulmonary Diseases P H Ringer, Asheville N C — p 1005
- Diagnosis of Surgical Jaundice R Ottenberg and R Colp New York — p 1011
- Correction of Nasal Deformities J A Cinelli New York — p 1018
- Colon Bacillus Chemical Therapy Degenerative Processes R C Coburn New York — p 1025
- *Ulcerations of Nasal Membranes and Perforation of Septum in Copperplating Factory Unusual and Sudden Incidence M H Barsky New York — p 1031
- Sterility as Clinical Problem in Women W T Pommerenke Rochester N Y — p 1035
- Injuries and Infections Study of Cases Occurring on the WPA Projects of Pelham Bay Area H Lowens Bronx — p 1042
- Comments by a Country Doctor Time—1893 1933 B P Allen Oriskany — p 1049

Perforation of Nasal Septum in Copperplating—

In March 1936 Barsky saw two employees of a copperplating establishment reporting for treatment of infected abrasions and acute coryza. They volunteered the statement that many of their co-workers suffered from similar complaints. Examination revealed the presence of shallow ulcerations of the nasal septum and turbinates. As a result of these observations, all employees of the plating department of this establishment were examined and a hygienic study of the premises was conducted. The disturbance was effectively corrected. There were no recurrences of the difficulties in the old workers, nor did any

appear in new employees. The direct causes of the disturbance were improper control of baths, failure to exhaust the spray thus produced and inadequate general ventilation.

Pennsylvania Medical Journal, Harrisburg

40 705 802 (June) 1937

- Clinical Interpretation of Retinal Vascular Lesions in Hypertension and Nephritis H P Wagener Rochester Minn — p 705
- Eczema—Uric Acid and Alkali Reserve C S Wright and H Brown Philadelphia — p 711
- Mild and Obscure Forms of Urinary Obstruction D M Davis Philadelphia — p 714
- Necropsy Studies on Two Patients Dying in Asthma K Towler Philadelphia — p 720
- Negative Pressure Drainage of Chest Exudates W R Davies Scranton — p 724
- Cutaneous Anthrax H Gold Chester — p 728
- Carcinoma of the Penis H W Lyon Punxsutawney — p 732
- Otitic Meningitis G B Johnson Franklin — p 735
- Significance of Size and Hemoglobin Saturation of Red Blood Cells in Clinical Study of Anemia W P Belk Ardmore — p 739
- Some Clinical Aspects of Lead Poisoning T A Johnson Drexel Hill — p 741
- Postprostatectomy Prospects W H Haines and S Miceli Philadelphia — p 744

Public Health Reports, Washington, D C

52 763 790 (June 11) 1937

- *Report of Two Outbreaks of Food Poisoning J C Geiger — p 765
- Incidence of Spontaneous Tumors in Colony of Strain C₃H Mice H B Andervont and W J McEleney — p 772

Food Poisoning—Geiger discusses the 110 reported cases in twenty-eight families that were affected in an outbreak of food poisoning traced to cream custard cakes from a bakery. Ample opportunity for contamination of the custard during its preparation, storage and handling were manifest on direct observation of procedures followed. Laboratory confirmation of the epidemiologic investigation included high bacteria colony counts per gram of custard—*Bacillus coli* and hemolytic and non hemolytic strains of *Staphylococcus aureus* (heavy pigment producers), toxin formation by hemolytic *Staphylococcus aureus* on mediums rich in starch (produced marked vomiting and diarrhea in kittens on intraperitoneal injection). Control studies made on similar cakes several days later showed lower counts even on the third day, with *Bacillus coli* and non hemolytic strains of *Staphylococcus albus* and *aureus* present. The second outbreak is that of botulism apparently due to European commercially canned antipasto. Of a group of sixteen persons eating dinner together, ten were hospitalized for the treatment of a condition presenting the clinical picture of botulism. Of the ten hospitalized persons, one was found not to present evidence of the intoxication, three died and six recovered. An additional person, who was not hospitalized gave a history of certain symptoms and signs indicative of intoxication. The antipasto served at the dinner was a mixture of the contents of two cans, both imported. At the time of hospitalization, one of the patients said he had opened the can and was impressed by the "slushy" contents, which "squirted." This patient stated that the antipasto "did not taste right." Other members of the affected group commented on the "bitter taste" of the mixture. A 13 year old girl, liking the tuna fish especially, ate two pieces of it. She was the most seriously ill of the group and the first to die. The two cans involved were never recovered, so that positive and final proof of the source of the intoxication was not obtained. One of the brands had not been regularly distributed in California for about nine years and the stock in the involved grocery store had been on the shelves for approximately five years. That botulism was the cause of death was proved in two of the fatal cases when the toxin of *Clostridium botulinum*, type A, was demonstrated in the laboratory. The toxin was not demonstrated in the third fatal case.

Rhode Island Medical Journal, Providence

20 87 104 (June) 1937

- Diabetes Among the Moderns J S Dziob Providence — p 87
- *Spontaneous Subarachnoid Hemorrhage C A McDonald and M Korb Providence — p 91

Spontaneous Subarachnoid Hemorrhage—McDonald and Korb report seven cases of spontaneous subarachnoid hemorrhage in order to call attention to the frequency of the disease.

and its occurrence in patients without arteriosclerosis with hypertension, or neoplastic or anemic disease which bleeds. Four of the patients died and three recovered. None of them were known to be sick before the apoplexy. All of them showed symptoms and signs which led to recognition of the disease during life. The disease is not an uncommon condition and can be readily recognized by the syndrome of sudden severe headache, stiffness of the neck, double Kernig's sign, a bit of fever and a bloody spinal fluid.

South Carolina Medical Assn Journal, Greenville

33 139 160 (June) 1937

Distribution of State Medical College Graduates in South Carolina
J T Marshall Barnwell—p 139
Multiple Myeloma Case Report S H Shippey Rock Hill and W K McGill Clover—p 141

Southern Medical Journal, Birmingham, Ala

30 565 664 (June) 1937 Partial Index

*Tetanus Immunization with Alum Precipitated Toxoid A McBryde Durham N C—p 565
Adamantinoma of the Tibia E L Bishop Atlanta Ga—p 571
Arthrodesis of Knee with Large Central Autogenous Bone Peg J A Key St Louis—p 574
Nevus xantho Endothelioma Its Relationship to Juvenile Xanthoma J H Lamb and E S Lain Oklahoma City—p 585
*Pulmonary Changes in Patients Suffering from Malta Fever R H Lafferty and C C Phillips Charlotte N C—p 595
Melitensis Infection Treatment with Neoparsphenamine C W Wainwright Baltimore—p 600
Relief of Chronic Intractable Bronchial Asthma by Intentionally Induced Ether Anesthesia I S Kahn San Antonio Texas—p 609
Complications of Advanced Biliary Tract Disease W D Wise and R F Heffrich Baltimore—p 617
Meniere's Disease Its Diagnosis and Treatment W E Dandy Baltimore—p 621
Indications for Radical Sinus Surgery J G McLaurin Dallas Texas—p 633
Causes of Stillbirths Preliminary Report Based on 2,000 Cases Occurring in Hospitals Ethel C Dunham and Elizabeth C Tandy Washington D C—p 643
The Diet of Infants C H Smith New York—p 650

Tetanus Immunization with Alum-Precipitated Toxoid—McBryde has used alum precipitated toxoid made from tetanus toxin of a minimal toxicity of 15,000 minimal lethal doses per cubic centimeter which was detoxified by adding 0.3 per cent formaldehyde and incubating at 39 C until a dose of 10 cc of the material caused no tetanic symptoms when injected into guinea-pigs weighing 350 Gm. Equal parts of a 4 per cent solution of aluminum potassium sulfate were added to the plain toxoid and it was treated according to the method described by Wells, Gordon and Havens for diphtheria toxoid, 1 cc of this material when injected into the guinea-pigs resulted, in forty days in an average production of 6 units of antitoxin per cubic centimeter of blood serum. This was at least ten times the immunizing value of the original toxoid from which it was made. A group of ninety-four Negro children received subcutaneous injections of 1 cc of this toxoid. Forty-five days later serums were collected for antitoxin titration, and seventy three days after the first injection a second injection of 1 cc of toxoid was given. Serum was again secured fifty-four days after the second injection or 127 days after the initial injection. No severe reactions were encountered in the 180 injections given. Forty-five days after the first injection only two children had less than 0.01 unit of antitoxin per cubic centimeter. The great majority had from 0.01 to 0.1 unit per cubic centimeter. Thirteen children had more than 0.1 unit and two had 0.25 unit per cubic centimeter. When tested fifty four days after the second injection or 127 days after the primary dose, there were marked increases in the antitoxin content. Of the eighty-five children tested, no child had less than 0.1 unit per cubic centimeter, while five had values from 0.1 to 0.25 unit, eighteen had from 0.25 to 0.5 unit, twenty-six had from 0.5 to 1 unit and thirty-one had from 1 to 2 units per cubic centimeter. Three children had 2 units and two had between 3 and 5 units per cubic centimeter. Tetanus toxoid is of special value in children who are allergic. Many practitioners will wish to immunize in a routine manner the children under their care. Though the prevalence of tetanus is low, some children acquire the infection from wounds which are so trivial that no antitoxin would have seemed advisable

at the time of injury. Present knowledge would indicate two injections of alum-precipitated tetanus toxoid at an interval of two months followed by a third injection at the time of injury. This will raise the serum antitoxin to the level reached by injection of 1,500 units of antitoxin.

Pulmonary Changes in Malta Fever—Lafferty and Phillips are convinced that pulmonary changes occur in many persons who have undulant fever, and they are led to believe that there are pathologic processes in the lungs of some of these patients which, in all probability, are a direct result of the infection. Although x-ray observations in these cases do not exactly coincide with those of other observers the disease often seems to manifest itself in the lungs by peribronchial congestion or, rather, diffuse bronchopneumonic process and rapidly progressing fibrosis. The authors have not had any experience with patients who have had extensive pneumonic processes, either lobar or lobular.

Texas State Journal of Medicine, Fort Worth

33 71 206 (June) 1937

Has the Private Practice of Medicine Failed? H R Dudgeon Waco—p 79
The American Medical Association Your National Society C G Heyd New York—p 83

Western J Surg, Obst & Gynecology, Portland, Ore

45 301 352 (June) 1937

Obstructive Jaundice Further Studies on Differential Diagnosis by Roentgen Ray F S Foote and H G Bell San Francisco—p 301
Surgical Anuria J G Strohm Portland Ore—p 309
Surgical Mortality in Thyroid Disease Study of Twenty Five Fatalities in 2,070 Cases W P Kroger and C G Toland Los Angeles—p 316
Basic Factors Involved in Proposed Electrical Methods for Measuring Thyroid Function I Effect of Body Size and Shape A Barnett New York—p 322
*Simple Procedure in Fractures of Spine R W Binkley Selma Calif—p 327
Paraffinoma of Knee Case Report P E Johnson New York—p 331
Hypophyseal and Hypophyseal like Gonadotropic Hormones Review B Krichesky Los Angeles—p 334

Simple Procedure in Fractures of Spine—Any one who has seen patients with spinal fractures immediately placed in plaster has encountered in some of them an uncontrollable train of abdominal symptoms and has seen some become so distended as to require removal of the plaster or require opiates in large quantities. While handling one such patient, a nurse who had previously required considerable abdominal surgery, Binkley sought a temporary measure that might do no harm until these abdominal symptoms could subside. She was accordingly placed on an ordinary Simmons bed which had the usual back rest and knee support controlled by cranks, her head being placed at the foot of the bed with the site of fracture just over the apex of the elevation. The degree of hyperextension could readily be controlled by turning the crank at the foot of the bed. This accomplished the results so satisfactorily that she was never changed until roentgenograms showed that she was ready for a brace. Both anteroposterior and lateral roentgenograms were taken without removing the patient from the bed, and the method proved so satisfactory that it has since been employed with equal success in four other cases.

Wisconsin Medical Journal, Madison

36 413 508 (June) 1937

Treatment of Fractures by Use of Wire Fixation J O Dieterle Milwaukee—p 427
Treatment of Cancer of Rectum by Electrocoagulation J A Johnson Minneapolis—p 430
Functional and Organic Disorders Relative Incidence Marie L Carns and Annette C Washburne Madison—p 435
The County Asylum A Hospital in Fact H H Christofferson Colby—p 438
Needs for Closer Cooperation Between State and County Institutions M K Green Mendota—p 439
State Board of Control Medical Program J J Hannan Madison—p 442
Atypical Tuberculosis Report of Cases R H Strehm Janet McCarter and H R Getz Madison—p 451
Molluscum Contagiosum Report on Series of Seven Cases L R Cole Madison—p 454
The Wisconsin Venereal Disease Program H M Guilford Madison—p 457

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

1 1057 1102 (May 22) 1937

Perspective and Poise in Practice R A Young—p 1057

*Enuresis in Children Report of Seventy Cases H G McGregor—p 1061

Acute Lymphocytic Meningitis W Hughes—p 1063

Bilateral Tubal Pregnancy Report of Case Muriel B McIlraith—p 1065

Intra Epidermic Vaccination E R Pearce—p 1066

Nocifensor Lesion of Hand Syndrome Following Trauma and Associated with Adduction of Shoulder G J Illie—p 1068

Influenza and Industry W Blood—p 1079

Enuresis in Children—McGregor discusses seventy cases of enuresis in children treated for the most part by securing the patient's interest in his own complaint. The enuresis had in each instance been present since birth, but cases of enuresis in mentally deficient children have not been included. A physical examination was made to exclude organic disease. In the absence of this the child was presented with a small calendar, to be kept by the bedside, on which the date of each dry night was to be recorded by the patient himself. Beyond spending the necessary time to interest the child in these measures and seeing the patient at regular intervals afterward, no treatment was used and no medicines were prescribed. The treatment is best carried out at a clinic, where the atmosphere of competition and enthusiasm that prevails in the waiting room is an adjuvant to success. At least 60 per cent of cures maintained over a length of time were obtained. Whatever may be the psychologic significance of enuresis, and however important the coexistent physical defects in initiating or maintaining it, it seems reasonable to regard the failure to outgrow the habit at the normal age as a neural motor reaction in response to many different environmental situations and bodily states, whether emotional, physical or a mixture of the two, and to assume that in no two cases is it due to an identical combination of factors. At all events it is quite possible to persuade most of the children to change the habit by simple encouragement or by other suggestive means, nor is the task laborious.

East African Medical Journal, Nairobi

14 33 78 (May) 1937

Eradication of Glossina Palpalis from River Areas by Block Method C B Symes and R T Vane—p 35

Variations in Blood Pressure and Their Clinical Significance Part II J R Gregory—p 42

Medical Practice in Kashmir Edith N Harlley—p 64

Lancet, London

1 1263 1318 (May 29) 1937

The Bismuth Iodoform Paraffin Paste Method of Treatment of Acute Osteitis J H Saint—p 1263

*Left Inframammary Pain Metabolic Investigation K S Smith A S Hall and J Patterson—p 1267

New Machine for Self Administration of Gas and Oxygen Analgesia in Labor A Barr and A Tindal—p 1271

Chemotherapy of Streptococcal Infections with β -Benzylamino-Benzene Sulfonamide B A Peters and R V Havard—p 1273

Some Observations on Case of Pulmonary Edema G Graham and R Burn—p 1274

Acute Ascending Flaccid Paralysis J Shafir—p 1275

Lymphatic Leukemia with Bilateral Mammary Changes Report of Case B Joan Haram—p 1277

Reactivation of Tuberculous Focus by Micro Organisms Other Than Tubercle Bacillus W Pagel—p 1279

Left Inframammary Pain—Smith and his associates describe the syndrome frequently known as left inframammary pain. The salient points discussed are (1) the existence of a group of symptoms of which left inframammary pain was the chief, (2) the obvious role of physical or mental fatigue in producing or aggravating the syndrome, (3) a condition in which the blood sugar generally tended to fall to abnormally low fasting levels and in which a state of increased sugar tolerance was found, and (4) the prevalence among these patients of particular types of electrocardiogram. An account is given of an investigation into the clinical features and metabolism of twenty-six patients suffering from the left inframammary pain syndrome, but from no recognized organic disease in any

system. About half of the experimental group showed abnormally low fasting blood sugar, even though the figure of 70 mg per hundred cubic centimeters was taken as the lower limit of the normal. Sugar tolerance curves often showed an increased tolerance, the curves reaching an early, and frequently low peak. On the other hand, in two patients an unsuspected diabetes was brought to light, and in three others hyperglycemia without glycosuria. The electrocardiogram in the subject having left inframammary pain is found frequently to show certain features heretofore regarded as normal. The following changes would ordinarily be grouped among normal tracings but occurred with such frequency among these patients that they have received special attention: 1. T_1 not greater than P_1 in amplitude. 2. T_2 not greater than P in amplitude. Diphasic T or T_3 with or without 1 or 2, or 1 and 2. One or more of these conditions were fulfilled in sixteen patients. It is suggested that this pain is the cardiac expression of a metabolic derangement that affects the body as a whole and that the disturbance is related to an underlying endocrine imbalance.

Practitioner, London

138 553 664 (May) 1937

The Treatment of a Case of

Hypertensive Heart Disease W T Ritchie—p 553

Angina Pectoris J Hay—p 562

Thyrotic Heart Disease T F Cotton—p 571

Congenital Heart Disease C Harris—p 577

Syphilitic Heart Disease G Bourne—p 585

Rheumatic Heart Disease B Parsons Smith—p 594

Value of Electrocardiogram in General Practice A Schott—p 603

*The Use of Insulin in Nondiabetic Malnutrition with Especial Reference to Pulmonary Tuberculosis P Fillman—p 613

Treatment of Gonorrhoea and Its Complications H Dodd—p 624

Clinical Indications for Use of Specific Hormone of Corpus Luteum C Clauberg—p 634

General Practice VI Writing Medical Papers H Rolleston—p 647

Use of Insulin in Nondiabetic Malnutrition—Fillman emphasizes that insulin is not to be regarded as a cure for pulmonary tuberculosis. Its indiscriminate use is fraught with danger and, as with so many other valuable therapeutic measures (e.g., artificial pneumothorax), inevitably brings it into disrepute. There are some who claim that insulin can be used in all cases of pulmonary tuberculosis. His own experience has failed to show any appreciable results in advanced active disease, although good results have been claimed in such cases. A patient whose appetite is poor, who fails to put on weight, who is afebrile, whose disease shows no gross evidence of activity and with whom the usual medicinal measures have failed to correct these symptoms is eminently suitable for insulin therapy. The author has avoided using insulin when there is fever, active pulmonary disease, hemoptysis or marked hypotension or when severe reactions follow the injections. It has been his practice to begin the course of treatment with a hypodermic injection of 5 units of insulin. This is given twenty minutes before the principal meal and is followed three hours later by a glass of milk or a tablespoonful of dextrose to avoid any risk of hypoglycemia. The injection of 5 units is continued daily for the first week. This dose is increased by 5 units weekly, so that in the sixth week 30 units daily is given (15 before lunch and 15 before dinner). The course of insulin treatment is from two to three months. It can be repeated at intervals and the author has sometimes given two or three courses, although in many cases the effects of insulin have been maintained after the first course has been discontinued.

South African Medical Journal, Cape Town

11 327 362 (May 8) 1937

A Cavalcade of Cases D Campbell Watt—p 329

Lymphogranuloma Inguinale in South Africa M H Finlayson and F W F Purcell—p 335

Bull. of Health Org., League of Nations, Geneva

6 1 128 (Feb) 1937

Recent Additions to Our Knowledge of Anopheles Maculipennis Rices L W Hackett—p 1

Seventh Analytic Review of Reports from Pasteur Institutes on Results of Antirabies Treatment A G McKendrick—p 17

Report on the Health Mission in Spain A Jasnet Laigret and C Wroczynski—p 56

Medical Exploration in Liberia L Anigtem—p 93

Annales de Dermatologie et de Syphiligraphie, Paris

S 337 432 (May) 1937

*Pigmented Basal Cell Epitheliomas (Contribution to Pathologic Anatomic Research) J Gate G Massia and J Delbos—p 337
Exotic Epidermophyte Case J Payenneville and E Rivaier—p 378

Pigmented Basal-Cell Epithelioma—Gate and his associates describe a variety of basal-cell epitheliomas with a histologic picture characterized by an abnormal quantity of pigment granules. There are a number of other neoplasms belonging to this group which to a smaller degree likewise contain pigment granules. But the variety described is differentiated by its abnormally large admixture of pigment bodies within the neoplasm. In the initial stage the small cell shows a well defined chromatic nucleus and very fine pigmented granules at the outer zone of the cytoplasm. In the next stage the nucleus begins to be less visible, the pigment granules become larger in size and quantity until they finally occupy the whole cell. In the third adult stage the cell is just a bag of pigment granules and has no nucleus whatever. In the final stage of senescence the cell walls are being destroyed and the pigment granules are spilled. These basal cells are encountered at the periphery of cancerous growths and are more abundant in their center. This pigmented cell is of epithelial origin, in the basal layer of which there are dendritic cells suspected of producing melanin (melanoblasts) and distributing it along their branches. It seems that there is a sort of symbiosis between these so called Langerhans cells and the cancerous cells. When the basal layer is encroached on by the neoplasm it provokes a hyperformation of pigment, which subsequently migrates toward the irritating lesion. Those melanomas are rare and it is extremely difficult to establish their etiologic factors. Its histologic peculiarity imparts its brown gray or dark appearance and with the help of the dopa reaction melanoblasts may be differentiated from melanophores. However the morphologic aspect of those elements always remains different from that of cancerous cells. The neoplastic tissue is often intimately permeated by connective tissue fibers and along those fibers it is possible for the pigment cells to become settled even as far as the center of the tumor. Any intervention for bioptic specimens may stimulate the neoplastic process. It is therefore prudent to suspect every pigmented neoplasm of being malignant and to make a biopsy only after physical therapy has been instituted. For the same reason any surgical intervention is regarded as dangerous. The authors are in favor of roentgen therapy, for which purpose they use from 3,500 to 4,000 roentgens without filter, a spark gap of 18 cm, 4 milliamperes current and a focus skin distance of 22 cm. To secure a thorough irradiation it is well to use fields extending from 2 to 5 mm beyond the borderlines of the neoplasm. After about a week the tumor begins to ulcerate. At this stage no curet or scissors may be used. It is enough to use warm physiologic solution of sodium chloride applied with a syringe. The wound is then covered with an ointment of bismuth subnitrate and zinc oxide and dressed. Some authors prefer diathermocoagulation, perhaps because of its greater cosmetic value. But it is a painful procedure and it must be preceded by a locoregional or local anesthesia. Care must be taken to inject any healthy tissue with the anesthetic. The first treatment consists in forming a barrier by a series of small coagulations against dissemination. The second treatment consists of coagulating layer after layer, the layers being shaved off until healthy tissue is reached. The dressing may be dry or slightly greased. Cicatrization takes about three weeks.

Annales de Médecine, Paris

41 265 344 (April) 1937

Fever in Myeloid Leukemia. Intermediate Forms Between Myeloid Leukemia and Acute Leukemia J Olmer and J Boudouresques—p 265

Induced Complementary Pleurisy of Therapeutic Pneumothorax P Pavie P Lefevre and G Rossignol—p 291

*Hypersensitivity to Insulin J L Masek and C Khr—p 301

Relation Between the Pathogenic Power and the Evolution Cycle of Some Germs and of the Streptococci in Particular R Natuelle—p 334

Hypersensitivity to Insulin—Masek and Khr have noticed that the hypoglycemia which follows the injection of insulin differs considerably in diabetic from nondiabetic patients notably those with cirrhosis, obesity, cachexia, pernicious anemia or certain neuroses. After reviewing the various hypotheses regarding the physiologic reaction to insulin treatment the

authors accept the view that insulin is fixating dextrose in the tissues in unstable combinations. This takes place in the intramuscular and subcutaneous spaces outside the blood stream in a form analogous to protein sugar. During all their investigations the authors were mindful of the dextrose regulatory influence of other glands with internal secretion and their direct action on insulin. This resistance to insulin may have a humoral aspect but it may also assume contraregulatory qualities (adrenals and hypophysis) seen mostly in diabetic patients in whom the islands of Langerhans are not affected. In those rare cases it is assumed that the increase in the proportion of peptic ferments inactivates the insulin. In their effort to determine the capillary glycemia in fasting patients they gave equal injections of insulin to patients with a high percentage of glycemia with acetoneuria and to some with less than 180 mg per hundred cubic centimeters of glycemia and no acetoneuria. In this manner they found that patients with grave diabetes are slower in recuperating to former levels of their carbohydrate metabolism. Having obtained similar data in patients with hyperthyroidism, they consider the strong diminution of the glycemic index as the expression of a functional disturbance in the contraregulatory apparatus. At the same time they arrived at the hypothesis that nutritional factors (diet deficient in carbohydrates) as well as secondary factors (phlorhizin or endocrine disturbances) which tend to diminish the carbohydrate reserves have a pronounced influence on the abnormal development of the blood sugar. In animals in which they brought about an artificial carbohydrate deficiency they made the observation that the hypoglycemic phase was greater and of longer duration when insulin was followed by an injection of epinephrine. The authors deem it necessary for the sake of solving the problem to give greater attention to internal chemical conditions. This would mainly concern the possible relations between the phenomena discussed and those of the so called protein sugars.

Annali Italiani di Chirurgia, Bologna

16 183 289 (March) 1937

Ambard Formula Clearance Urea and Ratio Urea After Operations L Baccarini and M Pazzi—p 183

*Donaggio Reaction Platelets in Blood and Velocity of Sedimentation in Postoperative Period G Perazzo—p 199

*Modifications of Lung Parenchyma After Cervical Sympathectomy A Biasini—p 221

Cause of Death in Experimental Choleperitoneum D Divella—p 249

Donaggio Reaction After Operations—Perazzo followed the behavior of Donaggio's obstruction phenomenon of the urine in relation to the amount of platelets in the blood and the velocity of sedimentation after operation. His observations were made in a group of twenty patients suffering from chronic or acute surgical disease tumors and cancer. Surgical trauma induces rapid but transient appearance of the obstruction phenomenon of the urine which follows the clinical evolution of the postoperative period. The intensity of the phenomenon depends on the seriousness of the operation performed. There is thrombopenia. The velocity of sedimentation parallels the curve followed by the obstruction phenomenon. The reaction of the obstruction phenomenon however is rapid and transient whereas the velocity of sedimentation increases late and slowly decreases to normal figures. According to the author the obstruction phenomenon is due to elimination of blood colloids through the urine. The colloids originate in a process of cellular disintegration from surgical trauma. Thrombopenia is due to the antitoxic functions of the platelets on the colloids in the blood.

Modifications of Lung Parenchyma After Sympathectomy—Biasini made an x-ray and anatomic study of the modifications of the lung parenchyma in experimental cervical sympathectomy. He states that the modifications depend on the degree of sympathectomy and the side on which it is done. Unilateral sympathectomy induces reduction of the bronchioles and small blood vessels which is more accentuated in the lung of the side on which the operation was done. The modifications of the vessels and bronchioles are more accentuated after bilateral sympathectomy. They are more intense at the upper field of the right lung. The modifications induced by unilateral or bilateral sympathectomy are more accentuated a long time after the operation. They are due to permanent changes in

the circulation of the lung due to disturbances of the sympathetic innervation of the organ. The modifications of the heart originate partially in local disorders of sympathetic innervation. Cervical sympathectomy induces elevation of the diaphragm, especially of the right side, probably through anatomic phrenic and cervicosympathetic connections. The author says that the results of the experiments show the dangers of cervical sympathectomy in the clinical field and the advisability of not resorting to the treatment.

Clinica Ostetrica, Rome

39 313 372 (June) 1937

Pathogenic Relations of Pregnancy to Cancer of Uterus G Nicoletti —p 313

Cancer of Uterus Developed After Roentgen Therapy of Internal Genitals—G De Lauretis —p 321

Diagnostic Error in Case of Hydatidiform Mole F Matteace —p 327

*Staining Tissues of Biopsy from Aspiration Technic M Aghaloro —p 338

Pregnant Retroverted Flexed Uterus Case P Gall —p 340

Technic for Aspiration Biopsy—According to Aghaloro, uterine curettage is the classic method for diagnosis of intra-uterine infections and tumors. Next in importance is biopsy by aspiration of fragments of the uterine mucosa, which is indicated when intra-uterine curettage is contraindicated. The author's technic for a biopsy is as follows. The fragments of the uterine mucosa are placed in a glass tube containing sodium salt solution, are separated and then are fixed in acetone for a few minutes. The fragments are then frozen and sectioned. The sections are stained with a mixture consisting of three parts of a 1 per cent aqueous solution of eosin, seven parts of acetone, five parts of methylene blue aqueous solution and five parts of alcohol at 95 degrees. The slides are placed in the staining solution and the latter warmed until the acetone odor is entirely gone. Then the slides are left undisturbed in the solution for five or ten minutes more to take an even stain. The latter is then wiped off the slides with drying paper. The sections are mounted with Canada balsam or syrup of acacia. Sections thus obtained are very clear. A diagnosis can be made promptly because of the fact that the entire process requires little time.

Arch. Urug. de Med., Cir. y Especialid., Montevideo

10 541 684 (May) 1937

Past Present and Future of Gynecology A Turenne —p 541

*Pregnancy and Pulmonary Tuberculosis J Infantozzi —p 559

Fermentative Diarrhea and Dyspepsia in Infants Simple Treatment V Zerbino —p 574

Acute Abdominal Diseases in Children R M Del Campo —p 586

*Roentgen Sign of Acute Psoriasis B Varela Fuentes and J Iraola —p 593

Physiopathology of Respiration Prolongation of Dead Respiratory Space for Hyperventilation of Lung J Duomarco and C Diaz Romero —p 599

Hydatid Cyst of Breast R Charlone and L Sacco Ferraro —p 607

Pregnancy and Pulmonary Tuberculosis—Infantozzi states that the transplacental origin of tuberculosis has been proved. The filtrable tubercle virus may pass through the placenta and contaminate the fetus, which is born apparently normal and later on develops tuberculosis. Pregnancy, labor and the puerperium, especially if they take place repeatedly, stimulate development of latent tuberculosis and aggravate the condition if it is present before pregnancy. Pulmonary tuberculosis often induces abortion or premature delivery. The infants may be born normal or apparently so. In the latter case they are under weight, are congenitally weak and may die in early infancy. It is advisable not to allow marriage, pregnancy and lactation to women suffering from pulmonary tuberculosis. If pregnancy takes place, however, expectant treatment, with the patient under medical supervision, is indicated in fibrous or healed tuberculosis and if the disease has been controlled for more than three years, especially in patients who are in favorable economic and social condition. If tuberculosis is in evolution, it is advisable to stop pregnancy if the patient reports for examination before the third month. Otherwise pregnancy may continue with the patient under medical supervision. Pregnancy aggravates tuberculosis in evolution and the severe forms, especially laryngeal and active ulcerocaseous tuberculosis. Congestive and pleural forms also are aggravated, but not so intensely as the severe forms. Women suffering from apyretic chronic tuberculosis with cavitation can stand preg-

nancy fairly well. Infants of tuberculous mothers have to be given the Calmette vaccine and be placed away from the mother in a home of healthy people, preferably living in the country. The infants have to be nursed by healthy women and never by the mother.

Roentgen Sign of Acute Psoriasis—The sign described by Varela Fuentes and Iraola consists of the deformation of the roentgen shadow of the psoas muscle, which is wider than that of the normal muscle on the other side and shows a convex outline from the first lumbar vertebra to the iliac crest, instead of the straight border shown by the shadow of the normal side. The deformation appears early in the development of psoriasis, at a time when flexion of the thigh and the signs previously described are not as yet in evidence. The sign is of value in the early diagnosis of acute psoriasis, especially if it is located high and in the differential diagnosis of the condition from acute appendicitis, as it shows inflammation of the muscle. In the author's case the operation confirmed the diagnosis. An abscess was found at the upper part of the muscle, deeply seated against the vertebrae. Roentgenograms taken one month after the operation showed correction of the deformed roentgen shadow.

Prensa Médica Argentina, Buenos Aires

24 1147 1192 (June 9) 1937

Tuberculous Bacilemia of Recurrent Evolution A A Ramondini and F M Gonzales —p 1147

Complete Roentgen Visualization of Aneurysmatic Dilatation of Left Auricle in Frontal Position J J Beretervide C F Carrega Casal fourth and R A Pereyra —p 1152

*Atheroma of Aorta Ulcerated and Infected Clinical Diagnosis Verified at Necropsy J I Saccon and S Zimman —p 1162

Jalaguer and Similar Incisions Importance of Vascular Lamina of Epigastric Vessels A R Albanese —p 1165

Osteomyelitis of Hip Bone and Acute Arthritis A Berceovich and J M Solari —p 1167

Pure Mitral Stenosis with Embolism of Sylvian Artery in 10 Year Old Child F Bazan and R Maggi —p 1172

Atheroma of Aorta—Saccon and Zimman's patient, aged 71, was apparently in good health when he developed an intense pain in the left leg, fever and chills. On examination, he was found to be suffering from senile arteriosclerosis. An intermittent claudication of the leg had developed a short time before. The second aortic sound was accentuated and it was of a clangorous character. A clinical diagnosis of ulcerated, aortic embologenic aortic atheroma was made. There was no time to take a cardio-aortic teleroentgenogram because of embolism of the sylvian artery. The necropsy showed the presence of generalized atheroma all through the entire arterial tree. The arteries were the seat of a process in which old and new areas of atheroma, freshly formed ulcers and scars of old healed ulcers occurred in alternation. According to the author, generalized sclerotic atheroma may follow a chronic evolution for some indefinite time. During this time focal transitory atheromatous infection may be produced, with fever and slight arterial obstruction, which is spontaneously cured or without arterial obstruction at all. Embologenic infected ulcerated atheroma is fatal. Its development and the mechanism of production of the consequent septicemia parallel those of venous septicemia and malignant endocarditis. In venous septicemia the intravenous septic foci induce a migrating thrombophlebitis and repeated embolism to the lungs. In malignant endocarditis the septic intracardiac foci cause cardiac disturbances and embolism to the arterial system. In ulcerated, infected atheroma the intra-arterial septic foci cause atheromatous septicemia and a bombardment of embolisms in the splanchnic and peripheral arteries.

Klinische Wochenschrift, Berlin

16 841 872 (June 12) 1937 Partial Index

Alimentary Formation of Acetone Bodies from Food Fats in Human Subjects S Markes —p 841

*Vitamin C Deficit During Pregnancy and Lactation G Gaetgens and E Werner —p 843

Adenoma of Island Cells of Pancreas Two Cases G Reiter —p 844

*What Disinfecting Substance May Be Used in Determination of Blood Alcohol According to Widmark? J Gutschmidt —p 849

Unsaturated Fatty Acids in Blood of Healthy Women During Pregnancy and Puerperium O Muhlblock —p 853

C Vitamin and Defense Against Infections S Thaddeä —p 856

Vitamin C Deficit During Pregnancy—Gaetgens and Werner investigated by means of the serial tolerance test of

Jezer and Kapp whether healthy pregnant and lactating women

have a vitamin C deficiency. They found that 62 per cent of the women who were pregnant for the first time had a vitamin C deficit and that 70 per cent of those who had been pregnant before had a vitamin C deficit. Tests made during the period of lactation do not permit the conclusion that lactation as such increases the vitamin C requirements. A vitamin C deficit, which existed during pregnancy, was not further increased by the process of lactation.

Disinfecting Substances for Determination of Blood Alcohol—Gutschmidt directs attention to the fact that the substances which are used for disinfecting the ear lobe or the finger tip previous to withdrawing a blood specimen for the determination of the alcohol content should not contain volatile or oxidizable substances such as alcohol, because the use of such substances may lead to errors in the determination of the alcohol content of the blood. He describes studies on various disinfectants, which led him to differentiate three groups. To the first group belong those which evaporate on the skin and which, if sufficient time is allowed to elapse before withdrawal of blood, will not change the blood alcohol values. However, these are not suitable for practical use, because it is usually impossible to await complete evaporation. This group includes alcohol, ether, benzine and so on. To the second group belong substances that do not evaporate on the skin but rather in Widmark's test tube, where they may effect reduction. To the third group belong substances that do not influence the titration values. The author concludes that only the latter group, which includes mercury bichloride and mercuric cyanide, is suited for the disinfection of the skin, when the alcohol content of the blood is to be determined.

Munchener medizinische Wochenschrift, Munich

84 881 920 (June 4) 1937 Partial Index

Removal of Toxic Foci and Prophylaxis of Rheumatism A. Slauck —p 881

*Survival Value and Mortality of Premature Births H. Siedentopf —p 884

Erythrocytometry in Healthy and Diseased Persons W. Schmidt Lange and S. Schreck —p 886

*Acute Myeloblastic Leukemia After Malaria Therapy in Dementia Paralytica R. Adelheim —p 889

Differential Diagnosis: Hysterical or Epileptic Attack H. Krisch —p 897

Mortality of Premature Births—Siedentopf reports the results of studies on the survival value and mortality of 1,012 premature births. These premature infants were born at the Leipzig clinic from 1920 to 1923. During 1934 and 1935, that is, from ten to fourteen years after birth, 188 of the original number could be ascertained to be alive and 100 of them could be subjected to an examination while information could be obtained about the other eighty-eight. It was found that, among those prematurely born who survive beyond the age of 10, physical or mental defects are not greater than among other children. Thus it can be said that prematurely born infants who complete the first decade of life have the same prospects as children who were not born prematurely. In discussing the mortality of premature births the author states that there were 305 stillbirths, 152 patients died at the clinic, 110 died before the end of the first three months, forty-two died before the completion of the first year and twenty-seven died later. Of those who weighed less than 1,000 Gm at birth, none left the clinic alive. The author thinks that the children who die at the clinic, that is, under the best possible care, are not viable but that among the others, who died later, there were many who, under suitable care, might have survived.

Acute Myeloblastic Leukemia After Malaria Therapy—Adelheim reports the clinical history of a woman, aged 55, who was subjected to malaria therapy on account of dementia paralytica. An acute leukemia developed and the patient died. To be sure, it is not known whether the leukemia existed before the vaccination malaria, but if so, the exacerbation at least must be ascribed to the influence of malaria. However, in view of the fact that the woman's general condition was favorable before the malaria therapy was begun, it is not probable that the leukemia existed before. The slight splenic tumor that existed previously but increased enormously during the malaria attacks may have been of syphilitic origin. The author believes that the malaria therapy caused the acute leukemia. He advises

blood tests in the course of malaria therapy and thinks that hematologic studies on a large number of patients undergoing this treatment will reveal interesting data on the condition of the blood during malaria.

Strahlentherapie, Berlin

59 1 188 (May 26) 1937 Partial Index

Persistent Carcinomas of Lip and Their Cure A. Hintze —p 1

Ray Therapy of Cutaneous Cancers with Especial Consideration of Radium Technic R. Müller —p 45

Qualitative and Quantitative Thrombocytic Blood Picture in Chronic Myeloid Leukemic Reaction (Myeloid Leukemia) Under Influence of Roentgen Treatment: Indications and Contraindications J. Arneft —p 104

Action of Therapeutic Roentgen Doses on Electrolyte Content of Plasma and Erythrocytes in Exophthalmic Goiter, Leukemia and Pulmonary Tumors Frida Schmitt and W. Basse —p 119

Production of Mutations by Beta Rays of Radium in *Drosophila Melanogaster* K. G. Zimmer, H. D. Griffith and N. W. Timofeeff-Resovsky —p 130

*Depth Dose in Epilation: Irradiations of Head A. Proppe —p 139

*Roentgen Lesions Following Therapeutic Irradiation J. Korbler —p 146

Depth Dose in Epilation of Head—Proppe says that the most important problem in the roentgen epilation of the head is the possibility of an impairment of the brain. He made experimental studies in order to obtain more information about this problem. Being convinced that the depth doses determined on water and paraffin phantoms cannot be applied to the human cranium, he made experiments on a skull from an adult. He found that, when epilation is done by means of 300 or 400 roentgens, approximately 105 or 140 roentgens reaches the cerebral cortex. He thinks that such a dose is probably harmless as far as adults are concerned but that in children it should be considered that the brain cells might have a greater sensitivity to rays and that the dose reaching the brain is higher because the cranium is thinner and poorer in calcium. Investigations on the possibility of injury to the cerebral cortex at the sites of overlapping of the ray action led him to conclude that in the region of the cerebral cortex the overlapping of the fields of irradiation does not result in the dangerous increases in dosage that are occasionally observed on the scalp. This explains why in severe roentgen injuries of the scalp there are no lesions in corresponding localizations on the cerebral cortex. However, since in case of irradiation from several sides it is the region of the basal ganglions, of the thalamus and of the hypophysis which is in the cross-fire of the rays, the author made experimental studies on the dose that reaches this region. He determined that, if the rays are applied from four different directions, 70 per cent of the surface dose will reach this region; if applied from five directions, from 80 to 85 per cent, and, if applied from six directions, from 110 to 120 per cent. In children the depth doses are even larger. The author advises that in the after-examinations of patients who have undergone roentgen epilation, not only a possible impairment of the intelligence should be searched for but also changes in the functions that are controlled by the basal ganglions. Moreover, he thinks that Schreus's irradiation from four sides is the method of choice for roentgen epilation. He advises against irradiation from five or six directions.

Roentgen Lesions Following Therapeutic Irradiation—Korbler says that, in spite of the fact that many roentgenologists assert that they have never seen roentgen burns, it must nevertheless be admitted that such burns do occur. To be sure, they are often not seen by the one who has caused them, but by others, for they often appear years later. The author cites a case from the literature in which a roentgen lesion recurred thirty-three years after the surgical cure of the first roentgen lesion and thirty-six years after the irradiation. He then describes several cases of late roentgen lesions which he himself observed. Among the patients with late roentgen lesions there is a surprisingly large number of physicians. He ascribes this to the fact that physicians more readily observe the changes that at first are rather inconspicuous. Moreover, physicians mention the earlier roentgen therapy in the anamnesis whereas lay persons either ignore the slight changes or fail to mention the earlier roentgen treatment, when they request medical aid. Another explanation might be that in physicians more often than in lay persons other eliciting causes such as subsequent irritations, are added, for there are usually other

factors besides the roentgen irradiation which cause the late sequels. The author further discusses regional differences in the sensitivity of the skin to roentgen rays, pointing out that the skin of the palmar surface of the hands and that of the neck is especially sensitive to roentgen rays. Regarding the prevention of roentgen lesions, he says that great caution is necessary in cutaneous irradiations and that the irradiated skin must be carefully guarded against all irritations, be they of a mechanical, chemical or thermic nature. Even exposure to the rays of the sun is dangerous. The author also stresses the necessity of keeping exact records of every irradiation, particularly of the dosage.

Wiener medizinische Wochenschrift, Vienna

87 661 688 (June 19) 1937 Partial Index

Pathology and Therapy of Tabes J Wagner Jauregg—p 661

Preparatory and After Treatment in Gastro-Intestinal Surgery R Friedrich—p 664

*Denervation of Renal Pedicle in Essential Hypertension W Lowenstein and A Weissmann—p 675

Denervation of Renal Pedicle in Essential Hypertension—Lowenstein and Weissmann point out that, whereas today blood pressure disease is regarded by the majority of clinicians as a functional disturbance of central origin, formerly it was considered generally the result of renal disease. Lately, however, the kidneys have been placed again in the center of the pathogenesis of hypertension. The experiments carried out by Braun and Samet were chiefly responsible for the renewed emphasis on the role of the kidneys in the pathogenesis of hypertension. Following a review of these studies and of the objections raised against it, Lowenstein and Weissmann report the clinical history of a woman with severe hypertension and retinitis. Since various therapeutic measures effected no improvement, it was decided to resort to denervation of the renal pedicle. The right kidney was decapsulated and the renal artery was exposed for a distance of 6 cm. The adventitia was removed and a cresol-phenol preparation was applied to the artery. This application resulted in necrosis of the tissues. Immediately after the operation, the blood pressure decreased considerably but the other symptoms were not changed. Moreover, the decrease in blood pressure was only temporary, for it soon increased again to the old level. The authors suggest that the decrease in blood pressure was not caused by the denervation but rather by the fever that followed the operation, for they repeatedly observed that intercurrent fever reduces a high blood pressure. They agree with F Fuchs, who rejected the theoretical conclusions which Braun and Samet deduced from their animal experiments on renal denervation.

Novyy Khirurgicheskiy Arkhiv, Dnepropetrovsk

38 1 320 (No 1 and 2) 1937 Partial Index

Acute Diffuse Peritonitis and Its Treatment V N Shamov—p 10

Tuberculous Peritonitis P G Chasovnikov—p 30

*Treatment of Pneumococcal Peritonitis E Khr Koch—p 48

Treatment of Typhoid Perforative Peritonitis M A Mir Kasimov—p 56

Treatment of Diffuse Peritonitis A A Termeryan—p 58

Pouring of Alcohol into the Peritoneal Cavity to Prevent Perforative Peritonitis L Ya Kleiman—p 64

Experimental Data Bearing on Treatment of Acute Generalized Peritonitis K F Kaplan—p 65

Treatment of Pneumococcal Peritonitis—On the basis of his own material and of a review of the literature, Koch concludes that pneumococcal peritonitis is a disease of children of the preschool age and almost exclusively of girls. The sources of infection are the bowel, the appendix, the pleura and, in girls, the genitalia. Hematogenous infection following sore throat is possible. The symptom complex considered typical for this condition is rarely observed in practice, there being, as a rule, no pathognomonic signs of the disease. Differentiation from acute appendicitis presents great difficulties. Among suggestive symptoms the author mentions sudden onset frequently preceded by diarrheal stools, herpes labialis, high temperature, rapid pulse, prostration and a sharp neutrophilic leukocytosis. The finding of pneumococci in the vaginal smear is suggestive but not decisive. The finding of the pneumococcus in the blood favors definitely pneumococcal peritonitis. The history of a preceding angina vulvovaginitis, bronchitis or pneu-

monia is suggestive. Palpation gives most valuable information. In acute appendicitis there is much rigidity, while in pneumococcal peritonitis the abdomen presents a soft doughy enlargement with marked distention and diffuse tenderness. The author does not employ abdominal puncture for diagnosis. Operative intervention is contraindicated in the stage of shock, e.g., during the first two or three days. It is likewise contraindicated during the stage of diffuse peritoneal inflammation, since the exudate does not cause paralysis of the intestine and the intervention at this stage diminishes the resistance of the organism and increases the toxicity of the pneumococcus. Operation is indicated in the stage of encapsulation. Auto vaccines, serums and roentgen therapy during the first few days have not so far given definite results.

Hospitalstidende, Copenhagen

80 589 600 (May 25) 1937

*Eosinophilia After Intravenous Injections of Oil II Relation of Bone Marrow and Significance of Spleen J Engelbreth Holm and C C Winkel Smith Statistical Assistance by G Rasch—p 589

Eosinophilia After Intravenous Injections of Oil—Engelbreth-Holm and Smith conclude that the eosinophilia established in the blood after intravenous injections of oil is probably due to an effect on the bone marrow with new formation of eosinophil leukocytes in the marrow. During the course of this new formation the content of eosinophil cells in the bone marrow seems to undergo certain shifts. The curve is wavy, with peaks on the fifth and the tenth day after start of the oil injections and above normal during the entire period. The curve may perhaps be explained as the resultant of two curves, one expressing the increased production of cells in the marrow, the other the increased transmission of cells to the blood stream, the two curves having a common peak but not running parallel. A possible relation between the number of cells in the marrow and in the blood can be established only by examination in series or by repeated frequent examinations. Intact spleen function is not necessary for the development of eosinophilia.

Ugeskrift for Læger, Copenhagen

99 567 594 (May 27) 1937

*Chronic Fibrous Adhesive Pericarditis (Symphysis of Pericardium) Report on Fifty Seven Necropsy Cases H C A Lassen—p 567

Intrapelvic Pressure and Clinical Significance J Olesen—p 511

*Investigations on Blood Sedimentation Reaction in Stored Blood S Christensen and S A Holbøll—p 576

Chronic Fibrous Adhesive Pericarditis—Lassen says that of the fifty-seven cases (in thirty-two men and twenty-five women, about half of them over 60 years of age, ten under 40) out of 1,601 necropsies from the medical division of the Kommunehospital, or between 2 and 3 per cent, the postmortem diagnosis was total symphysis of the pericardium in forty-two and almost complete obliteration of the pericardial sac in fifteen. In twenty cases there was history of rheumatic fever, in two of pulmonary tuberculosis and in nine of syphilis or active syphilitic infection at the time of death. In the majority, cardiac or circulatory disturbances dominated on final hospitalization. In thirty-three, cardiac insufficiency was assigned as the cause of death, in seventeen as a contributing cause, and in seven no sign of cardiac insufficiency was noted. The twelve cases are described in which the author believes that the diagnosis of cardiac symphysis might have been made clinically or suspected. He says that study of the operability of the fifty-seven patients on the basis of all available information indicates that probably none could have been operated on successfully. Two additional cases with clinical diagnosis of symphysis of the pericardium are reported in which operation is being considered.

Blood Sedimentation Reaction in Stored Blood—Christensen and Holbøll find that even after from one to three hours the sedimentation values are lowered by about 10 per cent and after six hours by about 20 per cent. The reduction varies somewhat with different specimens. After twenty-four hours' storage the sedimentation values are always very low, on the average about one third of the values in fresh blood. Covering the blood with liquid petrolatum does not prevent the reduction of the sedimentation values of stored blood.

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THE PATHOLOGY OF ANGIOID STREAKS IN THE FUNDUS OCULI

CHAIRMAN'S ADDRESS

WILLIAM L. BENEDICT, M.D.
ROCHESTER, MINN.

According to Treacher Collins,¹ the first recorded case of what is now known as angiod streaks in the fundus oculi was that presented at a meeting of the Ophthalmological Society of the United Kingdom by Robert W. Dooyne in 1889. This case was reported in the *Transactions of the Ophthalmological Society of the United Kingdom* in September 1889, and a colored illustration of the fundus accompanied the report.

Dooyne's patient had suffered an injury to his right eye from a block of wood six weeks prior to examination. Central vision was lost, but he seemed to have good peripheral vision (RV = 6/60). The description of the fundus was briefly given as follows: "In the right eye there is an extensive choroidal hemorrhage, which is now clearing up, leaving patches of atrophy, such as are seen in the left eye. In all directions throughout the choroid of both eyes, especially around the disks, are irregular jagged lines, nearly all deeply pigmented. The irregularities and jags in their outline exactly correspond in most places, and are probably due to rupture of the pigment layer of the retina." After the choroidal hemorrhage had cleared up, which required a few weeks, the other condition remained the same and vision improved to 6/18.

In 1892 Plange² reported a condition which he thought had not previously been described which "bore a certain similarity to the disease known as retinitis striata, but in etiology resembled retinitis proliferans." The patient was a woman, aged 38. Both eyes were affected. The streaks radiating from the disk ended in retinal hemorrhages. He noted a "deposition of pigment in striae in the retina after hemorrhage, followed by changes, probably hyperplastic, in the supporting fibers of Muller."

After reading Plange's article, Knapp³ thought that the explanation of the condition in his case was similar. Knapp had noted and sketched pigmented jagged lines in the fundi of a patient he had seen two years previously. He had offered no explanation of this occurrence. In his report, printed in the same volume of

the *Archives of Ophthalmology* and in the pages immediately following Plange's article, he wrote: "In this communication it has not been my intention to discuss in detail the changes extravasated blood may undergo in the retina, but to furnish a second case of the rare and puzzling formation of dark angiod streaks which Dr. Plange has described." From this statement it would seem that Knapp was either not aware of Dooyne's report or believed that Plange's description better fitted his case. As a matter of fact, Collins did not call attention to Dooyne's report until 1923, but in his paper he referred to the condition described by Dooyne as "angiod streaks," a term first applied by Knapp and now quite generally used to denote this particular picture.

When one compares the description in Dooyne's case with that in Plange's, it seems probable that the changes in the fundi may well have been brought about by different causes. In Dooyne's case, in which injury had occurred, after the choroidal hemorrhage had disappeared the jagged lines were free from hemorrhage and appeared as ruptures of a thin membrane, which allowed a clearer vision of the deeper lying pigmented tissue. In Plange's case there appeared to be a deposit of pigment in striae in the retina after hemorrhage. In the one case the streaks were thought to be due to absence of pigment whereas, in the other, there was deposited a pigment of extraneous origin, probably, but not surely, from extravasated blood.

Many case reports published during the next thirty-six years gave valuable information regarding the nature of angiod streaks and their association with pathologic changes in the choroid and hemorrhages in the retina. A few cases were described in which hemorrhages were not found on repeated examination. I have frequently examined one patient who has been under observation for eight years and have never seen hemorrhages in that fundi.⁴ The streaks are always accompanied by choroidal changes of significant extent, although visual acuity may not be seriously impaired unless the macular region is involved. Angiod streaks are found only in adults, having never been observed in children, and they are almost always bilateral.

Explanations of angiod streaks have been offered by various authors, and while these explanations have been influenced somewhat by their own ophthalmoscopic observation, they have been based primarily on the views of previous writers. As the disease does not require enucleation of the eye, pathologic examinations of undoubted cases have not been made. Conceptions of the histopathology of angiod streaks have therefore been constructed from the ophthalmoscopic appearance of the fundi, the course of the disease, the effects on vision, and constitutional disturbances.

From the Section on Ophthalmology, the Mayo Clinic.
Read before the Section on Ophthalmology at the Eighty-Eighth Annual Session of the American Medical Association, Atlantic City, N. J., June 9, 1937.

1. Collins, E. T. On the Aetiology of Angiod Streaks in the Fundus Oculi. *Tr. Ophth. Soc. U. Kingdom* 43: 273-287, 1923.

2. Plange, O. On Pigment Striae with Secondary Changes in the Retina After Hemorrhage. *Arch. Ophth.* 21: 282-288, 1892.

3. Knapp, H. On the Formation of Dark Angiod Streaks as an Unusual Metamorphosis of Retinal Hemorrhage. *Arch. Ophth.* 21: 289-292, 1892.

4. Benedict, W. L. and Montgomery, Hamilton. Pseudoxanthoma Elasticum and Angiod Streaks. *Am. J. Ophth.* 18: 205-212 (March) 1933.

Collins¹ in 1923 referred to the pathologic papers of Lister and of Magitot. The condition described by Lister pathologically had not been seen clinically, and the case described clinically as well as pathologically by Magitot was by no means a typical one of angioid streaks. Collins's conception of the pathology of the streaks was of a deposition of hematogenous pigment derived from subchoroidal hemorrhage in the perivascular spaces of the short ciliary arteries composing the circle of Zinn, the branches proceeding from it being filled with, and blocked by, blood pigment (hematoidin and hemosiderin crystals).

Verhoeff⁵ in 1928, in a paper read before this section, according to Zentmayer,⁶ who discussed his paper, gave "an exhaustive detailed description of the microscopic changes in an eye that had been enucleated following an iridectomy undertaken for the relief of secondary glaucoma consequent on an ulcerative keratitis. The period over which the eye had been inflamed was more than three months. No ophthalmoscopic examination of this eye had been made by Dr. Verhoeff, nor was any record of such examination obtainable. Macroscopically, after enucleation, dark angioid streaks were seen over a portion of the fundus. In the fellow eye, the fundus of which was examined, no angioid streaks were seen, but changes were present around the optic disk in the nature of a gray zone with two white streaks extending therefrom." On microscopic examination of the enucleated eye, Verhoeff found marked fibrosis of the choroid in the whole of the inner lower half of the fundus, and the inner surface of the fibrosed choroid showed many projections of various sizes. "A segment of the fundus, from which the retina had been peeled off, showed perfectly typical dark angioid streaks which branched and anastomosed. Microscopic examination of the eye showed the streaks to be ridges comprising the inner layers of the choroid, produced by cicatricial contraction of fibrous tissue which had replaced the deeper layers. The fibrosis involved almost uniformly about one-half the total extent of the choroid and was associated with extensive obliteration of the vessels and a few subchoroidal hemorrhagic extravasations." On the basis of the observations in his case, Verhoeff suggested as a descriptive designation for the condition now known as angioid streaks the term "fibrosis choroideae corrugans".

Pathologic changes in the choroid have been noted in nearly all reports of cases of angioid streaks of the fundus oculi. These changes are in many cases quite extensive and associated with hemorrhages in the retina and choroid. The fact that angioid streaks appear in eyes in which hemorrhages are not seen at the time of examination does not prove that the streaks can be formed without hemorrhage. On the other hand there is as yet no definite proof that extravascular extravasation of blood has any definite part in the formation of the streaks. Whether or not ridges formed by fibrosis in the outer layers of the choroid are always present can be decided only after further microscopic examination of eyes which undoubtedly have angioid streaks.

Gronblad⁷ in 1929 and in 1932 called attention to the association of angioid streaks and pseudoxanthoma elasticum. This association has been verified by numerous subsequent observations. These reports gave rise to speculation as to the possibility of angioid streaks in the fundus oculi being due to changes in the glass membrane following some degenerative process. A pathologic report on an eye known to contain angioid streaks has not been made since the association of angioid streaks and pseudoxanthoma elasticum was first noted, but at least two explanations have been offered. Clay⁸ thought that "short posterior ciliary veins passing through the sclera in an anomalous manner become thrombosed mechanically by the increase in the fibroelastic tissue of the sclera, resulting in the appearance of hemorrhages, exudates and streaks corresponding to the vessels involved." About the same time, Wasseenaar⁹ explained the streaks as abnormal vessels which find their way between the two blades of the embryologic eye and hence are of congenital origin. Others have proffered theories of streak formation that are only modifications of explanations previously made and are based entirely on ophthalmoscopic examination and speculation. In April 1937 Finnerud and Nomland¹⁰ reported cases of the three possible combinations of pseudoxanthoma elasticum and angioid streaks of the retina: (1) pseudoxanthoma and angioid streaks, (2) pseudoxanthoma alone and (3) angioid streaks alone. They demonstrated by staining methods, by incineration, by quantitative chemical analysis and by microchemical means that the degenerated elastic tissue in pseudoxanthoma elasticum is richly infiltrated with calcium and that this calcium occurs in the form of calcium phosphate.



Fundus of left eye showing angioid streaks and peripapillary choroiditis

In September 1936 I enucleated the blind right eye, for absolute glaucoma, of a patient who had typical angioid streaks in the left eye and pseudoxanthoma elasticum of the sides of the neck and in the axillary folds. A report of this case is as follows:

REPORT OF CASE

A man, aged 46, came to the clinic for treatment of a blind, painful eye. After he had been hunting all day in November 1933, his eyes felt sore and, on returning home, he put a proprietary ointment in his eyes and went to sleep. Next morning when he began to read the paper he noticed that his left eye was blind. He had no pain or discomfort. This eye remained blind for about six months and then sight was gradually recovered. The patient's eyes were not examined by an ophthalmologist. In June 1936 he then noted a disturbance of vision in his right eye. Flickering lights were followed by shadows, which gradually became more dense until only light perception was present two months later. Early in September the right eye became inflamed and painful. The pain increased in severity and spread over the right maxillary and mandibular region.

The patient was suffering severe pain about the right eye when admitted to the clinic. Vision in the right eye was light

7 Gronblad Ester. Angioid Streaks—Pseudoxanthoma Elasticum. Vorläufige Mitteilung. Acta ophth. 7: 329, 1929. Pseudoxanthoma Elasticum and Changes in the Eye. Acta dermat. ven. 13: 417-422 (Nov.) 1932.
8 Clay Grady. Angioid Streaks of the Retina and Pseudoxanthoma Elasticum. Tr. Sect. Ophth. A. M. A. 1932, pp. 182-205.
9 Wasseenaar T. Angioid Streaks of the Fundus Oculi. Am. J. Ophth. 16: 759-766 (Sept.) 1933.
10 Finnerud C. W. and Nomland Ruben. Pseudoxanthoma Elasticum. Proof of Calcification of Elastic Tissue. Occurrence With and Without Angioid Streaks of the Retina. Arch. Dermat. & Syph. 35: 633-662 (April) 1937.

5 Verhoeff F. H. The Nature and Pathogenesis of Angioid Streaks in the Ocular Fundus. Tr. Sect. Ophth. A. M. A. 1928, pp. 243-263.
6 Zentmayer William. In discussion on Verhoeff's.

perception only, in the left eye 6/15 without glasses. The right eye showed acute congestive glaucoma, the cornea being so cloudy that ophthalmoscopic examination was impossible. The tension was 112 mm of mercury (Schiotz), the left eye was free from inflammation, the tension being 14 mm of mercury. The left cornea was clear and the fundus could be clearly seen. The disk was full and slightly pale and the retinal vessels showed moderate sclerosis of the hypertensive type. There was no retinitis. About the disk was an angioid ring from which streaks radiated in jagged lines toward the periphery, as shown in the accompanying illustration. The fundus was photographed and the streaks were clearly demonstrated. General examination revealed severe hypertension with definite arteriosclerosis. There were no symptoms referable to the heart or kidneys. The patient's father had died of apoplexy at the age of 55, his mother had died of heart trouble at 59. Six siblings all had high blood pressure, and all were in broken health by the fourth or fifth decade of life.

The patient's blood pressure was high. On the day he arrived it was 242 mm of mercury systolic and 154 diastolic and the pulse rate was 132 beats per minute. On the following day it was 228 systolic and 150 diastolic and the pulse rate was 114, on the third day the blood pressure was 250 systolic and 150 diastolic. The right eye was enucleated under sodium ethyl (1 methyl butyl) thiobarbiturate anesthesia. Healing of the socket was satisfactory. On September 19, correction for the left eye was given: S + 0.50, cyl + 0.25, axis 165, vision 6/7.

The enucleated eye was placed in solution of formaldehyde for fixation. After two days it was divided at the equator and the posterior segment was examined for angioid streaks. By use of a Zeiss binocular magnifier and a Shahan lamp angioid streaks could clearly be seen when the light was applied from the front. By transradiation the streaks could not be distinguished from the shadows of the vessels in the sclera and choroid. Attempts were made to photograph the streaks by reflected light, by transradiation and by infra-red light.

Photographs made by reflected light showed the streaks rather faintly. They appeared as jagged dark lines radiating from an incomplete ring near the disk and extended from 2 to 4 disk diameters beyond the disk margin. The posterior half of the eye was embedded in celloidin and sectioned in the equatorial plane. It was thought that, by making sections which showed tissue completely surrounding the disk, any vascular change or anomaly could be detected and followed through serial sections.

Microscopic examination of these sections however, failed to show any pathologic changes that could be identified as angioid streaks. The retinal structures appeared practically normal, except for numerous small vacuoles resulting from fixation and embedding. The retinal vessels were patent and showed no sclerosis. There was no retinal hemorrhage. The choroid showed perivascular lymphocytic infiltration about many of its vessels and heavy deposits of pigment surrounding the vessels and nerves. Sclerosis and obliteration of the choroidal vessels were not seen. The veins were large and thin walled. The arteries were all patent and their walls were not thickened. The lamina vitrea was regular except for a few very small hyaloid nodules. There was some fibrosis of the choroid, but folding or projections of the inner layer of the choroid were not present. There was perivascular lymphocytic infiltration in the episcleral vessels, most marked in the anterior sections, and a considerable amount of pigment about the vessels and nerves traversing the sclera. In the hematoxylin stained sections there was no evidence of increased calcium in the choroid or the lamina vitrea.

None of the proffered explanations of angioid streaks could be confirmed by microscopic examination of the sections of the enucleated eye. There were no thrombosed vessels about the zonule of Zinn, as suggested by Collins and Clay, nor were there any abnormal vessels, as suggested by Wassenaar. Some fibrosis was present, particularly about the disk, but folds or projections were not found, probably as Dr Verhoeff (who kindly examined several sections) suggested because they showed the choroid cut obliquely, so that the streaks would be cut obliquely and no doubt partly longitudinally and would therefore be difficult to recognize. Further doubt of the presence of folds in the choroid was found in the fact that photographs

taken by transmitted light failed to show any streaks or lines that corresponded to those seen in photographs taken by reflected light.

Rents in the pigment epithelium, an explanation offered by some authors, could not be confirmed. The retina appeared to be normal but was separated from its base by manipulation in attempts to get clearer photographs of the streaks before fixation was complete. Increased amounts of calcium found by Finnerud and Nomland in pseudoxanthoma elasticum could not be demonstrated in the hematoxylin stained sections of the eye.

The cause of the patient's temporary blindness in the left eye in 1933 could not be determined. Because of the sudden onset of this blindness and the gradual but slow recovery of vision, one may presume that a hemorrhage of the retina or choroid was responsible. One cannot assume however, that if a hemorrhage occurred it had any connection with the formation of the angioid streaks which were first seen three years later. In spite of the patient's family history of vascular disease and his high blood pressure, the fundus of his enucleated eye did not show the retinitis of hypertension. There was no marked change in the macular region of the left eye, as proved by a nearly normal visual acuity with glasses.

A definite cause could not be found for the acute glaucoma of the right eye, but as the failure of vision in this eye was gradual, as contrasted with the sudden loss of vision in the left eye, it may be assumed that the intra-ocular tension had risen slowly to the point of producing blindness two months before the onset of pain. The absence of microscopic evidence of hemorrhage in the enucleated eye precluded the possibility of severe hemorrhage as the cause of the blindness.

EPIDEMIC DIARRHEA OF THE NEW-BORN

I PRELIMINARY CONSIDERATIONS ON OUTBREAKS OF HIGHLY FATAL DIARRHEA OF UNDETER- MINED ETIOLOGY AMONG NEW-BORN BABIES IN HOSPITAL NURSERIES

JOHN L. RICE, MD
WILLIAM H. BEST, MD
SAMUEL FRANT, MD
AND
HAROLD ABRAMSON, MD
NEW YORK

From time to time, reports appear in the medical literature on outbreaks of diarrheal disorders among residents either of public institutions or of localized community areas. In most instances these recorded epidemics have been of known etiology and have involved adults as well as infants and older children. However, surprisingly few reports have been published on outbreaks of infectious diarrhea solely involving groups of new-born babies. It is of interest, moreover, that instances of such epidemics have been recorded only within recent years. It is therefore our purpose to present a summary of our experiences during the past three years with epidemics of highly fatal diarrhea affecting new-born infants in the nurseries of lying-in institutions in New York City.

THE SITUATION OUTSIDE NEW YORK CITY

In view of the scanty literature on the problem, it was deemed worthwhile to review the essential facts of the few reported epidemics. For this purpose, table 1 is presented, giving in chronologic order a summary

From the Department of Health, New York City. Dr. John L. Rice, Commissioner.

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of outbreaks of diarrhea of the new-born in localities other than New York City¹

In these reported epidemics certain common clinical features predominate, namely, the presence of severe diarrhea, dehydration and toxicity without manifest evidence of parenteral infection, and an unusually high average case fatality rate of about 45 per cent, a figure closely comparable, as will be pointed out subsequently, to the case fatality rate in our series of cases. In addition, attention should be called to the few tissue changes that have been noted at autopsy and to the diversified array of morbid agents to which the various epidemics have been ascribed.

As far as we have been able to ascertain, aside from the foregoing reports and those by Barenberg and his co-workers² and by Murphy and Mallozzi,³ the details

born," meriting consideration apart from other primary and secondary diarrheal disorders of infancy. We base our opinion on the remarkable similarity in the clinical picture, clinical course and mode of spread of the epidemics in the nurseries of the various hospitals, the specificity of the age group involved, the presence of a definite period of incubation, the constantly high morbidity and mortality rates, the similar and surprisingly few tissue changes that have been found at necropsy, and the difficulty at present of culturing the etiologic agent by usual routine bacteriologic methods.

Table 2 presents in chronological order the essential details of the epidemics of diarrhea of the new-born in New York City. The data are not to be considered as either complete or final, the reasons for which will be brought out subsequently. However, they are the clos-

TABLE 1—*Chronological Summary of Epidemics of Diarrhea of the New-Born That Have Occurred in Localities Outside New York City*

No	Reference	Hospital	Locality	Dates of Outbreaks	Season	Total Number of Cases of Diarrhea	Total Number of Fatal Cases	Case Fatality Rates	Organisms Recovered on Culture
1	Jampolis M, Howell M K, Calvin, J K and Leventhal M L. <i>Bacillus Mucosus Infection of the New Born</i> , Am J Dis Child 43: 70-8 (Jan.) 1932	Michael Reese	Chicago	Feb 3 June 10 1930	Winter spring	34	14	41.0	<i>B. mucosus capsulatus anhemolytic streptococci</i>
2	Johnson M M, and Kaake M J. <i>Bacteriologic Study of Three Small Epidemics of Infectious Diarrhea in Children</i> , J Pediat 7: 65-69 (July) 1935	Sick Children	Toronto Ont	May 12 June 1, 1933	Spring	15	9	60.0	<i>B. dispar</i>
3	Dufaney A D and Michelson, I D. <i>A Study of B. Coli Mutabile from an Outbreak of Diarrhea in the New Born</i> , Am J Pub Health 25: 1241-1251 (Nov.) 1935	Memphis General	Memphis Tenn	1933-1934	Winter			47.0	<i>B. coli mutabile</i>
4	Name of hospital omitted since no published report on the outbreak has appeared in the literature	X	Teaneck N J	Dec 1934	Winter	20	11	52.0	
5	Durand J I. <i>Epidemic Diarrhea in a Hospital Nursery Apparently Caused by a Monilium</i> , J Pediat 7: 726 (Nov.) 1935	Providence	Seattle	Jan 14 June 14 1935	Winter spring	23	14	61.0	<i>Monilium</i>
6	Aitoff M and Daunay R. <i>Bacille dysenteriforme. Agent pathogene probable d'une enterite grave. A caractere epidemique dans un service de nouveau-nees</i> , Compt rend Soc de biol 121: 110-112 (Jan 11) 1936	Lariboisiere	Garches France	1935		5			<i>Intermediate form B dysentery (Shiga Flexner type)</i>
7	Craig W S. <i>Acute Alimentary Catarrh in the New Born</i> , Lancet 2: 68-71 (July 11) 1936	Royal Maternity	Edinburgh Scotland	3 1/2 years to Sept 1935		41	11	27.0	<i>B. coli B. pyocyaneus S. viridans and others</i>
8	Personal communication from Dr W J Orr. Names of hospitals not given	Y Z	Buffalo	1935		18	8	44.0	

of which will be included in our general discussion, no further communications on the problem of infectious diarrhea of the new-born have appeared in the recent literature. It is true that in 1928 the Dicks and Williams³ reported an epidemic of primary acute enteritis associated with mastoiditis among the infants at the Cradle, Evanston, Ill. The Morgan bacillus was considered the etiologic factor in this outbreak, but a review of the fatal cases described shows that many of the infants attacked were well beyond the new-born period.

THE SITUATION IN NEW YORK CITY

From our observations of the various epidemics that have occurred within the city of New York, and from such added information as can be gleaned from the literature, it is our opinion that we are dealing with a new clinical entity, "epidemic diarrhea of the new-

est approximations that were possible, as the syndrome has not been a reportable condition.

During the period from July 1934 to December 1936 inclusive, a total of 3,769 babies were delivered at the eleven lying-in institutions at the times designated in the table. Ninety-seven of these babies were still born. Of the remaining 3,672 live-born babies, 138 died shortly after birth from neonatal causes of death such as prematurity, birth injuries, atelectasis, asphyxia and congenital malformations. There were thus about twenty-six stillbirths and thirty-eight neonatal deaths per thousand live births at the hospitals with which we are concerned, as compared with rates of fifty stillbirths and twenty-eight neonatal deaths in infants under 1 month of age per thousand live births for New York City during the same period.

Among the 3,672 live-born babies there occurred 505 known cases of epidemic diarrhea of the new-born, with a morbidity rate of 14 per cent. Two hundred and thirty-four known deaths occurred, a mortality rate of 7 per cent. The case fatality rate was exceedingly

1 The references are given in table 1.
2 The references are given in table 2.
3 Dick G F, Dick Gladys H and Williams J L. *The Etiology of an Epidemic of Enteritis Associated with Mastoiditis in Infants*, Am J Dis Child 35: 955-963 (June) 1928.

high, namely, 46 per cent. It should be emphasized that these rates were exclusive of the "usual" neonatal mortality from causes other than epidemic diarrhea.

EPIDEMIOLOGY

Age—The disorder specifically involves new-born infants during the first two or three weeks of life. Of those babies who took ill after discharge from an infected nursery, many were readmitted subsequently

incidence of the disease with respect to respiratory infections of the fall-winter months or with respect to diarrheal disorders of the spring-summer months.

It is of interest to observe the closeness of the various epidemics with reference to time and season, and the fact that the secondary or recurrent outbreaks experienced by hospitals A, C, D and G took place after an apparent interval-free or latent period of from four to five months. It should also be noted

TABLE 2—Chronological Summary of Epidemics of Diarrhea of the New-Born That Have Occurred in New York City,

No	Hospital*	Borough	Dates of Outbreaks	Season	Total Number of Babies Born	Total Number of Still Born Babies	Total Number of Live Born Babies	Total Number of Cases of Epidemic Diarrhea	Other Causes of Epidemic Diarrhea	Morbidity, per Cent	Total Number of Fatal Cases	Mortality, per Cent	Case Fatality Rate	Comment
1	A (1)	Queens	July Sept 1934	Summer	400	14	386	17	72	18.0	32	8.3	44.0	
2	A (2)	Queens	Feb April 1935	Winter spring	200	10	190	7	32	17.0	16	8.4	50.0	
3	B	Brooklyn	April June 1935	Spring	531	11	520	6	58	11.0	23	4.4	38.0	147 additional mild cases B dysentery Flexner found in stools of 3 babies and 4 nurses
4	O (1)	Bronx	July 1935	Summer	67	2	65	3	32	49.0	14	21.5	44.0	Barenberg L H Levy W and Grand M J H An Epidemic of Infectious Diarrhea in the New Born J A M A 106 1256 1260 (April 11) 1936
5	D (1)	Bronx	July Aug 1935	Summer	185	4	181	12	8	4.0	5	3.0	53.0	
6	E	Bronx	Sept Dec 1935	Fall	506	8	498	10	34	7.0	30	6.0	88.0	B dysentery Flexner found in stools of 2 babies and 2 nurses
7	F	Manhattan	Oct Nov 1935	Fall	41	0	41	2	18	44.0	0†	0.0	0.0	Murphy J R and Mallozzi M A Funus Findings in Diarrhea Outbreak in New Born Arch Pediatr 53 276 277 (April) 1936 (monilium)
8	D (2)	Bronx	Dec Jan 1935-36	Winter	160	6	154	4	23	15.0	8	5.0	34.0	
9	G (1)	Manhattan	Jan 1936	Winter	66	3	63	11	29	46.0	7	11.0	24.0	
10	O (2)	Bronx	Jan Feb 1936	Winter	81	1	80	4	8	10.0	3	4.0	38.0	
11	H	Queens	June July 1936	Summer	82	3	79	6	28	35.0	17	21.5	55.0	Streptococcus haemolyticus isolated from udder (mastitis) of one cow of herd supplying milk to babies
12	I	Brooklyn	June Aug 1936	Summer	223	7	226	3	43	15.0	21	9.3	49.0	
13	G (2)	Manhattan	July Oct 1936	Summer fall	712	11	701	43	49	7.0	26	4.0	54.0	
14	J	Manhattan	July Oct 1936	Summer fall	363	14	354	9	54	15.0	19	5.4	35.0	
15	K	Manhattan	Sept Oct 1936	Fall	92	1	91	1	14	15.0	11	12.0	79.0	
16	O (3)	Bronx	Dec 1936	Fall	45	2	43	0	4	9.0	2	5.0	50.0	
					3 769	97	3 672	133	503	14.0	234	6.4	46.0	

* Names of hospitals have been omitted and indicated by letters since with the exceptions of hospitals C and F no published reports on outbreaks have appeared in the literature. The numbers in parentheses denote first, second and third outbreaks in the same institution.

† It is of interest to note that no fatal cases occurred in this hospital. The only explanation that can be offered is that the first few cases of the disorder were immediately recognized. The maternity and new-born services were promptly closed to further admissions and early and intensive treatment was instituted in all sick infants. The clinical picture was similar to that observed in other hospitals.

to open pediatric wards and were cared for by the regular nursing staffs. At no time did instances of cross infection appear among the older infants and children in the ward or among the adult personnel, nor were there secondary cases among the siblings or adult members of the ill infant's family.

Sex—There is no apparent sex difference in the incidence of the disorder.

Race—Babies of all races and nationalities have been involved in the epidemics. This factor varied with the section of the city in which the affected hospital was situated.

Season—An analysis of the data with respect to seasonal variation of the disorder is shown in table 3. No definite relationship can be made out between the

that, with the exception of Richmond, all boroughs of the city had outbreaks of the disorder.

Climate—It is to be noted that epidemics of the disorder have been observed particularly in cities that are situated within the north temperate zone. They are Seattle, Chicago, Toronto, Buffalo, New York City and its adjacent areas, perhaps Baltimore,⁴ Memphis, Edinburgh and Garches, near Paris, France.

Socio-Economic Conditions—The outbreaks occurred mostly in the ward services. However, in two outbreaks in which the ward and private facilities were in close proximity, babies of mothers in private pavilions also were infected.

⁴ Personal communications to the authors from Dr E L Holt Jr of Johns Hopkins Hospital, Baltimore.

Nutrition—No definite relationship seems to exist between the state of nutrition of the infants and the incidence of infection, although it is our impression that prematurely and immaturely born infants and those suffering from other abnormalities of birth are more particularly prone to the disease

Feeding—Both breast fed and artificially fed infants appeared to be equally susceptible to the disorder With respect to the breast fed infants this statement deserves further comment, since in all hospitals it has become routine to give new-born infants some form of additional food or fluid during the first week or longer in order to prevent early weight loss This modern pediatric practice has made the old distinction between breast fed and artificially fed infants much less sharp

SYMPTOMATOLOGY

The clinical manifestations of the disorder are most interesting At times the condition may be preceded for one or two days by prodromal symptoms such as occasional vomiting, arrested weight accretion, listlessness and refusal of feedings More often, however, the onset is acute and the clinical picture rapid in its

TABLE 3—Seasonal Morbidity and Mortality in Epidemics of Diarrhea of the New-Born

Season	Number of Live Born Babies	Epidemic Diarrhea			
		Cases		Deaths	
		Number	Per Cent	Number	Per Cent
Spring	520 } 2 512	58 }	11.0 }	23 }	4.5 }
Summer	1 992 }	253 }	12.7 }	134 }	6.7 }
Fall	673 }	70 }	10.4 }	43 }	6.4 }
Winter	457 }	92 }	20.1 }	34 }	7.4 }
Totals	3 672	500	13.6	234	6.4

course We are concerned essentially with a group of new-born babies in the usual hospital nursery The babies seem to be healthy and thriving normally when it is noted that one of them is unusually drowsy, being awakened with difficulty and having a short, feeble cry The body temperatures may vary from 99 to 100 F, occasionally somewhat higher It is next observed that the baby has had a characteristic very watery yellow stool, less frequently yellowish brown or greenish, containing no mucus, pus or blood Occasional vomiting may occur, abdominal distention may become a disturbing feature

The general appearance of the baby soon changes from that of a previously healthy nursing to that of a markedly dehydrated and marantic infant in shock Watery stools of increasing frequency occur and weight losses amounting to as much as a pound or more within a period of twenty-four hours may be noted In a severe case death of the baby may occur in one day, or the infant may linger on for from five to seven days, becoming semicomatose and perhaps developing in the interim secondary terminal complications such as otitis media and bronchopneumonia In milder cases recovery is heralded by gradually subsiding temperature, diminution in the frequency of stools, arrested weight loss and desire for food

In brief, the clinical picture is that of an acute intestinal toxosis, probably of primary origin, accompanied by watery yellow stools, abdominal distention, severe degrees of dehydration, rapid weight loss, little or no

temperature reactions except terminally or with the occurrence of secondary complications, and marked toxicity, drowsiness and shock Vomiting occurs infrequently Blood, mucus or pus in the stools and early fever are not usual features of the disorder Neurologic signs and symptoms are rare Laboratory examinations of the blood reveal abnormally high concentrations as well as severe degrees of acidosis In general, the prognosis is very unfavorable

MODE OF SPREAD

With the initial case serving as the focus of infection, additional cases occur, usually involving infants lying in adjacent bassinets The incubation period of the disorder appears to be a variable one Many infants showed manifest signs of the disease but two days after having been placed in infected nurseries, other babies became ill as late as the twentieth day of postnatal life The majority of cases occurred within these limits The spread of the infection is an irregular one, the babies coming down in groups of two or three or more Often many days, even as long as a week, may elapse between the occurrence of new groups of cases This is one of the misleading and distressing features of these epidemics During these interval free or latent periods the outbreak has often been considered at an end and the nurseries reopened to admissions of new babies, thereby providing further soil for the perpetuation of the epidemic In the hospitals that were investigated the outbreaks were never fully controlled until the maternity services were completely closed to new admissions, the babies discharged after a prolonged period of observation, and the obstetric and nursery quarters completely renovated

Many babies took ill after discharge from the hospital in apparently good condition These babies were readmitted to the pediatric services of the various hospitals Additional cases were found by follow-up home visits as well as by checking the death certificates of infants dying under 1 month of age throughout the city and tracing the deaths back to the institution of birth, regardless of the cause of death as given In this connection it is well to call attention to the observation of the members of the White House Conference on Child Health and Protection with reference to the meaningless diagnoses that are often recorded as being the cause of death of infants during the new-born period of life⁵

PATHOLOGY

Postmortem examination of the new-born infants who died during the course of the various epidemics revealed a marked lack of pathologic lesions As is not unusual in infectious diseases during the new-born period, the clinical severity of the disease was entirely out of proportion to the few induced tissue changes However, the observations of other investigators in this field of diseases of the new-born indicate similar experiences For example, Cruickshanks⁶ found in studies on gastro-intestinal disease as a cause of neonatal death that postmortem examinations of new born infants with clinical histories of vomiting, diarrhea and abnormal stools seldom showed evidences of a true enteritis Histologic examinations likewise failed to

5 White House Conference on Child Health and Protection 1A Inadequacy of Present Knowledge in Growth and Development of the Child, Part I General Considerations section 1 Medical Service 1937 pp 366-370
6 Cruickshanks J N Child Life Investigations The Cause of Neonatal Death London His Majesty's Stationery Office Privy Council Medical Research Council Report Special Report Series 145 March 25 1930 pp 35-43

substantiate such a diagnosis. Von Reuss⁷ also stresses the fact that, in infectious diseases of the alimentary tract of the new-born, local signs of inflammatory involvement of the intestinal mucosa are rarely encountered but that the significance of the digestive tract as a portal of entry for pathogenic organisms, especially during the new-born period, must not be underestimated.

In our series of cases the pathologic lesions consisted essentially of some congestion of the surface vessels of the intestinal tract, congestion of Peyer's patches of the ileum and occasional hemorrhagic areas, the mucous membranes appeared normal. There was frequently encountered some swelling of mesenteric lymph nodes. Other occasional manifestations were otitis media, parenchymatous degeneration of the liver, kidneys and heart, bronchopneumonia, and congestion of the dural and meningeal vessels. In general, however, no pathologic lesions of outstanding significance were found.

BACTERIOLOGY

Repeated attempts made to isolate the etiologic agent of the disorder were unsuccessful. Recovery of organisms was attempted from the gastro-intestinal tract and the upper respiratory passages. However, numerous cultures of the stools and of the nasal and pharyngeal secretions of the sick infants gave very indefinite results. Similar cultures taken from the nurses, physicians, mothers and other maternity and nursery service personnel also failed to reveal a causative organism. In the nose and throat cultures the usual varied flora of the upper respiratory passages was encountered, from the stools the organisms most frequently isolated were bacilli of the coli, proteus and pyocyanus groups. Occasionally infectious agents of the dysentery group of bacteria were found, but the results were highly inconsistent and could not be confirmed either by reexamination or by agglutination tests during various stages of the disease or after recovery. Blood culture studies and agglutination tests for organisms of the typhoid, paratyphoid, salmonella and abortus groups were likewise negative. Virus studies also failed to shed any light on the nature of the morbid agent. In passing, it should be mentioned that in one outbreak (hospital F) a monilium was isolated from the stools of one infant, a finding of interest in connection with the report of Durand¹.

As has been shown by the work of Hall and O'Toole⁸ and of Snyder,⁹ these indefinite results stress the complexity of the task of isolating and identifying bacteria in the constantly changing and varied intestinal flora of new-born infants. Poole and Cooley¹⁰ believe that the lack of uniformity of results is dependent on the following factors: (1) the technic that is used in procuring material for culture, (2) the type of patient under observation and the condition from which he is suffering, (3) the seasonal variation of diarrheal disorders and (4) the geographic locality of the occurrence of an epidemic. In addition, Gerstley¹¹ has called attention

to the well known differences between the intestinal floras of artificially and of breast fed infants.

Many difficulties are also encountered in bacteriologic studies on nasal and pharyngeal cultures of the new-born. Kneeland¹² found that infants in a maternity hospital acquired much of the normal flora of the upper respiratory passages during the first two weeks of life and that during that period there was a significant absence of pneumococci, hemolytic streptococci and influenza bacilli. In 80 per cent of the thirty new-born babies that were examined, initial throat cultures showed no growth until after the first feeding. Subsequently, the predominating organism was the nonhemolytic streptococcus (60 per cent), with *Staphylococcus albus* (27 per cent) next in frequency. Cultures of nasal secretions likewise showed no growth on the first post-natal day in 85 per cent of the babies and in 40 per cent on the second day. The predominating organism on the first positive nasal culture was *Staphylococcus albus* (76 per cent).

In this connection, mention should also be made of the investigations of Potter and Abel¹³ on the surface bacteria of the new-born. Although a few babies showed skin sterility at birth, the majority were non-sterile, *Staphylococcus albus* and *Bacillus coli* being isolated most frequently.

In general one cannot postulate a common etiology for enteric diseases in infancy. Yet the striking similarity in the clinical features of the various epidemics that we have observed lead us to believe that we are concerned with a common etiology in these outbreaks.

TREATMENT

As far as treatment of the sick babies is concerned, the results were uniformly disappointing. In general, the infants did not respond satisfactorily to the recognized modes of therapy in diarrheal disorders. Limited periods of starvation, fluid replacements, blood transfusions and step-up methods of feeding failed in most instances to stem the course of the disease. However, somewhat better results were obtained when the disorder was recognized early and when therapeutic measures were immediately begun and intensively pushed.

CONTROL AND PREVENTION

It is not within the scope of this report to consider in detail methods for the control and prevention of the disease. This aspect of the problem will be discussed fully in another communication. It should be emphasized, however, that the commonly employed procedures in the control of communicable diseases cannot be satisfactorily applied to this problem. The present arrangement of maternity and new-born services with the constantly changing and shifting populations requires special technics for the prevention and control of the spread of infection.

For the present it will suffice to state that the recognition of the first case of epidemic diarrhea of the new-born in a nursery necessitates immediate isolation of the sick infant. In addition, the infected nursery should be closed and the maternity service suspended until it can be definitely ascertained that no further cases will occur. Provisions should be made for the isolation of all secondary cases, and all new-born contacts should be

7. Von Reuss, A. Pathology of the New Born Period in Pfaundler and Schlossmann's Diseases of Children (English translation) Philadelphia J. B. Lippincott Company, 1 393 472, 1935.

8. Hall, J. C. and O'Toole, Elizabeth. Bacterial Flora of First Specimens of Meconium Passed by Fifty New Born Infants. *Am J Dis Child* 47: 1279 1285 (June) 1934. Intestinal Flora of New Born Infants with a Description of a New Pathogenic Anaerobe. *ibid* 49: 390 402 (Feb.) 1935.

9. Snyder, M. L. The Bacterial Flora of Meconium Specimens Collected from Sixty Four Infants Within Four Hours After Delivery. *J Pediatr* 9: 624 632 (Nov.) 1936.

10. Poole, M. W. and Cooley, T. B. Infantile Diarrhea. Preliminary Report. *Am J Dis Child* 43: 1101 1117 (May, part 1) 1932.

11. Gerstley, J. R., Howell, Katharine M. and Nagel, Beth R. Some Factors Influencing the Fecal Flora of Infants. *Am J Dis Child* 43: 555 565 (March) 1932.

12. Kneeland, Yale, Jr. Studies in the Common Cold. III. The Upper Respiratory Flora of Infants. *J Exper Med* 51: 617 624 (April) 1930.

13. Potter, R. T. and Abel, A. R. A Study of Surface Bacteria of the New Born and the Comparative Values of Cleansing Agents. *Am J Obst & Gynec* 32: 1003 1009 (June) 1936.

observed for a minimal period of three weeks before being discharged as normal. In this way, scattering of sick infants will be avoided and early treatment may be begun in new cases. The adoption of a technic of "aseptic nursing" is of importance.

Measures should also be taken for the examination and bacteriologic investigation of all maternity and new-born service personnel, as well as of mothers. In addition, a thorough study should be made of the milk supply and accessory formula preparations and all formula room equipment. Likewise, a complete inspection of the sanitary facilities is indicated. It has been our experience that in institutions where prompt, vigorous and complete measures were employed, morbidity and mortality from the disease were lowest. Half-way measures served only to accomplish the opposite effect.

As a preliminary measure in the control of the disease, the Sanitary Code of New York City was amended to include as a reportable condition all cases of diarrhea in the new-born (up to the age of 3 weeks) in lying-in institutions.

SUMMARY

This report is a preliminary analysis of outbreaks of highly fatal diarrhea that have occurred among new-born babies in the nurseries of eleven lying-in institutions of New York City from July 1934 to December 1936. Among 3,672 live-born babies, 505 cases of the disease occurred, a morbidity rate of 14 per cent. Of the sick infants 234 died, a mortality rate of 64 per cent. The case fatality rate was 46 per cent. Extensive bacteriologic investigations failed to reveal the inciting agent of the disorder. Autopsy did not shed any definite light on the pathogenesis of the disease.

The clinical syndrome was characterized by signs of acute intestinal toxæmia, probably of primary origin, and was accompanied by the symptom train of frequent watery yellow stools, abdominal distention, severe dehydration, drowsiness and acidosis, rapid weight loss, little temperature reaction, marked toxicity and prostration. Vomiting occurred occasionally, blood, pus or mucus in the stools was infrequent. The main complications were terminal otitis media and bronchopneumonia.

From our observations of the various outbreaks, and from a careful search of the literature, it is our present impression that we are dealing with a well defined clinical entity affecting infants of the new-born period of life, deserving consideration apart from other diarrheal disturbances of infancy. We feel that the condition is more widespread than a survey of the literature would lead one to believe.

ABSTRACT OF DISCUSSION

DR HUGH L DWYER, Kansas City, Mo. There are several interesting features in the severe form of diarrhea of the new-born observed by the authors. All physicians have seen diarrhea in early life go on to a fatal termination, with little or no postmortem manifestation to explain it, and with bacteriologic studies of the discharges that were likewise negative or inconsistent and therefore unsatisfactory. I have always assumed that the condition was some form of bacillary dysentery, because in my experience with clinical dysentery in older infants the stool examinations do not always reveal the nature of the infectious agent. In the present report I note that the Flexner and Morgan types of dysentery bacilli were found in a few cases. In my experience negative bacteriologic studies and the absence of significant postmortem appearances are not unusual in the highly fatal diarrhea of infancy—if we are talking about the same disease. The epidemiologic aspect of this

study is of great interest. Of all the nurseries in New York City, this condition was observed in only eleven. My own experience with diarrhea in the new-born is limited to an occasional outbreak in a nursery and small epidemics in infants' homes, and for this reason, probably, I have not been impressed with the high morbidity rate. One cannot appreciate the epidemic nature of this condition without an opportunity to observe reports emanating from many hospitals in a metropolis—an experience that the authors have had. The fact that the disease is confined to the nursery for new-born infants, can be transmitted to another new-born infant in an adjacent bassinets but has not been reported in older infants in the same home or in the ward to which the ill infant is transferred is a feature that needs further explanation. It is difficult to conceive of an infectious agent having any such respect for age periods in early life. With a morbidity rate of 14 per cent and a mortality rate of 64 per cent of all infants born in eleven institutions, this disease, from a public health standpoint, assumes proportions not even closely approximated by all other neonatal diseases. This mortality rate is double the neonatal mortality in the United States birth registration area from all causes. I hope that we hear further from Dr Rice and his collaborators as well as from other observers, especially with reference to the cause of the disease and whether it is limited to the new-born.

DR JOHN AIKMAN, Rochester, N Y. The explosive character of these epidemics was well shown in the Genesee Hospital at Rochester in January 1936. In a maternity nursery of thirty-one beds, no deaths had occurred in one year. With but little warning several infants acquired diarrhea, and four deaths occurred in four days. At the same time a child of 2 months died of gastro-enteritis in the children's ward, which is located in another wing of the hospital. This child was born in New York City and at 4 weeks of age, after moving to Rochester, developed diarrhea which did not yield to any form of treatment. Of the four cases in maternity, three occurred in premature infants who had always fed poorly, but the other was in a full-term normal child that died after four days of illness. At the same time, six other infants developed diarrhea and one died. One other fatal case developed later. Of twelve patients seven died, a case fatality rate of 58 per cent. Most of our trouble occurred within ten days and measures for investigation and limiting the epidemic proved successful. Dr Rudolph Angell made an excellent survey of the epidemic. Laboratory studies did not point to any definite bacterial factor. Five of our cases came to autopsy and all gave evidence of bronchopneumonia. I believe that we were dealing with an epidemic similar to the epidemics so well described by Dr Rice and his associates and that our trouble may have been brought to us from New York City, where epidemics were then in existence. The majority of the cases were under the care of different private physicians. As no one physician saw all the cases develop, a delay occurred before the epidemic character was realized. This could be avoided if nurses in charge of maternity divisions immediately reported all cases of diarrhea to the main office. The formulas for the nursery had been prepared in the formula room, adjoining the children's ward, in another building. All milk had been boiled, but we found that some of the bottles were kept in refrigerators for twenty-four hours. We wondered how efficient our modern refrigerators were and had frequent temperature readings inside the food chambers. They varied from 46 to 54 degrees. The average was about 50 degrees, which we considered too high. Since the epidemic the temperatures have been kept at a lower level and the refrigerators are frequently inspected. Formulas for the maternity ward will in the future be prepared in a formula room in the maternity department. These epidemics naturally shake the confidence of the public, and maternity departments suffer as a result. As the present authors have pointed out, this is a new problem and one that is likely to occur at any time. All cases of diarrhea in new born infants require strict isolation and careful investigation. The section is fortunate in having the subject presented in such an excellent manner.

DR. WALTER D LUDLUM, Brooklyn. I am always disappointed when I hear a paper which stops short of the treatment angle, and that has not been much stressed. The authors

incidentally remarked that the distinction between breast-fed babies and bottle-fed babies was far less distinct than it formerly was. In the city of New York, practically all babies are at least partially bottle fed, they all have bottles with nipples on them. In most nurseries, one nurse goes from baby to baby and puts the nipples on. That nurse may have an infected hand. My assumption is very strong that the method of transmission is from bottle nipples and by the hand of the nurse who puts on those nipples. That leads to a suggestion which has not been much emphasized. Hospital nurses should be taught that medical asepsis is essentially the same as surgical asepsis, and that a clean baby is subject to infection from a previous baby, just as a clean hernia wound might be from a preceding infected appendicitis wound. The medical asepsis will be a slow way to control an existing epidemic. The closing of the nursery may be necessary in every case for promptness of result. Having done that for the prevention of another epidemic, one might try out medical asepsis. Coincident with my observation in a group of cases, I read the article by Sauer in the *Journal of Pediatrics* on "Medical Asepsis in the Cradle" in his Evanston village. And if you want to try to prevent these epidemics in the future and haven't read the article, get it. I think it was in the April or May issue of last year.

DR JOSEPH GOLOB, New York. The differences expressed in this discussion prove very definitely the difference between those who have seen this entity and those who have only read or heard about it. It is my fortune to have lived through one of the epidemics so ably described by the authors. I was struck by the fact that the victims were normal babies who suddenly and for no apparent reason become severely dehydrated. In one day they look as if they had had diarrhea for several weeks. I had the temerity to call in the Rockefeller Institute, thinking that possibly there might be some virus work done that would discover the cause. I also suspected that this widespread disease, occurring suddenly in so many towns, might be the result of an infection that had been brought from the Chicago fair, which might have been a cause infecting the mothers. In all cases there was nothing found either by the health department or by the Rockefeller Institute. It ran like other epidemics in one respect, starting mildly, rising to a peak and then subsiding. The first cases, at autopsy, showed absolutely nothing. Toward the middle of the series microscopic blood was obtained, and at the very last, macroscopic blood was sometimes found in the intestine. Those of us who have seen these cases in any number feel definitely that this is a distinct and separate disease entity and is not in any way related to the types that have been described in the literature heretofore. If the authors have impressed this section with the fact that this condition is a disease entity, and that it needs a lot of careful study, I feel that their excellent talk has been a very valuable contribution.

DR JOHN L. RICE, New York. In closing I want to emphasize this fact. Here, apparently, is a situation to which we would like to get the rest of the country sensitized, to study it, and to go more carefully into the whole problem. The conclusions that we have drawn may be quite indefinite, but we think they deserve careful study, because in cities with large populations it is a real and important problem at the present time.

Should Be Subsidized Rather Than Taxed—The spirit of investigation—all too rare—should be generously subsidized rather than taxed, encouraged rather than hindered. An isolated set of experiments by one participant in that congress of 1881 is said to have saved enough for France to enable her to pay the heavy indemnity which the outcome of a war had imposed upon her. Nature is loath to give up her secrets, discoveries do not come by chance—they are made by those only who are industriously prepared to observe them, and the inquisitorial methods of those who seek the light through experimentation, misjudged as cruel, are necessarily stern and persistent, whether the investigator deals with inanimate objects or with animate beings—Cushing, Harvey. *Consecratio Medici and Other Papers*, Boston, Little, Brown & Co, 1928.

STUDIES ON TETANUS TOXOID

II ACTIVE IMMUNIZATION OF NORMAL PERSONS WITH TETANUS TOXOID, ALUM PRE- CIPITATED, REFINED

HERMAN GOLD, M.D.

CHESTER, PA.

Thirty-four adults were actively immunized against tetanus. Treatment consisted of two injections of tetanus toxoid, alum precipitated, refined, no 5969-1, given to all but one subject, ninety-two days apart. Patient 34 received the second dose 122 days after the first injection. Sixteen members of the group were given 0.5 cc of the alum toxoid at each injection, while the rest received a 1 cc dose.

The alum precipitated toxoid used in this study was prepared at the Mulford Biological Laboratories, from a lot of tetanus toxin that contained over 20,000 minimal lethal doses per cubic centimeter. Antigenic tests performed with this toxoid showed that the injection of 0.5 cc into standard guinea-pigs produced at the end of six weeks 5 units of tetanus antitoxin per cubic centimeter of blood serum. The injection of 1 cc of this toxoid also produced 5 units. Similar values were obtained after the injection of 5 cc of this antigen. This titer was well maintained in practically all the animals at the end of eighteen weeks.

A systemic reaction occurred in only one person, patient 34, who developed generalized pruritus and urticaria half an hour after the injection of the second dose. It lasted about one hour and was promptly controlled by epinephrine hydrochloride. Local reactions at the site of injection, consisting of moderately severe swelling, redness, pain and tenderness, occurred in almost 20 per cent of the cases, regardless of the dose used. It lasted from two to three days, and in a few of the patients there developed tender indurated nodules, similar to those seen after the injection of diphtheria toxoid, alum precipitated. These were absorbed in from three to four weeks without softening or ulceration. This locally irritating factor was eliminated from the toxoid by further refinement in its method of preparation.

The first dose of alum toxoid did not materially increase the antitoxin titer of our patients. It seemed to prepare the antibody producing cells, so that following the injection of the second dose of toxoid there occurred a rather prompt and marked increase in the antitoxin content of the blood.

Table 1 shows the results obtained in the group that received two 0.5 cc doses of toxoid. Of six patients tested seven days after the second dose, only one showed —0.1 unit per cubic centimeter of blood serum. When tested eight days later, this patient's titer had increased to +0.25 unit. The rest showed 0.25 unit or more per cubic centimeter of blood serum. Of ten patients tested fifteen days after the second dose, all showed 0.1 unit or more. Actually, one patient showed 2 units, one had 3 units and two had +1 but —5 units.

Fourteen patients were retested, ninety-one days after the second dose of toxoid. Of these, six showed —0.1 unit. The rest showed 0.1 unit or more. A

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The Mulford Biological Laboratories, Sharp and Dohme, Clenolden, Pa., gave assistance and valuable advice throughout this study. Dr. E. A. Whitney, medical director of the Elwyn Training School, Elwyn, Pa., gave permission to use inmates of this institution as subjects for the investigation.

decided drop in antitoxin titer had occurred. Two subjects were tested 122 days after the second dose. One of them showed —0.1 unit, while the other had +0.1 but —0.25 unit.

Bleeding was done in the entire group and the serums were tested 181 days after the second dose. Of the sixteen subjects tested, only four showed +0.1 unit. One of them actually had +0.5 unit but —1 unit. The other twelve subjects showed —0.1 unit.

TABLE 1—Results of Administering Tetanus Toxoid, Alum Precipitated, Refined, Two Doses, 0.5 Cc Each, Given Ninety-Two Days Apart

Titer expressed in units of tetanus antitoxin per cubic centimeter of blood serum

Case	Control Titer	Days After First Dose Titer	Days After Second Dose Titer			
			7 days	91 days	181 days	151 days
1	0.01	53 days 0.01	7 days +0.25	91 days +1.0 —2.0	181 days +0.50 —1.0	
2	+0.003	68 days —0.01	7 days 0.25	91 days 0.01	181 days 0.01	
3	0.003	30 days —0.003	7 days 0.25	91 days 0.01	181 days +0.003 —0.01	
4	+0.003	53 days —0.01	7 days —0.10	15 days +0.25	91 days +0.003 —0.01	151 days +0.01 —0.10
5	0.003	30 days —0.003	7 days +0.25	91 days 0.10	181 days +0.01 —0.10	
6	—0.003	30 days —0.003	7 days 0.25	91 days 0.25	181 days +0.01 —0.10	
7	0.003	53 days 0.01	15 days 2.0	122 days +0.10 —0.25	181 days +0.01 —0.10	
8	0.003	68 days 0.01	15 days +1.0 —5.0	91 days 0.25	181 days +0.01 —0.10	
9	—0.003	92 days —0.01	15 days 3.0	91 days 0.10	181 days +0.01 —0.10	
10	+0.003 —0.01	30 days —0.003	15 days +0.10 —0.25	122 days +0.01 —0.10	153 days 0.01	181 days 0.01
11	+0.01	92 days 0.01	15 days +0.10 —0.25	91 days 0.01	181 days 0.003	
12	0.003	30 days —0.003	15 days 0.25	91 days +0.01 —0.10	181 days 0.01	
13	0.003	92 days —0.01	15 days 0.10	91 days 0.01	181 days 0.003	
14	0.003	30 days 0.003	15 days +1.0 —5.0	91 days 0.50	181 days +0.10 —0.25	
15	0.003	30 days 0.01	15 days 0.25	91 days +0.25 —0.50	181 days +0.10 —0.25	
16	+0.01	30 days 0.01	15 days +0.25	91 days +0.50 —1.0	181 days 0.25	

Table 2 shows the results obtained in the group that received two 1 cc doses of toxoid. Of eight subjects tested seven days after the second injection, only one showed —0.1 unit. A second patient showed 0.1 unit. The rest had +0.25 unit. Of nine patients tested fifteen days after the second dose, one showed 0.25 unit, while the rest had +0.25 unit. Among the latter, one subject showed 2 units, one had +1 but —3 units, and 1 showed +3 but —5 units. One subject tested thirty-one days after the second dose showed 5 units.

Of seventeen patients tested ninety-one days after the second dose of toxoid, only two showed —0.1 unit. Another subject had 0.1 unit, while the rest showed 0.25 unit or more. One patient tested 153 days after the second dose showed 0.1 unit.

Fifteen subjects were retested 181 days after the second dose. Of these, eight showed —0.1 unit. Four had 0.1 unit, one had +0.1 but —0.25, one had 0.25 unit, and one showed 0.5 unit. One patient when tested 212 days after the second dose showed +0.10 but —0.25 unit.

COMMENT

Although the actual antitoxin content of the blood serum was determined in many members of this group, I was primarily concerned in testing for 0.1 unit and 0.25 unit, since I felt that active immunization against tetanus, to be of value, must produce an antitoxin titer at least equal to that present in the blood following passive immunization with 1,500 units of tetanus antitoxin.¹

I have determined the duration of the active immunity produced by alum precipitated toxoid in terms of this minimal protective value of 0.1 unit. It may be possible that this value is too high, that is, lesser amounts of antitoxin may be necessary to protect an actively immunized individual against infection with tetanus bacilli, but until human experimental data are produced bearing directly on this point, I feel that it is safer to err on the side of conservatism, especially since one is dealing with such a dangerous disease as tetanus.

In contrast to the previous finding in a small series of cases,¹ it is found in this study that the administration of two 1 cc doses of tetanus toxoid seemed to produce a better and more lasting antitoxin titer than that produced by the injection of two 0.5 cc doses. Thus, ninety-one days after the second dose only 11.7 per cent of the 1 cc group dropped below the minimal protective value of 0.1 unit, while in the 0.5 cc group 42.8 per cent of the cases dropped below this value. At the end of 181 days 53.3 per cent of the 1 cc group showed —0.1 unit, while 75 per cent of the 0.5 cc group dropped below this value. However, individual variation in antitoxin response after stimulation by means of tetanus toxoid is so marked that a large series of cases should be studied before a final conclusion can be reached on the effect exerted by variation in dosage on antitoxin production.

This series of cases confirms the previous observation concerning the rapid loss of tetanus antitoxin from the blood of actively immunized individuals. Six months after the second dose was administered, 64.5 per cent of the subjects showed —0.1 unit. This loss, which is more pronounced during the first three months after the second dose of toxoid, varies markedly in different subjects. This individual variation in the absence of a simple skin test to determine the antitoxin titer of a subject at any given time makes it necessary to administer a dose of toxoid every time an injury occurs. In accordance with observations to be published elsewhere, this reinjection of toxoid will serve to bring up the antitoxin titer to or above the minimal protective level. However, further studies are necessary to determine the duration of the time interval that elapses between the injection of the toxoid and the resulting increase in the antitoxin titer. If too long, tetanus infection may occur during this period unless the patient is protected by passive immunization.

Naturally, the question arises as to whether repeated administrations of toxoid will not give rise to unpleasant sensitization phenomena. Although refined, this antigen

¹ Gold, Herman. Studies on Tetanus Toxoid. *J. Allergy* 8: 230 (March) 1937.

still contains some beef broth in which B tetani is grown

From these studies it would appear that active immunization with tetanus toxoid, alum precipitated, refined, may be of value in military practice and in some phases of civil life. It would prevent the occurrence of what is clinically called chronic tetanus,² that is, cases of lockjaw with an incubation period of more than ten days. In these cases the onset of the

TABLE 2—Results of Administering Tetanus Toxoid, Alum Precipitated, Refined, Two Doses, 1 Cc Each, Given Ninety-Two Days Apart

Titer expressed in units of tetanus antitoxin per cubic centimeter of blood serum

Case	Control Titer	Days After First Dose Titer	Days After Second Dose Titer		
			7 days	91 days	181 days
17	+0.003 -0.01	30 days +0.01 -0.10	7 days +0.0%	91 days +1.0 -2.0	181 days 0.50
18	+0.003	53 days 0.01	7 days +0.2%	91 days +0.2%	181 days 0.10
19	-0.003	30 days 0.003	7 days +0.2%	91 days 0.2%	181 days 0.10
20	+0.003 -0.01	30 days 0.003	7 days +0.2%	153 days 0.10	181 days 0.10
21	+0.003	30 days 0.01	7 days +0.2%	91 days 0.50	181 days 0.2%
22	+0.01	30 days 0.10	7 days -0.10	15 days +0.2%	91 days 0.01
23	+0.003 -0.01	30 days +0.01 -0.10	7 days 0.10	91 days 0.2%	181 days +0.01 -0.10
24	0.003	30 days 0.003	7 days +0.2%	91 days 0.2%	181 days +0.01 -0.10
25	0.003	30 days -0.003	15 days +0.2%	91 days 0.2%	181 days +0.01 -0.10
26	+0.003 -0.01	53 days -0.01	15 days +0.2%	91 days 0.2%	181 days +0.01 -0.10
27	0.003	68 days -0.003	15 days +0.2%	91 days 0.10	181 days +0.01 -0.10
28	-0.003	68 days -0.01	15 days 0.2%	91 days +0.2%	181 days +0.01 -0.10
29	+0.01	68 days -0.01	15 days +0.2%	91 days +0.01	181 days +0.01 -0.10
30	+0.003 -0.01	30 days +0.01 -0.10	15 days +3.0 -0.0	91 days 0.00	181 days +0.10 -0.2%
31	-0.003	30 days +0.01 -0.10	15 days +1.0 -3.0	91 days +0.2%	181 days -0.00
32	0.003	30 days 0.01	15 days +0.2%	91 days +0.2%	181 days 0.10
33	+0.003	30 days 0.01	15 days 2.0	91 days 0.50	212 days +0.10 -0.2%
34*	0.003	53 days 0.01	31 days 5.0	91 days 0.50	

* Interval between two doses of toxoid was 123 days

toxemia would coincide with a rising antitoxin curve, as contrasted with the declining titer that occurs after passive immunization

CONCLUSIONS

1 Thirty-four adults were actively immunized against tetanus by means of two injections of tetanus toxoid, alum precipitated, refined, given ninety-two days apart. Sixteen members of the group received 0.5 cc of the toxoid, while the rest got a 1 cc dose at each injection.

2 Follow-up studies revealed that the 1 cc group developed a higher and more lasting antitoxin titer than the 0.5 cc group.

3 Rapid loss of antitoxin from the blood of the immunized subjects occurred, especially during the first three months following administration of the second dose of toxoid. This loss of antitoxin varied considerably in different individuals.

4 Because of this marked variation in individual response and the lack of an easily performed test to determine immunity against tetanus, repeated injection of toxoid should be resorted to on the occurrence of an injury. Otherwise a false sense of security may result.

5 The time required to raise the antitoxin titer to a protective level following reinjection of toxoid in an actively immunized person deserves careful study.

314 East Broad Street

ABSTRACT OF DISCUSSION

Dr. Louis Tuff, Philadelphia. The employment of a prophylactic dose of tetanus antitoxin has been our principal mainstay in preventing tetanus following exposure to this infection. The immunity which this injection confers, however, is temporary in character and disappears often within thirty days. In persons who are frequently exposed to tetanus, as in military service, in certain phases of civil practice, or in certain laboratory workers, the repeated injection of tetanus antitoxin is not always feasible, chiefly because of the dangers of a possible severe serum reaction due to sensitization to the contained horse serum. This is likewise true of allergic children especially those highly sensitive to horse serum. Even though it is possible to use a bovine tetanus antitoxin, there is always the likelihood that proper precautions will not be taken in its administration, and that a severe or even dangerous serum reaction may ensue. It is in these groups of individuals that active immunization with tetanus toxoid is desirable. Such immunization seemed possible of achievement by the use of a modified tetanus toxin or toxoid, a preparation very similar to its close relative diphtheria toxoid. The clinical reports following the use of tetanus toxoid seemed at first to justify this hope and led to its endorsement as a rather certain means of protection against tetanus particularly by those interested in the sale of these products. Since the experiments reported by Dr. Gold indicate a marked individual variation in the antitoxin loss from the blood after toxoid injection it emphasizes the necessity for caution in depending entirely on previous active immunization alone. An additional injection of tetanus toxoid at the time of injury or after exposure, as suggested by Dr. Gold, may bring up the antitoxin titer sufficiently high to protect the patient against tetanus, although this can be determined only by further clinical experience. It is possible that persons who have been actively immunized may have adequate protection in spite of a low antitoxin titer, just as persons immunized actively against typhoid may show no agglutinins in their blood and yet be adequately protected. Tissue cells that are immunized actively are very responsive to subsequent injections of the antigen. This possibly explains the quick antibody response to injections given at the time of injury and may account for the difference between the antibody titer occurring after active immunization and that which occurs after passive immunization. Although sensitization to the beef protein present in the toxoid is possible, the latter is present in such small amounts and sensitization to this particular protein occurs so infrequently, that it should not interfere seriously with the subsequent reinjection of tetanus toxoid.

Dr. L. D. Bristol, New York. One of the most encouraging features of Dr. Gold's presentation is that he is a practicing physician carrying on active research. I think we should encourage that as much as possible. Many of us doing full time work in the fields of preventive and industrial medicine and having opportunity for carrying on research may be expected to be presenting articles of this sort, but when a practicing doctor presents the results of his research it is most heartening.

² A. C. Hurst, A. P. C. Surgery—Its Principles and Practice, ed. 3 Philadelphia: Lea & Febiger, 1927, p. 87.

DR HERMAN GOLD, Chester, Pa. In spite of the claims made by a number of biological houses sponsoring and marketing tetanus toxoid, the story of active immunization against tetanus is as yet not completely known. Since it is still in the experimental stage, we ought to be cautious in its use, otherwise we may run into cases of lockjaw in persons thought to be actively immunized. I feel that it will be useful in certain types of medical practice, but I fear that it will not, from my present experience, be suitable for the general use which is being advocated for it at the present time.

THE ISOLATION OF TETANUS BACILLI FROM STREET DUST

ITS BEARING ON SURGICAL PRACTICE

ERIC C. GILLES, L.R.C.P. & S., Dr. P.H., D.Sc.
BALTIMORE

In reviewing the extensive literature on tetanus, the reader will have forcibly brought home to him the absence of much specific work on the isolation of tetanus bacilli from street dust. As far as could be ascertained, practically no worker has concentrated on this particular phase of the distribution of tetanus spores except Nicolaier¹ in 1884 and Bossano² in 1889, who examined samples of both street dust and soil for the presence of tetanus spores. Their method, however, consisted of the injection of mixed material or impure liquid cultures into laboratory animals. Subsequent workers have taken for granted the existence of spores of tetanus in street dust, as is evidenced by the repeated statements to this effect in the literature in general. So deep rooted is the idea that tetanus spores exist in street dust that, apart from the use of tetanus antitoxin both as a prophylactic and as a curative measure in all cases of war wounds, it is a universal practice to give as a routine on admission to hospital an injection of tetanus antitoxin in all cases of street accidents, however slight the injury may be, provided there is any laceration or abrasion of the surface skin.

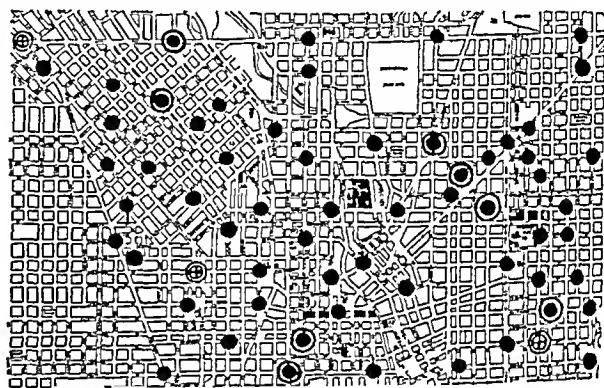
Its value as a prophylactic is established, and the theory is generally accepted that tetanus bacilli regularly inhabit the intestinal canal of man and of animals, which is the main source of environmental replenishment of these organisms. There are still some practitioners, however, who firmly believe that with the fast disappearance from the busy thoroughfares of large cities of horse-drawn vehicles, which now survive only in the small numbers used by bread and milk vendors, the chances of infection from street dust following accident are practically negligible. Moreover, the replacement of old cobbled streets with smooth asphalt and easily cleaned tarmac is considered to have removed conditions favorable for the accumulation of decomposing protein material, in which the tetanus bacilli are known to thrive. They therefore question the value of the administration of a prophylactic injection of antitoxin in cases of street accidents. In fact they maintain that a greater danger exists of producing an anaphylactic phenomenon in persons susceptible to the injection of a foreign serum, with perhaps disastrous results, than in failure to give a prophylactic injection of antitoxin in cases of street accidents in which there are open wounds.

It appears impossible to refute this statement without additional systematic study, as, for instance, by the isolation of tetanus organisms from street dust in a large city. The results of such an investigation would certainly be of practical value and throw much light on the important question: Is prophylactic treatment with tetanus antitoxin essential in the case of all persons injured in street accidents?

I undertook such an investigation in Baltimore and in this paper present briefly the method employed and the results of my study to discover the presence in and to isolate tetanus bacilli from samples of street dust. The samples were gathered at random from a region some 9 square miles in extent in downtown Baltimore bounded by North Avenue, Patterson Park Avenue, Pratt Street and Pennsylvania and Fremont avenues, comprising both residential and commercial areas, as shown in the accompanying illustration.

The samples were collected from the edges of street pavements removed as far as possible from recent contamination with horse manure and were put into cardboard boxes which had been previously sterilized by dry heat at 170 C for two hours.

The collected samples of dust brought to the laboratory were then stored in the cold room until their



Section of Baltimore from which samples of dust were collected. The plain dots show the source of material from which no tetanus bacilli were isolated; the encircled dots the source of material from which toxic strains of tetanus bacilli were isolated; and the encircled crosses the source of material from which nontoxic strains of tetanus bacilli were isolated. (From a photograph by F. Paul Feder.)

examination, precautions being taken to avoid mixture or contamination during the period of storage, and before the containers were opened the exterior was flamed.

TECHNIC EMPLOYED

About 10 to 20 Gm of dust from each sample was weighed on sterile filter paper and put into flasks containing about 40 to 45 cc of sterile saline solution. The flasks were then heated four at a time in a water bath to a temperature of 80 to 82 C for one hour. After this preliminary procedure, adopted to eliminate nonsporing contaminating organisms, the flasks were shaken, and the suspensions of dust, containing only the spores of aerobes and anaerobes, were poured into other flasks containing about 95 cc of Bengtson's cooked meat medium, which prior to inoculation were heated for fifteen minutes at 100 C and rapidly cooled. After the dust suspension was thoroughly mixed in this medium, the surface of each culture flask was covered with melted petrolatum to a height of about 1 cc to maintain anaerobiosis, and the flask was then incubated for a period of from eight to ten days at 37 C for the germination of any spores of tetanus that might be present.

The appearance of the culture flasks after three or four days' incubation was characteristic. In practically every flask the petrolatum caps had been pushed up to

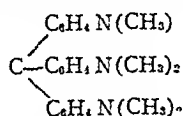
The investigation was carried out in the Department of Bacteriology of the School of Hygiene and Public Health of the Johns Hopkins University, under the direction of Dr. W. W. Ford, professor of bacteriology, on a scholarship awarded by the faculty of the school.

¹ Nicolaier, A. *Deutsche med. Wochenschr.* 10: 842, 1884.
² Bossano, P. B. *Rev. de med.* 9: 102, 1889.

the neck, the entire medium was blackened, the meat particles had been almost completely digested and the odor was most offensive

The problem that now presented itself was the separation of the spore-bearing aerobes from the spore-bearing anaerobic bacteria in the mixed cultures. Various methods were tried in an endeavor to stimulate the growth of the anaerobes but at the same time to inhibit the multiplication of the aerobes. The method of employing dyes as recommended by Hall³ was found most suitable and satisfactory for this investigation.

This method consisted of repeated transfers of cultures in dextrose broth containing a selective dye in a particular dilution. Crystal violet, the chemical name of which is hexamethylrosaniline chloride and which has the formula



was used in this work in a dilution of 1 in 100,000, as follows

About 5 cc of the material from each of the original mixed cultures grown for ten days in Bengtson's meat medium was drawn out with a sterile pipet, transferred to sterile tubes and heated in the water bath at 80 C for fifteen minutes. Two cubic centimeters of this heated material was inoculated into dextrose broth dye tubes previously heated to 100 C, cooled and layered with a cap of petrolatum. The inoculated tubes were then incubated for eighteen hours at 37 C, at the end of which time the tubes usually showed marked turbidity, with a large amount of gas production. In many of the tubes the medium was decolorized.

Transfers were then made from the dextrose broth dye tubes with sterile pipets to agar slants, crystal violet dextrose broth and Holman's meat tubes. The agar slant tube was incubated aerobically and served as a test for the presence of aerobes. The crystal violet dextrose broth tube provided for repetition of the procedure in case the agar slants showed aerobic contamination, and the meat tubes provided a viable culture in the event the aerobes were successfully eliminated. The crystal violet dextrose broth and Holman's meat tubes were incubated anaerobically. Subculturing into dextrose broth crystal violet, agar slants and meat tubes was repeated if necessary until the agar slant from one of the series of the subcultures showed no aerobic growth after forty-eight hours of incubation at 37 C.

In the samples examined, usually three and in a few instances four or five transfers to dextrose broth containing the dye were necessary to eliminate the aerobes. When this had been accomplished the corresponding meat tube culture was incubated for another few days and the contents were tested again for the presence of aerobes. If negative results were obtained the meat tubes were considered to be free of facultative anaerobes, whereas if the test revealed aerobic contamination the process was repeated.

All the original mixed cultures were put through the same process, and cultures of pure anaerobes were finally obtained, from which the isolation of tetanus bacilli was undertaken.

ISOLATION

The method used to isolate the tetanus bacilli from the Holman's meat culture tubes containing a mixture of anaerobes was similar to that used by Fildes⁴. The condensation water of slants of peptic blood infusion agar (Fildes influenza medium⁵), which had been previously placed in the incubator for from eight to ten hours in order that the apex of the slant might be dried, was inoculated by capillary pipets with a few drops

of the culture material from the Holman's meat tubes containing the mixture of anaerobes and grown for from seven to eight days at 37 C in the electrically heated McIntosh and Fildes anaerobic jar. After this the tubes were carefully examined for the presence at the apex of the slants of the filmlike growth typical of tetanus bacilli. In many instances a hand lens was necessary to see clearly this very fine film of growth just a little below the apex of the slant. Not every tube, however, had this characteristic growth. In many it was entirely absent, yet all the tubes showed different zones of much heavier growth, indicating the presence of other bacteria, each of which may have its own limited zone of growth in a given period.

Examination of the apex of the slant with a hand lens revealed this characteristic filmlike growth in the first series of inoculations of eight of the sixty-three samples from which tetanus bacilli were finally isolated, whereas in the four other strains isolated the growing edge of the film was not so apparent, owing possibly to insufficient drying of the apex of the medium. On subsequent subculture, however, these four strains too showed a more distinct and characteristic growth.

In an endeavor to obtain pure cultures these thin films of growth were subcultured in the condensation water of another set of tubes of the same medium and incubated as before. At the same time agar slants were inoculated and incubated aerobically for forty-eight hours to determine the presence of contaminating aerobes. This subculturing was repeated about four times, together with aerobic agar slant controls.

From the last subculture the upper film of growth was transferred to Holman's meat medium, sealed with petrolatum and incubated at 37 C for three days. Smears were then made from these cultures, stained and examined for the presence of tetanus-like organisms.

In twelve of the sixty-three samples examined tetanus-like organisms were seen, but in only two of the twelve strains did they appear in pure form after the fourth subculture. It was necessary to subculture the strains isolated five, six and in one instance seven times before pure cultures, as revealed by microscopic examination of stained smears, could be obtained.

For the final purification of the isolated strains, Veillon and Zuber's⁶ shake tube technique was employed, which involved seeding tubes of melted infusion agar cooled at 50 C with a few drops of a series of appropriate saline dilutions made with material from the meat cultures of each of these strains. The tubes were then rolled between the hands to disperse the organisms thoroughly in the medium, solidified rapidly by placing the tubes in ice cold water and incubated for three or four days at 37 C. When colonies in the shake tubes had attained a fair size, they were picked out as follows.

The closed end of the tube was heated slightly so as to melt the agar, and by gradual heating toward the mouth of the tube, which had previously been flamed, the column of agar was driven out, it was received into a sterile petri dish, the surface of which was then flamed by passing a Bunsen burner over its entirety. The column of agar was now sliced with a sterile scalpel above and below the colony desired and the colony in the agar picked up with a platinum spud, transferred to tubes of meat medium and crushed on the sides of the tubes. This was essential for the growth of the organisms.

By repetition of the shake tube procedure, pure cultures of eleven of the twelve strains isolated were obtained. One strain gave a good deal of trouble in purification, and it was necessary to repeat the shake tube method four times more before it was finally obtained in pure culture. Each strain thus isolated

3 Hall I C Selective Elimination of Hay Bacillus from Cultures of Obligative Anaerobes J A M A 72 274 (Jan 25) 1919
4 Fildes Paul Brit J Exper Path 6 62 (April) 91 (June) 1925
5 Fildes Paul Brit J Exper Path 1 129 (April) 1920

6 Veillon and Zuber Arch de med exper et anat path 10 517 545, 1898

was grown anaerobically in Holman's meat medium for five days at 37 C and tested for contamination by examination of stained preparations and aerobic slant controls

When the strains showed definite purity, two other sets of Holman's meat tubes were inoculated with culture material from each pure strain, layered with petrolatum and incubated for three days, and from one set of these the biologic characteristics of the strains were studied

The characters used in the identification of the twelve strains isolated in pure form in this study were morphology, staining reactions, motility and biochemical reactions

TOXICITY TEST

In any study of tetanus the toxicity test for pathogenic action forms the crux of the whole investigation,

Toxicity Tests of Strains Isolated

Sam ple Num ber	Strain Num ber	Mouse A		Mouse B		Results
		Given 0.3 Cc of Tetanus Antitoxin and 1 Hour Later 0.3 Cc of Culture Medium Intramuscularly		Given 0.3 Cc of Culture Medium Intramuscularly		
6	1	No symptoms	survived	Paralysis in 24 hours Death in 72 hours		Toxic
8	2	No symptoms	survived	Survived		Nontoxic
11	3	No symptoms	survived	Paralysis in 48 hours Death on 6th day		Toxic
14	4	No symptoms	survived	Paralysis in 36 hours Death on 3d day		Toxic
16	5	No symptoms	survived	Paralysis in 36 hours Death on 3d day		Toxic
23	6	Slight stiffness in thigh given injection on 2d day recovered		Paralysis in 16 hours Death in 48 hours		Toxic
23	7	No symptoms	survived	Survived		Nontoxic
31	8	No symptoms	survived	Paralysis in 24 hours Death at end of 48 hours		Toxic
39	9	No symptoms	survived	Survived		Nontoxic
43	10	No symptoms	survived	Paralysis in 24 hours Death in 96 hours		Toxic
51	11	No symptoms	survived	Paralysis in 24 hours Death on 4th day		Toxic
58	12	No symptoms	survived	Paralysis in 36 hours Death on 4th day		Toxic

and a demonstration of characteristic toxicity in cultures is necessary for absolute identification

To carry out this test, the twelve strains isolated which corresponded in morphology and cultural reaction with *Bacillus tetani* were grown in Holman's meat medium and incubated anaerobically for ten days at 37 C, after which 0.3 cc of the clear supernatant fluid drawn from each of these cultures was injected intramuscularly into the right thigh of white mice. Controls were run with white mice which had been given, an hour before receiving the same dose of culture fluid, 0.3 cc of antitoxin containing 700 units per cubic centimeter. All mice which survived four days after the injection were watched for three weeks prior to destruction for the development of symptoms

The results of the toxicity tests are given in the table. It will be observed that three of the strains were nontoxic. Nine strains yielded a spasm-producing toxin which was fatal to white mice and was neutralized by a protective dose of antitoxin, the protected animals surviving three weeks after receiving the injection. Culture fluids from three of the strains had no demonstrable toxic effect on the animals given injections even after ten days. One of the three nontoxic strains, No 7, while it exhibited the morphology of tetanus bacilli, differed in its biochemical reactions in failing to liquefy gelatin and in producing acid and gas in dextrose and in maltose. It was regarded as a strain

of *Clostridium pseudotetani*. The other two strains, Nos 2 and 9, had a morphology like that of tetanus bacilli and in addition gave similar biochemical reactions. In view of the observation of nontoxic strains by other workers, namely, Vaillard and Vincent,⁷ Adamson,⁸ Heller,⁹ Fildes⁴ and Bauer and Meyer,¹⁰ it may be concluded that these two strains are nontoxic strains of tetanus bacilli, in all probability variants from toxic strains.

SUMMARY AND CONCLUSIONS

This investigation was undertaken to determine the presence of tetanus spores in street dust. The method employed was to cultivate the material, isolate tetanus-like organisms, study their biochemical reactions and, finally, demonstrate the ability of the strains isolated to yield a spasm-producing toxin which could be neutralized by tetanus antitoxin.

As a preliminary to the isolation of pure cultures, it was necessary to grow the mixed material in special mediums to stimulate the growth of any tetanus organisms present and then to eliminate the vegetative forms of bacteria by heating the material at 80 C for twenty minutes. Since, however, the spores of sporulating aerobes and facultative anaerobes were present, the use of selective dyes in the medium was found necessary to eliminate them. The dye employed was crystal violet, which was found to be entirely satisfactory. In the separation of the tetanus organism from other spore-bearing anaerobes, the method originally employed by Fildes⁴ was used. This procedure makes possible the isolation of tetanus organisms from a mixture of anaerobes.

The biochemical reactions of the strains of *Clostridium tetani* isolated were studied, and their toxin-producing ability was demonstrated by the inoculation of animals. From the sixty-three samples of street dust obtained from various streets within a limited area of Baltimore and examined in this investigation, eleven strains of tetanus bacilli were isolated, that is, 17.4 per cent of the samples revealed the presence of the organism. Of these, nine strains, or 14.2 per cent of the samples, yielded a spasm-producing toxin neutralized by tetanus antitoxin, whereas two strains isolated from 3.17 per cent of the samples did not yield any detectable toxin.

The results obtained in this investigation do not permit of comparison with any other work of a similar nature, since apart from the early observations of Nicolaier¹ and Bossano² no reports have been found in the literature of the isolation of tetanus organisms from street dust, and the present investigation appears to be the first successful isolation of tetanus bacilli from the street dust of a large modern city of the United States.

The positive results are definite and conclusive proof that *Clostridium tetani* is widely distributed in street dust even at the present day and establish the absolute necessity for the use of prophylactic injection of tetanus antitoxin in all cases of street accidents accompanied by laceration or abrasion of the cutaneous surface. The fear of anaphylaxis can no longer justify the failure to employ protective serum in every case of street accident in which there are open wounds, since street dust, contrary to the views of many, has been shown to be a potential source of danger.

7 Vaillard L and Vincent H Contribution à l'étude du tétanos
Ann Inst Pasteur 5 139 1891
8 Adamson R S J Path & Bact 23 241 (June) 1920
9 Heller, H H J Infect Dis 30 18 1922
10 Bauer, J H and Meyer H F J Infect Dis 38 295 (April)
1926

MUNICIPAL CONTROL OF WHOOPING
COUGH

LOUIS SAUER, M.D.

EVANSTON ILL.

In 1934, soon after the paper entitled "Immunization with *Bacillus Pertussis* Vaccine" was published in *THE JOURNAL*,¹ Dr. John W. H. Pollard, Evanston² Commissioner of Health, opened a municipal whooping cough prophylactic vaccination clinic at the "Health Center." Diphtheria had been rendered an infrequent disease, 133 cases with ten deaths in ten years. Whooping cough was twenty-five times more prevalent, 3,338 cases with five deaths. Because immunization with diphtheria toxoid had been reported less permanent when given in very early life, and as most deaths from pertussis occur during infancy, pertussis vaccination is given before diphtheria toxoid—preferably between seven and ten months. At least several months intervene between pertussis vaccination and any other immunization procedure. To determine whether the customary total dosage of 8 cc of authorized commercial vaccine is sufficient to protect children more than 2 years old, fifty "Welfare" children between 2 and 4 years of age were included. The nurses, during the Infant Welfare conferences, or at house visits, tell the mothers of infants in the designated age range about the three weekly injections. The mother signs a consent card. The two hour clinic is held on six consecutive Wednesday afternoons. Usually about fifty new candidates are injected at each of the first four weekly conferences, so that 200 or more vaccinations are completed in six weeks. In the spring clinic the one, in the autumn clinic the other, brand of vaccine authorized by Northwestern University Medical School is used. Syringes and needles are sterilized by heat, the injection site (upper arm) is sterilized with alcohol. The physician in charge injects the vaccine just under the skin. Mothers are cautioned not to apply anything locally, if a transient redness appears. No severe reaction or infection has occurred. On the day of the third

TABLE 1—Evanston Pertussis Prophylactic Vaccinations

	By Private Physicians	By Clinic	Totals
1934	300	216	516
1935	687	539	1,126
1936	760	260	1,020
6/1/37		107	107
Totals	1,647	1,122	2,769

injection, record cards are filed in triplicate, and the mother is given a pertussis vaccination certificate.

The number of Evanston children injected annually since 1934 by private physicians and at the municipal Health Center is summarized in table 1. With improvement in the economic status during the last few years

the annual number privately injected has increased, whereas the number of municipal injections has correspondingly decreased. At seven semiannual clinics, 1,122 Evanston "Welfare" children completed the pertussis prophylactic vaccinations, seven children failed to complete the series, owing to prolonged intercurrent illness or to removal from the city. The average age of the clinic children is about 10 months, that of the privately injected children is probably somewhat more. Prior to June 1, 1937, at least 2,769 Evanston children have completed the prophylactic injections.

Table 2 is a three year summary of Evanston's municipal whooping cough prophylactic vaccination clinic. The nurses of the various agencies—the Infant

TABLE 2—Evanston Municipal Pertussis Prophylactic
Vaccination Clinic

Number of children injected (1934 to June 1, 1937)	11,228
Subsequent exposures (?)	128
To pertussis in family	94
To pertussis outside family	34
Developed pertussis	6
Over 2 years old when injected	5

Welfare, communicable disease control, school and visiting nurses—in close daily contact with the contagious disease situations reported to the department of health—128 children who were presumably exposed to whooping cough after they had been injected. Ninety-four were exposed to clinical pertussis in their own households, i. e., brothers or sisters developed the disease after the younger child had been vaccinated, thirty-four were casually exposed to pertussis while at play or in the classroom. In the three years, six injected children developed whooping cough. All six failures occurred in children who were vaccinated in the autumn of 1934. A child injected after intimate exposure developed clinical pertussis before the injections were completed.

The six clinic children who developed whooping cough after vaccination are listed in table 3. Relatively few (about fifty) of the clinic children were more than 2 years of age when they were injected, less than 5 per cent of the total number injected.

Because five of the six who developed pertussis were more than 2 years old when they were injected, the total dosage for children of more than 2 or 3 years was increased in 1936 to 10 cc. The initial dose remains unchanged (2 cc), but the second and third doses are increased (from 3 cc to 4 cc) if the child is more than 2 years old at the time of injection. For children younger than 2 years the total dosage is 8 cc (2, 3, 3 cc at weekly intervals).

The course of the disease in five of these children was mild, it was quite severe in one. Because untreated whooping cough varies in severity and duration—light cases outnumber the severe—proper evaluation of any therapeutic measure is difficult. The psychologic effect (on child, parent, nurse and physician) of hypodermic therapy increases the dilemma. Infants and delicate young children with pertussis during cold weather are kept warm and isolated, preferably in bed, for several weeks. The air is kept fresh, warm and moist, drafts are avoided. With an aseptic nursery technique, complicating infections, as the common cold, grip and enteritis, seem to occur less frequently. The early intramuscular injection of 50 cc of convalescent blood, or the blood of an immune parent who has had three injections of the vaccine at two or three day intervals, might be beneficial to very young pertussis patients.

From the Evanston Hospital of Northwestern University Medical School.

Read before the Section on Pediatrics at the Eighty-Eighth Annual Session of the American Medical Association, Atlantic City, N. J., June 10, 1937.

¹ Sauer, Louis. Immunization with *Bacillus Pertussis* Vaccine. *J. A. M. A.* 101: 1449 (Nov. 4) 1933.

² This city of 70,000 is an integral part of the Chicago metropolitan area. About 15 per cent of the young white children and most of the young children of the (12 per cent) colored population attend the Infant Welfare Society diphtheria and smallpox immunization clinics. In 1931 the National Health Conservation Contest First Place award for cities of this size was conferred on Evanston—an honor bestowed but once yearly since then. The Honorable Mention award has been given to Evanston. In 1936 Evanston received the national Meritorious Achievement health award.

The number of pertussis patients quarantined in Evanston each year since 1930 is shown in table 4. The number of "Welfare" children with the disease is indicated. The annual average number of city cases for the four years preceding the clinic is 325, for the three clinic years it is 290. The annual average number of "Welfare" infants quarantined with whooping cough before the vaccination clinic is forty-nine, for the clinic years it is fourteen. In 1934, when the Evanston total

TABLE 3—*Developed Whooping Cough After Vaccination*
(1934 to June 1, 1937)

Age	Vaccination Date	Diagnosis Date	Interval
1 9 mo	Oct 1934	July 1935	9 mo
2 2½ yr	Oct 1934	March 1935	5 mo
3 3 yr	Oct 1934	Feb 1935	4 mo
4 3 yr	Nov 1934	July 1935	8 mo
5 4 yr	Nov 1934	Feb 1935	3 mo
6 4½ yr	Oct 1934	March 1935	5 mo

was 181 cases, there were twenty "Welfare" cases. In 1935, when the Evanston total reached 602, there were twenty-four "Welfare" cases. In 1936, when the Evanston total was ninety-one, the lowest in the history of the department of health, only one "Welfare" child contracted pertussis.

In the 1936 Annual Report of the Department of Health, Dr Pollard said:

For the last decade, the average yearly total of whooping cough patients reported was 334. In 1935, 602 cases were quarantined. For the year 1936, the incidence of this disease dropped to ninety-one cases. Investigation developed the fact that ninety of these cases had never been inoculated against whooping cough. The ninety-first case developed whooping cough, through previous exposure, during the period of inoculation. All children treated at these clinics are referred by local social agencies, who vouch for the financial status of the families concerned.

CONCLUSIONS

At the Evanston Municipal Pertussis Prophylactic Vaccination Clinic, a total of 1,122 "Welfare" children have been injected since 1934. The best age for the injection of a total dosage of 8 cc (2, 3, 3 cc at weekly intervals) of authorized vaccine is probably the second

TABLE 4—*Incidence of Whooping Cough, Evanston,*
1930 to 1937

	City Total	'Welfare'
1930	481	55
1931	266	58
1932	336	50
1933	215	34
	— Av 325	— Av 49
1934	181	20
1935	602	24
1936	91	1
	— Av 290	— Av 14

half year of life, preferably between the seventh and the tenth month. Five of the six "Welfare" children who developed pertussis after vaccination were more than 2 years old when injected. Children over 2 years of age probably require a total dosage of 10 cc (2, 4, 4 cc at weekly intervals).

636 Church Street

ABSTRACT OF DISCUSSION

DR LEROY D FOTHERGILL, Boston. Dr Sauer has presented a summary of his experiences with the prevention of whooping cough in Evanston Ill. In 1931 Leslie and Gardner published their description of the dissociation of *Haemophilus pertussis*. This important contribution was the beginning of our modern knowledge of the biology of this organism. The

importance of bacterial dissociation, the antigenic structure of the different variants of a given organism in relation to virulence and the necessity for using a "whole" or "complete" antigen for the production of active immunity is a major contribution of recent bacteriologic investigations. Dr Sauer published his first report on the prophylaxis of whooping cough soon after Leslie and Gardner's description of the dissociation of *Haemophilus pertussis*. He is to be given great credit for the practical application of this bacteriologic knowledge in studying anew the prevention of pertussis. Dr Kendrick and her associates in Grand Rapids have published several reports which confirm, in the main, the results obtained by Dr Sauer. On the other hand, Doull and his co-workers failed to confirm these experiences. Because of the variable nature of pertussis and the uncertainty of exposure it is extremely difficult to make an adequately controlled epidemiologic study of the prophylaxis of this disease sufficient to satisfy the most skeptical. This, however, should not prevent the accumulation of such data as will ultimately provide an answer satisfactory to all. Our knowledge of the immunology of this disease is extremely meager. By what mechanism is the solid and, with rare exceptions, permanent immunity following the natural disease maintained? There is no evidence, at present, of any circulating antibody sufficient to account for it. If such a circulating antibody were present it might protect new-born infants through passive transplacental transfer from the mother, as in diphtheria. The infant, however, is susceptible to pertussis. This question might well be pondered by those who advocate the use of convalescent serum in the treatment or prophylaxis of pertussis. Furthermore, if the immunity were due solely to a circulating antibody could such an antibody get into the locus of pathology in an adequate concentration? Consider the barriers to such transport. Is the immunity following the natural disease largely a cellular phenomenon? If so, is it local or generalized? It is quite possible that the various opsonocytophagocytic studies being conducted at the present time may give information on this point. I have not raised these questions in a spirit of doubt but rather to suggest lines of thought which might profitably be pursued in the future. Are the two dependent on the same immunologic mechanisms?

DR CHARLES GILMORE KERLEY, New York. Not having an opportunity to make a municipal study of whooping cough and knowing something of the work that is being carried on in New York City, I appealed to Dr Muckenfuss, who had charge of a study of whooping cough immunization in New York City. Dr Muckenfuss writes me as follows: "About two years ago a study was initiated at the Prospect Clinic in Brooklyn. Children under 5 having a negative history of whooping cough were selected and alternate cases were vaccinated making an effort to secure controls in the same family. 1,276 children were vaccinated and 1,026 served as controls. These children were visited once a month and when any illness occurred, a physician visited them. Several vaccines have been used, Sauer's vaccine prepared by a commercial firm and the vaccine distributed by the Department of Health. About half of the children received a dose of 80 billion as recommended by Sauer and the remainder received smaller doses. At present the gross incidence among the vaccinated children is 35 per cent and among the controls 41 per cent. The incidence in those receiving a small dose is 52 per cent and those receiving a large dose 165 per cent. The size of the experiment is obviously inadequate and it is impossible to draw conclusions on the lower incidence among those receiving a large dose because of the higher incidence among those receiving a small dose as compared to the controls." In evaluating the virility of immunizing agencies, one must consider the possibility of the natural immunity possessed by the patient and the virulence of the prevailing epidemic. The present is a period characterized by the absence of severity of diseases of the contagious type, standing out in marked contrast to the late nineties and early nineteen hundreds. I refer particularly to measles, mumps, scarlet fever and whooping cough. Further, I would call attention to the superiority of the child of the present day in comparison with the period referred to. He is a better type individual with a higher health standard, perhaps a greater resistance to infection and capacity for protection in case of illness.

THE MECHANICAL RESUSCITATION
OF THE NEW-BORN

A REPORT OF 500 CASES

D BEN MARTINEZ, MD
PITTSBURGH

The problem of a safe and sane method for the resuscitation of the new-born requires serious thought at the present time, owing to the fact that each day more women demand the use of various drugs to make "childbirth painless," with the natural sequela that the obstetrician has to deal with more narcotized babies. This demand, as the obstetrician knows, is due to the unfortunate publicity given in the lay press about their uses. Although the information emanates from medical sources, the doctors as well as the laity have nerve enough to criticize the high maternal and fetal mortality in which these drugs play a part.

The staff at Magee Hospital has gone through the various stages in the development of resuscitation of the new-born, i.e., the old mouth to mouth method, the hot and cold tubing, various forms of the manual methods, and the use of oxygen or oxygen-carbon dioxide mixtures held over the baby's face by means of a funnel or a catheter placed down in the baby's larynx for it to receive the gas in a concentrated form.

In 1930 I imported a von Wachenfeldt respirator from Sweden. This chamber type of apparatus, in which a definite (15 mm) positive and negative pressure is exerted on the baby's body with the head remaining outside the cabinet so that oxygen can be given directly to the fetus, seemed to us to be an improvement over previous methods.

However, since July 20, 1934, we have been using the E & J Resuscitator. It is a positive and negative apparatus, and the pressure is exerted by the oxygen over the baby's face through a mask similar to that used in administering gas anesthesia. The apparatus

The reversal of positive pressure to negative pressure and vice versa is brought about by a tripping mechanism which operates when the intrapulmonary pressure of the patient's lungs reaches either the predetermined positive or negative pressure. This principle of operation enables the apparatus to adjust itself automatically to the proper volume and respiratory rate of any size lung regardless of how small or how large. A very rapid tripping, due to the diminished capacity, warns the operator when the airway is obstructed by mucus, the tongue or some foreign substance.

TABLE 1—Data Compiled from Resuscitation Charts

A	Mechanical resuscitation used	
	From a few seconds to 5 minutes	252 times
	From 5 minutes to 15 minutes	144 times
	Over 15 minutes	104 times
B	Degree of asphyxia	
	Mild	248
	Moderate	188
	Severe	64
C	Type of asphyxia	
	Livida	372
	Pallida	128
D	Cause of asphyxia	
	Narcotized	124
	Cerebral injury	68
	All other causes	308*
E	Type of delivery	
	1 Spontaneous	100
	2 Breech extraction and internal podalic version and extraction	184
	3 Forceps	148
	4 Cesarean section	68
F	Indication for resuscitation	
	1 Infants that would have lived without resuscitation but in whom it was used because it was thought to benefit the new born	315
	2 Infants that would have died without resuscitation of some sort	138
	3 Infants that we believe would have died if any other apparatus that we had before this one had been used	24

* The largest number of cases occurred in this group because we were unable to find the cause of the asphyxia or it was due to some congenital deformity such as hydrocephalus.

When spontaneous respiration has been established, the respiratory efforts of the patient cause the sensitive mechanism to respond by tripping rapidly or irregularly. At this stage the operator turns a lever and the apparatus is immediately changed from a mechanical resuscitator to a simple inhalator. During the inhalation treatment the patient breathes through his own efforts from a bag which supplies either pure oxygen or a mixture of oxygen and air, whichever is indicated.

The various safety features of the machine make it impossible to supply a pressure of more than 19 mm of mercury in the patient's lungs.

After his work with Kreiselman on the carbon dioxide content of the blood in the new-born, Kane¹ reported that pure oxygen seemed to be entirely satisfactory as a resuscitating agent. After reviewing these articles we used pure oxygen until after respiration was well established in this series about to be reported. Then, occasionally, we used the oxygen-carbon dioxide mixture but felt that there was little or no advantage over the straight oxygen.

There is a very important point that is universally known in the resuscitating of the new-born, but it should be emphasized again: it is of the utmost importance that the mucus be removed from the respiratory apparatus of the baby before any form or type of resuscitation is started. If this is not done, the baby will inspire the mucus down into the lungs, or the respirator may force the material into the lungs, and every one knows what the results would be.

1 Kane H F and Kreiselman Joseph. The Carbon Dioxide Content of the Blood in the New Born. *Am J Obst & Gynec* 20: 826 (Dec) 1930. Kane H F. Asphyxia Neonatorum. *Tr Am A Obst Gynec & Abdominal Surg* 1931 p 277.

Elizabeth Steel Magee Hospital Resuscitation Chart

NAME OF PATIENT	SERVICE DR.
DATE	HOSPITAL NO.
1 Hour of delivery	
2 Period of gestation	months
3 Any toxemia or hemorrhage complicating pregnancy?	
4 Type of delivery	
5 Length of labor	hours minutes
6 Medication used in labor	
7 Anesthesia used and degree	
8 Length of time between beginning of anesthesia and delivery	minutes
9 Type of asphyxia present	
10 Degree of asphyxia present	
11 Was there any evidence of intracranial hemorrhage present?	
12 Was fetus narcotized?	
13 Length of time after delivery mechanical respiration was started	
14 Length of time respirator was used before fetus breathed normally	
15 Did fetus live or die?	
16 Was aspiration of mucus done before artificial respiration?	
17 Amount of fluid and type aspirated	
18 Was there any evidence of ruptured lung or stomach in fetus?	
19 Would a fatality have arisen if the mechanical respiration had not been used?	
20 Other comments	

N B All the questions must be answered

Physician

is equipped with two tanks—one of oxygen and the other a mixture of 90 per cent oxygen and 10 per cent carbon dioxide, so that either can be used with ease.

The mechanism of the E & J Resuscitator is contained in a central cylinder and is mounted on a three wheel carriage. The motivating power is derived from the pressure in the oxygen tanks. The apparatus exerts a positive pressure of 13 mm of mercury and a negative pressure of 9.75 mm of mercury in a continual alternating sequence.

We now have a series of 500 cases, which includes all the cases that occurred in all the obstetric services of the Magee Hospital in which the E & J Resuscitator was used. Records for the necessary information relative to these cases were made on a chart, which is a form that was submitted to the American Medical Association and approved by it.

From this chart we were able to compute the data in table 1.

TABLE 2—Cause of Death in Cases Which Did Not Come to Autopsy

Intracranial hemorrhage	8
Prematurity	6
Atelectasis	2
Cause unknown	9
Tumor of abdomen and bilateral clubfoot	1
Malformation of abdomen	1
Placental abruption heart tones heard for 2 minutes after birth	1
Toxemia in mother heart tones heard for 1 minute after birth	1
Syphilis	1
Hydrocephalus	1

In group F 1, we used the apparatus more often than necessary. Now, as soon as a baby is born and does not cry immediately, we simply aspirate the mucus and apply the resuscitator, believing that we may be saving some of the babies from an asphyxia that may become more serious. We believe that it is important to supply oxygen to the tissues of the baby's body as soon as possible, and for that reason too we like to use the inhalator.

In group F 2, quite a few of the babies were saved, but it would be difficult to say what number.

In group F 3, judging from our past experience, we believe, at least in our hands, that twenty-four is a conservative number.

TABLE 3—Autopsy Reports on Infants Treated in the Respirator

Baby B (A 48 34)—Defective interventricular septum with generalized anasarca
Baby McC (A 61 34)—Diaphragmatic hernia congenital abscess of left diaphragm
Baby C (A 82 34)—Cerebral hemorrhage petechial hemorrhages in lung partial pulmonary atelectasis*
Baby S (A 86 34)—Partial pulmonary atelectasis with no hemorrhages the free borders of the lung showed some emphysema the gastro intestinal tract appeared normal
Baby A (A 5 35)—Cerebral hemorrhage fracture of the right clavicle right posterior subpleural hemorrhage partial pulmonary atelectasis
Baby H (A 47 35 stillborn)—Partial pulmonary atelectasis no hemorrhage dilated descending colon but rest of gastro intestinal tract normal in appearance
Baby P (A 48 35)—Intracranial hemorrhage partial pulmonary atelectasis with only slight aeration along the anterior borders gastro-intestinal tract normal
Baby C (A 9 36)—Intracranial hemorrhage petechial hemorrhages in lung which microscopically showed red cells in the alveoli proper in some areas the alveolar walls were markedly engorged
Baby M (A 25 36)—Intracranial hemorrhage atelectasis of both lungs

* There was no evidence of injury to the lung. The stomach was small.

In the entire series there were thirty-one deaths, and the apparatus was used on sixteen stillborn infants in the hope that we could get autopsies on them to see whether any damage had been done by the apparatus. However, we obtained only one autopsy on a stillborn baby, which will be referred to later in this paper.

The causes of the thirty-one deaths, except those in which an autopsy was done, are given in table 2.

In those cases which came to autopsy it is interesting to note that there was no damage done to the lungs, stomach or any other viscera by this apparatus. Among

the infants who died on whom autopsies were not permitted, it is interesting to note that only two died of atelectasis, which, I believe would be a larger number had proper resuscitation not been instituted.

SUMMARY

I believe that this mechanical positive and negative pressure apparatus is a definite improvement over any other method, not only in resuscitating the babies that actually need it but also in aiding the babies that just do not cry vigorously.

The safety of this apparatus is certainly an important factor, since any one (nurse or intern) with a little training can use it, thereby permitting the obstetrician to devote his full attention to the mother, when needed, as is very often the case in difficult deliveries, in which asphyxia is apt to occur.

The resuscitator is almost fool proof, as the positive and negative pressure ceases automatically when the child breathes of its own accord and allows it to breathe the oxygen from the bag, or, if desired, it may breathe the oxygen-carbon dioxide mixture through the inhalator attachment.

I believe that this is a definite life-saving device and should be a part of the armamentarium of all hospitals that have obstetric patients.

532 Medical Arts Building

SIGNIFICANCE OF THE INCREASED FREQUENCY OF SELECTIVE CORTICAL NECROSIS OF ADRENAL

AS A CAUSE OF ADDISON'S DISEASE

H GIDEON WELLS, M D

ELEANOR M HUMPHREYS, M D

AND

EMMA G WORK, B S

CHICAGO

The increasing frequency of contacts with new chemicals, whether in industries or in therapeutics, is bringing about new disease conditions. The picture of some diseases is being modified, the frequency of other pathologic states is being made greater or less, and possibly entirely new conditions are being produced. Unfortunately the harmful effects of therapeutic agents or industrial poisons commonly are not recognized until much damage has been done. Chloroform had been widely used for half a century before the menace of toxic necrosis of the liver was generally recognized and the use of chloroform for anesthesia largely abandoned. Despite numerous early admonitions, it was not until after 1900 that chloroform necrosis was found to be a widespread and common occurrence which had usually escaped recognition because designated as something else, e g, puerperal acute yellow atrophy, when it followed delivery under chloroform.

The liver indeed is particularly susceptible to damage from toxic chemicals, and many agents besides chloroform produce the appearance of "acute yellow atrophy." During the war this condition was observed frequently as a result of absorption of chemicals used in making explosives and other war materials. In the prohibition era there was also a heightened incidence of similar conditions produced by the unbelievable consumption of

From the Department of Pathology of the University of Chicago and the Otho S A Sprague Memorial Institute.

varnish removers, hair tonics, cleaning fluids or anything thought to have intoxicating properties. Now is seen especially the hepatic effects of cinchophen, and the combination of a toxic cirrhosis with the scars of rheumatic lesions in the heart often tells the story to the pathologist even when a history of the use of cinchophen is not forthcoming. As pointed out by Wells and Bassoe,¹ the production of "acute yellow atrophy" means that some toxic agent is present which has marked capacity to kill liver cells with relatively little effect on any other vital tissue, and there seem to be many chemicals with this potentiality.

Another new disease, agranulocytosis, is now well established as depending chiefly on the action of newly introduced chemical agents that have a selective destructive effect on the granulocytic and granulocytopoietic elements. Here, as with acute toxic necrosis of the liver, many different substances seem to be able occasionally to produce the specific pathologic condition, but as cinchophen is at present the most important cause of hepatic damage, so aminopyrine seems to be the most usual cause of agranulocytosis. For example, Plum² reports that 95 per cent of the cases of agranulocytosis observed in the preceding eighteen months were due to treatment with therapeutic doses of aminopyrine immediately before the onset of the disease and that the curve of incidence of agranulocytosis in Denmark during the past ten years coincides with the increase in the use of aminopyrine. Other chemicals, however, may produce the same effect, for example, gold salts, such as sanocrysin, used in tuberculosis therapy. In reporting what seems to be the first case in American literature, Schwartz and Heise³ comment on the greater frequency of such cases observed by the British, the Germans, and especially the French, who use the gold treatment so much more than American phthisiotherapists. Brailion⁴ in France states that gold treatment gives an incidence of agranulocytosis of about 0.1 per cent, with a mortality of around 50 per cent.

One reason why these serious diseases occur is that animal experiments and preliminary therapeutic trials do not disclose the danger, and in clinical trials the danger is not recognized because the full fledged pathologic condition develops in only a small proportion of those taking the drugs. Vast numbers of persons take cinchophen and aminopyrine without suffering recognizable ill effects, while on the other hand fatal results have followed the taking of but a few therapeutic doses by the rare, susceptible person. Cinchophen will not produce severe liver damage in any reasonable number of laboratory animals any more than it does apparently in at least 999 out of a thousand arthritic patients, and hence no amount of laboratory testing would indicate that cinchophen is so dangerous to man that Palmer and Woodall⁵ could raise the question "Cinchophen—is there a safe method of administration?" and answer it in the negative.

Likewise, no administration of aminopyrine or other drugs has been found to produce agranulocytosis in

experimental animals. In this laboratory Stenn⁶ has tried in several species many sorts of suggested and original methods for sensitizing the bone marrow so that experimental agranulocytosis can be produced, but without success, and the literature yields a similar story.

We suspect that another important disease condition may be produced by some newly popularized chemical agent, presumably therapeutic, namely, "suprarenal cortex atrophy" leading to Addison's disease. One of us⁷ called attention to the fact that this sort of lesion as the cause of Addison's disease was to him a new observation, stating that until a few years ago nearly all cases of Addison's disease that he had seen were the result of tuberculosis of the adrenals but that of the last nine cases examined in this laboratory six had been of the "atrophy" type, better designated as "selective destruction of the adrenal cortex." Since that time of seven more cases of Addison's disease observed here, three were associated with cortical atrophy and four with tuberculosis. According to evidence in published articles and discussions in society meetings, other pathologists seem to have had a similar experience. Thus, Von Glahn⁸ states that since 1926 he has seen five cases of Addison's disease associated with adrenal atrophy, whereas in twenty-four years only six cases, all due to tuberculosis, were observed. A similar experience has been noted in the Mayo Clinic. In 1929 Barker⁹ reported that among twenty-eight cases of Addison's disease twenty-five presented bilateral tuberculosis and three "advanced bilateral atrophy." Dr H. E. Robertson informed one of us in May 1937 that, since Barker's paper was published, of nineteen cases of Addison's disease nine were due to adrenal tuberculosis, one to adrenal calcification of unknown etiology and nine to cortical atrophy.

In view of the close similarity of the lesions in the adrenal cortex in these cases to the histologic features of cinchophen poisoning of the liver and the similarity of their coincidental appearance during recent years, the suspicion was aroused that the selective destruction of the adrenal cortex might have been produced by some drug or other chemical agent. The six cases studied were so scattered in time and place that it was impossible to check up satisfactorily on their histories beyond the hospital records, and these revealed no common condition or therapeutic experience. None of the other writers on cortical destruction of the adrenals have been able to find any reasonable explanation, although none of them seem to have been directing attention to any drug or chemical cause.¹⁰ Susman¹⁰ calls attention to the particular frequency of the cases in women, especially in the age group of from 35 to 45 years, but this throws little light on the etiology. His suggestion that "an accumulation, in the adrenal, of minor atrophic lesions

6 Stenn, Frederick. Etiology of Agranulocytosis. *Arch. Intern. Med.* 20: 902-930 (Dec.) 1935.

7 Wells, H. Gideon. Addison's Disease with Selective Destruction of the Suprarenal Cortex (Suprarenal Cortex Atrophy). *Arch. Intern. Med.* 10: 499-523 (Oct.) 1930.

8 Von Glahn, William C. In discussion at New York Pathological Society meeting Feb. 28, 1935. *Arch. Path.* 20: 649-653 (Oct.) 1915.

9 Barker, Nelson W. The Pathologic Anatomy in Twenty-Eight Cases of Addison's Disease. *Arch. Intern. Med.* 8: 432-450 (Sept.) 1929.

10a Weiner (Am. J. Path. 12: 411 [May] 1936) has reported the finding of intranuclear inclusions in the cortical cells in a case of adrenal atrophy the significance of which is at present uncertain. Certainly it does not exclude the action of chemical agents as responsible for the adrenal lesions for Blackman (Bull. Johns Hopkins Hosp. 59: 381 [June] 1936) reports finding intranuclear inclusions in the liver and kidney in twenty-one cases of lead poisoning in children.

10 Susman, William. Atrophy of Adrenals and Addison's Disease. *Endocrinology* 20: 383-388 (May) 1936.

1 Wells, H. C., and Bassoe, Peter. Acute Yellow Atrophy of the Liver. *J. A. M. A.* 44: 685 (March 4) 1905.

2 Plum, P. Studies on the Etiologic Significance of Aminopyrine (Pyramidon) in Agranulocytosis. *Acta med. Scandinav.* Supp. 78: pp. 605-625, 1936.

3 Schwartz, Spencer, and Heise, F. H. Agranulocytic Angina Following Sanocrysin. *Am. Rev. Tuberc.* 34: 151-155 (July) 1936.

4 Brailion, Jean. Les agranulocytoses de l'autothérapie de la tuberculose. *revue in Presse med.* 44: 80 (Jan. 11) 1936.

5 Palmer, Walter I., and Woodall, Paul S. Cinchophen—Is There a Safe Method of Administration? *J. A. M. A.* 107: 760-764 (Sept. 5) 1936.

may be causal in some cases" seems scarcely adequate in view of the marked regenerative capacity of the adrenal cortex. The anatomic manifestations suggest more a massive necrosis in which nearly all the cortex cells are destroyed. Only in those cases in which the destruction is so nearly complete that the regeneration is inadequate does recognized adrenal insufficiency result.

Recently we have seen a case of selective necrosis of the adrenal cortex, not associated with recognized Addison's disease, which seems to demonstrate that organic chemicals therapeutically administered can have an effect on the adrenals similar to the effect of cinchophen and other chemicals on the liver.

A woman, aged 57, came to the University of Chicago Clinics, Oct. 29, 1935, in a critical condition, with a blood pressure of 90 systolic, a high temperature and clinical evidence of pemphigus vulgaris as diagnosed by Dr. Becker. She was able to state that in September 1934 she had been told that she had a rare skin disease, for which a dermatologist gave her, in addition to dietary management, injections of "germanin."¹¹ She died the second day after admission. The blood pressure on the day before death was 90 systolic, 68 diastolic. There was no noticeable cutaneous pigmentation. There were extensive pemphigus lesions in the oral mucosa, so that the existence of pigmentation here could not be determined. Besides the pemphigus lesions in the skin and mucous membranes there were no marked changes in the body except for bronchitis, early bronchopneumonia and the changes found in the adrenals. These were noted during the autopsy to show marked bilateral atrophy of the cortex with apparently normal medulla. Unfortunately the weight and dimensions were not recorded.

Microscopically the changes in the adrenal were very striking and quite the same as those seen in typical cases of destruction of the adrenal cortex associated with Addison's disease, except that the regenerative changes were slight, presumably because the disease had been of shorter duration. In both adrenals the entire cortex epithelium had almost completely disappeared, leaving the original stroma containing only distended capillaries, a moderate number of small round cells and occasional small groups of living cortex cells, which were abnormally large but which seemed not to have as yet formed the characteristic islands of regenerating cells seen in cases of longer duration presenting outspoken Addison's disease. An interesting feature was the presence of a small accessory nodule of cortical tissue outside the adrenal capsule, which had undergone a similar loss of functional cells. Connective tissue stains indicated that there had been little if any new formation of fibrous tissue—merely a condensation of the preexisting tissue. The medulla seemed to be entirely normal, as were the blood vessels.

No changes of significance were found in any of the other organs.

It is unfortunate that this patient was not under observation except in the last hours of life, when a terminal sepsis dominated the picture. The degree of adrenal change was so great that there is no doubt that, had she been free from the fatal pemphigus, the Addison complex would have developed, for the adrenals were fully as much damaged as those in some of the fatal cases presenting typical Addison's disease. This is to be looked on as a case of selective necrosis of the adrenal cortex in which death occurred from other causes before the clinical picture of Addison's disease had manifested itself, despite the serious dermatologic condition with which the woman was

suffering. In view of the history of protracted treatment with germanin our suspicion was aroused that "at long last" we had found a case in which a possible chemical etiology might be established for an adrenal lesion.

Investigation of the nature and effects of germanin revealed the following facts:

First introduced in 1920, and after the demonstration of its remarkable trypanocidal effect in experimental infections, germanin gained wide use in the treatment of human trypanosomiasis. Few undesirable side effects have been attributed to its use in the doses commonly employed for this purpose. Of course late effects, especially Addison's disease, might be missed in African natives, but a considerable number of treated Europeans have been followed for several years, with cures and no obvious delayed effects attributable to the drug. It is natural that the successful treatment of trypanosomiasis should have been followed by tests of its efficacy in other diseases, among them kala azar. The reports of two fatalities attributed to the drug put a damper on enthusiasm.

Veiel¹² in 1931 introduced germanin in the treatment of pemphigus vulgaris, and there have been many reports of remissions and cures, as well as others telling of failures. It has come to be appreciated that germanin is not a sure cure, but, considering the generally hopeless outlook in pemphigus, its use has been thought justifiable in spite of certain drawbacks.

Soon after 1921 it was appreciated that germanin has a cumulative effect, being detectable in the blood and urine for a considerable period. It also became obvious that the drug is a renal irritant, usually causing albuminuria and often the appearance in the urine of hyaline and granular casts, and sometimes of red cells. That germanin may cause blood destruction has long been known. A recent report¹³ of the development of leukopenia with agranulocytosis following germanin points to a depressant effect on the bone marrow.

On the whole, autopsy reports, either on human beings or on experimental animals treated with germanin, are few and incomplete. There has been evidence of a tendency to hemorrhage, and focal necroses with fatty changes have been observed in the liver. Accounting for the urinary abnormalities, the most constant and striking condition reported is epithelial degeneration with necrosis in the renal tubules. Few systematic studies have been reported, and no reports were found of microscopic study of the adrenal glands.

We have given a series of laboratory animals (rats, rabbits and guinea-pigs) germanin injections—intravenous and subcutaneous. In all three species large (lethal and sublethal) doses caused serious injury to the kidneys, liver, myocardium and adrenal glands. A graded series of sublethal doses—down to amounts comparable to the dosage in human disease, was given to guinea-pigs. With these smaller doses it was evident that the kidney and adrenal were injured to a greater extent than the liver and myocardium. While in most instances the renal damage probably caused the fatal outcome or progress in cachexia, in a few guinea-pigs renal changes were slight when the adrenal glands were seriously damaged. Those glands usually showed

¹¹ Germanin also called Bayer 205 is a carbamide of meta aminobenzoyl meta aminoparamethylbenzoyl 1 naphthylamine 4, 6, 8 trisulfonic acid. The attending physician Dr. M. L. Weinstein has kindly furnished the information that the first dose of germanin (one-half ampule) was given Dec. 20, 1934; another half ampule December 22 and then full ampule doses on nine occasions between December 24 and March 14. Other injections of one ampule were made June 11, September 7, 14 and 24 and October 4 and 24—a total of 16 Gm. in ten months.

¹² Veiel, F. Die Behandlung des Pemphigus mit Germanin. *München med. Wchnschr.* 78: 2047-2048 (Nov. 27) 1931.

¹³ Geyer, Hans. Ueber die Behandlung des Pemphigus und der Dermatitis herpetiformis Dühring mit Germanin und über die dabei beobachteten Nebenerscheinungen. *Acta dermat. venerol.* 16: 328-342 (Nov.) 1935.

a wide band of necrosis in the fasciculate zone of the cortex. In the nonlethal dosage this was often associated with regeneration, evidenced by very numerous mitotic figures. With the doses and time intervals so far employed, the picture of so-called adrenal atrophy has not been produced. However, the qualitative similarities suggest further experiments, which will be undertaken and reported with more details of the experiments already completed.

These experiments, demonstrating a marked and perhaps even a special susceptibility of the adrenal cortex to one chemical agent, raise interesting questions. It is improbable that such a rarely used drug as germanin is responsible for many cases of Addison's disease. However, in a study of the toxic potencies of drugs, the adrenal glands are rarely considered. It would seem probable that therapeutic chemicals in more common use than germanin may be found to have a special injurious effect on the adrenal cortex, especially under conditions of unusual susceptibility.

That the pemphigus was responsible for the adrenal lesions in our case is highly improbable, in view, first, of the experimental evidence that germanin has a markedly toxic effect on the adrenals in animals, and, secondly, of the absence of such lesions in the cases of pemphigus so far reported. In the dermatologic literature the autopsies are usually summarized quite briefly and usually make no mention of the adrenals. The only recent American report that we have been able to find is that of Tobias,¹⁴ who describes a fatal case in a child of 12 treated with germanin but complicated by endocarditis and sepsis. Foldvari¹⁵ of Budapest tabulates the autopsies in thirty-seven cases. They are presented briefly, but he states that they "present very little in common." Since endocrine dysfunction has been blamed for pemphigus, he apparently paid especial attention to the endocrine organs but found no constant variation from normal. The same conclusions were reached by Lucien Hudelo¹⁶ and Leo Kumer¹⁷.

CONCLUSIONS

Selective necrosis of the adrenal cortex seems to have become an increasingly common cause of Addison's disease in recent years. The similarity of the changes seen in these adrenals to the changes in toxic necrosis of the liver with resulting "acute yellow atrophy of the liver," which is so often produced by cinchophen, and to the selective destruction of marrow elements by aminopyrine and other drugs, leading to agranulocytosis, suggests the probability that necrosis of the adrenal cortex may likewise have become more frequent of late because of the action of some drug or chemical in persons with a particular idiosyncrasy.

In support of this hypothesis we report the case of a woman who had been treated for pemphigus with "germanin," or "Bayer 205," and died with almost complete selective necrosis of the adrenal cortex, identical with that seen in cases of Addison's disease. Animal experiments have shown that this drug will produce a marked destruction of the adrenal cortex cells similar in character to the changes seen in our case. While germanin cannot be incriminated in the cases of

Addison's disease from selective cortical necrosis of the adrenals so far reported, these clinical and experimental observations do support the hypothesis that drugs or chemicals may be responsible for many if not all the cases of Addison's disease of this type. Consideration of this possibility in history taking in cases of Addison's disease may serve to reveal the agents responsible for the adrenal damage.

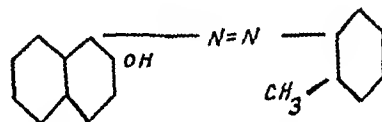
STUDY OF THE TOXICITY OF ORTHO-TOLUENO-AZO-BETA-NAPHTHOL, AN OIL-SOLUBLE FOOD DYE

DAVID R. CLIMENKO, M.D., PH.D.

COLD SPRING HARBOR, N. Y.

Considerable interest has centered about ortho-tolueno-azo-naphthol¹ since it has been used in the processing of citrus fruits and questions have arisen regarding the potential deleterious action on consumers of treated fruit. This study was undertaken to elucidate the issues that have arisen. The present report, for the purposes of brevity, will omit all detailed protocols, growth curves and blood pictures, which will be published in a subsequent paper.

The dye under investigation has the chemical structure



It is soluble in fat and fat solvents, it is completely insoluble in water. It is estimated that from 1 to 5 mg. of the dye is present on the skin of a treated orange. No dye is to be found in the edible portion of the fruit, all of it is in solution in the outer coat of the rind.

ACUTE TOXICITY

Studies on acute toxicity were carried out on dogs, rabbits and rats. The dye was administered orally with food, orally in capsules, by stomach tube in acacia suspension, intramuscularly in oily solution and intravenously in acacia suspension. The results are summarized in the table.

The symptom complex that resulted from the oral administration of large doses of the dye to dogs might be referred to irritation of the gastro-intestinal tract. Retching and vomiting usually occurred within two hours of the administration and persisted for a short time. This was followed by a variable period of anorexia, associated with severe diarrhea, which lasted from one to five days, depending on the size of the dose administered. The stool was watery and deeply stained by the dye, it contained large quantities of mucus. A method which depended on the chloroform extraction of the dye from body fluids was used, and the presence of the dye in dilutions of 1:250,000 could be demonstrated. In spite of this fact, no trace of the dye could be found in the blood or in the urine of the dogs at any time after administration. Animals which had received the maximum oral dose failed to show any gross or microscopic pathologic changes other than slight hyperemia of the mucosa of the gastro-intestinal

14 Tobias, Norman. Juvenile Pemphigus. Treatment with Germanin (Bayer 205). Report of a Fatal Case. *Am. J. Dis. Child.* 48: 1084-1091 (Nov.) 1934.

15 Foldvari, F. Der gegenwärtige Stand der Pemphigusfrage nebst pathologischen experimentellen und therapeutischen Erfahrungen. *Acta dermat. venerol.* 14: 233-261 (Oct.) 1935.

16 Hudelo, Lucien. *Dartier's nouvelle pratique dermatologique*. Paris: Masson & Cie 4: 467, 1936.

17 Kumer, Leo. *Arzt-Zeitung*. Die Haut und Geschlechtskrankheiten. Berlin and Vienna: Urban und Schwarzenberg 3: 421-422, 1934.

From the Biological Laboratory.

1. United States patents 1,909,860 and 2,068,081.

tract, associated with evidence of marked hypersecretion. In no instance was there any indication of dye staining of tissues.

Results obtained from the oral administration of the dye to rabbits were more variable, and evidence of absorption from the intestine was observed in a number of instances. Of course no vomiting occurred, but signs of gastro-intestinal irritation were to be seen in the apathy, anorexia and diarrhea, associated with a fall in the body weight, which invariably followed the administration. A number of the fatalities listed for this group cannot be attributed to the toxic action of the dye, for example, in a group of animals which received a dose of 15 Gm per kilogram one death occurred. This death took place within twenty minutes after the administration, and postmortem examination revealed edema of the larynx, together with pulmonary edema, and was obviously the result of traumatization that occurred during the passage of the stomach tube

and a normal growth curve was reestablished, the animals which were killed at this time for examination showed no discernible pathologic lesions other than the presence of the dye in the adipose tissues. When fatalities occurred as the result of the administration of the dye, death took place from eight to thirty days after the administration. The animals failed to reestablish a normal growth curve and had almost complete anorexia. Pathologic changes consisted of massive dye staining of the subcutaneous adipose tissues, diffuse parenchymal degeneration in the liver and early nephrotic changes in the kidney. Death always resulted from superimposed bronchopneumonia. Dye could be demonstrated in large quantities in the liver, the spleen and the kidneys.

The intramuscular administration of the dye proved to be unsatisfactory because of the low solubility in oil and because of the irritant effects both of the solvent and of the dyestuffs.

The acute toxicity resulting from the intravenous administration of the dye was studied in dogs and in rabbits. No dogs died as a result of the administration of doses up to and including 180 mg per kilogram, whereas a number of rabbits died after receiving doses as small as 40 mg per kilogram. The results are summarized in the table.

The following sequence of events occurred after the administration of a dose such as 200 mg per kilogram of the dye in acacia suspension to a dog. Within twenty minutes there was marked apathy, associated with hypersalivation. The hypersalivation persisted and increased in intensity, retching occurred and the respiratory rate was increased. Shortly afterward repeated vomiting took place, and dye-stained frothy material was brought up. Diarrhea occurred, and watery stools containing quantities of the dye were passed. These signs of gastro-intestinal irritation persisted for one or two days, during which time the animal suffered from complete anorexia. By the fourth day it had made a complete recovery and could not be distinguished from a normal animal.

When the dye was administered intravenously to a dog, it disappeared from the circulating blood within fifteen minutes after the completion of the injection. About the same time it appeared in the bile from the common bile duct. At no time could dye be demonstrated in the blood taken from the renal vein or in urine collected from the ureter.

When death occurred as a result of the intravenous administration it took place any time from twenty minutes to thirteen days after the completion of the injection. When death followed immediately after the injection the principal pathologic change was pulmonary edema. When an interval of days intervened, examination showed the presence of free fluid in the peritoneum, congestion of the peritoneal vessels, dye staining of the omental fat, congestion of the liver, inflammation of the mucosa, the duodenum, the stomach and the upper portion of the jejunum, and patchy areas of consolidation in the lungs. Microscopic examination demonstrated parenchymal degeneration in the liver and bronchopneumonia.

Animals which recovered from doses of 200 mg per kilogram were killed thirty days after administration. No pathologic changes could be demonstrated in these animals.

The picture produced in rabbits was essentially similar to that observed in dogs save for the fact that it

Acute Toxicity (Oral Administration)

Animals	Dose Gm per kilogram	Number	Died	Recovered
Rabbits	5	6	1	5
	10	5	1	4
	15	4	1	3
Rats	5	12	2	10
	10	7	1	6
	15	7	1	6
	20	2	0	2
Dogs	5	2	0	2
	10	3	0	3
	15	3	0	3
	20	2	0	2

Acute Toxicity (Intravenous Administration)

	Mg per kg			
Dogs	180	5	0	5
	200	5	1	4
	240	2	2	0
	260	5	5	0
	280	5	5	0
Rabbits	20	10	0	10
	40	20	8	17
	50	15	3	12
	60	2	2	0
	80	10	8	2
	100	6	3	3
	120	4	4	0
	150	5	4	1
	180	0	0	0
	200	3	3	0

Deaths which could be directly attributed to the administration of the dye occurred from three to five days after administration, during which time there was complete anorexia and intense thirst. Postmortem examination showed irritation of the entire gastro-intestinal tract, cloudy swelling of the parenchymal cells of the liver and of the collecting tubules of the kidney, and generalized diffuse dye staining of the adipose tissues. In no instance was there any indication of dye staining in the tissues of the central nervous system. Approximately 25 per cent of the animals of this group, regardless of the amount of the dose, excreted small quantities of the dye in the urine, dye could be demonstrated in the blood of these animals. The majority of the animals, however, failed to show any trace of dye either in the blood or in the urine at any time after administration.

After the administration of the dye the rats suffered from slight diarrhea and loss of body weight. The dye was present in the feces in large quantities within twelve hours after completion of the administration. Traces of the dye were present in the urine, but it is difficult to state with certainty whether or not this was due to fecal contamination. The great majority of the animals made a complete recovery within five days,

no time after the intravenous administration could the dye be demonstrated in the stomach. It was invariably present in the liver, the duodenum and the entire gastrointestinal tract. Death was always preceded by a stage of muscular excitability followed by tetanic convulsions.

It was thought advisable to compare the toxicity of ortho-tolueno-azo-beta-naphthol with that of an oil-soluble food dye such as benzeneazo-b-naphthylamine or tolueneazo-b-naphthylamine, which are in common use oil yellow AB and OB. Eighty per cent of the rabbits recovered from the intravenous administration of a dose of 40 mg per kilogram of these substances, 80 per cent recovered from a dose of 80 mg, and there were no recoveries from doses of 100 mg or over. One dog in a group of three recovered from the intravenous administration of a dose of 120 mg per kilogram, while all the members of another group of three died after a dose of 180 mg. In all instances in which death occurred there was marked pulmonary edema and dye staining of all the adipose tissues and of the tissues of the central nervous system. Studies on oral toxicity with these dyes were confined to rabbits. No animal survived a dose of 5 Gm per kilogram or more.

CHRONIC TOXICITY

Rabbits and rats showed no serious ill effect from the daily administration of doses up to and including 100 mg per kilogram a day over a period of six months. Postmortem examination of these animals in a few instances showed a very slight degree of cloudy swelling of the parenchymal cells of the liver. In no instance was there any indication of hyperplasia or neoplasia in the urinary tract. All the animals showed a moderate degree of dye staining, limited to the adipose tissues.

In the first study on chronic toxicity the dye was administered to dogs as a dry powder in gelatin capsules. By the end of the third month these animals died of severe hemorrhagic gastro-enteritis and complete anorexia regardless of the size of the dose. They showed marked parenchymatous degeneration of the liver and of the collecting tubules of the kidney, ulceration of the gastric mucosa and petechial hemorrhages throughout the mucous membranes of the entire gastrointestinal tract. It was felt that these lesions resulted primarily from the irritating effect of the concentrated dye on the gastro-intestinal mucosa, and accordingly another series of experiments was started, in which the dye was administered as a 1.5 per cent solution in olive oil. The animals showed varying degrees of anorexia and consequent loss in body weight but no significant pathologic lesions.

SUMMARY

The acute toxicity of ortho-tolueno-azo-beta-naphthol is very low. While it is difficult to draw analogies between the action of a chemical agent on experimental animals and its action on man, it should be pointed out that a dose of 20 Gm per kilogram, which was the maximum dose after which recovery took place, is the equivalent of a dose of approximately $2\frac{1}{2}$ pounds (1 Kg) of the dye for a man weighing 60 Kg. The toxicity of the dye compares favorably with that of yellow AB and yellow OB dyes, which are in common use for the coloration of butter.

As to chronic toxicity, no serious deleterious effects resulted from the daily administration of doses up to 100 mg per kilogram a day over a period of six months. This represents the daily administration of the total dye content of 1,200 treated oranges to a man weighing 60 Kg.

Clinical Notes, Suggestions and New Instruments

DERMATITIS CAUSED BY DICTAMNUS ALBUS (GAS PLANT)

AN EXAMPLE OF PHOTODERMATITIS

CLAUDE L. CUMMER, M.D. AND RICHARD DEXTER, M.D.
CLEVELAND

This report is made because *Dictamnus albus* is a rather commonly cultivated garden plant and we have been unable to find any mention of its irritating property in the literature. Furthermore the requirement of the sun's rays to produce the irritation is of distinct interest.



Fig 1—Appearance of eruption at time of first visit

In July 1935 a man noticed an eruption on his forearms (fig 1). Two days previously he had been working in his garden in the hot sun. *Rhus toxicodendron* was suspected as the cause but the patient was certain that there was none in or near his garden. He remembered a similar outbreak on the skin which had appeared in the early summer two years previously.



Fig 2—*Dictamnus albus* in natural habitat

There was no eruption on the hands but this was readily understood since gloves had been worn. Recalling a chance inquiry made some years previously as to whether or not the gas plant could irritate the skin (a question which could not be answered then) we asked whether there were any of these plants in his garden. He replied that there were that he had cut off the stalks two days before the appearance of the eruption.

tion, and that in removing them he had carried them across his forearms. He remembered that the tops, i. e., the seed pods, had rested on the arms at the sites of the eruption.

Unfortunately the stalks had been thrown away, and it was too late to secure any from other gardens for testing during 1935, but a few days later another patient consulted us with a similar eruption and practically the same history. The eruption in both cases differed definitely from that produced by *Rhus toxicodendron*, members of the *Rhus* family, the prim-



Fig. 3—Blossoms of *Dictamnus albus*

rose family or other commonly encountered plant irritants. There were patches of irregular size and shape in which the skin was dusky red, and occasional bullae about the size of navy beans, occasionally two or three grouped together rather closely. The subjective symptoms were notably slight, there being little or no itching, burning or other discomfort. As the bullae involuted and the erythema subsided, conspicuous pigmentation or staining resulted, which persisted for several weeks or months.

The plant was in full bloom May 30, 1936. Photographs were taken of it in its natural location in the garden (figs. 2 and 3), and a day or so later portions of the blossoms, stem, leaf and rather viscid stem juice were used for making patch tests. To our disappointment, no reactions occurred, and we concluded that the seedpods probably contained the irritant. Accordingly, June 2, when seed pods were formed (fig. 4), they were used for patch tests, portions being applied to the skin with the minute needle-like covering next the skin and with the inside of the pod next the skin. Also contact tests in which portions of the stem and the leaf were used were repeated. At this time juice could not be expressed from the stem, the interior of which was quite pithy. After these portions of the plant had been in contact with the skin for twenty-four hours, the cellophane and adhesive covers were removed and the skin was found to be entirely normal. The needle-like prickles had made a perfect impression into the skin but even with this insult there was no irritation.

We might have felt that our suspicion of the plant was unfounded had it not happened that while securing parts of the plant the patient remembered distinctly having been brushed accidentally on the left temple with one of the seed pods, at which point a dusky erythematous eruption appeared forty-eight hours later. This gave us our clue, i. e., that the irritating factor required either the sun's rays or exposure to air to render it effective. The resemblance to the production of berlock dermatitis is obvious.

Accordingly the pod was rubbed on the left forearm, and this area was covered as for a contact test, while an area on the right arm was rubbed with equal vigor and kept exposed to the sun and air as the subject worked in his garden for two hours. About sixteen hours later there was an erythematous patch on the right arm, which had been exposed to the sun. This showed bullae the following day (fig. 5). The left arm showed no reaction.

We were still in doubt as to whether exposure to air or the sun's rays served as a precipitating factor, so areas on the unaffected arm were rubbed with portions of the seed pods as before. The upper part was covered with cellophane and adhesive to exclude air as much as possible, the middle with two layers of gauze and a layer of dark green cloth sewn on to exclude the sun's rays but held in place loosely to admit air. The lower part entirely uncovered and exposed as before to the sun's rays for a period of about two hours. The last mentioned area showed erythema followed by bullae, while the other two sections showed no reaction whatever.

The question then arose as to whether the plant irritated all skins or not. On the arm of one volunteer (B. D.) the seed pod was rubbed and the area was exposed to the sun with no resultant irritation. On another (C. L. C.) there was no irritation, but about four days later, definite discoloration of the skin appeared as a light brown patch studded with pinhead size red macules. The pigmentation has lasted over three months.

It was thought that possibly the toxic action could be activated by ultraviolet radiation as well as by the sun's rays so the seed pods were rubbed on the arms of two individuals (the original patient and the subject who had shown slight pigmentation after exposure to the sun's rays), but in neither case was there any reaction.

In an attempt to extract the irritant, seed pods were soaked in (a) 95 per cent ethyl alcohol and (b) ether. The extracts were filtered and applied to the arms of the same subjects. Also the seed pods were cut up and soaked in water, and the mixture was distilled with a condenser. Oily drops were found floating on top of the distillate, which had the same lemon-like odor as the plant. The distillate was thoroughly shaken to suspend the oil. Then to three separate sites on the forearms of these subjects were applied (a) alcoholic extract, (b) ethereal extract and (c) distillate. The arms were exposed to the sun but there were no reactions.

Dictamnus is a member of the Rue family. According to Bailey's *Cyclopedia*¹ the names commonly employed are gas plant, burning bush and *Fraxinella*. The genus includes an old garden plant which has a strong smell of lemon and gives a flash of light on a sultry summer evening when a lighted match is held under a flower cluster near the main stem. It is a vigorous, symmetrical, hardy herb with glossy leathery foliage surmounted by long, showy terminal racemes of good sized flowers. The leaves are alternate, odd pinnate, and the leaflets ovate, serrulate, dotted with oil glands. There are four varieties: *purpurea*, with large, dark colored flowers, *rubra* with rosy purple flowers, *giganticus*, a large plant, and *caucasicus* a giant form with racemes twice as long as those of the common form.

Professor Bacon² of the School of Pharmacy of Western Reserve University states that the lemon-like odor indicates citral and possibly other terpenes, which would account for the burning and the name gas plant.



Fig. 4—Seed pods of *Dictamnus albus*

1 Bailey L. A. *Standard Cyclopedia of Horticulture* vol. 1 p. 1004
2 Personal communication to the authors

Pammel³ says that *Dictamnus albus*, a viscid glandular plant with strong aromatic scent, is commonly cultivated but makes no mention of irritating effects. He refers to another species of the Rutaceae, the common rue (*Ruta graveolus*), a native of Europe sometimes seen in country gardens, and so acrid that it will even blister the hands."

In his classic monograph James C. White⁴ mentions among offenders in the Rue family Rutaceae *ailanthus-glandulosa*, *Pilocarpus pennatifolius* and *Ruta graveolus* but not *Dictamnus albus*.

Castellani and Chalmers⁵ list the same three members of the Rutaceae family as did White, and in addition *Haplophyllum tuberculatum* (Forskul, 1775) and *Rue montana*. They state that in the Rue group the poisonous principle is apparently volatile but acts mainly when the plant is handled. No mention is made of *Dictamnus albus*.



Fig. 5.—Appearance of arm seventy-two hours after it had been rubbed with *Dictamnus albus* seed pod and had been exposed to sunlight while the patient worked in the garden for two hours.

This plant is not included in Weber's⁶ list of cutaneous irritants. Careful search of the usual bibliographic indexes fails to give any references to *Dictamnus albus* as a skin irritant. Inquiry in 1935 by correspondence with Dr. A. F. Sievers,² senior biochemist of the Bureau of Plant Industry, elicited the answer that no cases of poisoning by *Dictamnus* had come to the attention of the bureau.

SUMMARY

Dictamnus albus, commonly known as the gas plant, is a showy garden plant commonly grown in certain parts of North America. It can cause a skin irritation. The toxic factor is apparently a photosensitizer for contact with the plant does not cause irritation unless it is followed by exposure to the sun's rays. The effects on the skin comprise erythema and bulla formation. Subjective symptoms are slight or absent. In the affected areas, staining persists for weeks or months. The resemblance to berlock dermatitis is obvious.

1010 Hanna Building—1072 Hanna Building

3 Pammel L. H. A Manual of Poisoning Plants. Cedar Rapids, Iowa: Torch Press, 1911.
4 White J. C. Dermatitis Venenata. Boston: Cupples and Hurd, 1887.
5 Castellani Aldo and Chalmers A. J. Manual of Tropical Medicine, ed. 3. New York: William Wood & Co., 1920.
6 Weber L. F. A List of Cutaneous Irritants. Arch. Dermat. & Syph. 21: 761-770 (May) 1930.
7 Since this article was submitted for publication L. F. Weber's article on External Causes of Dermatitis: A List of Irritants has appeared (Arch. Dermat. & Syph. 35: 129-133 [Jan.] 1937). In it is found reference to *Dictamnus fraxinella* producing irritation by exposure to the stalks, leaves or flower (Baronovsky. Russk. vestnik dermat. Jan. uary 1929, p. 58).

Bacteremia and Septicemia—Normally, the blood has a remarkable capacity for rapidly clearing itself of microorganisms. At least, this has been abundantly proved experimentally with the lower animals when large numbers have been introduced directly into the blood, and it doubtless holds true for human beings as well. Furthermore organisms, particularly streptococci of low virulence, may be intermittently present in the blood, as detected by cultures when there is no clinical evidence of infection and especially in persons with chronic foci of infection about the teeth and tonsils. This constitutes bacteremia and probably occurs more frequently than is ordinarily surmised. However, when the blood is invaded by organisms of high virulence and the clearing mechanism is inadequate or fails, with possibly some actual proliferation and the production of toxins, this tissue may be regarded as being infected which constitutes septicemia.—Kolmer John A. Etiology, Prophylaxis and Treatment of Surgical Septicemia, Arch. Otolaryng. 26: 59 (July) 1937.

Special Clinical Article

PROTAMINE INSULIN

CLINICAL LECTURE AT ATLANTIC CITY SESSION

ELLIOTT P. JOSLIN, M.D.

BOSTON

There are probably 70,000 more diabetic patients in this country using insulin today than there were a year ago, and I attribute this increase chiefly to the discovery of protamine insulin by Dr. Hagedorn of Copenhagen. His discovery stimulated the use of insulin and insulin it is which has lessened coma and made it inexcusable, has raised the life expectancy of 10 year old diabetic children from two years to 31 1/2 years, and has trebled the duration of diabetes for all diabetic patients and even deferred premature arteriosclerosis by two years or more. The simplicity and convenience of administering insulin once a day have appealed to the diabetic public, and is it any wonder that they have turned to it or that I should feel still more strongly now than a year and a half ago that, in recognition of this extension of the use of insulin—an indirect benefit—and of direct advantages later to be enumerated, the present epoch of diabetes should be named the Hagedorn era?

More than 1,250 of my patients, of whom 342 are under 20 years of age, now depend on protamine insulin. They have been treated with one variety or another of protamine insulin (supplied to me most generously by Dr. Hagedorn, Eli Lilly & Co., and E. R. Squibb & Sons), but chiefly with protamine zinc

TABLE 1.—Age of Patients Using Protamine Insulin Alone and with Regular Insulin and the Percentage of Each to the Total in Each Age Group

	Total		Protamine Insulin Alone		Protamine Insulin Plus Regular Insulin		Percentage of Total at Specified Age	
	Num. ber	Per Cent of Total Stated	Num. ber	Per Cent of Total Stated	Num. ber	Per Cent of Total Stated	Prot. amine Insulin Alone	Prot. amine Insulin Plus Regular Insulin
Total	1250	100.0	637	100.0	593	100.0	52.6	47.4
Under 20	342	27.1	67	10.2	275	46.4	19.6	80.4
20-39	242	19.4	90	13.5	152	25.7	37.2	62.8
40-59	368	29.5	233	38.9	135	22.8	69.3	30.7
60 and over	298	23.7	243	37.1	55	9.3	87.4	12.6
Not stated	3		2		1			

insulin between August 1935 and May 1937. By protamine insulin in this paper I mean protamine zinc insulin.

No patient who began the treatment of diabetes with protamine insulin has stopped it except as he no longer required any insulin. Fifty-three per cent, or 657, of the patients take protamine insulin alone and the remaining 593, or 47 per cent, use regular insulin and protamine insulin administered in separate doses before breakfast. A few, largely for emergencies, such as coma, surgery or infections, supplement the morning dose with regular insulin later in the day and a few for experimental purposes take protamine insulin at other periods in the day.

Read in the Medical Division of the General Scientific Meetings at the Eighty-Eighth Annual Session of the American Medical Association, Atlantic City, N. J., June 8, 1937.
The tables in this paper were prepared by Mr. Herbert H. Marks and his co-workers in the Statistical Department of the Metropolitan Life Insurance Company. The preparation of the cards for their computations was under the supervision of Miss Lucille Winterbottom of the George F. Baker Clinic.

Quite consistently the need for regular insulin plus protamine insulin decreases as age advances. Thus under 20 years of age the percentage is 80.4 requiring both varieties, but above 60 years it is 17.6. Protamine insulin sufficed for only 19.6 per cent under 20 years of age but was adequate for 82.4 per cent above 60 years.

During these twenty-two months thirty-seven patients are conspicuous for giving up protamine insulin and returning to regular insulin. However, eight of this group already have found that protamine insulin is preferable and so have returned to it. Of the remaining twenty-nine cases there are eight outstanding patients who had meticulously and intelligently treated their disease with regular insulin for nine or more years with from two to four doses daily and in this way lived usefully and happily, adjusting their insulin requirements to the needs of their several occupations and peculiar diets and the amount of exercise. A second group of three patients habitually took liberties with their diets but find that with protamine insulin once a day they are at a loss what to do if they wish to break over dietary bounds. Five other patients have given up protamine zinc insulin because although they

of experience with two, three or four daily doses of regular insulin, have learned how to keep the urine sugar free for the greater part of the twenty-four hours by adjusting insulin to the needs of the hour as determined by variations in diet, rest and exercise.

Mr. T., aged 73, with diabetes of nine years' duration takes regular insulin 24.0-18.2 units, for years he has tested his specimens four times a day and has varied his night dose from 0 to 4 units and thus avoids insulin reactions and usually wakes up sugar free. He is perfectly happy with this regimen.

Excellent as protamine insulin is, it does not live brains, and a single injection before breakfast will not counterbalance an unusual meal or an unaccustomed period of activity. But for the 98 per cent of diabetic patients the discovery of protamine insulin is a wonderful boon and the great majority of letters I receive are filled with gratitude for it.

Children as well as adults welcome a treatment of diabetes which requires only one injection of insulin daily. They appreciate the comfort and relief from embarrassment by being spared two or more injections often away from home. Only those who see many diabetic patients will fully realize the truth of these words.

TABLE 2—Degree of Control of Diabetes with Protamine Insulin With and Without Previous Insulin Treatment

Degree of Control	No Previous Insulin Treatment										Previous Insulin Treatment	
	Total		Total		Newly Diagnosed Cases		Others		Number	Per Cent of Total Classifiable		
					Number	Per Cent of Total Classifiable	Number	Per Cent of Total Classifiable				
	Number	Per Cent of Total Classifiable	Number	Per Cent of Total Classifiable					Number	Per Cent of Total Classifiable		
Total	1 200	100 0	200	100 0	92	100 0	158	100 0	1 090	100 0		
Excellent	127	10 2	37	18 5	10	10 9	27	17 1	90	9 1		
Good	746	60 0	174	69 6	64	69 5	110	69 6	512	57 5		
Fair	337	28 1	34	13 6	17	18 5	17	10 8	303	30 5		
Poor	34	2 7	5	2 0	1	1 1	4	2 5	29	2 9		
Undeterminable insufficient data etc	6								6			

had reactions with regular insulin the reactions with protamine insulin were more disagreeable on account of their greater duration and the accompanying headache and nausea. There are three others whose occupations were so peculiar, so strenuous and so variable from day to day that it was difficult to make the adjustment with protamine insulin. The remaining ten cases represent poor judgment on our part in trying the effect of too many different preparations of protamine insulin with one patient and thus creating confusion, in carrying out the transfer in too short a period or in permitting its use by those somewhat mentally deficient, or because of unusual medical complications.

In the Section on Pharmacology and Therapeutics on Friday I shall discuss this group of twenty-nine patients, or 2.4 per cent of the total number, more in detail. But I will say now that before changing any patient from regular insulin to protamine insulin, even though the patient is well instructed, one should have a preliminary period of at least three days' observation to find out how satisfactorily regular insulin is working. One may find that the hly is not as perfect as it is painted and may need a little touching up after all. Such a period serves as a most useful background and allows comparison with the action of protamine insulin.

It is a privilege for physicians to prescribe protamine insulin and for diabetic patients to take it. I prescribe it for all untreated patients with diabetes who need insulin, but I do not urge it on any one accustomed to regular insulin, much less attempt to persuade that select body of individuals to employ it who, after years

But it is because I am thinking of the larger group of diabetic patients who heretofore have not taken insulin at all but really need it, that I am especially thankful for protamine insulin with its single injection. Although there are 70,000 more diabetic patients taking insulin today than there were a year ago, I estimate that there are still one or two hundred thousand persons with mild diabetes in this country who ought to be prevailed on to take insulin in the early stages of the disease. In this way alone can most of them be prevented later from acquiring moderately severe or even severe diabetes. The distressing complications of the disease which the use of insulin might avert should be considered. Naunyn was right when he wrote that the mild case, neglected, is apt to become severe, but that the severe case carefully treated usually does not progress. And I will enlarge for a moment on this matter of diabetic control before entering into the details of treatment with protamine insulin.

The control of diabetes in this country is poor, and needlessly so. Here are my proofs, and to avoid criticism they are based chiefly on my own clientele.

1 *Experience from Physicians with Diabetes*—My diabetic physicians under the age of 40 have less than one fourth the mortality of all my diabetic patients of similar age, those between 40 and 59 years have less than one half the mortality as compared with their corresponding age group, and even above 60 the physician does better. My diabetic physicians are a living indictment of the inadequacy of my diabetic treatment.

Must a diabetic person become a physician if he wants to live? If you do not think so, then you must teach the patient all the diabetic tricks of the trade

2 Experience from Diabetic Coma—Deaths from coma are as inexcusable as from diphtheria. Mr. Herbert H. Marks of the Statistical Department of the Metropolitan Life Insurance Company recently wrote me "Outside of the large centers, the coma situation is ten years behind the times, in that the percentage of deaths from coma is as high today as it was in the better treated groups ten years ago." But I will add to the force of Mr. Marks' statement. Since the advent of insulin I have treated 1,163 children with diabetes and of these, during the last fifteen years in one place or another of the world, 104 have died. Now it should be borne in mind that a death from coma is needless. At the Children's Hospital no child, and at the Deaconess Hospital but one child since the discovery of insulin, has died of coma. There was no death of a diabetic patient under 19 years of age from any cause in Boston in 1935. Yet, during the first five years of insulin, 1922-1927, there were among my child patients a total of thirty-five deaths, of which

The degrees of control of the diabetes of patients on protamine insulin were excellent in 10.2 per cent, good in 60.0 per cent, fair in 27.1 per cent and poor in 2.7 per cent. It mattered comparatively little whether the patients had or had not previously taken insulin. Certain previously untreated but not recently diagnosed cases showed the best control, presumably because they were mild cases anyway.

The improvement in control of the diabetes with protamine insulin is most strikingly shown in table 3 for those patients who had never taken insulin before but is even three times more satisfactory over those who had taken regular insulin, if deductions are limited to the excellent and good classes. On the other hand, other studies make it plain that if a patient actually does poorly or only fairly well with protamine insulin, he probably did very poorly before it was begun.

Experience in the use of protamine insulin helps. Now it is possible to control patients distinctly better than it was with protamine insulin before Oct. 1, 1936. This is illustrated in table 4. In the early period 64 per cent but now 73 per cent show good or excellent control.

TABLE 3—*Degree of Control of Diabetes Before and With Use of Protamine Insulin With and Without Previous Regular Insulin**

Degree of Control	Total				No Previous Insulin Treatment				Previous Insulin Treatment			
	Before Protamine		With Protamine		Before Protamine		With Protamine		Before Protamine		With Protamine	
	Number	Per Cent of Class	Number	Per Cent of Class	Number	Per Cent of Class	Number	Per Cent of Class	Number	Per Cent of Class	Number	Per Cent of Class
All cases	1153	100.0	1153	100.0	158	100.0	158	100.0	1000	100.0	1000	100.0
Excellent	4	0.4	117	10.1			27	17.1	4	0.4	90	9.1
Good	244	22.3	682	59.2	17	11.8	110	69.6	27	23.9	572	57.5
Fair	547	50.0	320	27.8	62	43.1	17	10.8	485	51.1	203	39.5
Poor	299	27.3	33	2.9	65	45.1	4	2.5	234	24.6	29	2.9
Undeterminable incomplete data etc.	61		6		14				0		6	

* Excludes newly diagnosed cases begun on protamine insulin

thirty-two, or 91 per cent, were from coma. During the second five year period, 1927-1932, there were twenty-seven total deaths and nineteen, or 70 per cent, from coma, and during the recent five year period, 1932 to date, there have been forty-two deaths, and of these, eighteen, or 43 per cent, were from coma. Even with the advantage of insulin the deaths from coma in childhood in this recent five year period is greater than the percentage of deaths from coma, 42 per cent, reported for all my diabetic patients in the eight years before the discovery of insulin. Does this show an adequate control of diabetes?

3 Experience Disclosed by Studies of Diabetic Patients Treated with Protamine Insulin—A statistical study of 1,250 of my patients taking protamine insulin has been made with the help of Mr. Marks. Originally undertaken for an investigation of protamine insulin alone, it has revealed how inadequate the control of diabetes is in a larger group of diabetic patients. My cases were divided according to the degree of diabetic control into four classes. Excellent, meaning thereby blood sugar normal, no glycosuria. Good blood sugar tests slightly above normal twenty-four hour glycosuria under 15 Gm. Fair blood sugar tests frequently above 200 mg but under 300 mg, glycosuria between 15 and 30 Gm in twenty-four hours. Poor erratic and high blood sugar values rising above 300 mg and twenty-four hour glycosuria in excess of 30 Gm. The tabulations are quite detailed and most of them will be published, but at this time I will endeavor to sketch the results in broad lines.

Age plays an important role in the degree of control of diabetes with protamine insulin in that those above 40 years of age did better. The dividing line is 40 years. The number in the excellent and good groups differ little between 20 years and younger, and from 20 to 39 years, although definitely less than above the age of 40. Between 40 and 59 and 60 and over the control is about the same.

The degree of control of the diabetes was distinctly better with those using protamine insulin alone than with those who employed both regular insulin and protamine insulin. This might be expected because more of the milder cases and recently diagnosed cases fall into the group of protamine insulin alone. The results are depicted in table 6.

These tables, however, show me that the control of cases could be still further advanced. I believe that more strenuous treatment can bring this about and it can be accomplished only by closer cooperation between patient and physician. The possibility of and the advantage of better control must constantly be held up before the patient.

The duration of action of protamine insulin is from three to four times as long as that of regular insulin, and even longer (fifty-seven hours), as shown at the Mayo Clinic. Its action is less precipitate and less vigorous at any given moment. Regular insulin 70 units, administered in 10 unit doses before meals at 8 a.m., 12 noon and 5 p.m., might render utilisable 150 Gm of carbohydrate, but protamine insulin in like quantity in a single dose before breakfast would find

difficulty in doing so. If the meals are spread further apart over eleven or twelve hours and a trifling lunch of from 5 to 15 Gm of carbohydrate is insisted on in the forenoon, afternoon and at bedtime, perhaps with a little protein, the problem might be solved. All these lunches may not be necessary. Rarely orange juice may be needed on rising, in other words, less

TABLE 4—Comparison of Degree of Control of Diabetes of Earlier and Later Cases Treated with Protamine*

Degree of Control	Earlier Cases		Later Cases	
	Number	Per Cent of Classifiable	Number	Per Cent of Classifiable
Total	579	100.0	671	100.0
Excellent	46	7.9	73	11.0
Good	327	56.5	414	62.2
Fair	191	33.0	166	25.0
Poor	15	2.6	12	1.8
Undeterminable insufficient data etc			6	

* Division between earlier and later cases Oct 1 1936. Degree of control taken at first observation subsequent to beginning of treatment with protamine.

frequent injections of insulin but more frequent supplies of food as meals or lunches. All this is fundamental, and disregard of it will lead to hypoglycemia and reactions.

TABLE 5—Degree of Control of Diabetes with Protamine Insulin According to Age*

Degree of Control	Age									
	All Ages		Under 20		20-39		40-59		60 and Over	
	Number	Per Cent of Classifiable	Number	Per Cent of Classifiable	Number	Per Cent of Classifiable	Number	Per Cent of Classifiable	Number	Per Cent of Classifiable
Total	1250†	100.0	342	100.0	242	100.0	368	100.0	298	100.0
Excellent	127	10.2	13	3.8	6	2.5	54	14.7	54	18.6
Good	740†	60.0	199	58.2	134	55.4	228	62.3	182	61.5
Fair	337	27.1	116	33.9	91	37.6	80	21.0	50	17.0
Poor	34	2.7	14	4.1	11	4.5	4	1.1	5	1.7
Undeterminable	6						2		4	

* Age when protamine insulin was begun.

† Age not stated in three cases.

Protamine insulin acts slowly but steadily. A patient can start with protamine insulin and with increasing doses of protamine insulin show considerable glycosuria or increasing glycosuria for several days, and yet with the same dose of protamine insulin ultimately the glycosuria will clear and the dose require reduction. That is the reason why it is so essential that patients come into the hospital for observation in case one must work quickly with them or at least remain under close observation. In general, one should change the dose of protamine insulin slowly, not expecting the effect to develop for one, two, three or even more days, because the action is certainly cumulative, though for how long I cannot say.

Exercise reduces the need for regular insulin but still more for protamine insulin. This is so because with protamine insulin carbohydrate is more uniformly burned during the twenty-four hours, and, although the process is slow, it is constantly going on as in health. A normal man can withstand considerable demands on his glycogen reserve and far more than the diabetic patient with his meager supply. Nevertheless the Marathon runner or the football player knows that he can easily exhaust his carbohydrate supply and today takes great pains to replace it. The

diabetic patient with protamine insulin must take even greater pains and far more than the diabetic patient with regular insulin, first, because he has been and is utilizing his carbohydrate better and, in consequence, the reserve supply is lower, and, secondly, because the protamine insulin is constantly acting and a single replenishment of carbohydrate will help but for a short period and, therefore, repeated lunches are necessary. The diabetic subject on regular insulin lessens his insulin when he knows that he is to play a game of golf. It is a diabetic proverb that a game of golf is worth 5 units, and so the diabetic person can reduce his morning dose by this amount. Not so with the diabetic patient on protamine insulin. Protamine insulin acts so slowly that reducing the intake 5 units one morning may not have its effect for a day or two. Consequently, to avoid precipitating a reaction from unusual exercise the diabetic patient on protamine insulin, instead of reducing insulin, must increase food and increase it at hourly intervals.

It is very simple for the diabetic person who has never heard of regular insulin to offset the effect of exercise. He learns to match food with his exercise almost involuntarily. For the dyed in the wool diabetic person accustomed to regular insulin trouble frequently occurs, because the patient somehow does not grasp the new way of treatment. With such diabetic subjects I almost got out of patience until I fixed over my bath

room and then discovered that even after nine months I would turn to that part of the wall to shave where for thirty years the shaving mirror had hung.

Reactions with protamine insulin are, on the whole, less frequent and less severe than with regular insulin. On the other hand, they are more subtle in onset. Last

TABLE 6—Degree of Control of Diabetes with Protamine Insulin Alone and With Protamine Plus Regular Insulin

Degree of Control	Protamine Insulin Alone		Protamine Insulin Plus Regular Insulin	
	Number	Per Cent of Classifiable	Number	Per Cent of Classifiable
Total	637	100.0	593	100.0
Excellent	110	16.9	17	2.9
Good	428	66.6	318	53.7
Fair	103	16.1	222	37.2
Poor	9	1.4	20	4.2
Undeterminable insufficient data etc	5		1	

summer not one child of the 120 at the Clara Barton Camp required dextrose intravenously and on no occasion was it necessary to call a physician to treat a patient with a reaction. This was not the case before.

the introduction of protamine insulin. Yet, within twelve hours of my writing this statement, a patient was brought to the hospital in a reaction due to protamine insulin. The untoward features of a reaction to protamine insulin are headache and nausea. The latter the physician dreads because it complicates the differential diagnosis between a reaction, diabetic coma and appendicitis. As said elsewhere, reactions must be treated with a repeated administration of carbohydrate. With intelligence they can be largely avoided, as experience with many patients shows, but model patients occasionally have them.

My standard diet for some years has contained, on the average, 150 Gm of carbohydrate. With children it has risen quite a little above this, particularly because of those in undernutrition, approaching or actually in dwarfism. Last fall the diets generally rose, but it soon became evident that the patient with protamine insulin did less well, on the whole, with carbohydrate above rather than below 150 Gm. On several occasions I failed to secure the anticipated good effect of protamine insulin because I made a vital mistake. At the same time that I changed to protamine insulin I had raised the carbohydrate, thus introducing two variables into the diabetic picture. Soon I saw that I was doing wrong and now I hold to the diet on which the patient was living comfortably but change the insulin. Later, in some instances, the diet can be raised. There is no definite level, but I suspect for the present I shall incline to values around or slightly below 150 Gm of carbohydrate rather than above it, although some patients tolerate much more. How higher carbohydrate values will work permanently I cannot predict and therefore shall await with interest reports from those clinics where they have been advocated most. It is quite possible that for a few months values may be raised because of the improvement in the treatment of the case, but, having reached that level which corresponds to the ability of the pancreas to utilize carbohydrate in that particular instance, I doubt whether further advances will be made, and I believe that most physicians will find it wise to keep the carbohydrate between the limits of 100 and 200 Gm of carbohydrate and most of the cases at about 150 Gm.

One hundred and fifty grams of carbohydrate is a very simple prescription. Bread, three slices (90 Gm) equivalent to (3 × 18) 54 Gm of carbohydrate, oranges, medium size, three (3 × 15) or 45 Gm of carbohydrate, cereal, one liberal portion, 20 Gm of carbohydrate, 5 per cent vegetables, four portions, 20 Gm of carbohydrate, milk, 4 ounces, 6 Gm of carbohydrate, cream, 4 ounces, 4 Gm of carbohydrate, total 149 Gm of carbohydrate. And, for protein and fat, one egg, a moderate portion of meat or fish at two meals and perhaps bacon for breakfast. Butter in moderate amount, 1 ounce for the day. Omit the bread or the oranges and the diet drops to about 100 Gm and from that point is easily built up again.

For the untreated case one can begin with protamine insulin 10 units before breakfast and advance 10 units daily up to 40, even 50 or 60 units. All the while one watches the diet, adjusting it as necessary from meal to meal to get rid first of all of red and orange tests with Benedict's solution and later of yellow and green tests. I don't like to raise the carbohydrate from the initial value prescribed, from 100 to 150 Gm, until the urine becomes sugar free. I will repeat, the good effects of the protamine insulin may not appear for

several days after the maximum of the protamine insulin has been reached, and indeed the effect may be cumulative, and although with 40 units the urine may contain from 20 to 40 Gm of sugar in twenty-four hours this may entirely disappear a few days later without change in insulin. The patient subsequently may even suffer reactions. Repeatedly this is apt to occur following discharge from the hospital, and unless the greatest pains are taken to warn both physician and patient of this possible eventuality, an embarrassing protamine insulin reaction may occur at home. A reaction arising under these conditions is unfortunate because the patient may become discouraged, whereas he should be encouraged at his gain in tolerance and plan to utilize this in the future.

TABLE 7—Dosage of Protamine Insulin Patients Taking Protamine Alone and Protamine Plus Regular Insulin (Ages Under 20 and 20 and Over Separately)

Age Group Insulin Dosage Units	Protamine Insulin Plus Regular Insulin					
	Protamine Insulin Alone		Protamine Insulin Dosage		Total Dosage	
	Num ber	Per Cent	Num ber	Per Cent	Num ber	Per Cent
All ages total	657	100.0	593	100.0	593	100.0
Less than 10	47	7.2				
10-19	240	38.0	25	4.2	3	0.5
20-29	193*	29.4	152	25.7	47	7.9
30-39	110	16.7	188†	31.7	111	18.7
40-49	46	7.0	146	24.6	14†	2.3
50-59	8	1.2	60	10.1	113	19.1
60-69	2	0.3	15	2.5	93	15.7
70-79			4	0.7	41	6.9
80 and over	1	0.2	3	0.5	43	7.3
Median dosage	22 units		36 units		50 units	
Under 20 total	67	100.0	275	100.0	275	100.0
Less than 10	3	4.5	0		0	
10-19	16	23.9	9	3.3	2	0.7
20-29	21	31.3	53	19.3	18	6.6
30-39	20	29.8	8*	3.0	31	11.3
40-49	5	7.5	53	30.2	49	17.8
50-59	2	3.0	33	12.0	60	21.8
60-69			11	4.0	55	20.0
70-79			2	0.7	32	11.6
80 and over			1	0.3	23	10.2
Median dosage	24 units		39 units		56 units	
20 and over total	588	100.0	317	100.0	317	100.0
Less than 10	44	7.5	0		0	0.0
10-19	234	39.8	16	5.1	1	0.3
20-29	170	28.9	99	31.2	29	9.2
30-39	90	15.3	104	32.8	60	19.2
40-49	41	7.0	61	19.0	92	29.0
50-59	6	1.0	27	8.5	57	18.2
60-69	2	0.3	4	1.3	33	10.4
70-79			2	0.6	7	2.2
80 and over	1	0.2	2	0.6	15	4.7
Median dosage	21 units		34 units		45 units	

* Includes two cases age not stated

† Includes one case age not stated

The median dosage for all our patients (657) on protamine insulin alone is 22 units. For those under 20 years of age it is 27 units and for those over 20 years it is 21 units.

Regular insulin can be given simultaneously with the protamine insulin if the latter does not suffice to control the condition. As a rule this would amount to one-half the protamine insulin, but in certain instances it might be the same number of units at the beginning with the hope of reducing it later. In changing patients from regular insulin to protamine insulin I think it is safe to give the accustomed dose of regular insulin and, in addition, the equivalent in protamine insulin for the number of units of regular insulin previously employed for the rest of the day. Six hundred and

DR. ROBERT HELLIG

E. M. J. Medical College

35 JAN 1922

fifty-seven of my patients use regular insulin and 593 both regular insulin and protamine insulin, but I am in hopes that this number can be reduced, and, in fact, this is taking place.

The median total dosage of the 593 patients using both regular insulin and protamine insulin is 50 units, of which 36 units is the dosage of protamine insulin. For patients under 20 years of age the total dosage is 56

TABLE 8—Amount of Regular Insulin Used by Potents Taking Both Protamine and Regular Insulin Classified According to Amount of Protamine Insulin Used and by Broad Age Groups

Age Group Protamine Dosage Units	Total	Regular Insulin Dosage Units			
		Under 10	10-19	20-29	30 and Over
All ages total	593	169	259	128	45
Less than 10					
10-19	27	18	7		
20-29	152	66	72	13	1
30-39	189	59	90*	36	3
40-49	146	16	62	56	12
50-59	60	8	18	17	17
60-69	14	2	2	4	7
70-79	4				4
80 and over	3			2	1
Under 20 total	270	50	107	83	31
Less than 10	0				
10-19	9	8	1		
20-29	53	21	28	3	1
30-39	83	18	41	22	2
40-49	83	3	28	41	11
50-59	33	3	8	12	10
60-69	11	2	1	3	5
70-79	2				2
80 and over	1			1	
20 and over total	317	114	143	46	14
Less than 10	0				
10-19	16	10	6		
20-29	99	40	44	10	
30-39	104	41	48	14	1
40-49	63	13	34	10	1
50-59	27	5	10	6	7
60-69	4		1	1	2
70-79	2				2
80 and over	2			1	1

* Includes one case age not stated

units and the protamine insulin 39 units. For those over 20, the total median dosage is 45 units, of which 34 units is protamine insulin.

The total number of units remains essentially the same for all patients taking regular insulin and later changing to protamine insulin. The figures are 25 or 24 units. For those changing from regular insulin to the combined regular insulin and protamine insulin there is an increase in the number of units, namely, from 44 to 50. Whether the patient is under or over 20 years of age, the differences are not great for those on regular insulin alone, but for those with regular insulin and protamine insulin the increase is, for those under 20 years of age, from 47 units of regular insulin to 57 units of regular insulin and protamine insulin. Over 20 years of age the increase is from 42 to 46 units.

The division of carbohydrate between the three meals has been, as formerly, one fifth at breakfast and two fifths at each of the others. If glycosuria persists, carbohydrate is lopped off the meals and given as lunches between meals or on retiring. In 49.2 per cent of 664 patients taking protamine insulin the diet was increased in carbohydrate over that previously consumed, in 36.9 per cent it remained the same, and in 13.9 per cent it was reduced. The greatest number of increases was between 6 and 19 Gm of carbohydrate.

Confusion frequently exists concerning the control of a case. A red test to the well trained diabetic patient is dreadful. But investigation may show that this

was a test representing actually urine voided only during one or two hours. Often these specimens lead to erroneous conclusions, and insulin may be added quite wrongly. Thus a patient may show sugar on rising, but if one secures a fresh specimen half an hour later, that specimen may be sugar free. A second specimen always should be obtained when the urine is tested following the intravenous or subcutaneous injection of dextrose. A second specimen should always be sought if an insulin reaction or coma cannot be diagnosed by a blood sugar test. This simple procedure will save the patient many a needless reaction and may save his life.

During the Naunyn and Allen diabetic eras, 1898-1922, the greatest attention was paid to the carbohydrate and dextrose balances of a diabetic patient, and progress was hailed when these changed from negative to positive. The metabolism of the patient was studied as a whole. Today I see that there is a return to the same method, and just as I have recently graded my cases by their carbohydrate balances I believe all physicians will do it more and not rely so exclusively on single urinary tests and blood sugar estimations. There is no doubt that the physician is having much difficulty in steering his patients between reactions and glycosuria, and therefore a measure of control for an entire day is most helpful.

Local reactions develop with protamine insulin, but these have been growing less frequent and of late so rare that patients seldom call attention to them. There have been several exceptions and, as with regular insulin, I have changed from one product of protamine insulin to another by another manufacturer and with good results. In one man urticaria developed. Local

TABLE 9—Changes in Amount of Carbohydrate* in Diet Before and With Protamine, † Cases Without and With Previous Insulin Treatment Separated and Previous Insulin Cases Classified by Broad Age Groups

Increase or Decrease in Carbohydrate Gm	No Previous Insulin	Previous Treatment with Insulin					
		All Ages		Ages Under 20		Ages 20 and Over	
		Per Total Cases	Per Cent of Total	Per Total Cases	Per Cent	Per Total Cases	Per Cent
All cases	23	100.0	664	160.0	268	100.0	394
Increase total	13	56.5	327	49.2	143	53.3	184
35 Gm or more	6	26.1	62	9.3	41	15.3	51
20-34	4	17.4	93	14.0	47	17.5	46
6-19	3	13.0	172	20.9	55	20.5	117
Same (within 5 Gm (+ or -) of pre protamine)	6	26.1	240	36.9	89	33.2	164
Decrease total	4	17.4	92	13.9	56	13.5	56
6-19 Gm	2	8.7	50	8.3	16	6.0	39
20 Gm or more	2	8.7	37	5.6	20	7.5	17

* Carbohydrate as such (not available carbohydrate)
† Limited to patients for whom complete data before and with protamine are available excludes newly diagnosed patients

reactions with protamine insulin, however, do appear more often and more extensively than with regular insulin. Perhaps it is because so little stress is deliberately laid on them that the number recorded is so small. No instance of an insulin atrophy has come to my attention in any of my patients taking protamine insulin.

Eighty unit strength of protamine insulin acts just as efficiently as 40 unit strength. I have tested preparations of 80 unit strength of two manufacturers and in each instance I can make this statement

unequivocally Furthermore, 80 unit strength of protamine insulin has the advantage that it is less likely to cause indurations in the skin With some patients these are quite disagreeable, although with prolonged use of protamine insulin they eventually disappear It is true that these indurations, or almost inflammatory reactions, may continue for from two to three weeks I have never encountered in a patient an abscess which I thought was surely due to an injection of protamine insulin, even though some of the reactions are of an angry appearance In one patient taking both kinds of insulin and also other subcutaneous injections, an abscess developed but I never felt satisfied as to its true origin

Regular insulin and the protamine insulin should be given separately in order to secure the full effect If the same syringe is employed, the regular insulin should be injected first and then the protamine insulin may be drawn into the syringe and injected If the reverse plan is followed, the residue of protamine insulin on the inner surface of the syringe would be enough to convert the regular insulin into protamine insulin, to a greater or less extent However, some clinicians have given a mixture of the two in the same syringe and have felt that the effect of regular insulin could be demonstrated in the patient as well as the protamine insulin Such a result would be welcome, but it hardly seems consistent with the chemistry of regular insulin and protamine insulin that this could occur, at least with any constant ratio of effect, and when I have tried it it has not worked satisfactorily

The experimental period in the use of protamine insulin has not passed Recently from Dr Himsworth¹ of London I learned that he had excellent results from administering protamine insulin at 11 p m This appears to bring it about that the food is far better utilized in the morning of the next day than if the protamine insulin were given before breakfast I have had insufficient experience to express an opinion on this point

The decreasing size of the liver under protamine insulin medication first described by Janssen of the Hagedorn clinic has been confirmed with my patients In fact, I am told by my colleagues Dr White and Dr Marble that protamine insulin has proved more efficacious in bringing this about than any other treatment that they have used in their studies of the enlarged livers of the forty children, more or less, whom they have investigated

Change in weight is characteristic from the use of protamine insulin Recently, a report from the Scripps Metabolic Laboratory showed that protamine insulin is more efficacious in producing a gain in weight in nondiabetic animals than regular insulin²

The Mayo Clinic has shown that protein catabolism is reduced during the night when patients take protamine insulin instead of regular insulin

With protamine insulin the diabetes is undoubtedly better controlled and perhaps a little better controlled than one should attempt Particularly with a certain group of patients, who have lived for a decade, more or less, with blood sugars quite a little above the normal standard, it is a question as to how long it will take for them to become accustomed to a normal blood sugar, and certainly it is a question as to how seriously one should insist on bringing this about These are

factors that only time can settle They are conditions that occur only with patients who have been trained with regular insulin and so are not encountered in a patient who begins his treatment with protamine insulin

A quite unanticipated benefit from the introduction and daily use of protamine insulin has been an alteration in the attitude of diabetic patients toward their disease Instead of being neglectful and indifferent as they often were to their tests, resisting efforts to keep them more nearly sugar free, they now watch their reports very closely and expect and demand that the physician produce his predicted good results This is a healthy sign It is certainly desirable for us medical men to be challenged to improve our treatment The behavior of these patients reminds one of the stimulus Dr Keen said he felt from having a pack of young surgical hounds at his heels

The goal of diabetic treatment is by no means yet reached It is safe to predict that new methods of therapy will appear at increasingly frequent intervals One almost hopes that they will not come so rapidly that we fail to discover all the advantages of the measures which we now have

81 Bay State Road

Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT HOWARD A CARTER Secretary

FISCHERQUARTZ MODEL NO 27 COLD MERCURY ARC LAMP ACCEPTABLE

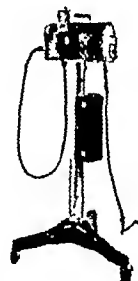
Manufacturer The Fischer Corporation Glendale, Calif

This is a small mercury glow lamp designed solely for local applications, a dermatologist model The burner is mounted in a bakelite handle with chromed brass fittings and has an aperture opening $2\frac{1}{2}$ inches in diameter The tripod and control box are finished with black hard metal and chromium An automatic timer comes with the equipment The burner can be used with the same stand and controls employed for other Fischerquartz lamps It can be operated only on an alternating current circuit It appears to be well constructed

The burner is a mercury vapor one of low pressure variety, low amperage, high potential, glow discharge similar to the well known Geissler tube The tubing is of transparent quartz, highly evacuated, and contains rare inert gases and a few drops of mercury The power consumed is small and consequently there is no great rise in temperature of the burner

The radiation characteristics are essentially the same as those of other Fischerquartz lamps that have been previously accepted by the Council¹ The source is much smaller since the unit is designed for local applications Of the total radiation of all wavelengths less than and including the line of 3130 angstroms, more than 95 per cent is contained in the resonance emission line of mercury vapor at 2537 angstroms

The unit was placed in a clinic acceptable to the Council for investigation Little heat developed Following a thirty second exposure with the metal shield in contact with the skin, a faint erythema developed in about six hours and disappeared in twenty-four hours Exposure of one minute produced a moderate erythema and of two minutes caused an intensive erythema



Fischerquartz Model No 27 Cold Mercury Arc Lamp

¹ Himsworth H P Personal communication to the author
² Mackay E M and Callaway J W Proc Soc Exper Biol & Med 36 406 (April) 1937

¹ Fischerquartz Cold Ultraviolet Lamps Acceptable J A M A 102 1620 (Nov 24) 1930 Fischerquartz Ultraviolet Lamp Model No 77 Acceptable ibid 106 1806 (May 23) 1936

At a distance of 6 inches, four minutes was required to cause a faint erythema. When a Fischerquartz large lamp was used for thirty seconds at the same distance (6 inches), a similar erythema was produced.

These tests substantiated the claims made for it by the firm. The Council on Physical Therapy voted to include the Fischer-quartz Dermatologist Model 27 Cold Mercury Arc Lamp in its list of accepted devices.

tration of serum is on or before the twelfth day of tularemia. When this was done, significant reductions in all the measurable phases of the disease were obtained.

[End of Dr Foshay's data]

The Council considered the foregoing data, and, while finding nothing definitely to criticize, concluded that corroborative data by other investigators are needed before the product can be accepted for inclusion in New and Nonofficial Remedies. The Council therefore voted to postpone consideration of Anti-tularemia Serum-Mulford (Sharp & Dohme, Inc) to await development of further data and authorized publication of this report.

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORTS
PAUL NICHOLAS LEECH Secretary

PENTOBARBITAL SODIUM-ABBOTT
(NEMBUTAL) OMITTED
FROM N N R

Before specific consideration of the brand of pentobarbital sodium, which the Abbott Laboratories has decided to market as "Nembutal" it might be well to consider the rationale of the Council's rules concerning the recognition of proprietary names.

THE RIGHT OF DISCOVERY

A coined, protected, proprietary name confers a monopoly, which, if it is effective, limits the rights of the public, or, if it is ineffective, causes confusion by creating artificial distinctions where none exist in fact. It has happened in the past that the same identical substance was prescribed by different names twice or oftener in a single prescription. Such confusion is against the interest of public, of patient and of physician, and so also are the limitations that monopoly imposes unless this is so clearly justified that it would be unjust to refuse it. The only ground on which this right of monopoly is recognized automatically by the Council is that of the discovery of a new substance. This is recognized for the same reason that underlies the granting of patent monopoly, namely, to encourage the development of invention for the benefits which the public may derive from it, and also because a discovery is naturally the property of the discoverer. There are, however, some questions as to what may be considered a "new substance" in this sense. This involves originality as well as priority. For instance, the formation of a salt by simply putting together a known acid and a known base would not constitute a discovery, even if no one happened to have put the two together before. In principle this is no more new than adding two numbers in elementary arithmetic, and the sum is scarcely more of a discovery in the one case than in the other. The substitution of different radicals of a homologous series is equally obvious, and there are many similar cases, which involve nothing new, nothing which any one versed in that branch of chemistry would not have foreseen and worked out, without special difficulty, had he been so inclined. Such obvious, perfectly predictable preparations, then, are not entitled to the status of "discovery," unless their preparation involves some unexpected or baffling difficulties the solution of which may constitute justifiable basis for the claim that the products are new preparations, this would not be automatic but would require the evaluation of the circumstances.

FINDING OF NEW USES FOR AN OLD DRUG

The Council may also accept proprietary names for the discovery of important therapeutic value in previously known substances that have not been used in medicine, or when new uses or actions of exceptional novelty and importance are discovered for substances previously used in medicine but which had become practically obsolete, but if the substance itself is not a discovery, the acceptance of the proprietary name is not automatic but is accorded only by special action if it is quite clearly in the interest of public welfare. It would be obviously undesirable to extend this privilege to the discovery of new therapeutic properties in substances that are in active use in medicine, for instance, to call antimony potassium tartrate "tartar emetic" when it is used as an emetic and something

Council on Pharmacy and Chemistry

PRELIMINARY REPORT OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING PRELIMINARY REPORT
PAUL NICHOLAS LEECH Secretary

ANTITULAREMIC SERUM-MULFORD

Sharp & Dohme, Inc, presented for the Council's consideration Antitularemic Serum-Mulford prepared by immunizing horses by injecting cultures of B tularensis isolated from human cases of tularemia. While the Council was familiar with the favorable reports of Dr Lee Foshay of the College of Medicine, University of Cincinnati, on the use of experimental batches of serum, the firm was asked to present evidence that the commercial product is useful in treating human tularemia. The firm, in turn, referred the Council to Dr Foshay.

On request Dr Foshay kindly submitted comparative data obtained from 334 untreated cases of tularemia and 481 serum treated patients. He gave a separate analysis of 133 patients (included in the treated group) who received Antitularemic Serum on or before the twelfth day of the disease.

Comparative Data from Tularemia Patients

Duration of	(Means unless indicated otherwise)		
	Untreated N = 334	All Treated N = 481	Treated Twelfth Day or Earlier N = 133
Disease (mos)	4 10 ± 0 11	2 77 ± 0 05	2 32 ± 0 08
Disability (mos)	3 11 ± 0 14	2 13 ± 0 04	1 62 ± 0 07
Adenopathies (mos)	3 61 ± 0 08	2 32 ± 0 05	2 02 ± 0 08
Serum recovery interval (days)		1 78 ± 0 04	1 99 ± 0 08
Fever (days)	27 92 ± 0 84	25 69 ± 0 53	20 19 ± 0 76
Primary lesions (days)	39 12 ± 2 14	31 59 ± 0 54	26 53 ± 0 84
Hospitalization (days)	30 51 ± 1 99	22 76 ± 0 55	21 17 ± 0 90
Suppurative adenitis incidence	54 0%	42 0%	37 0%
Exanthem incidence	No data	21 4%	
Initial serum given average day of disease		26 8	7 5
Mean (days)		26 34 ± 0 72	7 97 ± 0 18
Mode (days)		14 84	6 79
Mortality rate	5 8%	1 9%	3 0%

By way of interpretation of the foregoing data, Dr Foshay presented the following table.

Significance of the Obtained Differences Between the Means

Duration of	Control Cases Compared With			
	All Treated Cases N = 481		Early Treated Cases N = 133	
	Difference	P E Diff	Difference	P E Diff
Disease	1 33 ± 0 12	10 99	1 78 ± 0 11	16 01
Adenopathy	1 29 ± 0 10	13 56	1 59 ± 0 17	13 48
Disability	0 98 ± 0 15	6 61	1 49 ± 0 12	12 85
Fever	2 23 ± 0 99	2 24	7 73 ± 1 13	6 82
Primary lesion	7 53 ± 2 21	3 41	12 59 ± 2 30	5 47
Hospitalization	7 75 ± 2 07	3 75	9 34 ± 2 18	4 28

The constants underscored are statistically significant. The odds against the least of these deviations occurring by chance alone are greater than 150 to 1. The optimal time for adminis-

else when it is used against bilharzia, and something else again when it is used against granuloma inguinale. It would also be undesirable to give proprietary names to familiar substances not in current use in scientific medicine such as egg shells or brick dust. Again, the therapeutic discovery must involve some valuable property that is essentially new, something that was not generally predictable, although it may have been foreseen by the discoverer, working out a definite theory. For instance, after it had been shown that antimony potassium tartrate is effective against bilharzia, it would not be a "discovery" to find that antimony sodium tartrate is effective against this parasite or that it is somewhat safer intravenously, since this is a common property of sodium salts.

OVERCOMING OF DIFFICULTIES TO MAKE A DRUG AVAILABLE

Another reason for which a proprietary name may be granted is that of priority in making a substance available to the public. This also is not automatic. It is not usually granted on the basis of priority alone but must involve some definite and adequate merit, such as the conquest of special difficulties, which would mean that the substance would probably not have been accessible, at least for some time, without the ingenuity of the introducer. For instance, the supplying of a purer article than the common market affords would be considered adequate only if the methods of purification themselves constituted essential discoveries. If it involves merely the application of known obvious methods, there would be nothing new on which to base rights of discovery. In practice, the merit of introduction is rarely found sufficient to justify the acceptance of a proprietary name.

DEFINITION OF PRIORITY *

Finally comes the question of what constitutes priority. In most cases this is fairly plain, in others it is quite complicated. The scientific world has one set of standards the Patent Office has another, absolutely different. Both are necessarily arbitrary, and neither fits entirely the problems that face the Council. The rules of the Patent Office are framed for disposing of a vast number of inventions of all kinds—and then letting the contestants fight it out in a succession of courts. Nor do the Patent Office rules take account of the special status and conditions of monopoly in medicines. Not infrequently patents have been granted which to enlightened medical opinion appear plainly contrary to the interest of the health of the public. The scientific rules of priority, on the other hand, were not framed with a thought of securing monopoly of any kind but rather for the orderly arrangement of the steps which have led to a scientific discovery and which frequently apportion the credit among a number of independent investigators. Scientific discoveries are rarely if ever "independent", for they could not have been made without the use of the vast body of scientific knowledge that entered into the training of the investigator, and of a complex and extensive ramification of the discoveries of other investigators, which "led up" to the final discovery. These conditions greatly circumscribe the "natural right" to a monopoly in a discovery in the making of which so many others have shared, and they emphasize the justice of conceding such monopoly only if it appears clearly in the public interest. This means that every case which presents unusual features must be weighed by itself in the balance of the public welfare. If the case is not clear, it is wiser to withhold the monopoly, for it is always much easier to concede it later, if that becomes indicated, than to withdraw it after vested interests have become established in it.

THE CASE AGAINST "NEMBUTAL"

The case of pentobarbital sodium viewed in the light of these principles, appears as follows:

The Abbott Laboratories profess themselves entitled to the commercial monopoly of a proprietary name for this substance on the basis of discovery. They concede that they were not the discoverers of the free acid, but they contend that they discovered the novel therapeutic qualities and were the first to

publish these. These qualities are nothing new in kind, for they are the same as those known for other similar barbiturates, the chief difference is that the action is briefer than that of some others, but this again is not fundamentally new, since it is merely a step in the gradation of action of the numerous barbiturate derivatives. It would therefore be questionable whether the discovery was such as the Council would consider a clear title to a commercial monopoly. Nevertheless, as the substance appeared to fill a therapeutic need, the Council would have been inclined at least seriously to consider extending this privilege to the limited discovery. However, it happened that before the discovery was published it had also been made independently by another firm, Eli Lilly & Co., and the only discovery of anything at all novel, the brief duration of action and its importance did not originate from either of these firms but in the University of Wisconsin¹. It is true that the Abbott Laboratories published their work shortly before Eli Lilly & Co. and thus secured priority in that sense. It does not appear clear, however, that the public interest would be served by basing a monopoly merely on the date of publication, for this would give all the advantage to the one who rushed into print at the first suggestion of immature and uncontrolled results and would discourage the careful, painstaking investigation that should precede even the first announcement of a discovery.

It may be added that the pharmacologic part of the Abbott publication was confined to the relation of the toxic and "effective" dose for hypodermic administration in rats which the Wisconsin investigators characterized as unimportant, and that no data were published by which the competence of the conclusions may be judged. The only detailed investigation published by either firm is the second communication from the Lilly Laboratories, published about a year later—too late for any credit of discovery.

The Abbott Laboratories contend that they were more active in promoting experimentation, laboratory and clinical by others, and that most of these used the Abbott product. Both statements may be granted, but these activities constitute promotion, not discovery.

In view of these considerations, it appeared to the Council as definitely against the public interest to concede to the Abbott Laboratories a monopolistic name for this product, which they did not invent, the chief actions of which were not new and of which they had not been the sole investigators. The Council therefore gave to the substance the nonmonopolistic name "Pentobarbital," based on its chemical characteristics, but in order to allow the Abbott Laboratories ample time for adjustment, it extended to them for a year the privilege of using the name "Nembutal," which they had copyrighted, as a synonym. The firm accepted this condition under protest. Later the Council extended the period for six months additional, but now that the period has expired, the firm informs the Council that it will return to the use of the copyrighted name. Under the circumstances, the Council can only withdraw its acceptance of the Abbott Laboratories' brand of pentobarbital sodium, while continuing its acceptance of the Lilly brand. At the same time it feels that the Abbott Laboratories once having acceded to the conditions of the acceptance of their brand and secured the benefits of its introduction to the profession under these conditions, should in good faith have continued to abide by them.

1 The Wisconsin workers (Tatum et al.) made no mention of any aid from a manufacturer in their original paper but two years later in their more extensive paper they do add a footnote saying: "Substantial aid in this investigation was received from the Abbott Laboratories. This acknowledgment comes somewhat late to be considered as a basis of priority but in any case it does not materially alter the situation a grant does not transfer the discovery to the manufacturers at least unless there was a definite previous agreement to this effect and no information along this line has been submitted. The paper does not acknowledge any indebtedness for ideas to the contrary it again depreciates the value of the therapeutic index which was the sole pharmacologic contribution of Volwiler and Tatum of the Abbott Laboratories."

In a communication from Dr. Tatum he states in part: "The comparative idea [calibration of barbiturates on the basis of duration of action] developed in our minds after we had examined nembutal carefully in comparison to other barbiturates. Of course other features such as toxicity etc. were determined. Then on looking at the several properties the duration factor began to appeal to us as a practical differential feature."

CAUSALIN (CAUSYTH) NOT ACCEPTABLE FOR N N R

"Causalin" is another name for Causyth, which was exploited several years ago in Austria as a treatment for arthritis. A number of recent inquiries from American physicians about Causalin prompted a review of the present claims for the product. The status of Causalin is about the same as that of Causyth reported in *THE JOURNAL*, March 1, 1930.¹ At that time a referee, who reviewed most of the reports on Causyth in German medical literature, held the evidence unsatisfactory and uncritical and the product therapeutically worthless and ineffective, except for possible shock effects which might be dangerous. There were widespread reports in this country that the public health ministry of Austria controlled the manufacture of Causyth and required its use in treatment of arthritis by government physicians. However, there was no indication of this being the case in the advertising or in physicians' reports on the product. Today the product is being exploited as Causalin in this country by the Amfre Drug Co., Inc., 31 East Twenty-Seventh Street, New York City, without reference to Austrian health authorities. Presumably the product is manufactured abroad and distributed by this agency in this country.

While it is not expressly claimed by the distributor that Causalin is a chemical compound, the implication is clear in the advertising circulars, which state that the chemical name for it is "aminodimethylpyrazolon-quinoline-sulphonate." In this connection, Nilsson's² opinion of the product is of more than passing interest. "Causyth (Causalin) is an Austrian preparation for antirheumatic treatment consisting of about equal molecular parts of pyramidon and 8-hydroxyquinoline-5-sulfonic acid. It is in no sense a chemical compound but a purely mechanical mixture and hence is misbranded by being called 'Cyclohexatrienpyridinsulfonsaures Pyrazolonderivat.'" Apparently the labeling of the product is in conflict with drug regulations in Germany. Clearly, there is nothing original about the product, consisting as it does of the well known official drug aminopyrine (U. S. P.) and the active chemical group hydroxyquinoline or chimofon (U. S. P.), which is an amebicide and a mild wound antiseptic. Quinoline is also an important chemical group in quinine (U. S. P.) and cinchophen (N. F.). Accordingly, such statements as the following in the advertising literature appear misleading: "Causalin (aminodimethylpyrazolon-quinoline-sulphonate) contains no cinchophen and no cinchophen derivatives." Nor is there any justification for obscuring the presence of aminopyrine by using only a long chemical name in place of a more generally understood and informative name, for the medical profession. Furthermore, the medicinal value claimed for Causalin is, of course, the same as for aminopyrine, except for therapeutic exaggerations and omissions of warning of possible toxicity and side actions.

Since aminopyrine, or its mother substance antipyrine, is well known to produce analgesic and antipyretic actions, it is possible, if not probable, that Causalin can afford relief from pain and fever in arthritic and rheumatic states. Granted that a diagnosis would justify the use of an analgesic like aminopyrine, this could give only temporary relief at best. However, the physician is told that Causalin can do more, to wit: "Because Causalin, experimentally, clinically and practically has shown that it exercises material as well as symptomatic control over arthritis."

"It further seems to exert what may be called the ideal therapeutic influence, in that it confuses itself to restoration of normal mutual relations between the endocrine and nervous systems." Causalin exerts a regulative action.

"Causalin acts upon the cause of the disease" (Referee's italics). These statements imply some mysteriously favorable influence of Causalin on causal connections between the endocrine glands, nervous system and arthritis. Really, however, this is an empty hypothesis, as there is no reason to believe that the composition of Causalin could promote regulation or integration of endocrine and nervous functions. Causalin is in no sense "a marked therapeutic

contribution" to, or "a true advance" in, scientific medicine, as new and unheard of effects could not very well result from the well known.

It is claimed in the advertising that "published clinical reports on Causalin show that it effectively relieves symptoms in all types of arthritis." The older reports on Causyth were found to be valueless as to acceptable evidence,³ and the only available recent report is that by Robert Bernhard, M.D., under the title "A New Treatment of Arthritis."³ This report discusses theoretical considerations of arthritis, clinical claims of others concerning actions of Causalin and recapitulates case histories of eleven patients treated with Causalin by the author. As for temporary relief from pain, the evidence adduced by this author is not decisive either for or against. Eight of the eleven treated patients were admittedly not completely or permanently relieved of pain and other symptoms. On the whole, the author's conclusions are consistent with the character of the evidence, not exactly laudatory or condemnatory of the product, although he inclines to credit Causalin with some "definite advantages." It could not be otherwise, because any analgesic may give temporary relief in arthritis. The author has no evidence to justify his conclusion that "liver function is apparently unaffected." But he gives one warning, which is not given in the advertising literature, and that is "*Conclusion 5 Contraindications. Since this preparation shows a tendency to increase blood pressure, it should not be prescribed in cases where high blood pressure already exists*" (Referee's italics). The reasons or evidence for this side action are not given, but it may be due to the aminopyrine, which is known to possess a central excitant action. It is this phase of the propaganda for Causalin, a harping on harmlessness and high tolerance, which is most reprehensible, because of a callous indifference to possible serious consequences of indiscriminate medication with aminopyrine.

There is not a single mention or even a warning anywhere in the available advertising literature issued by the distributor of the possible occurrence of agranulocytosis, especially in sensitive persons. On the contrary, the following statements indicate a general denial of possible trouble from the use of this product: "In chronic cases, Causalin may be taken over long periods of time without harmful effects." "Causalin is non habit forming." "Causalin is harmless. It may be taken indefinitely." "Does not cause liver complications." "Does not depress the heart." "No gastric disturbance." "No danger of overdose." "without any by-symptoms." "No dietary restrictions and requires no synergistic aid." "Causalin acts quickly, surely and safely." "And this is accomplished without any by-symptoms." "Causalin is available as an ethical product—Your prescriptions may be filled thru any reliable pharmacy. Any pharmacist may obtain Causalin through his regular wholesaler or directly from us." These statements illustrate all the elements of quackery without a conscience or the slightest responsibility toward the physician and the patient.

A conscientious physician would not, in this day, of course, accept the manufacturer's advice if he realized that Causalin was essentially aminopyrine. But Causalin is being dispensed in drug stores, and refilling of prescriptions is encouraged without warning of physicians and pharmacists of the dangers of such medication, contrary to repeated warnings in the medical press. Such callous indifference to public health and welfare and disregard of the physician's liability justifies the severest condemnation and public exposure of the facts. There is nothing in any of the clinical reports, even the recent one by Bernhard, to indicate the slightest concern over what medication with Causalin might do to the blood, for instance there are no observations or records of blood counts, hemoglobin, sulf hemoglobin or anemia, whereas today an oversight of thorough and continued blood examinations in patients medicated with aminopyrine or its derivatives or related products is an incriminating omission of the first order. Equally or more reprehensible is a neglect of the far simpler procedure of giving a warning of the possible occurrence of agranulocytosis.

As regards the following claim in the distributor's advertising literature under the heading "The Non toxicity of Causalin,"

¹ Causyth. Queries and Minor Notes. *J. A. M. A.* 94:656 (March 1) 1930.
² Nilsson H. *Pharm. Presse. Wiss. prakt. Heft* p. 47. 1932.

³ Bernhard Robert. *M. World* 54:378. 1936.

which purports to give assurance based on experimental evidence, it is essentially meaningless and valueless and certainly so as regards such a side action as agranulocytosis. "In one of their series of experiments, Guenther, Magree and Wagner took rabbits, weighing 2 kilos, and gave them each 10 tablets Causalin (75 grains) at one time. They found that the rabbits stood this dosage without secondary effects. A stimulating effect on the gall was further noted. In another series, dogs, weighing 6 kilos, had 15 grains Causalin injected subcutaneously. No toxicity or other unwarranted or harmful symptoms were observed." Conspicuous as these statements are by their noninformative character, physicians know that, so far as such blood changes as are concerned in agranulocytosis, the experimental results with aminopyrine and related products have been equivocal or negative in the hands of qualified investigators.⁴ Therefore such results with lower animals are not transferable to man, who is more sensitive and reactive to this class of products. In fact results on animals may be quite misleading and produce a false sense of security, as they may indicate almost the opposite of agranulocytosis. However, the clinical experiment with aminopyrine has been made and the answer is clearly caution in medication, if anything. Since an attitude of caution does not in any sense distinguish the exploiters of Causalin, which after all is largely a means of indiscriminate distribution of aminopyrine to the public, the medical profession owes a duty to the public and to itself to stop the use of this product.

The claims for Causalin (Causyth) are exaggerated, misleading and unwarranted, and the product has no place in the therapeutic armamentarium of responsible, qualified physicians. The exploiters of the product are to be censured for omissions of warning concerning its dangerous toxic potentialities, for obscuring the essential composition of the product by using an unnecessarily long and unfamiliar chemical name for the well known drug aminopyrine, and for using the noninformative name Causalin. There is no good reason to believe that the claimed composition of Causalin entitles it to be considered a chemical compound as indicated in the advertising; apparently it is a mixture, without originality or rationality. Causalin is to be condemned as an unsafe and dangerous product, the exploitation of which is against the interests of the public and the medical profession.

The Council declared Causalin (Causyth) not acceptable for N N R. for the reasons given in the foregoing report.

DOSAGE OF PREPARATIONS CONTAINING VITAMINS A AND D

The Council has fixed the dosage of cod liver oil-N N R. for infants at two teaspoonfuls daily. This involves a vitamin A dosage of 6,250 units and a vitamin D dosage of 625 units. The dosage statement is based on vitamin D requirements for the prevention of rickets and probably provides an excess of vitamin A. While there are no data on which the vitamin D requirements of growing children or adults could be based, the indications are that the vitamin D requirements for these groups is less than for infants, so that two teaspoonfuls of cod liver oil daily would in all probability supply a sufficient intake. There are very few data bearing on the vitamin A requirements of man other than infants. From evidence obtained on experimental animals, it appears that the requirement increases to some degree with increase in size of the animal. The Council therefore felt that the recommended dose of cod liver oil for adults should be two teaspoonfuls daily and that this amount would probably meet the minimum requirements for both vitamins A and D.

In view of the foregoing the Council held that the recommended dosages for capsule and tablet preparations of vitamins A and/or D should not be less than the minimum dosage for infants and adults equivalent to two teaspoonfuls of cod liver oil-U S P (minimum strength).

⁴ Hanzlik, P. J. Agranulocytosis. A Critical Review of Causes and Treatment. Historical and General (Report of Council on Dental Therapeutics). J. Am. Dent. A. 22: 487 (March) 1935. Amidopyrine and Granulocytopenia. Report of Council on Pharmacy and Chemistry. J. A. M. A. 102: 2183 (June 30) 1934.

The Council voted the requirement (1) that the dosages of accepted preparations of vitamins A and/or D provide at least the equivalent in these vitamins of two teaspoonfuls of cod liver oil but not more than 10,000 units of vitamin A and 1000 units of vitamin D, and (2) that dosage statements on labels and in advertising should be accompanied by the phrase "or as prescribed by your physician."

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS COMPLEMENTING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEECH, Secretary

RIBOFLAVIN—6,7-dimethyl-9-[d, l'-ribityl]-isoalloxazin— $C_{17}H_{20}N_4O_6$ —Formerly called Lactoflavin, Vitamin B₂, and Vitamin G—Riboflavin is the heat stable factor of the vitamin B complex.

Actions and Uses—The significance of riboflavin in human nutrition is at present unknown. No therapeutic claims are advanced for riboflavin. It is accepted for experimental purposes only.

Dosage—For human beings, from 2 to 3 mg seems to be the average dosage. The requirement of riboflavin during pregnancy and lactation is higher. No side effects have been noticed in relatively large doses.

Riboflavin occurs in clusters of fine orange-yellow needles. It melts with decomposition at 280°C (Kofler micro melting point apparatus; rate of heating 5°C per minute starting at 250°C). It is slightly soluble in water (2.5 parts in 100,000) at 25°C, soluble in alcohol, cyclohexanol, amylacetate, insoluble in ether, chloroform, acetone and benzene. The greenish yellow water solution has an intense yellow-green fluorescence which vanishes on the addition of alkali or acid. The optimum of the fluorescence is between pH 3 and 9. The iso electric point is at pH 6. The optical activity of a 0.1 to 0.5 per cent solution in 0.05 normal sodium hydroxide is between $[\alpha]_D^{25} = -80$ and -100° . The oxidation and reduction potential is at pH 7 = -0.20 volt. The extinction coefficient of a 0.005 per cent solution of pure riboflavin in water is $E = 1.45$. The spectrum shows a band in the visible with a maximum at 445 millimicrons, one in the near and two in the far ultraviolet (372, 269, 225 millimicrons).

Dissolve 0.025 Gm of riboflavin in 6 cc of absolute pyridine after cooling, add 6 cc of freshly distilled acetic anhydride. Heat the solution for ten minutes, cool and dilute with 10 cc of chloroform, add 5 cc of diluted hydrochloric acid (1:5) and wash the layer of chloroform several times with water, transfer the chloroform layer to a beaker and evaporate, dissolve the residue in 15 cc of hot, diluted acetic acid (1:2). After two days crystallization is complete. Recrystallize the product twice from water, the melting point of the dried material (Kofler micro melting point apparatus) is 238°C. Weigh out accurately about 5 micrograms of the dried penta acetate, determine the nitrogen content according to the Pregl micro-Dumas method, the nitrogen content of the penta acetate is not more than 10.6 per cent or less than 10 per cent; micro ash determination on the penta acetate of riboflavin is less than 0.05 per cent.

Saponification of the penta acetate: triturate 0.01 Gm of penta acetate with 5 cc of 0.1 normal sodium hydroxide. Extract the unreacted material with chloroform and acidify with 5 cc of acetic acid. Crystallization of the original riboflavin is completed in two days. The melting point is 280°C.

Accurately weigh 5 mg of riboflavin in a microplatinum boat and combust the product in a Pregl micro muffle in a stream of oxygen, the amount of oxide ash is not more than 0.2 per cent. The U S P VI test for chloride, lead and arsenic should be negative.

Weigh out accurately about 5 mg of riboflavin and determine nitrogen with the Pregl micro-Dumas apparatus, the nitrogen content is not more than 15.2 and not less than 14.5 per cent, theory 14.88 per cent.

Dissolve approximately 0.03 Gm of riboflavin weighed accurately in 0.05 normal sodium hydroxide at 25°C to make 12.5 cc of solution, determine the optical activity in accordance with the U S P VI directions, the specific rotation $[\alpha]_D^{25}$ is -90° .

For quantitative determination of riboflavin in solutions, fluorescence analysis is used (Euler, H. V. and Adler, E. *Ztschr. f. physiol. Chem.* 223: 108, 1934).

Riboflavin Synthetic "Roche"—A brand of riboflavin-N N R.

Manufactured by F. Hoffmann-LaRoche & Co., Basle, Switzerland (Hoffmann-LaRoche, Inc., Nutley, N. J., distributor). No U S patents or trademark.

Riboflavin Roche Ampules 2 cc. Each ampule contains 2 cc of a solution containing 0.05 per cent (1 mg.) of riboflavin.

GOLD SODIUM THIOSULFATE-ABBOTT (See New and Nonofficial Remedies 1937, p. 239).

The following dosage forms have been accepted:

Ampules Gold Sodium Thiosulfate Abbott 0.025 Gm
Ampules Gold Sodium Thiosulfate Abbott 0.5 Gm

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SATURDAY, AUGUST 14, 1937

THE SIDE ACTIONS OF BARBITALS

Barbituric acid and the various compounds derived from it by alteration of the molecule are now widely used. Extensive employment by qualified practitioners and also by the public has grown to proportions that indicate lack of knowledge of the side actions of these drugs. Even more blameworthy is the practice of introducing new and more potent barbitals without reliable investigation of their pharmacologic actions.

Koppanyi and his co-workers¹ at Georgetown University School of Medicine have extensively investigated the side actions of these products. More recently Hanzlik² of the department of pharmacology at Stanford University School of Medicine has summarized them. The recent report of the Council on Pharmacy and Chemistry on evipal sodium³ points out the apparent lack of careful pharmacologic study before the introduction of such products.

Hanzlik indicates three experiments which illustrate depression and paralysis of peripheral neuromuscular elements in the autonomic system caused by amytal, one of the highly active barbitals, which has been promoted for intravenous analgesia or anesthesia. The following chain of evidence justifies the conclusion that ganglionic paralysis or synaptic block in the cardiac vagi may follow the intravenous or intraperitoneal administration of amytal, an action paralleled commonly by such poisons as nicotine and lobeline and sometimes by choline depressor or collapse action (fall of blood pressure), paralysis of vagus control of the heart without loss of function in the peripheral receptive mechanism (ineffective vagus stimulation, fall of blood pressure and bradycardia from choline and pilocarpine), absence of central and peripheral vasomotor paralysis (recovery of blood pressure, and pressor action of epinephrine, positive), cardiac depression

suggested by bradycardia or tachycardia, with constant loss of vagus control, reflex cardiac slowing improbable (ineffective peripheral vagus stimulation). The ganglionic paralysis blocks the transmission of both efferent and afferent impulses in the cardiac vagi, and in case blockage extends to other branches of the vagi and parasympathetic nerves in general, this action of barbitals interferes with visceral reflexes, some of which are protective, such as vomiting and coughing. On the other hand the ganglionic paralysis, together with the central depression of a barbitol, would make an effective combination for controlling asthmatic attacks of reflex origin, a point that is worthy of further investigation and that again illustrates the value of detailed pharmacologic consideration.

All the functional elements in a strip of excised rabbit intestine are included in the depression the muscles perhaps more than the nerves. The concentrations of amytal used for demonstrating these depressant actions were higher than those attainable after oral administration. However, the moderate depressions of the low concentrations indicate effects of anesthetic doses of amytal given intravenously, and those of higher concentrations of repeated and toxic injections. These depressant effects have been noted previously on the intact gastro-intestinal tract.⁴

Other side actions were recorded, such as gastro-intestinal flaccidity and reduced peristalsis, decreased intestinal absorption of dextrose, decreased consumption of sugar by skeletal muscles, decreased urine secretion, alarming restlessness, paresis of the tongue, cyanosis and asphyxia, skin rashes, depression of the spinal cord and reflexes, blood destruction and anemia with intravenous anesthetic doses of evipal, a much exploited barbitol at the present time,⁵ increased blood sedimentation and reduced cell volume with slow return to normal after a number of barbitals and evipal, and very marked reduction of urine output in nephritis, to mention only a few. Many of these actions were obtained with doses or concentrations of therapeutic (anesthetic) range.

The foregoing side actions are particularly important in view of the decreased urinary secretion and the change in the absorption of dextrose, since it is known that diuresis and absorption of dextrose are effective antidotes in barbitol poisoning.⁶ The use of ammonium chloride, another effective antidote, might be similarly

1 Koppanyi, Theodore, Dille J. M. and Linegar C. R. Studies on Barbiturates. XVII. The Effect of Prolonged Chloroform Anesthesia on the Duration of Action of Barbiturates. *J. Pharmacol. & Exper. Therap.* 58: 119 (Oct.) 1936. Linegar C. R., Dille J. M. and Koppanyi, Theodore. Studies on Barbiturates. XVIII. Analysis of a Peripheral Action of Barbiturates. *ibid.* p. 128.

2 Hanzlik, P. J. The Extensive Side Actions of Barbitals and Their Treatment. *California & West Med.* 46: 302 (May) 1937.

3 Evipal Soluble. *J. A. M. A.* 108: 1172 (April 3) 1937.

4 Gruber C. M. A Comparison of the Effects of Sodium Isoamyl ethyl Barbiturate (Sodium Amytal) and of Sodium N-Hexylethyl Barbiturate (Ortal Sodium) on the Intact Intestine in the Unanesthetized Dog. *J. Pharmacol. & Exper. Therap.* 56: 432 (April) 1936. Gruber C. M., Scholten, Roger, DeNote, Anthony and Wilson J. F. A Comparative Study of Effects of Sodium N-Hexylethyl Barbiturate (Ortal Sodium) and of Sodium Isoamylethyl Barbiturate (Sodium Amytal) on Excised Smooth Muscle. *J. Pharmacol. & Exper. Therap.* 56: 341 (March) 1936. Quigley J. P., Barlow O. W. and Himmelsbach C. K. Correlation of Visceral and Somatic Activity Following Administration of Hypnotics (A) Barbitol Compounds and (B) Tribromethanol (Avertin Crystals and Fluid). *ibid.* 50: 425 (April) 1934.

5 Dallemagne M. J. Contribution a l'etude des troubles post-anesthésiques de l'équilibre acide-base. *Arch. internat. med. exper.* 10: 379 1935.

6 Johnson C. A., Luckhardt A. B. and Lighthill J. A. Control of Barbitol Anesthesia and Poisoning by Diuresis. *J. A. M. A.* 95: 576 (Aug. 23) 1930.

rendered inefficient. These side actions again illustrate the point emphasized by the Council on Pharmacy and Chemistry⁷ and the Council on Dental Therapeutics⁸ against the dangers of intravenous administration of barbitals in unskilled hands.

All in all, these side actions emphasize that all the barbitals cause widespread depression or paralysis of living tissues in varying degrees and that there is no such thing as a nontoxic sedative or anesthetic that may be used with impunity. Some of the side actions might easily obscure or confuse a diagnosis and affect a patient's recovery from a disease in which the barbitol was exhibited merely as a symptomatic or palliative measure. The general condition of the patient should always be kept in mind when barbitals are administered.

A number of state legislatures have passed or are in the process of passing measures limiting the sale of barbitals to prescriptions signed by physicians, dentists or veterinarians. Even better than legislation in this respect is an education of barbitol users to the attending dangers of these compounds. Like most drugs, they are two-edged swords, useful in the hands of those competent to administer them, dangerous in the hands of the incompetent.

Soma Weiss⁹ pointed out some of these in one of the clinical lectures given at Kansas City. He emphasized, as did the Council on Pharmacy and Chemistry, that additional special knowledge, bearing particularly on the pharmacologic characteristics of various hypnotics and on the clinical evaluation of the patient, is essential

NO SUNSHINE IN SOAP

During the past year certain brands of soap have been flamboyantly exploited for their vitamin D content, one for the "filtered sunshine" in its lather. The latter product was introduced to the public with double page spreads in national magazines under the caption "The Dawn of a Great Beauty Discovery." In subsequent advertisements a picture of a nude but decorously posed model entering what appears to be a private outdoor pool on a sunshiny day calls attention to such claims as

"Your skin readily soaks up [the] 'Filtered Sunshine' element—the Vitamin D ingredient—from rich creamy lather as you wash and bathe. This has positive proof in the records of important scientific tests."

There is evidence that irradiated ergosterol may be absorbed through the skin of rats. This evidence has been an excuse for adding vitamins to various cosmetic preparations. H. Stanley Redgrove, writing in the *Pharmaceutical Journal*, London, April 17, has noted

"Many emphatic statements as to their cosmetic utility are to be found in trade and technical literature, but, apart from work demonstrating the utility of cod-liver oil and allied products in facilitating the healing of wounds and burns, one seeks in vain for detailed reports of adequately controlled experiments."

Redgrove points out that the real question at issue is not the ability of the skin to absorb these substances but "whether when so absorbed the vitamins exercise any beneficial action on the skin—in short, whether they are of any cosmetic value." Even if it is established that vitamin D exercises any beneficial action on the skin it still must be proved that it has a beautifying effect. As a matter of fact, there has been some recent evidence which indicates that the alleged beneficial effects mentioned by Redgrove as resulting from the use of cod liver oil in the promotion of healing of wounds and burns were probably due to some other factor than the vitamin D content of the oil.

Other trade journals are skeptical of the usefulness of vitamin cosmetic preparations. Thus, A. L. Bacharach, discussing the flimsiness of the evidence for vitamin F cosmetic promotions in the *Manufacturing Perfumer*, London, for May, states

"I have never denied—it would be absurd to do so—that fat-soluble substances may be absorbed through the skin. Rickets (vitamin D deficiency) and nightblindness (vitamin A deficiency) could doubtless be cured by external application of cod-liver oil, if we may judge by analogy from work on experimental animals. Such a method of treating a deficiency disease will hardly commend itself to those who require simplicity of administration, speed of recovery or accuracy of dosage." (Italics ours)

Concerning the relationship of absorption through animal skins and the use of vitamins in soaps, Thomas Durfee, director, Applied Research Laboratories, Inc., writing in the *Drug Trade News* for May 24, has said

"In a general consideration of the entire question of the value of the vitamins in cosmetics and toilet preparations one fact must be kept in mind. The results on which the above conclusions have been based have only covered materials that are allowed to remain on the site of application. Most of the materials used were applied by rubbing them into the skin. In view of the fact that soaps only remain in contact with the skin under practical conditions for a minute or two at most, it is questionable whether much absorption can take place during the actual washing operations. Some work has appeared in the literature to indicate that irrespective of the amount of rinsing a thin film of oil from the soap does remain on the skin. However, this film would be so slight as to permit the utilization of only a small percentage of the vitamin."

In view of these opinions it is not surprising that the Federal Trade Commission has recently published a complaint issued against a manufacturer who has made the following extraordinary claims:

"VITAMIN 'D' in Skin Soap A Wonderful Discovery of Science to Increase Your Natural Beauty!"

"Science has definitely proven that Vitamin D in Skin Soap will accomplish the following skin refinements:

- 1 Smooths out premature wrinkles
- 2 Reduces large pores
- 3 Eliminates blackheads, pimples
- 4 Corrects subnormal skin conditions, such as acne, etc.
- 5 Restores youthful color and elasticity, normalizes the action of the skin glands, refines texture"

According to the *Drug Trade News* for June 21 the complaint reads in part

"In truth and in fact said statements and representations were and are false and misleading in that it is impossible for the skin to absorb an appreciable amount of vitamin by simply washing with soap or taking a lather bath. Further Vitamin D has no effect whatsoever upon the skin or skin

⁷ Pentobarbital Sodium, N. N. R. 1937, p. 110.

⁸ Intravenous Medication (Report of the Council). *J. Am. Dent. A.* 18: 1787 (Sept.) 1931.

⁹ Weiss, Soma. The Clinical Use and Dangers of Hypnotics. *J. A. M. A.* 107: 2104 (Dec. 6) 1936.

condition and the use of said soap will, therefore, not cure acne or any other skin disease and will not remove blackheads, pimples or other impurities. The said soap will not restore and maintain the loveliness of youth, nor will the use thereof eradicate wrinkles that are caused by fatigue.

"In truth and in fact science has not definitely proven that Vitamin D in Skin Soap will accomplish the results claimed for it, namely, to smooth out premature wrinkles, reduce large pores, eliminate blackheads and pimples, correct subnormal skin conditions and restore youthful color and elasticity."

The advertiser who proclaimed the Dawn of A Great Beauty Discovery may soon be worrying about the twilight of the day when the sky was the limit for claims about "sunshine soaps."

SERUM LIPIDS IN ECZEMA

The last decade has witnessed an extraordinary intensification of investigation designed to elucidate the biochemistry and physiology of the lipids. The number of publications dealing with these topics has doubled in the past ten years. The data from experimental work on lipids made it evident that this group of substances is significant in maintaining physiologic well being. The results are finding practical application, as shown by the use made of knowledge of the physiologic rôle of fat soluble vitamins, by the determination of the level of blood cholesterol as an aid in following the clinical course of diabetes mellitus, and by clinical application of experimental knowledge of factors influencing the concentration of abnormal quantities of lipid in the liver.

Certain essential fatty acids which apparently cannot be synthesized by the organism must be supplied in the diet in order to maintain the normal body processes. The Burrs¹ observed that young rats restricted to entirely fat-free diets do not thrive and develop a scaliness of the skin and tail, concomitant with other abnormal manifestations. They demonstrated that the changes occurring in the absence of dietary fat could be prevented or the intensity alleviated after its occurrence by the addition of either linoleic acid or linolenic acid to the diet. These two unsaturated fatty acids appear to be specific in their ability to alleviate the deficiency skin conditions occurring in rats ingesting the fat-free diet and have, therefore, been designated as essential fatty acids.

The experimental demonstration that skin changes develop in rats suffering from an unsaturated fatty acid deficiency has led to study of the possibility that certain dermatologic disorders, such as infantile eczema, might be in part related to this type of dietary deficiency. These studies have been conducted in the department of pediatrics of the University of Minnesota Medical School. In a preliminary report, Hansen² presents evidence indicating that the degree of unsaturation of

the serum lipids was less in a small group of infants with eczema than in a group of normal infants of similar ages. Furthermore, a few preliminary observations on eczematous babies given liberal supplements of unsaturated fatty acids in the diets, in addition to the routine treatment, were sufficiently encouraging to suggest the desirability of extensive study of the blood lipids in this disease.³

Although detailed cholesterol, total fatty acid content and iodine absorption values of the serum are reported for seventy normal subjects and for an equal number of patients suffering from a variety of clinical disorders, particular interest is attached to the values obtained in twenty-three infants and eight older children with eczema. Careful consideration of previous diet and study of case histories served to eliminate variables of the type of dietary habits and infections. The majority of eczematous patients showed a definite and significant lowering of the iodine number of the fatty acids of the serum when compared with normal subjects of similar ages. Furthermore, the administration to eczematous patients of large doses of oils with high iodine numbers led to a significant rise in the iodine number of the serum lipids of these patients. Moreover, concomitant with this change in blood lipid chemistry a definite improvement in the clinical condition was observed. The results obtained by Hansen are striking and suggestive of a fundamental relationship between the pathogenesis of eczema and a disturbance in lipid metabolism. Future observations in a large number of similar cases may clearly establish the value of diet in the treatment of eczema.

Current Comment

STIMULATION OF CORNEAL IMMUNITY BY IRRADIATION

The view that antibodies are locally synthesized in corneal tissues and that the resulting acquired local immunity can be multiplied twelve times by Grenz radiation is held by Thompson, Pfeiffer and Gallardo¹ of the Presbyterian Hospital, New York. The effect of irradiation on antibody production has been a controversial question for two decades. It was shown by Hektoen,² for example, that exposure to roentgen rays decreases hemolysin production in rats. Similar observations were reported by Murphy and Sturm³ in their x-ray study of precipitin and agglutinin production in rabbits. A number of recent European investigators,⁴ however, have reported stimulation of agglutinin and hemolysin production in laboratory animals as resulting from exposure to ultraviolet rays. In order to study the

³ Hansen A. E. Serum Lipids in Eczema and in Other Pathologic Conditions. *Am J Dis Child* 53: 933 (April) 1937.

¹ Thompson Richard, Pfeiffer Raymond and Gallardo Eduardo, Jr. *Proc Soc Exper Biol & Med* 36: 177 (March) 1937.

² Hektoen Ludvig. *J Infect Dis* 17: 415 1915.

³ Murphy J. B. and Sturm E. *J Exper Med* 41: 245 (Feb) 1925.

⁴ Bassemans A. and Seldeslaachts A. *Compt rend Soc de biol* 100: 10-5 1929. Omar Wasfy. *J Egyptian M A* 18: 168 (March) 1935.

¹ Burr, G. O., and Burr Mildred M. *J Biol Chem* 82: 345 (May) 1929. 86: 587 (April) 1930. Burr G. O., Burr Mildred M. and Miller E. S. *ibid* 97: 1 (July) 1932.

² Hansen A. E. *Proc Soc Exper Biol & Med* 30: 1198 (June) 1933.

effects of the intermediary grenz rays, Thompson and his co-workers injected purified egg albumin intracorneally into rabbits and determined the local precipitin titer of juices expressed from corneal tissues by the hydraulic press. Precipitins could be detected in the corneal juices earlier and in greater concentration than in the serum, spleen or bone marrow of the same animals. Rabbit eyes exposed for one minute to grenz rays on alternate days often yielded corneal juices containing from eight to twelve times the precipitin titer of juices obtained from the control antigen-injected, nonirradiated cornea. No demonstrable precipitin was present in the pooled serums of the same irradiated animals. These investigators did not interpret their results as evidence of corneal mobilization of humoral antibody under grenz ray therapy but as proof of grenz ray stimulation of local corneal synthesis of specific precipitins. Whether or not the intracellular precipitins freed by hydraulic pressure are qualitatively identical with humoral precipitins has not yet been determined.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ALABAMA

Personal—Dr Carl T Martin Abbeville has been appointed health officer of Henry County succeeding Dr Wallace L Chambers resigned.—Dr George E Newton Scottsboro health officer of Jackson County has been appointed to a similar position in Lauderdale County succeeding the late Dr Wilder D Hubbard Florence.—Dr Cyril A Walwyn assistant director of the health service of Howard University Washington D C has been appointed medical director of the John A Andrew Memorial Hospital and head of the health department at Tuskegee Institute Tuskegee. He succeeds Dr Eugene H Dibble Jr who recently was appointed manager of the Veterans Administration Facility at Tuskegee.

COLORADO

Hospital Appointments—Dr Charles O Giese Colorado Springs has been appointed medical director of the Modern Woodmen Sanatorium Woodmen and Mr George Rule formerly business manager became superintendent. The appointments followed the resignation of Dr Fred A Forney medical director and superintendent who was recently made director of the new division of tuberculosis in the state department of welfare.—Dr Donald M Alderson has been appointed superintendent of Mount Airy Sanitarium Denver.

Society News—The Delta County Medical Society was addressed in Delta June 30 by Dr Edwin E Osgood Portland Ore on "Diagnosis of Heart Disease" and "Culturing of Human Bone Marrow".—At a meeting of the Crowley County Medical Society in Ordway June 25 Dr George L Pattee, Denver discussed "Infections of the Head and Neck".—Drs William V Watson Plateau City and John W Amessee Denver addressed the Mesa County Medical Society June 22 on "Past Politics and Politicians in the Medical Society" and "The Lewis and Clark Trail".

DISTRICT OF COLUMBIA

Medical Bills in Congress—*Changes in Status* H R 6696 has passed the Senate proposing to amend the Healing Practice Act of the District of Columbia by repealing the time limitation within which persons licensed prior to the effective date of that act were required to apply for a new license S 1732 H R 4876 and H R 4982 have passed the Senate proposing respectively to provide for the issuance of licenses to practice the healing art in the District of Columbia to Dr M L Perry and Dr N E Jackson to Dr Frederick W Didier and to Dr William Justin Olds H R 5110 has

also passed the Senate providing for the issuance of a license to practice chiropractic in the District of Columbia to Russell V Pemberton H R 4536 has been reported to the Senate directing the Board of Optometry of the District of Columbia to examine Welton B Hutton for a license to practice optometry in the District. *Bill Introduced* S 2837 introduced by Senator King Utah proposes to regulate the manufacturing, dispensing, selling and possession of narcotic drugs in the District of Columbia.

FLORIDA

Protest Against Socialized Medicine—The executive committee of the Florida Medical Association at a meeting in Orlando June 24 adopted a resolution recording its opposition to and its unwillingness to cooperate in any plan that involves federal supervision and control of medical practice in the United States. The committee affirmed the willingness of the association to cooperate at all times with the proper authorities in order to secure adequate medical care for all indigent persons but pointed out that at the same time it is convinced that such care is distinctly a community responsibility and is properly a function of local government and the local medical profession. Federal supervision of the medical care of the indigent without local control by the component medical units of the state medical societies will destroy the principles that maintain for the public the highest quality of medical service and the possibility of improvement in the service the committee declared.

ILLINOIS

Premarriage Tests Tax Laboratories—The new state law requiring premarriage tests for venereal disease has taxed the facilities of state laboratories to the point that the Kahn test has been adopted for blood tests instead of the Wassermann test. The Chicago *Tribune* reports Dr Frank J Jirka state director of public health issued suggestions to physicians July 17 to expedite the work. It is necessary he pointed out that the full name of each person who wishes a report for a marriage license must be inserted on the form and that separate reports be made for each of the two people who propose to marry with the two laboratory reports attached to each. He also asked that physicians do not enclose smear specimens for microscopic examination with blood specimens as the slides are frequently broken. Since the law requires only a microscopic test for gonorrhea physicians are asked not to request a complement fixation test. Finally Dr Jirka asked those who send specimens to mark them For Marriage License in order that the volume and value of work done in compliance with the law may be appraised.

Chicago

Annual Golf Tournament—The Chicago Medical Society held its annual golf tournament at the Medinah Country Club July 28. Three hundred persons including guests played in the tournament. Dr Edward A Brucker with a score of 79 won the Vanderslice Memorial Cup the principal award for the officers of the society. Dr Hubbard P Saunders with an 81 placed second winning the Councilor's Trophy. Dr Frank S Needham Oak Park Ill was third with a score of 82. Dr Charles H Phifer won the Past President's Cup with a 95 low gross and Dr James H Hutton the low net with a 77. The hospital team tournament was won by Ravenswood Hospital and Cook County placed second.

INDIANA

University News—The research committee of Indiana University School of Medicine Indianapolis has released \$3 000 to the cancer clinic at the school for the purchase of additional radium.

Election of State Board—Dr Edmund M Van Buskirk Fort Wayne was elected president of the Indiana State Board of Health at a meeting in Indianapolis July 15. Dr William Wise Indianapolis was appointed to the board as a new member and Drs Ernest Rupel Indianapolis and John C Glackman Rockport were reelected.

Personal—Dr Guy G Campbell East Gary has been appointed head of the medical staff of the Firestone Plantation Liberia Africa.—Dr Antonio Giorgi, Gary, has been appointed a member of the board of the Central State Hospital, Indianapolis.—James D Sturgis, Indianapolis, deputy attorney general has been appointed legal counsel for the Indiana State Board of Health; he will give all his time to the legal phases of the board's work.—Dr Bert E Moore Danville Ill has been appointed superintendent of the Knox County Tuberculosis Hospital now under construction at Vincennes.

KANSAS

Society News—Dr Lyle S. Powell Lawrence presented an illustrated lecture before the Southeastern Kansas Medical Society in Neodesha June 17, on "A Medical Man in India and China."—Members of the Saline County Medical Society gathered for golf and trap shooting followed by a picnic at the cabin of Dr William E. Mowery near Salina July 15.

Graduate Courses—The third of a series of graduate courses, financed with social security funds and sponsored by the state board of health in conjunction with the committee on maternal and child welfare of the state medical society, was opened in the northeast area August 9 to continue to September 3. Pediatrics and obstetrics will be discussed in five towns once a week for four consecutive weeks. Topeka, Manhattan, Marysville, Hiawatha and Atchison. Instructors will be Drs Frank C. Neff and Leroy A. Calkins, Kansas City, Mo., professor of pediatrics and professor of obstetrics and gynecology respectively, University of Kansas School of Medicine, Kansas City, Kan.

LOUISIANA

Work Begins on Charity Hospital—Construction on the new Charity Hospital, New Orleans began July 12. The project will cost \$12,500,000. The main building of the hospital was condemned and will be replaced with a twenty-story modern unit ultimately providing for 2,470 patients. One of the new features will be a disinfecting station through which every patient admitted must pass and where he will have a bath and if necessary a haircut and shave while his clothes are being sterilized. From the sterilizer the clothes will be sent to the rehabilitation department where they will be mended so that on discharge the patient will receive a sterile packet containing his clothes in better condition than they were when he entered the hospital.

MASSACHUSETTS

New Hospital Buildings Dedicated—A new hospital building and an infirmary at the Taunton State Hospital, Taunton, were dedicated June 23. The two buildings, representing an investment of about \$1,000,000, are part of a program which includes six buildings, one for the treatment of acute recoverable mental cases, a hospital, an infirmary for men, an infirmary for women, a building for the treatment of acute exacerbations in the continued treatment types and a kitchen and dining room unit. This group when completed is designed to accommodate all patients needing active treatment for either mental or physical illness in a hospital of 2,000 patients. The hospital just dedicated contains a nurses' training school, pharmacy laboratories, operating suite, x-ray department, physical therapy department, dental suite, quarters for sick employees and a ward for each sex accommodating about fifty patients. It includes also facilities for the isolation of contagious diseases and the wards are equipped in such a manner as to enable both medical and surgical cases to receive adequate treatment. The infirmary has three floors for the care of the infirm and one for those suffering with tuberculosis. It has a capacity of 200 patients. The speakers at the dedicatory ceremony included Mr. Andrew H. Peterson, state director, Massachusetts Public Works Administration; Brig. Gen. Charles H. Cole, representing the governor, and Dr. Albert Warren Stearns, Boston, associate commissioner, state department of mental diseases.

MICHIGAN

Personal—Dr. Robert Howell, assistant superintendent of Eloise Hospital, Eloise, was presented with a chair and floor lamp, July 17, by the nurses and ward supervisors at the hospital, in recognition of his thirty years service with the institution.—Physicians from Otsego, Montmorency, Oscoda, Roscommon, Crawford and Ogemaw counties were guests at the home of Charles G. Saunders, DDS, Gaylord, for their annual meeting, July 8, at which a gift was presented to Dr. Levi A. Harris, Gaylord, to mark his completion of fifty-one years in the practice of medicine.

University News—During the centennial celebration of the University of Michigan Ann Arbor, June 14-19, speakers included Drs. Alice Hamilton, professor emerita of industrial medicine, Harvard University Medical School, Boston, who presided at a general discussion on "Higher Education and Scientific Progress"; James R. Arneil, Denver, "The Future Responsibilities of the Professional Man"; and Bertha Van Hoosen, Chicago, "The Contributions of the Machine Age to Medicine."—Dr. Isadore Lampe, instructor in roentgenology, University of Michigan Medical School, has been appointed

hospital statistician, succeeding Dr. H. Marvin Pollard, who will devote his entire time to his positions as instructor in internal medicine and secretary of the medical school.

Progress of Tuberculosis Campaign—From February 1, when the campaign against tuberculosis in Detroit was begun, up to July 2, 41,434 tuberculin tests had been made according to the *Detroit News*. Of these 10,010 gave positive results. Of 10,010 persons in whom the test was positive, 7,403 had x-ray examinations and it was found that 313 had active tuberculosis. In 45 per cent of these the infection was minimal. The *News* discusses the financial aspect of the early detection of tuberculosis as follows:

Records of Herman Kiefer Hospital show that the average cost of treating an advanced case of tuberculosis is \$1,620 a year. The average cost of treating a minimal or early case is \$810 a year. The difference is \$810, a 50 per cent saving on each case. Treating 140 cases early—instead of allowing these cases to become advanced and finally come to treatment at city expense—therefore has effected a saving of \$113,400 in only five months. This saving on the assumption that the 140 may be put back into economic circulation at the end of a year would amount to \$1,585,920 on an annual basis of the campaign. These figures, however, must be taken with certain reservations since a large number of patients with advanced tuberculosis are now saved and ultimately get back to normal earning ability.

MISSISSIPPI

Personal—Dr. Joseph B. Thigpen, Bay Springs, has been appointed health officer of Jasper County, effective July 1. Dr. Edward C. O'Cam, Winona, of Montgomery County, succeeding Dr. James P. Synnott; and Dr. Archie S. Calhoun, Mount Olive, of Covington County, succeeding Dr. George T. Cranford Seminary.—Dr. Thomas J. Brown, Grenada, was guest of honor at a dinner in Coffeeville given in celebration of his seventy-fifth birthday. He formerly lived in Coffeeville.

Poliomyelitis Outbreak—About 225 cases of poliomyelitis have been reported to the Mississippi State Board of Health from January 1 through August 4. The board reports. The outbreak is principally in the central and southern counties, the largest number of cases, twenty-seven, having appeared in Leake County. A temporary corrective treatment clinic has been set up in Jackson by the crippled children's division of the state department of education and the state board of health to give immediate corrective aid to recent victims of the disease. These patients are not admitted for long stays and are admitted only after a period of from seven to ten days after the onset of paralysis. The corrective treatments are being given by trained orthopedic surgeons and a follow-up home nursing service is furnished to instruct mothers in the management of the patients at home.

MONTANA

University News—Donald M. Hetler, Ph.D., assistant professor of bacteriology and immunology and of public health, Washington University School of Medicine, St. Louis, has been appointed head of a new department of bacteriology and public health at the University of Montana, Missoula. New courses in bacteriology of foods and water and a course in public health and sanitation will be added to the curriculum of the department. Bacteriology was formerly taught in connection with the department of zoology.—Dr. Charles G. Sale, Birmingham, Ala., has been appointed assistant to Dr. Meredith B. Hesdorffer, head of the university health service.

NEW JERSEY

Personal—Dr. Joseph B. Harrison, Westfield, attended his sixty-first consecutive annual meeting of the state medical society when it convened in Atlantic City in April.

Hospital News—The cornerstone for an addition to the Hospital of St. Barnabas and for Women and Children, Newark, was laid in June. The new building will bring together at one site the Hospital of St. Barnabas and the Hospital for Women and Children, which were merged several years ago but have remained in their separate buildings. The building of the latter will be abandoned. The new addition will provide seventy-nine more beds and will have a surgical floor with a separate obstetric department, x-ray department and a fully equipped laboratory.

Court Upholds Max Plager's Blood Pressure Business—The supreme court of New Jersey recently sustained a decision of the Atlantic County court acquitting one Max Plager, who takes the blood pressure of his customers in a concession on the Boardwalk at Atlantic City, of the charge of practicing medicine illegally. The justice said in an opinion handed down July 22 that blood pressure was not a disease and thus far the law did not restrict its determination to physicians. Newspapers stated that Plager offered evidence to show that he did not give medical advice. The state board of medical examiners prosecuted the case.

NEW YORK

Lake Keuka Meeting—The annual meeting of the Lake Keuka Medical and Surgical Association was held in Penn Yan June 24 with the following speakers on the program

Dr Henry J John Cleveland Protamine Zinc Insulin
Dr Geza de Takats Chicago Treatment of Convulsive Seizures Not Due to Epilepsy
Dr Claude F Dixon Rochester Minn Cancer
Dr Stafford L Warren Rochester N Y Treatment of Venereal Disease by Fever Therapy

Dr Howard W Haggard New Haven Conn, gave an address at an evening banquet on 'Medicine and the Public'

Emergency Relief Merged with State Agency—The Temporary Emergency Relief Administration created in 1931 by the state legislature to provide for the unprecedented relief needs then existing was merged July 1 with the state department of social welfare. Many members of the staff of TERA have been added to the staff of the state department but many positions not essential have been discontinued. Local units are allowed to continue the emergency relief machinery for a year if they so desire. It was said however that up to June 20 only four cities and three counties had taken advantage of this option.

Society News—Dr Richard Kovacs New York addressed a joint meeting of the Broome County Medical Society, the Binghamton Academy of Medicine, the Binghamton Psychiatric Society and the Endicott Johnson Medical Society June 1 on the role of physical therapy in the treatment of nervous and mental disease. At the quarterly meeting of the Ontario County Medical Society at Clifton Springs July 13 Dr George B Adams director of the Cayuga County Laboratory Auburn spoke on "Some Ways that Laboratory Medicine Can Be Used Advantageously in Clinical Medicine."—Dr William J Engel Cleveland, addressed the Medical Society of the County of Niagara Niagara Falls June 8 on 'Urologic Problems in Childhood'

New York City

Personal—Dr Joseph Wortis addressed a meeting sponsored by the Swiss Psychiatric Society in Bern in May on "Early Experiences with Sakel's Hypoglycemic Insulin Treatment of the Psychoses in America."—Dr James Alexander Miller received the honorary doctorate of public health at the recent annual commencement of New York University.—Dr Royal Whitman has been elected an honorary fellow of the Royal Society of Medicine of London.

Residency in Hospital Administration Available—The Hospital for Joint Diseases announces that there will be available Jan 1 1938 a residency in hospital administration for a three year term. Requirements are graduation from a class A medical school two years' general internship in a hospital of at least 200 beds reliable testimony as to personal qualities and a desire to make hospital administration a life work. Full maintenance will be provided with a stipend of \$600 the first year \$900 the second and \$1200 the third. Applications should be addressed to Dr Jacob J Golub director of the hospital Madison Avenue and 123d to 124th streets New York.

Memorial Hospital Building—Ground was broken for a new building for Memorial Hospital for the Treatment of Cancer and Allied Diseases in the block bounded by Sixty-Seventh and Sixty-Eighth streets York and First avenues June 8 in the presence of the board of managers and the medical staff. The new hospital which will adjoin the Rockefeller Institute for Medical Research New York Hospital and Cornell University Medical College will contain 168 beds and will provide facilities for diagnosis and treatment research laboratories and outpatient service. Dr James Ewing is director of the hospital and president of the medical board. The site was donated by John D Rockefeller Jr and the General Education Board has provided \$3 000 000 for the building and equipment.

Speech Clinic to Be Enlarged—Mr Lucius N Littauer, New York manufacturer has given to the National Hospital for Speech Disorders founded in 1916 a gift of between \$200,000 and \$225 000 to expand the institution to include research and teaching as well as treatment. It will be removed from its present location at 126 East Thirtieth Street to 61-63 Irving Place which will be remodeled and renamed the Lucius N Littauer Institute for Speech Disorders. Dr James Sonnet Greene founder and medical director of the hospital will be medical director of the new institution. Mr Littauer will be president and Dr Bernard Sachs vice president. About 156 000 treatments more than three fourths of them free, were given in the hospital last year according to an account in the New York Times.

OHIO

Personal—Dr Homer S West St Clairsville has been appointed health officer of Belmont County succeeding Dr Archie J Martin who resigned to enter private practice in Adena.—Dr William E Thompson Bethel celebrated his one hundred and second birthday July 6.

Hospital Bequest—St Luke's Hospital Cleveland is to receive 70 per cent of the estate of Mr Francis Fleury Prentiss, estimated at \$3 000 000. Mr Prentiss gave authority to the board of trustees to use the money as it may determine, but definite plans have not been formulated. Settlement will probably not be made for more than a year it was said.

Dr Moritz Appointed Professor at Harvard—Dr Alan Richards Moritz associate professor of pathology Western Reserve University School of Medicine Cleveland has been appointed professor of legal medicine at Harvard University Medical School Boston. Dr Moritz will spend two years in Europe studying before entering on his work at Harvard. He is 37 years old and a graduate of the University of Nebraska College of Medicine Omaha class of 1923.

PENNSYLVANIA

Society News—Dr Jesse L Lenker Harrisburg addressed the Medical Society of Cumberland County at Carlisle recently on 'Acute Rheumatic Fever'.—The Cambria County Medical Society held its annual outing at the Summit Country Club Cresson August 12.

Hospital News—A unit for thoracic surgery was recently begun at the State Tuberculosis Sanatorium, Hamburg with an appropriation of \$150 000 granted by the legislature of 1936. The new unit will accommodate thirty-eight patients and will be equipped with two operating rooms an x-ray department and offices for physicians.

Philadelphia

University News—The estate of Miss Frances T Kinsey providing a fund of about \$200 000 to the University of Pennsylvania School of Medicine for study of digestive disorders was adjudicated in the Orphans Court recently. The fund to be known as the Kinsey-Thomas Foundation for the Study and Treatment of Diseases of the Digestive System will be under the direction of Dr Thomas Grier Miller.

Hospital News—The Mary Ann McCarthy Clinic, devoted to treatment of diabetes was opened June 24 at St Agnes' Hospital. The clinic was presented to the hospital by John A McCarthy banker and civic leader, in honor of his mother. Dr Anthony Sindoni Jr is in charge.—The annual graduating exercises for interns completing their service at the Philadelphia General Hospital was held June 24. Dr David Riesman president of the medical board presented diplomas and an award of \$100 to Dr William James Hanes for an original paper on 'Certain Endocrinological Observations in Exfoliative Dermatitis'.

Dr Pancoast Honored—The July issue of the *American Journal of Roentgenology and Radium Therapy* was dedicated to Dr Henry K Pancoast in honor of his twenty fifth year as professor of roentgenology at the University of Pennsylvania. In 1912 the university created the chair of roentgenology in the medical school and appointed Dr Pancoast professor. Dr Pancoast has served as president and secretary of the American Roentgen Ray Society and the American Radium Society as president of the American College of Radiology and as chairman of the Section on Radiology of the American Medical Association. He was president of the first American Congress of Radiology held in Chicago in 1933.

TEXAS

State Board Changes—Dr Oliver B Kriel Wichita Falls, was elected president of the Texas State Board of Medical Examiners at a recent meeting. Dr Wiley C Morrow Greenville was made vice president and Dr Thomas J Crowe Dallas reelected secretary. Dr John T Lawson Bowie, was recently appointed to the board to succeed Dr Joseph Allen Kyle Houston.

Personal—Dr Edythe P Hershey director of the child health and maternity divisions of the state health department has been appointed to the staff of the division of maternal and child health in the Children's Bureau of the U S Department of Labor to make a special study of facilities for maternal care. Dr Hershey was formerly director of school health in the Dallas school system.

VIRGINIA

Society News—Among the speakers at a quarterly meeting of the Southside Virginia Medical Association in Petersburg June 15 were Drs Guy W Horsley Richmond on "Surgery in the Aged" Porter P Vinson Richmond, "Significance of Dysphagia" and Charles S Dodd Petersburg, "Glaucoma and Optic Atrophy."

Changes in Health Officers—Dr William H Walcott, Chatham has resigned as health officer of Pittsylvania County to accept a position on the staff of the U S Public Health Service in Washington D C His successor is Dr Benjamin R Allen, Luray—Dr Walter R Parker, Woodland, N C, has been appointed health officer of Northampton County

WASHINGTON

State Medical Election—Dr Arthur Betts Spokane was chosen president-elect of the Washington State Medical Association at the annual meeting in Seattle July 21 Dr Delmar F Bice, Yakima vice president and Dr Vernon W Spickard Seattle was reelected secretary Dr J Reid Morrison Bellingham was installed as president. The 1938 convention will be held in Bellingham

WYOMING

State Medical Election—Dr Victor R Dacken Cody was installed as president of the Wyoming State Medical Society at the annual meeting of the house of delegates during the Rocky Mountain Medical Conference in Denver July 19-20 Dr John D Shingle Cheyenne was chosen president-elect Dr Emory W DeKay Laramie vice president and Dr Marshall C Keith Casper secretary Dr Keith was appointed editor of the Wyoming section of *Colorado Medicine* The 1938 session will be held in Laramie

ALASKA

Meningitis Epidemic—Newspapers reported August 1 that a meningitis epidemic has broken out in scattered Indian villages on the Yukon River It was said that Dr Maurice E Corthell of the United States Hospital for Natives, Mountain Village was visiting the settlements in a hospital boat Six deaths were reported A plane ready to take serum to the distant villages was said to have been kept on the ground by adverse weather

GENERAL

Officers of National Research Council—Dr Ludwig Hektoen Chicago has been reappointed chairman of the National Research Council for the year beginning July 1 Dr Esmond R Long Philadelphia is chairman of the division of the medical sciences and Dr Howard T Karsner Cleveland vice chairman

American College of Chest Physicians—The Federation of American Sanatoria at its annual meeting in Atlantic City June 7 voted to change its name to the American College of Chest Physicians Dr Champneys H Holmes Atlanta Ga was chosen president-elect of the organization and Dr Edward W Hayes Monrovia Calif is president Dr Frank W J Burge Philadelphia has been elected chairman of the editorial board and editor of *Diseases of the Chest* official organ of the society to succeed Dr Charles M Hendricks El Paso

Society News—The Academy of Physical Medicine will hold its fifteenth annual meeting at the Hotel Walton Philadelphia October 19-21—The National Association for Nursery Education will hold its annual meeting in Nashville Tenn October 20-23 Among the speakers will be Dr Martha M Eliot of the Children's Bureau Washington D C—The twenty-seventh annual session of the American College of Surgeons will be held in Chicago at the Stevens Hotel October 25-29—The American Association of Anatomists has voted to hold its next annual meeting at the University of Pittsburgh School of Medicine April 14-16 1938

Fraudulent Subscription Agents—The circulation office of the weekly magazine *Life* reports that many physicians in the New York area have written concerning the activities of two men who are soliciting subscriptions to the magazine and appear to be concentrating on the medical profession They use the names George Cowan and Larry Hardes and are said to be misquoting prices and pocketing the money turned over to them by subscribers In most cases they offer a special price of \$4 for the magazine with a ten volume encyclopedia as a premium Cowan gives his address as 350 East Twenty-Second Street Chicago the former address of the circulation department of *Life* Neither of these men has been authorized

to represent *Life* the office reports Their activities have been reported to the National Publishers' Association 232 Madison Avenue, New York, which is endeavoring to apprehend and prosecute the men

Medical Bills in Congress—*Changes in Status* The President signed, August 2 the Marihuana (Cannabis) Tax Act of 1937 and August 5 the National Cancer Institute Act S 2463 has passed the House with amendments proposing (1) that there shall be four assistants to the Surgeon General of the Army with the rank of brigadier general one of whom shall be an officer in the Dental Corps (2) that there shall be an increase of 100 officers in the Medical Corps of the Army and an increase of fifty officers in the Dental Corps and (3) that service as Contract Dental Surgeons and Acting Dental Surgeons shall be credited to the officers of the Dental Corps for the purpose of retirement H R 4716 has passed the Senate proposing to construct a Marine Hospital in Florida H R 6283 has passed the Senate proposing to increase the punishment of second third and subsequent offenders against the narcotic laws H R 8099 has been reported to the House proposing to amend certain administrative provisions of the Tariff Act of 1930 The bill among other things provides that professional equipment and tools of trade imported for personal use by nonresidents sojourning temporarily in the United States may be admitted without the payment of duty *Bills Introduced* S 2880 introduced by Senator Sheppard, Texas proposes to amend the Social Security Act by providing grants to the states for assistance to needy incapacitated adults defined to mean 'needy individuals who are eighteen years or more of age and are permanently incapable of self support by reason of a physical disability or defect and not mental' S 2917 introduced by Senator Guffey Pennsylvania and H R 8148 introduced by Representative Walter Pennsylvania propose to provide that the Robinson-Patman Antitrust Act shall not apply to purchases of their supplies for their own use by schools colleges universities public libraries churches hospitals and charitable institutions not operated for profit and supported in whole or in part by public subscriptions H R 8131 introduced by Representative Terry, Arkansas proposes to appropriate the sum of \$5,000,000 and to authorize a similar appropriation each fiscal year for four consecutive years to enable the states to make adequate provision of hospital beds for tuberculous patients H R 8189 introduced by Representative Maverick Texas proposes to create an unemployment commission to investigate the problem of unemployment in the United States with authority to study among other things the nature and extent of ill health

Changes in Status of Licensure—The State Board of Medical Examiners of Florida reports the following action taken June 14

Dr Roy Webb Palm Beach license revoked for narcotic violation
Dr Feliciano Gonzalez Jacksonville license revoked for narcotic violation

The Indiana State Board of Medical Registration and Examination reports the following action taken at its meeting July 13

Dr Sidney J Eichel Evansville license revoked for violation of the Harrison Narcotic Act
Dr Peter C Berns Jr Linton license revoked for violation of the Harrison Narcotic Act

The Massachusetts Board of Registration in Medicine announces the following action taken at its meeting July 15

Dr Hans W Bencker Boston license restored
Dr William H H Briggs Haverhill license restored

The Minnesota State Board of Medical Examiners reports the following action taken at a meeting June 29

Dr David Hamilton Nushbaum Jackson license revoked because of his conviction of violating the Harrison Narcotic Act
Dr Walter Bertram Clement Shakopee license revoked he was found guilty of immoral dishonorable and unprofessional conduct following the death of a 24 year old girl

The New York State Board of Medical Examiners reports the following action

Dr Elmer L Hunman whose last known address was 13 West On Hundredth Street New York license revoked recently for conviction of a felony

The State Board of Medical Examiners of Oklahoma recently reported the following action

Dr Young Anderson Howell whose last known address was Mountain View Okla license restored June 10 it was suspended June 11 1936

The Pennsylvania State Board of Medical Education and Licensure reported the following actions taken at a meeting June 29-30

Dr John Lang Winslow, Pittsburgh license indefinitely suspended on evidence of unethical practice he was shown to be protecting an illegal practitioner Harry Fabian who was prosecuted by the board and fined \$500 with a six months suspended jail sentence

Dr David A Rupert Donora license restored it was revoked Aug 27 1936

Foreign Letters

LONDON

(From Our Regular Correspondent)

July 17, 1937

Toxic Effects of Sulfanilamide and Related Compounds

Sulfanilamide was first used in this country for the treatment of puerperal fever due to hemolytic streptococci. Its use was then extended to infections due to other organisms—meningococci, pneumococci, gonococci and the enteric group. More recently it has been used in erysipelas and rheumatic fever. As a rule, toxic symptoms have been slight, but in a few cases they have been serious and even fatal. Paton and Eaton in the *Lancet*, May 15, reported from Glasgow instances of sulfhemoglobinemia and methemoglobinemia following the administration of sulfanilamide. One case was especially severe. A woman, aged 28, was admitted to hospital for puerperal pyrexia with alarming cyanosis. The blood gave the spectrum of sulfhemoglobin. She had been taking magnesium sulfate as well as sulfanilamide (9.6 Gm of prontosil album in four days). Cyanosis was conspicuous in the face lips and finger nails and she was apparently moribund, but she recovered under treatment, which included administration of oxygen and blood transfusion. It was suggested by Colebrooke and Kenny last year that sulfanilamide poisoning might be associated with the administration of sulfates. Paton and Eaton investigated the question and have found that administration of magnesium sulfate with sulfanilamide produces sulfhemoglobinemia in most persons.

A more serious effect of sulfanilamide is agranulocytosis. C. J. Young in the *British Medical Journal*, July 17, reported a case of acute rheumatism which did not respond to salicylates. A man, aged 53, was given 3 Gm daily of prontosil album for eighteen days. At the end of this period his clinical condition had deteriorated, the temperature being higher than before, and the treatment was stopped. Four days afterward complete agranulocytosis was found and blood culture, previously negative, showed hemolytic *Staphylococcus aureus* and *Streptococcus viridans*. Death occurred on the following day. The necropsy showed membranous pharyngitis. There were no granular cells in the red marrow. Death was considered to be due to agranulocytic angina with septicemia. A feature of the case was failure of serial leukocyte counts to give warning of the impending disaster. Another fatal case of agranulocytosis was recorded in the *Lancet*, June 26, but from Amsterdam, by Borst. Prontosil flavum was given. After this case he used sulfanilamide and also found toxic effects, but they were mild.

On the other hand, the most recent report as to the value of 'prontosil' in puerperal fever is favorable. At the annual meeting of the board of Queen Charlotte's Maternity Hospital the chairman, Sir Samuel Scott, said that the use of prontosil was begun in the isolation block last February. Its use was confined to infection with the hemolytic streptococcus, which was responsible for the great majority of the severe and fatal cases. Instead of losing one out of every five of the mothers with this dangerous form of puerperal fever as they had since 1930, they lost only one in twenty. There were five deaths and of these two cases were quite hopeless when the patients were admitted.

Ovarian Extroversion for Secondary Amenorrhea

Before the North of England Obstetrical and Gynaecological Society Dr K. V. Bailey gave his results from an operation (which he first described to the society eighteen months ago) for the restoration of the function of cirrhotic and cystic ovaries, by facilitating the approach of the follicles to the surface. He excises a wedge from the ovary sagittally, having its base at the periphery and its apex in the region of the hilus. He then passes sutures through the ovary in such a way as to turn the cut edges of the ovary partially inside out. Of seventeen

patients thus operated on, thirteen began to menstruate immediately afterward and there were four failures. With regard to the treatment of such cases by endocrine extracts, unscientific optimism had replaced unreasonable skepticism, but he believed that this treatment should be tried first in all cases of secondary amenorrhea. If it failed, extroversion of the ovaries should be tried, but the patient should be told that success could not be promised. The regularity with which menstruation followed the operation in the majority of his cases strongly suggested ovulation from ovaries which showed no recent or remote evidence of it. Proof of such ovulation was, however, not obtained by him until one patient, who had amenorrhea for two years and three months and showed no trace of a corpus luteum at operation, became pregnant. In this case regular menstruation began five weeks after operation and continued regularly for two years until the advent of pregnancy. In the successful cases some stimulus to menstruation was evidently established by the operation. In Bailey's opinion this was ovulation. He recognized that laparotomy should not be performed before a thorough trial had been given to general and endocrine treatment, but when this failed he held that his operation was justifiable with the object of restoring normal menstruation and of improving the prospects of pregnancy, provided all concerned realized that success could be expected in only 75 per cent of cases.

England's Coroners to Be Lawyers

According to the coroners' amendment act of 1926 a coroner must be either a lawyer or a physician. But there recently has been a tendency to appoint only lawyers, which has aroused protest in the medical profession. The argument is that the medical knowledge required at an inquest is provided by the medical witness. The London County Council has decided that in future only lawyers will be eligible for appointment as coroners. Heretofore both legal and medical qualifications have been required. The committee of the council concerned recommends the change subject to due weight being given to experience as deputy coroner and knowledge of forensic medicine. At the meeting it was stated that all the present London coroners were physicians who had qualified as barristers, but this was only 'a paper qualification', they had no experience in legal administration. In the debate medical members of the committee opposed the change. Dr S. M. Copeman said that it was regrettable that the committee was departing from a practice now twenty years old. It was likely that the powers of coroner would be curtailed in the future and that they would have little more to do than determine the cause of death. A physician was better qualified than a lawyer to do that.

New Safeguards to the Adoption of Children

Grave scandals in connection with the adoption of children (what is called "baby farming") have led to proposals for its regulation by a departmental committee of the House of Commons. The societies and other agencies for adoption are performing a useful function but their methods are open to improvement. The committee recommends that adoption agencies should be licensed and that licenses be granted subject to conditions, such as that the agency is a bona fide charitable society and that those employed by it are fit persons for the work. It thinks that to prevent private persons from arranging adoptions would be unreasonable, though the risks of such adoptions are great. It recommends that there should be a duty of notification to the local infant protection authority on both the agent and the person receiving the child. The age limit for privately arranged adoptions should be 16 years in view of the risk that adolescents might be adopted as a means of obtaining cheap labor or for other undesirable reasons. There should be general regulation and supervision of the work of the licensed agencies, a thorough medical examination of the child, and inquiries into the social and medical history of its parents.

Poisonous Gases in Industry Hydrogen Sulfide

The Department of Scientific and Industrial Research has issued the first of a series of leaflets describing standard methods for the detection of toxic gases in industry. The present leaflet deals with hydrogen sulfide, which is very poisonous. In concentrations of one part in 1,000 by volume of air it is nearly as poisonous as prussic acid, in concentrations of one part in 10,000 it produces irritation in the eyes and throat after one hour's exposure. It is emphasized that reliance cannot be placed on the sense of smell as a guide to safety, because persons differ greatly in their ability to detect smells, and, moreover, the sense of smell readily becomes tired and then is of little value in noting even much increased concentrations. Finally, the smell of hydrogen sulfide may be masked by other odors. The test recommended is to draw a known volume of the atmosphere under test through test paper treated with lead acetate fitted to a hand pump. The paper is stained brownish by concentrations as low as one part in 150,000.

Late Effect of Mustard Gas on the Eye

Before the section of ophthalmology of the Royal Society of Medicine, Mr. Frank Heckford reported the case of a man, aged 41, who was exposed to mustard gas during the war. Some time elapsed before he received treatment. He was many months in the hospital for "eye trouble" but eventually appeared to be cured. He did not complain of further symptoms until August 1932. At present the conjunctivae have a porcelain-like appearance. There is loss of substance of the cornea and vertical folding apparently in Descemet's membrane. With a slit lamp a crystallizing effect is seen in the substance of the cornea. Corneal sensation is unimpaired except over the destroyed areas. The fundi show nothing abnormal. Vision is 6/36 but can be improved to 6/18 in the right eye and to 6/24 in the left by correction of the refraction. No case of such late destructive effect of mustard gas on the eye appears to have been previously observed in this country.

The Carrying of Oxygen During High Flights

The Air Ministry intends to make the carrying of oxygen compulsory during flights by commercial aircraft at very high altitudes. For flights in which an altitude of 15,000 feet above sea level is reached otherwise than in an emergency, a supply of oxygen, with an apparatus for its use by passengers and crew in case of need, must be carried and placed under the control of a member of the crew. Notice of this intended amendment to the Air Navigation Directions is given so that owners may make provision for the necessary equipment before the regulation is made compulsory. It is rare at present for British airplanes to reach such high altitudes. The new rule is intended as a precaution to ensure the safety and comfort of passengers and crew when commercial flying may extend to the stratosphere.

London's Water Supply in Air Raids

As previous letters to THE JOURNAL show, all possible precautions for the protection of the civilian population in air raids are being taken. Thus the Metropolitan Water Board of London has decided to appoint an air raids precautions officer at a salary of not less than \$3,500 per annum. In consultation with the government, the board has prepared a provisional scheme for the maintenance of the water supply of the population of London during an air raid. The scheme includes the provision of a portable plant, the protection of the principal pumping stations and works, and the protection of the operating staff.

The Control of Malaria

Some 120 nonmedical men—planters, mining engineers and others—have recently attended a course on the control of malaria at the London School of Hygiene and Tropical Medicine. In a letter to the *Times*, Sir Malcolm Watson, director of Ross Institute of Tropical Hygiene, refers to the difficulty

of there being so many mosquitoes and of such various habits. The great majority do not carry malaria, and in various parts of the world it has been possible to eliminate the dangerous species. In 1904 the planters of Malaya became interested and led the way to the successful application of Ross's discovery to two towns. From Malaya, business men carried the work to India. Tea estates of 400,000 acres and a population of a million are gradually bringing malaria under control.

The Chair of Anatomy at the University of Manchester

F. Wood Jones, professor of anatomy in the University of Melbourne, has accepted the invitation to fill the chair of anatomy in the University of Manchester, to succeed Prof. J. S. B. Stopford, who has asked to be relieved in view of his administrative work as vice-chancellor of the university. F. Wood Jones has held professorships in the London School of Medicine for Women (anatomy), the University of Adelaide (anatomy) and the University of Hawaii (anthropology), in addition to his Melbourne appointment, on which he entered in 1930. Among his numerous published works are *Coral Atolls*, *Arboreal Man*, *The Mammals of Australia* and *Man's Place Among the Mammals*.

The Editorship of the Lancet

Dr. Egbert Morland has been appointed editor of the *Lancet*, in succession to Sir Squire Sprigge. He has been assistant editor since 1915. Dr. T. F. Fox and Dr. M. H. Kettle have been appointed assistant editors.

PARIS

(From Our Regular Correspondent)

July 14, 1937

The American Hospital Needs Financial Help

An appeal for financial aid which appeared in the June 16 Paris edition of the *New York Herald* pointed out that the American Hospital of Paris rendered services in 1936 to Americans who were unable to pay, to the amount of \$68,897. The budget of the hospital shows a constantly increasing deficit, which was \$22,000 last year. This is too large a sum for the American colony in Paris, which has been greatly reduced in numbers since 1933, to shoulder alone. The hospital could be kept open by refusing to treat free cases but does not wish to accept this solution of the question. Every visitor to France or resident is being asked to send a check to support this institution of 150 beds. The annual subscription asked for, from all those interested in having all the facilities of an American hospital at their disposal while in Europe, is only \$20. Checks can be sent to Mr. Bernard S. Carter, 14 Place Vendôme, Paris.

A campaign with the definite object of raising \$150,000 is also being launched. Ambassador William C. Bullitt and General John J. Pershing will head a committee for this purpose, composed of prominent Americans. Up to July 13, over \$51,000 had been subscribed.

Social Insurance During 1934 and 1935

A report submitted by the minister of labor has just been published in the *Journal officiel*. On Dec. 31, 1933, 10,000,000 individuals who were engaged in commercial pursuits and 1,150,000 who were engaged in farming and forestry were insured. The dues paid by the insured from 1930 (when the law was put into effect) to 1935 inclusive, were as follows:

1930	1 496 million francs
1931	3 562 million francs
1932	3 261 million francs
1933	3 272 million francs
1934	3 176 million francs
1935	3 086 million francs

The franc from 1930 to July 1, 1933, was equal to about 4 cents, and from the latter date to the end of 1935 to about

5 cents The decrease in dues or premiums paid during 1934-1935 was in all probability the result of widespread unemployment

As to the expenditures from 1930 to 1935 inclusive, the amounts paid out for sickness claims were as follows

1930 1931	714 million francs
1932	876 million francs
1933	935 million francs
1934	989 million francs
1935	1 076 million francs

During the earlier years, there were fewer claims for sickness insurance than during the period of decreased employment

The amounts paid out for maternity insurance were as follows

1930 1931	156 million francs
1932	178 million francs
1933	170 million francs
1934	172 million francs
1935	169 million francs

The slight changes in maternity claims, from year to year, parallel the lack of increase in the number of births in France during the same period The insured workers and their employers each pay half of the premium every three months to the local bureaus, termed in France the "caisses" These act as receiving agencies for the premiums and as disbursing agencies for the payment of claims A certain proportion of the premiums must be forwarded by the caisses to the regional or central bureau, as a guaranty fund During 1934-1935 many of the caisses paid out more for claims than they received in the form of premiums Hence they have been obliged to draw on their reserves This deficit amounted to 48 million francs in 1935 and to 44 million in 1934, half of which was for milk tickets when the mother was unable to nurse her infant

The expenses of administration of social insurance were 85 million francs in 1934 and rose to 95 million in 1935 The decrease in premiums received during these two years and increase in administrative expenses have resulted in a deficit in the total budget, which at the end of 1935 amounted to 77 million francs The caisses have no reserves with which to balance the 1937 deficit, which will be still larger This is a serious situation, according to Dr Dordives, who has analyzed the report of the minister of labor in the July 1 issue of *Siècle medical*

The Hippocratic Oath and Social Insurance

The Hippocratic Oath was the subject of a lecture delivered by Dr Legros at the Faculté de médecine, which appears in the *Siècle medical* of July 1 The tendency in many countries to spread the application of social medicine raises the question of whether the limits of professional secrecy in its relation to social medicine in general and sickness insurance in particular should be as sharply drawn as they have been in the past Medical control in sickness insurance has as its chief objective not only to corroborate the actual presence of an illness but to ascertain the cause, no matter whether the incapacity to work has existed for some time or the insured person has already returned to work and made a claim for compensation The social insurance office which pays a sickness benefit has the legal right to investigate, through its medical inspectors, the validity of such a claim When an insured person becomes ill he is obliged to pay for all medical care and to have been completely cured before he receives any compensation from the local social insurance office Only 80 per cent of the total outlay is assumed by the insurance office, the insured person paying the balance as his share of the total, unless the incapacity to work is a prolonged one

At the beginning of 1934 more than one fourth of the population of France was covered in case of sickness or maternity by social insurance, so it is not surprising to learn, according to Dr Legros, that the "absolutism," as he terms it, of professional secrecy is changing as the result of the widespread application of social insurance The social insurance law

authorizes local compensation bureaus to make the necessary expenditures to conduct an independent investigation in any case in which there is the least doubt about a claim for sickness or maternity incapacity to work This, however, if carried out to any extent, would lead to an enormous increase in the costs of administration Professional secrecy, according to Dr Legros, is entirely incompatible with social prophylaxis, in the majority of cases, and hence it should be abandoned so far as social medicine is concerned Professional secrecy is justified only when the information given to the attending physician is of such a nature that its transmission to a third party would work an injustice to the insured The oath of Hippocrates was quoted as having been applicable in the era when social hygiene and social insurance were not even thought of In that era the patient-doctor relation was still individualistic and any secrets revealed by the patient were jealously guarded Two new developments necessitate a modification the danger of contagion requires subordination of the rights of individuals and the introduction of social laws accompanied by the underlying principle of interhuman solidarity A law that has been in force since 1902 obligates the physician to report every case of contagious disease Experience shows that only the acute infectious diseases, such as scarlatina, variola or measles, are reported, but none of the so-called social diseases It is certainly in the interest of the insured that the caisses or disbursing bureaus of the social insurance should be notified in the case of an insured having tuberculosis As to venereal and mental diseases, there should also be no reluctance, if the attending physicians know that all records are kept secret With the more widespread application of social insurance, professional secrecy is losing more and more of its importance here

BERLIN

(From Our Regular Correspondent)

June 26, 1937

The National Health

A new long time program has been mapped out in the province of industrial hygiene Systematic nation wide examinations of the general health and fitness for work of all persons engaged in industry are to be undertaken, and every member of the medical profession will be called on to participate in this survey At a great demonstration that marked the inauguration of this drive, the national führer of physicians, Dr Wagner, referred to the fact that despite the many measures undertaken by the government in the matter of the health and working capability of the German people there still remained much to be accomplished Formerly no attention was paid to the physical condition of the worker unless he became ill Thanks to this indifference, 35 per cent of the present-day population of Germany have become invalid before the age of 65 It is manifest that prophylactic attention to health should have its inception while the worker is still enjoying good health The following measures are envisaged by the present plan 1 Standardized "health albums" on the basis of new medical examination 2 Sanitary corps trained in industrial hygiene, the members of these corps to cooperate with the medical officers in the maintenance of adequate sanitary regulations and supervision of the workers' health This supervision shall extend to the leisure time activities, participation in sports, family life and nutrition of each worker 3 Simultaneous reorganization of the social insurance Health passes will also be issued in the four districts in which industrial health examinations shall have already taken place This "pass" is a pocket-size certificate that contains a detailed personal history of the examinee, the data elicited by the examining physician are recorded in a table in cipher The "health album" contains data on the ancestry, bodily weight, physique, functional tests, physical defects and type of occupation The health pass contains information with respect to follow-up

examinations, illnesses and the names of the attending physicians, participation in party-sponsored excursions and participation in sports. This pass must be submitted by the worker at the time of medical examination and in case of illness. It will thus be possible for the medical officers to have ready access to the records of previous examinations in case the worker should change his place of employment or his attending physician.

Congress on Medical Aspects of Aviation

The Association of Commissioned Teachers of Aeronautic Hygiene, a group of instructors who are duly commissioned to lecture at the German universities on the medical aspects of aviation, met recently at Bad Nauheim. The principal topic of discussion was the sympathetic nervous system. The first speaker, E. Koch of Bad Nauheim, offered an account of the place of the sympathetic system in the functional scheme of the organism as a whole. The interrelation of the psyche and the sympathetic nervous system was discussed by H. Lottig of Hamburg, who called attention to the fact that the psychic-vegetative processes play an important part in the lives of fliers. D. Jahn of Freiburg spoke on the interrelation of the sympathetic and metabolism and its bearing on aeronautic hygiene. He outlined the different sympathetic nervous reactions on the basis of carbohydrate metabolism, the regulation of blood pressure and the acid-base economy. R. Herbst of Kiel discussed the clinical aspects of sympathetic neuroses and their significance for the fitness to fly. E. A. Müller of Münster discussed the modifications of the sympathetic system brought about by athletic training and what sort of bodily training, if any, is of specific use for the adaptation and working capability of an aviator. Other papers concerned the interrelation of the sympathetic nervous system and the vestibular apparatus, especially with respect to the pupils and the circulation, air sickness, dangers of carbonic acid inhalation at high altitudes, new data on the limits of a person's endurance of centrifugal forces and so on.

Professional News Notes

A Physician's Social Aid has been organized by the welfare section of the National Chamber of Physicians. This makes it possible for the chamber to grant on request financial aid for needy physicians and their families. This aid is extended only if the physician cannot receive adequate assistance from other physicians' benefit organizations or from his relatives. No aid is extended to a doctor who finds himself in bad financial straits through abuse of his credit. A physician has no legal right to demand this assistance; the granting of it lies solely within the discretion of the National Chamber of Physicians, which also stipulates the exact amount of an advance and when it is to be repaid. No aid will be extended unless the total income of the physician in question falls short of a certain minimum necessary for existence. Minimal monthly living incomes are rated as follows: doctor living alone, 100 marks; married doctor, 120 marks; doctor's widow, 80 marks; completely orphaned children of doctors, from 30 to 75 marks; children unprovided for, 20 marks for each child. So far as the total income falls short of these minimal sums, the difference will be supplied by the social aid. The recipient of the benefit should, however, make an effort to increase his or her income; a doctor's widow, for example, if physically able, is expected to try to earn her own living. Whenever possible the amount granted should be repaid to the organization. The aid should be considered fundamentally as a noninterest-bearing loan. Collateral, if such exists, is posted by the recipient of the aid. The necessary funds for social aid service are raised by a surtax levied on all members of the National Chamber of Physicians.

According to reliable authorities, all financial assistance to German physicians will ultimately become standardized. The purpose is not to guarantee assistance to a doctor as if it

were a sort of official pension, but the attempt will be made to secure for all medical men a legal right to a living income.

The national *fuehrer* of physicians has decreed a new arrangement with respect to charitable institutions for the sick. Latterly it has repeatedly happened that physicians on the staffs of sectarian hospitals have been discharged because of withdrawal from the particular religious group to which the institution belongs. Church authorities justify this action on the basis of old rules or widespread tradition to the effect that a physician who serves in a sectarian charitable institution must be a communicant of the church in question. Such stipulations, says the national *fuehrer* of physicians, belong to the *anschauungen* of another day. The Nazi view is that religion and confession are private affairs and, since the party in no way undertakes to prescribe in matters of religious belief, it conversely refuses to recognize the extension of religious considerations into secular affairs. On this basis the removal of members of a hospital staff because they have ceased to be communicants of a church is officially regarded as inequitable. In order to protect those physicians who find their position on the staffs of charitable institutions jeopardized because of the foregoing sectarian considerations, the medical *fuehrer* has declared it illegal for a German doctor to accept any position in a charitable hospital if the former incumbent has been discharged because of his withdrawal from a particular church.

Foundation of a Japanese-German Medical Society

As every one knows, a close cooperation between German and Japanese physicians and scientists in general has existed for decades. This rapport was in great measure due to the enormous influence exerted by Robert Koch in his time on the learned world of Japan. Many Japanese physicians have studied in Germany, have a knowledge of the German language and make particular use of German medical literature. Recently a Japanese-German Medical Society has been founded in Tokyo which numbers among its officers not only the leading scholars of Japan but the German ambassador as well. The new organization will foster such activities as the exchange of books, the publication (in German) of the results of scientific research and in addition the exchange of students, professors, research workers and medical officers.

The Sequels of Gonorrhea

Dr. Schaefer has undertaken a follow-up investigation of the sequels of ascending gonorrhea among patients treated at the women's clinic of Greifswald University during the past decade. Of 205 cases, only seventy-two could be evaluated for statistical purposes since the rest were lost to view. Of these seventy-two women, 40 per cent presented chronic complaints which lasted for years subsequent to the initial course of treatment at the clinic. 18 per cent suffered from menstrual disorders and 21 per cent required eventual surgical interventions after further clinical treatment; in two cases, for example, operations for tubal pregnancy were performed. Of fifty-eight married women patients, approximately one fourth subsequently brought children into the world. Schaefer found that if a wife presents ascending gonorrhea not only will the marriage probably be sterile but the disease tends to produce sequels of years' duration which may well require surgical intervention, and the latter is always of a mutilating character.

Jubilee of the Leopoldine Academy

The Kaiserlich-Leopoldinische Akademie (Imperial Leopoldine Academy) of Halle an der Saale celebrated the 250th anniversary of its foundation. The founder was Dr. Bausch, a physician of Schweinfurt, Bavaria. After a somewhat checkered career the academy was removed to Halle where a few decades ago Professor Abderhalden, the physiologist, succeeded in arousing it to a more active life. The academy possesses a library of 120,000 volumes and publishes a journal, the *Acta Leopoldina*. In addition it awards the Cothenius medal.

for distinguished scientific contributions. The celebration was marked by the reading of a series of jubilee lectures the themes of which included the most diverse scientific fields.

ITALY

(From Our Regular Correspondent)

July 15, 1937

Mutual Insurance for Industrial Diseases

A convention was recently held for establishing the standards for administration of medical services to those insured in the *Casse Mutue Malattia dell'Industria*. The insured may select their own physician. The houses of mutual insurance will provide ambulant hospitals in which the insured will be given preventive treatments, care of diseases that have to be treated by specialists, general treatment of diseases that do not hinder the patient from work and examinations for verification of conditions reported.

Patients cannot change from one physician to another in the course of a disease, but they may select another physician in a new illness. The conditions of payment for medical care will be arranged between provincial representatives of the houses of mutual insurance and of the syndicate of physicians. Physicians who work for mutual insurance organizations are appointed for the year. A special committee is in charge of the fulfilment of the established standards.

Centers for Care of Hygiene and Sanitation

During the debates on the balance of account of the Ministeriat of Internal Affairs, which took place recently in the lower house, some changes in the laws concerned with the administration of social services were suggested. The campaign against infantile tuberculosis is left in the hands of municipal physicians, who are not well prepared for the task. Deputy Pentimalli believes that municipal physicians should take a course in pediatrics with specific preparation during their studies in universities. Aside from that certain reforms in hospitals and homes for children are necessary. It is advisable that the establishment and functioning of homes for children between the ages of 4 and 6 years be a task of the *Opera nazionale per la protezione della Maternita e Infanzia* because of the fact that the need has not been provided for. Mr. Bufarini Guidi, the undersecretary of state, reviewed the health conditions of the country during 1936. Regardless of the fact that families and soldiers have been recently transferred from Italy to Italian Africa, there have been no cases of tropical diseases reported. The few cases of amebiasis that have been reported were not grave and were controlled in time. Cases of acute anterior poliomyelitis and epidemic influenza have been reported. In certain large cities the mortality from influenza increased in comparison to that of previous years. Antidiphtheria and antityphoid vaccines were administered to larger numbers during the last year than previously.

Study of the Hearts of Soldiers

At the recent International Congress of Sport Medicine, Lieut. Prof. Ugo Casanis reported the results of studies on the size and functions of the heart of 111 soldiers, including those who had indulged in sports and those who had not done so before entering the military service. He used Benedetti and Bollini's method of the three measures of the heart. The method consists in determining the anteroposterior, transverse and longitudinal diameters by teleroentgenography. By multiplying first the three lineal measures and then the product of the multiplication by 0.45, which is the coefficient of correction, a cubic value is attained which is known as the tridimensional value of the heart. This figure shows closely the real size of the heart of living persons. The speaker said that the volume of the heart is proportional to the height of the individual but

that the organ is larger in sportsmen than in those who are not given to such exercise. The transverse diameter, which up to now has been considered an index of the size of the heart, oscillated between 122 and 147 cm in the group of athletic soldiers and between 107 and 142 in the sedentary group. According to the speaker it is advisable to abandon the determination of the transverse diameter by itself as a method for determining the volume of the heart and to use, instead, the tridimensional method, which gives more exact figures as to the volume. Height, the somatic constitution, vital capacity, arterial pressure and the rapidity of reestablishment of respiration are better in athletic than in nonathletic soldiers. The rate of pulse and of respiration are diminished in the soldiers who are active.

Atropa Belladonna in Parkinsonism

Professor Gandelini, in a lecture before the *Societa Medico-Chirurgica di Pavia*, reported results of pharmacologic studies on a decoction of atropa belladonna in the treatment of post-encephalitic parkinsonism. He studied the changes of the body weight, glycemia, Wellmann's test and the behavior of the nitrogen, chlorides, bilirubin and cholesterol in the blood of patients with postencephalitic parkinsonism after administration of atropa belladonna for nine or ten months. In some of the patients the Donaggio and Buscaino tests were performed and the basal metabolism was determined. He reached no conclusions because of the fact that the treatment has to be given for a long time without any interruption in order to see its effects.

Death

Prof. Ferdinando Michel, the director of the *Clinica medica* of the Turin University and a senator, is dead. He wrote important articles on blood diseases, epidemic encephalitis, renal diabetes, the serodiagnosis of cancer, hemolytic splenomegaly, and jaundice. He was the founder of the *Centro antituberculoso* of Turin and associated director of the *Centro Studi per i tumori*. He was a fellow of several scientific academies and a member of several philanthropic and sanitary associations.

Marriages

STEPHEN STOCKTON WOOLSTON, Philadelphia, to Miss Elizabeth VAUX Ingersoll of Penlynn, Pa., June 5.

FAUNTLEROY HARRIS SCHNAUSS to Miss Jewell Edith Wiggins, both of Jacksonville, Fla., June 5.

FRANK I STAYER West Chester, Pa. to Miss Jean Elizabeth Fulton of Brandywine Manor, July 9.

WYMAN PLATE STARLING, Roseboro, N. C., to Miss Flossie Kathleen Cogdell of Goldsboro, June 18.

EDWARD FULLER STANTON to Miss Margaret Gilmore Pendleton, both of New York, June 19.

JOSEPH WILLIAM STRAYER, Lafayette, Ind., to Miss Evelyn Westcott Carr of Richmond, May 22.

ROBERT C WINSLOW, Sylacauga, Ala. to Miss Virginia Kirby of Marion Junction, May 30.

JAMES JOHN CLARK, Janesville, Wis., to Miss Phyllis Perrig Nott of Richmond, April 28.

HERBERT C WOOLLEY, Pennhurst, Pa., to Miss Henrietta C Beman of Emporia, Va., April 3.

RICHARD WILLETT SOLIER, Bryan, Ohio, to Miss Erma Louise Sprague of Coschocton, June 19.

LOUIS CARROLL ROBERTS to Miss Jessie Speight Ward, both of Durham, N. C., April 23.

PAUL H WATSON, Newburgh, N. Y., to Miss Virginia Elizabeth Jackson, June 16.

EMIL F STEINKAMP to Miss Lydia Poetker, both of Huntingburg, Ind., July 3.

PAUL C WAGNER to Mrs. Irma Grotclueschen, both of Milwaukee, April 30.

GRACE E WILLIAMS to Mr. J. Frank Field, both of Iowa City, May 26.

Deaths

Joseph Leggett Miller * Chicago, since 1924 clinical professor of medicine at the University of Chicago, died suddenly of heart disease, August 6 at a mountain ranch near Great Falls Mont. aged 69. Dr. Miller was born in Kewanee Ill. Nov. 24, 1867. He was educated at the University of Michigan, Ann Arbor where he received the bachelor of science degree in 1893, in 1895 he received the medical degree from Northwestern University Medical School in Chicago. From 1897 to 1924 he was at Rush Medical College serving as instructor of bacteriology from 1897 to 1899, instructor in medicine from 1901 to 1905 assistant professor from 1905 to 1909, associate professor from 1909 to 1919, and professor from 1919 to 1924. He was secretary of the Section on Practice of Medicine of the American Medical Association from 1903 to 1908, chairman, 1908-1909 and in 1928 a member of the House of Delegates. He was a member of the Association of American Physicians, the American College of Physicians, the American Society for Clinical Investigation and the American Committee for the Control of Rheumatism of the Ligue Internationale. In addition, he had served as president of the Chicago Society of Internal Medicine and the Institute of Medicine of Chicago. During the World War, he served first as major and later as lieutenant colonel in the medical corps of the U. S. Army. In 1933 he received the honorary degree of doctor of science from the University of Michigan. He was attending physician to St. Luke's Hospital and formerly attending physician to the Cook County Hospital. Dr. Miller also served the American Medical Association as editor in chief of the *Archives of Internal Medicine* from its inception in 1909 until 1931. He was the author of numerous contributions to medical literature and was especially influential as a practitioner of clinical medicine.

Nellis Frances Witter Stephenson, Washington, D. C., Boston University School of Medicine, 1892, served the Puerto Rican government as teacher, and superintendent of schools, in clinical and hospital work, and as an inspector of health from 1908 to 1918, was appointed a contract surgeon in the U. S. Army in September 1918 and served until June 30, 1919, in the same year was appointed acting assistant surgeon in the U. S. Public Health Service, in 1920 was made special expert in charge of the eye, ear, nose and throat section of the medical division of the Bureau of War Risk Insurance, now the Veterans' Administration, senior medical consultant to the Board of Veterans' Appeals, Veterans' Administration, aged 67, died, May 29, of hypertension and heart disease, at the home of his son at Carolina Beach, N. C.

Leroy Philip Kuhn * Chicago, College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1905, fellow of the American College of Surgeons, president of the staff of the Lutheran Memorial Hospital, attending surgeon to the Columbus Hospital, associate surgeon to the Augustana Hospital, chief surgeon to the Lumbermen's Mutual Casualty Company, served during the World War, aged 57, died July 23, at his summer home in Three Rivers Mich. of heart disease.

James William Osborn, La Feria, Texas, Iowa Eclectic Medical College, Des Moines, 1888, Medico-Chirurgical College of Philadelphia, 1901, member and at one time secretary of the Iowa State Medical Society, past president of the Polk County (Iowa) Medical Society, served during the World War, formerly instructor in dermatology at Drake University College of Medicine, Des Moines, at one time on the staff of the Iowa Methodist Hospital, Des Moines, aged 73, died, May 21.

Charles Vernon Patchin, Dansville N. Y., Bellevue Hospital Medical College, New York, 1881, formerly village health officer and state sanitary supervisor for Livingston, Wyoming, Genesee, Monroe, Ontario and Wayne counties, 1914-1917, aged 83, died, May 30, in the Strong Memorial Hospital, Rochester, of heart disease and arteriosclerosis.

Jason Tyson, Santa Anna, Texas, Georgia College of Eclectic Medicine and Surgery, Atlanta, 1897, member of the State Medical Association of Texas, past president and secretary of the Coleman County Medical Society, for many years member of the school board, aged 69, died, May 13, of carcinoma of the liver.

Frank W. Baylor * Chicago, Hospital College of Medicine, Louisville, Ky., 1904, Hahnemann Medical College and Hospital, Chicago, 1907, attending surgeon to the Alexian Brothers, Henrotin, Chicago Memorial and Columbus hospitals, aged 54, was killed, July 23, in an automobile accident near Lebanon, Ind.

Theodore Burton Appel * Lancaster Pa., University of Pennsylvania Department of Medicine Philadelphia 1894, secretary of health, Pennsylvania State Department of Health,

from 1927 to 1935, past president of the Medical Society of the State of Pennsylvania, fellow of the American College of Surgeons, served during the World War, medical director of the Lancaster General Hospital, 1906-1920, and later a member of the staff, aged 65, died, July 31.

Clarence Lamoine Power, Temple, Texas, Kentucky School of Medicine, Louisville, 1892, member of the State Medical Association of Texas, served during the World War, postmaster, formerly on the staff of the King's Daughters' Clinic and Hospital, aged 67, died, May 24, of coronary thrombosis.

George Michael Goddard, Waxahachie, Texas, Kentucky School of Medicine, Louisville, 1895, member of the State Medical Association of Texas, past president of the Ellis County Medical Society, health officer of Waxahachie, aged 69, died, May 11, in a hospital at Dallas, of carcinoma of the stomach.

Arthur Joseph Savard, New Britain, Conn., Tufts College Medical School, Boston, 1919, member of the Connecticut State Medical Society, served during the World War, formerly police surgeon, aged 45, on the staff of the New Britain General Hospital, where he died, May 31, of coronary occlusion.

Joseph Michael Toner, San Francisco, University of California Medical Department, San Francisco, 1901, at one time city supervisor and coroner, formerly director of the California State Department of Institutions, aged 67, died, July 22, of carcinoma of the stomach and arteriosclerosis.

Joseph B. Shaw, Hot Springs National Park, Ark., University of Arkansas School of Medicine, Little Rock, 1905, member of the Arkansas Medical Society, formerly coroner, for eight years president of the city board of health, aged 57, died May 28 in Detroit of carcinoma of the stomach.

Fredrick Wallace Logan, Blue Earth, Minn., State University of Iowa College of Medicine, Iowa City, 1901, member of the Minnesota State Medical Association, on the courtesy staff of the Blue Earth Hospital, aged 64, died, May 29, in the Abbott Hospital, Minneapolis, of coronary thrombosis.

Claude Le Baron Sigler * Pinckney, Mich., University of Michigan Department of Medicine and Surgery, Ann Arbor, 1895, formerly village president and bank president, member of the school board, medical superintendent and owner of the Pinckney Sanitarium, aged 64, died, May 22.

David Aaron Hart, Dorrance, Pa., Baltimore Medical College 1903, member of the Medical Society of the State of Pennsylvania, formerly on the staff of the Nanticoke (Mass.) State Hospital, aged 64, died, May 14, of heart disease and chronic interstitial nephritis.



JOSEPH LEGGETT MILLER, M.D., 1867-1937

Clive Sidney McGinnis ♂ Parsons, Kan, Washington University School of Medicine, St Louis, 1909, past president of the Labette County Medical Society, medical superintendent of the State Hospital for Epileptics aged 59 died May 14 of diabetes mellitus

George M Ruffin, Washington, D C, Columbian University Medical Department, Washington, 1902, member of the Medical Society of the District of Columbia, aged 60 died, May 29, in Clover, Va, of coronary occlusion and arteriosclerosis

Roy Alvin Schnacke, McGregor, Minn, Minneapolis College of Physicians and Surgeons, 1909, member of the Minnesota State Medical Association, formerly police surgeon in St Paul aged 50, died, May 21, in a hospital at Brainerd, of heart disease

William J Brewer, Perryton Texas (licensed in Texas, under the Act of 1907), member of the State Medical Association of Texas, health officer of the city of Perryton and Ochiltree County, aged 65, died, May 1, in a local hospital

Dayton L Kathan ♂ Schenectady, N Y, Albany Medical College, 1886, fellow of the American College of Surgeons, consulting surgeon to the Ellis Hospital, aged 80, died suddenly, May 13 of angina pectoris and arteriosclerosis

Alvin Stackhouse Rogers ♂ Trenton, N J, Medico-Chirurgical College of Philadelphia, 1916, on the staff of the Mercer Hospital, aged 47, died, May 23, of a blood stream infection of *Streptococcus viridans* and endocarditis

Clark Hilton Rice ♂ Montgomery, Ala, Tulane University of Louisiana School of Medicine, New Orleans, 1903, at one time instructor in diseases of children at his alma mater aged 56, died suddenly, May 27, of coronary occlusion

Gordon Warren Rice, Watervliet, Mich, University of Michigan Department of Medicine and Surgery, Ann Arbor, 1903, aged 69 died, May 11, in the Mercy Hospital, Benton Harbor, of uremia and of cerebral hemorrhage

Francis A Keenan, Newport, R I, College of Physicians and Surgeons, Baltimore, 1902, formerly city physician, on the staff of the Newport Hospital, aged 59 died May 28 in the Newport Hospital of cerebral hemorrhage

Lee Orrion Foster, Sunray, Texas, Fort Worth School of Medicine, Medical Department of Fort Worth University, 1910, served during the World War, aged 56, died, in May, in a hospital at Amarillo, of pneumonia

William Joseph Duncan, Washington, D C, Georgetown University School of Medicine, Washington, 1925, formerly associate professor of anatomy at his alma mater, aged 37, died, July 8, of strychnine poisoning

Cyrus Job Severance, Mannsville, N Y, University of the City of New York Medical Department, 1888, aged 74, died, May 28, in the Oswego (N Y) Hospital, of injuries received in an automobile accident

Susan Dora Wilson Peyton, St Louis, Homeopathic Medical College of Missouri St Louis, 1900, aged 80, was found dead in bed, May 12, of heart disease, at the home of her sister in Paxton, Ill

Wilmer Clinton Kellogg Syracuse, N Y, Albany (N Y) Medical College, 1884, member of the Medical Society of the State of New York, aged 77, died, May 31, of diabetes mellitus and arteriosclerosis

James Buchanan Prichard, St Louis, Missouri Medical College, St Louis, 1885, at one time professor of pathology at Barnes Medical College, aged 77, died, May 11, in the Bethesda General Hospital

James Berkley Settle, Sandgap, Ky, University of Louisville Medical Department 1892, aged 72, died May 12, in the Berea (Ky) College Hospital of injuries received when struck by an automobile.

Joseph D Napoleon Dubeau, Warren R I, School of Medicine and Surgery of Montreal, Que, Canada, 1882, aged 81 died May 27, of diabetes mellitus cerebral hemorrhage and pneumonia

Edward Stanton Imel Sr, El Paso, Texas, University of Louisville (Ky) Medical Department, 1892, served during the World War, aged 74, died, May 29, of myocarditis and arteriosclerosis

Charles Howard Harbinson ♂ Rensselaer, N Y, Albany Medical College, 1925 health officer of Rensselaer aged 35 died May 3 in the Memorial Hospital, Albany, of illuminating gas poisoning

Robert Blake Griffith, Los Angeles, University of Southern California School of Medicine Los Angeles 1904, aged 60, died May 31, of injuries received in an automobile accident

James M Scott ♂ Topeka, Kan University of Kansas School of Medicine, Kansas City, 1922, vice chairman of the state board of administration aged 44 died May 13 of angina pectoris

Robert Huse Purple, Atlanta, Ga University of Vermont College of Medicine, Burlington, 1897, served during the World War, aged 62 died, May 10 of pulmonary tuberculosis

John Gartrell Johns, Hettinger, N D, University of Nashville (Tenn) Medical Department 1897 aged 71 died May 22, of myocarditis arteriosclerosis and senile dementia

Krikor Jelal, New York, Universite de Paris Faculte de medecine, France, 1896, aged 68, died, May 12, in Manchester Township, of cerebral hemorrhage and chronic myocarditis

John Thomas Lyston, New York, University of Vermont College of Medicine, Burlington, 1895 member of the Medical Society of the State of New York, aged 67 died, May 15

Roscoe John Taylor, East Nassau, N Y, Albany (N Y) Medical College 1896, health officer of the town of Nassau, aged 65, died, May 19, of carbon monoxide poisoning

Harry H O'Kelly, Portageville Mo, Barnes Medical College, St Louis, 1900, aged 82, died, May 31, as the result of injuries received in a fall five months previously

James Cogswell Du Maresque Pigeon, Boston, Harvard University Medical School Boston 1883 member of the Massachusetts Medical Society, aged 82, died, May 21

Waldo Henry Richardson, New York College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1878, aged 80, died, May 31

Henry Heydt Herb, Trexlertown Pa, Medico Chirurgical College of Philadelphia, 1904, aged 65, died, May 11, of coronary occlusion and arteriosclerosis

William Forest Dailey ♂ Terra Alta W Va, Louisville (Ky) Medical College, 1894, aged 68, died, May 12, in the Memorial Hospital, Cumberland, Md

Edward Payson Childs, Cedar Rapids, Iowa, Hahnemann Medical College and Hospital, Chicago, 1903, aged 82, died, May 9, of carcinoma of the intestine

Guy De Nuys Conover, Santa Monica, Calif, Indiana University School of Medicine, Indianapolis, 1908 aged 52, died May 1 of coronary occlusion

Cicero Gibson, Thomson, Ga, Atlanta Medical College, 1889, member of the Medical Association of Georgia, also a druggist, aged 70 died, May 30

Chauncey Williams Norton, Cazenovia, N Y, Harvard University Medical School, Boston, 1900, aged 62, died, May 28, of cerebral hemorrhage

George W Hargest, Seachiff, N Y, Bennett College of Eclectic Medicine and Surgery, Chicago, 1887, aged 88, died, May 26, of chronic myocarditis

Frederick Louis Rabe, Lowden, Iowa, State University of Iowa College of Medicine, Iowa City, 1892, aged 85, died, May 23, of bronchitis

Clark McPherrin Carr, Coshocton, Ohio Hospital College of Medicine, Louisville, Ky, 1897, aged 78, died, May 22, of heart disease

James Paul Henderson, Chicago Miami Medical College, Cincinnati, 1885, aged 73, died, May 24, in St Luke's Hospital, of heart disease

Jonathan H Allen, Norwich, Conn, New York Homeopathic Medical College and Hospital, New York, 1888, aged 78 died in May

Lola Annetta Johnson, Portland, Ore, Medical College of Indiana Indianapolis, 1898, aged 75, died, May 27, of valvular heart disease

Eddie Abram Gullede, Memphis Tenn, Memphis Hospital Medical College, 1903, aged 64, died, May 17, in Leavenworth Kan

John Francis Ten Eyck, Toronto Ont, Canada Trinity Medical College, Toronto, 1899, aged 72, died, May 5

William T Morrow ♂ Loysville, Pa, Baltimore Medical College 1908, aged 61, died, May 29, of syringomyelia

Henry David Rowe, Orangeburg S C Leonard Medical School, Raleigh, N C, 1903, aged 67, died in May

Lewis Rothman, Wittenberg Wis, Rush Medical College, Chicago, 1887 aged 75, died May 28, of pneumonia

Edward Thomas Murray, New York, Baltimore Medical College, 1898, aged 63, died, May 7

Sarah Lucretia Robb, Gainesville, Fla (licensed in Florida in 1894), aged 84, died, May 2

Correspondence

CROSS REACTIONS IN AGGLUTINATION TESTS

To the Editor—The incitants of typhoid fever, undulant fever and tularemia differ from one another in cultural characteristics. So-called cross reactions may occur, however, in agglutination tests with specimens of blood from some of the patients with these infections. Edward Francis (Symptoms, Diagnosis and Pathology of Tularemia, *THE JOURNAL*, Oct 20, 1928, p 1155) has called attention to reactions with *Brucella abortus* in serums from patients with tularemia. According to Gilbert and Coleman (Incidence of Tularemia in New York State, *Am J Pub Health* 22 1249 [Dec] 1932) the blood from patients with undulant fever rarely has been found to agglutinate *Bacterium tularense*. Occasionally, however, *Bacillus typhosus* may be agglutinated. An example of the confusing serologic reactions which sometimes are obtained may be of interest. A young man developed undulant fever, with the date of onset in June 1936. His blood was found to agglutinate *Bacillus typhosus* definitely and a diagnosis of typhoid fever was at first considered. The symptoms mentioned were chills, sweating, headache, backache, pains in the joints and general malaise. The temperature varied from normal in the morning, when the patient felt fairly well, to 104 F in the afternoon. He was still in the hospital late in August. Specimens of blood received August 14 and 18 agglutinated *Bacillus typhosus* in a 1:320 dilution of the serum and *Brucella abortus* in a 1:2,500 dilution. A specimen received August 22 agglutinated *Brucella abortus* in a 1:10,000 dilution of the serum, while the titer with *Bacillus typhosus* was slightly diminished. A definite history of typhoid fever or the administration of typhoid vaccine was not obtained, although there was a question that the patient might have had such an infection or received vaccine in 1921, when his brother had typhoid fever.

RUTH GILBERT, M D, Albany, N Y

Assistant Director in Charge of Diagnostic Laboratories, Division of Laboratories and Research, State of New York Department of Health

SENSITIVITY OF THE KOLMER COMPLEMENT FIXATION TEST

To the Editor—In the editorial entitled "The Clinician and the Serologic Test for Syphilis" (*THE JOURNAL*, July 10, p 134) it is stated that, in the two studies of the American Committee on Evaluation of Serodiagnostic Tests for Syphilis, this test as conducted in my laboratory gave 72.6 per cent positive reactions with specimens from syphilitic individuals.

As a matter of fact, however, in the first survey (The Evaluation of Serodiagnostic Tests for Syphilis in the United States, *Ven Dis Inform* 18, supplement 1, May 1937) it gave 75.9 per cent positive reactions in a group of 415 serums and 77.8 per cent positive reactions in a group of 110 spinal fluids from syphilitic individuals. And in the second survey, recently completed, it gave 87.2 per cent positive reactions (personal communication from Dr W L Treadway, acting surgeon, U S Public Health Service, April 20, 1937) with the serums of syphilitic donors, the increased sensitivity of the reaction being probably due to an improvement in the antigen and more particularly to the employment of larger amounts of serum. Kolmer, J A. Changes in the Technic of the Kolmer-Wassermann Test, *Am J Syph & Neurol* 19 481 [Oct] 1935. In the first survey my test gave 0.7 per cent falsely positive reactions with 468 serums but none with 110 spinal fluids from presumably nonsyphilitic persons. In the second survey specificity was 100 per cent (personal communication from Dr Treadway).

Therefore, my complement fixation test gave 77.8 and 87.2 per cent positive reactions respectively with the serums of syphilitic donors in the two surveys, or an average of 82.5 per cent instead of 72.6 per cent stated in the editorial, 87.2 per cent more nearly expresses its sensitivity with the improvements in technic now employed.

I shall appreciate your kindness in publishing a correction in the interests of scientific accuracy.

JOHN A KOLMER, M D, Philadelphia

Director, Research Institute of Cutaneous Medicine

"ARTERIOSCLEROSIS AND THROMBOANGIITIS OBLITERANS"

To the Editor—In *THE JOURNAL* June 19, page 2102, appeared an article by Drs Bernheim and London on "Arteriosclerosis and Thrombo-Angiitis Obliterans, Report of Cases and Treatment." This article confirms work which I initiated in 1921 and which has been carried on for a number of years since that time, work reported, in part, in the issue of *International Clinics* of September 1925. It was gratifying to find that these authors confirmed the statement made therein to the effect that a solution of sodium citrate combined with sodium chloride and buffered with dibasic potassium phosphate to a pH of 7.6 is very effective in the treatment of thromboangiitis obliterans and arteriosclerosis obliterans, nowhere, however, in this article by Drs Bernheim and London is mention made of the fact that this solution was described by me in detail in the article which appeared in the *International Clinics* of September 1925 as follows:

Since the purpose sought was to prevent coagulation by increasing the alkalinity of the blood we decided to prepare the solution in such a fashion so as to obtain the desired hydrogen ion concentration. In addition we thought it important to maintain a certain percentage concentration of sodium citrate so as to conserve the property that this drug has in inhibiting bacterial development and favoring phagocytosis. We also found later that the change in quantity of sodium chloride added to the solution produced a favorable clinical effect and appreciably modified the development of a chill following the injection of the solution. To produce a certain hydrogen ion concentration and to maintain it at a desired level it is necessary to add buffer salts. The importance of buffering this solution may be seen from the fact that sodium citrate dissolved in normal saline not only exercises the same analgesic effect but also prolongs the coagulation time. The addition of dibasic potassium phosphate was found to be of even greater value inasmuch as it is an anticoagulant and when present in certain concentrations prevents the occurrence of the severe chills which followed the use of sodium citrate alone dissolved in water. It also rendered the citrate effective in a much smaller dose than formerly employed. The solution as administered is prepared by dissolving 70 grams of sodium citrate (Squibb) in 1,000 cc of freshly prepared doubly distilled water to which 3 grams of sodium chloride (Squibb) are added. It usually requires the addition of 1 gram of dibasic potassium phosphate (Merck) to render the solution iso-electric as well as isotonic. It is then filtered and sterilized in the autoclave for ten minutes at 110 degrees. One hundred to 250 cc of this solution are injected intravenously every day for ten days and then it is given at two-day intervals for a period of six months. Following this the intervals may be prolonged depending on the condition of the patient. If the latter be free from pain it can be given at weekly intervals for a year. We have found that a solution with a pH of 7.6 to 7.8 gives the best optimum results.

Furthermore, the formula given in the Bernheim and London article is an exact replica of the formula furnished by me to the New York Hospital and prepared in the laboratory of that hospital as far back as 1922. The Bernheim and London article is reported as coming from the Clinic for Peripheral Vascular Diseases, Department of Surgery, New York Hospital and Cornell University Medical College.

It is not my purpose to detract from the value of the article but to emphasize in this connection the fact that this solution, when first initiated was the first which introduced into clinical practice the principle of buffering intravenous injections. I should like to mention the fact that a paper on the use of buffered sodium citrate-chlorides in the treatment of diabetic gangrene was read by title before the Williamsburg Medical Society in 1921, before the Yorkville Medical Society in 1922 and before the Eastern Medical Society in 1923, and the last two papers included case reports of patients treated with this

in the Beth Moses Hospital in 1921 and in St Marks Hospital from 1921 to 1925

To receive confirmation now of a treatment suggested for thrombo-angitis obliterans and arteriosclerosis obliterans as far back as 1921 and published four years later is gratifying

BENJAMIN JABLONS, M.D., New York.

[This letter was referred to Drs Bernheim and London, who reply]

To the Editor—In our paper we made no claim for originality in the use of a buffered solution of sodium citrate in the treatment of thrombo-angitis obliterans, and we are glad to acknowledge that the formula for this solution was originally furnished us by Dr Jablons. We were under the impression that this solution was familiar to every one working in the field. When our paper was prepared we were unaware of the papers on diabetic gangrene read by title by Dr Jablons before the Williamsburg Medical Society, the Yorkville Medical Society and the Eastern Medical Society in 1921, 1922 and 1923.

We differ with Dr Jablons in the explanation of the actions of some constituents of the solution and in the evaluation of some of the factors considered in his letter. An adequate discussion of these differences, however, would require too much detail for consideration here.

ALICE R. BERNHEIM, M.D.
ISABEL M. LONDON, M.D.
New York

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS BUT THESE WILL BE OMITTED ON REQUEST.

SPOTS BEFORE THE EYES

To the Editor—A man aged 30 weighing 170 pounds (77 Kg) and 6 feet (183 cm) in height has complained of spots floating before his eyes for the past two years. These are always present and are exaggerated in the presence of bright light. At night he notices them while driving as they float by in the glare of approaching automobile head lights and also on looking at the electric light globes. He states that more and more spots seem to be present as time goes on and being of a nervous disposition he continually looks for these and is worried about going blind. His vision checked by a competent ophthalmologist is 20/20 in both eyes without glasses and with correction for corneal astigmatism and hyperopia it is 20/10 in both eyes. Complete ophthalmic examination reveals floating opacities in the vitreous of both eyes. No other pathologic change is visible in either eye by the use of the slit lamp or the corneal microscope. There is no iritis or choroiditis. The retina is normal in all respects and the vessels seem normal. The ophthalmologist has told him to cease looking for these opacities and to return in six months for a check up. The patient describes these opacities as floating strings. Physical examination is essentially negative. Roentgenograms of the teeth, sinuses and chest are negative. The tonsils are out. He has an occasional postnasal dripping associated with some pain in the eye ball. The basal metabolic rate has been -20 on two occasions and the blood cholesterol has been 282 and 270. However the patient seems to be more hyperthyroid than hypothyroid. The blood pressure is 128 systolic 78 diastolic. The Wassermann and Kahn reactions are negative. The blood sugar is 86 mg per hundred cubic centimeters. The urine is normal. The patient is decidedly of a neurasthenic type and on taking thyroid extract 1 grain (0.065 Gm.) daily he complained of fullness in the head and a feeling of excitement within himself. Could these opacities be due to mild hypothyroidism? Would vitamin therapy help? Any suggestion as to treatment and prognosis will be greatly appreciated.

M.D. California

ANSWER—The condition described is common and may be one of three things. The first and rarest is a mild uveal tuberculosis, characterized by a large and ever increasing number of fine vitreous opacities. This is not a stationary condition that persists without change for two years, as in this patient. The second is the common form of vitreous opacities that are due to some toxic condition. In this form the opacities appear suddenly, are annoying to the patient when looking at the blank sky or the printed page and gradually become less dense so that they can be found only when looked for. This

too does not seem to fit the condition described. The third and somewhat uncommon form of vitreous opacities seems to be merely a nonpathologic thickening of the vitreous fibers so that the crossing of two or more fibers casts a shadow on the retina. In this form the opacities appear numerous and arc constantly before the patient when in any bright light, regardless of the fixation. The condition occurs principally in the neurotic type of individual who aggravates the annoyance by searching constantly for the spots. There is no treatment indicated beyond psychotherapy.

HALLUX VALGUS

To the Editor—Will you kindly give me the best surgical opinion with regard to operation for hallux valgus. The patient is 70 years of age in excellent physical condition. How great is the danger of a stiff joint following operation?

M.D. Pa

ANSWER—The treatment for hallux valgus varies with respect to the age of the patient and the degree of arthritis in the metatarsophalangeal joint. The operation of choice in a patient 70 years of age, provided his general physical condition is sufficiently good to justify surgery, consists of excision of the base of the first phalanx, including all its articular surface. After this removal the deforming pressure exerted by the displaced great toe is obliterated. The abduction of the first metatarsal from the second tends to disappear and the correction is thus obtained without weakening the strength of either arch of the foot. The operation more commonly practiced in this country, that of excision of the head of the first metatarsal, has the tremendous disadvantage of weakening both the longitudinal and the transverse arch and disturbs the weight bearing function on the inner side of the ball of the foot.

The operation that is recommended here consists in a straight incision from the first interphalangeal joint to about the mid-portion of the first metatarsal bone, stripping of soft tissue from the base of the phalanx and a transverse osteotomy through about the middle of this phalanx, with removal in one piece of the whole of the proximal fragment. If less bone is removed, a painful fibrous ankylosis is likely to result. The long extensor tendon of the great toe should then be divided subcutaneously well above the site of operation. This removes the bow string-like action which this tendon exerts in maintaining or reproducing the deformity. In most instances the tendon reunites, bridging a wide gap with fibrous tissue, and function is restored after about two months.

The after-treatment consists of placing a small wedge of cotton between the great toe and the second and applying a bandage, which further aids in maintaining the toe in a neutral position. Care should be exercised to avoid overcorrection, since hallux varus is as difficult a problem to treat as hallux valgus. In the average patient this operation does not result in the development of a stiff joint.

NEUROLOGIC SYMPTOMS IN PERNICIOUS ANEMIA

To the Editor—I have a case of pernicious anemia in which the neurologic symptoms have continued to progress for six months after the blood picture has been brought to a practically perfect normal. A search of the literature that is available to me fails to disclose any suggestion for prognosis or therapy. If you could help me in this I should appreciate it very much.

MILES J. BREUER, M.D. Lincoln, Neb.

ANSWER—The treatment of the neurologic manifestations of pernicious anemia is much less satisfactory than the striking results attained by treating the anemia of this disease with liver or stomach preparations. It is of the utmost importance to keep the blood of patients with this disease at a high level of normal as cord changes may progress if the red blood cell count is even slightly below the normal level. This rarely if ever happens if the count is between 4,500,000 and 5,000,000 per cubic millimeter. Also it is probably important that sufficient treatment should be given to cause the cell size, as determined by the mean corpuscular volume, to return to normal. It seems fair to state, therefore, that when the blood is kept constantly within normal limits it is rare for neurologic changes to develop and if these are present when treatment is begun they do not commonly progress.

The treatment is to give sufficient antipernicious anemia medication to produce a satisfactory condition of the blood. If this cannot be accomplished by the oral administration of liver extract or ventriculin, liver extract should be given intramuscularly. Physical therapy such as active and passive exercises and attempts to reeducate the patient in the use of the lower extremities may result in some improvement. About half of the patients who are treated efficiently have subjective improvement but a smaller number have objective evidence of this.

MALIGNANT NEUTROPENIA OR MICROCYTIC
HYPOCHROMIC ANEMIA

To the Editor—I have recently had under my care a white girl aged 10 years with agranulocytosis. Her parents report that she had not been her usual self for the past six months or so and about January 1 of this year she had an attack of influenza, which was treated with home remedies (no drugs) with little effect until January 8 when I was asked to see her for the first time. She then complained of generalized weakness and muscle pains. She was very thin and had a profound paleness which is best described as a waxy pallor. There was vesicular breathing over the left lung without other physical signs of a pathologic condition. She was given acetylsalicylic acid 5 grains (0.3 Gm) three times a day and acetophenetidin 2 grains (0.13 Gm) every two hours for two days, and then for two days the acetophenetidin was reduced to 2 grains every four hours. Her pulse after this medication was 88 and temperature 98.8 F (this was January 13) but she complained of a sore throat. The tonsils were inflamed and enlarged. Acriviolet (1 200) was applied locally to the tonsils. The next day her temperature was 101.5 and pulse 100, and she complained of an extremely sore throat. The tonsils were more swollen and very red and acriviolet was again applied. On the following day (January 15) the tonsils were extremely swollen and red, so 1 per cent silver nitrate solution was used on them and Dohell's solution was prescribed as a gargle. That evening she had a chill and her temperature was 103 and pulse 140 and there was a spot of grayish membrane 0.5 cm in diameter on the left tonsil and a similar patch of membrane on the posterior pharyngeal wall and an area of ulceration of similar size on the right tonsil. A smear showed many Vincent's fusiform bacilli and spirochetes, but a culture showed no growth. The child was hospitalized January 16. A complete blood count showed white blood cells 700 red blood cells, 1,740,000, hemoglobin 40 per cent. The differential showed only a few lymphocytes on the smear. She was given a transfusion of 250 cc of citrated blood (equipment for the direct method was not available) pentnucleotide 10 cc intramuscularly twice a day and yellow bone marrow concentrate 30 minims (2 cc) four times a day and also solution of potassium arsenite 5 minims (0.3 cc) four times a day. Neosarsphenamine solution was used locally for the Vincent's infection. January 17 her temperature remained 105 with pulse 160. January 18 the blood count showed white blood cells 4,800 polymorphonuclears 25 per cent basophils 1 per cent lymphocytes 68 per cent monocytes 6 per cent. She became delirious and died at noon January 18. Autopsy was refused. She had 14 grains (0.9 Gm) of acetophenetidin for two consecutive days then 8 grains (0.5 Gm) for two days and then 6 grains (0.4 Gm) a day for three days making in all 62 grains (4 Gm) of acetophenetidin in seven days together with 105 grains (7 Gm) of acetylsalicylic acid for the same length of time. Do you believe this was agranulocytosis? In your opinion could the agranulocytosis be attributed to this medication? Do you believe considering the history of being 'run down' all the fall and extremely weak and pale when I first saw her, that she had had the disease for some time? Could the influenza give such a low white blood count? Please omit name.

M D Pennsylvania

ANSWER—The history of increasing pallor and weakness, loss of weight and evidence of failing health in this child, sufficient to attract the attention of the parents during the six months prior to the acute infection of the upper respiratory tract is an exceedingly important background for a consideration of the factors responsible for the sequence of events recorded. Apparently the general condition and especially the 'waxy pallor' of the patient when first seen by the physician were distinctly more alarming than might be expected from an attack of "influenza" of one week's duration, and no physical phenomena of significance. Antipyretic drugs were administered at once, though no elevation of temperature is recorded until six days after the patient came under the physician's care, on the eighth day of treatment a chill suggested the first invasion of the blood stream with organisms. Only Vincent's organisms were found on bacteriologic study of the throat flora.

The first blood study, made sixteen days after the onset of the acute symptoms, showed a profound leukopenia with no granulocytes or monocytes present and a hyperchromic or normochromic anemia of severe grade. In a child of this age such an anemia is strongly suggestive of a hypoplastic bone marrow, a microcytic, hypochromic anemia is the usual iron deficiency, nutritional type encountered in young persons. The reticulocyte percentage and a blood platelet count would have helped in the establishment of an aplastic marrow. No jaundice is mentioned and, if a hemolytic organism had overwhelmed the granulopoietic function and destroyed sufficient red blood cells to produce the anemia found, some evidence of excessive hemolysis should have been apparent and other than Vincent's organisms recovered on culture from the throat. The same reasoning might be applied to the possible toxic effect of the drugs used, more especially acetophenetidin, the anemia and symptoms and signs of infection existed 'clinically' prior to any medication and, presumably, some degree of leukopenia antedated the development of progressive throat symptoms and signs, either as a part of a progressive aplastic anemia alone or in conjunction with the depression to granulopoiesis which always accompanies the period of invasion in virus infections. While a moderate degree of leukopenia characterizes "influenza,"

the lymphocytes are usually reduced with a relative increase in polymorphonuclear neutrophils, and the total count seldom goes below 3,000 to 4,000 cells per cubic millimeter.

While sufficient data are not available to make an absolute reconstruction of the sequence of cause and effect in this patient, it would seem most likely that a slowly progressive panhypoplasia of the bone marrow was occurring during the year preceding the acute episode, which terminated in an overwhelming infection initiated by an influenza-like onset. The drug therapy first administered probably had little influence on the course of events and the blood transfusion and pentnucleotide came too late to do more than suggest in the terminal blood count what sometimes may be accomplished in the face of a failing bone marrow. There is one pathogenic organism which may reproduce the acute phase of the clinical picture recorded in this instance, viz, Friedländer's bacillus. The leukopenia follows, however, and does not precede the onset of infection under such circumstances. The degree and type of anemia recorded in the case cited make less likely a true agranulocytic angina of the Schultz type in this child, since red cells and thrombocytes usually remain unaffected.

OXYGEN IN PNEUMONIA

To the Editor—Have reliable statistics been recorded from a sufficient number of cases of lobar pneumonia of the various types to give evidence or proof that the use of oxygen properly administered reduces the mortality or aids in any way the recovery of the patient suffering from pneumonia? Discuss briefly the indications for its use if any and state what physiologic effect it can have for the benefit of the patient and by what process the tissues can use more oxygen than is contained in pure air at proper temperature and altitude, for the majority of patients have ample living tissue uninvolved yet the mortality is high.

O Y JAMES M D, Cooper, Texas

ANSWER—Patients suffering from pneumonia develop anoxia either because the demand for oxygen is increased by reason of increased metabolism or because the area from which oxygen may be absorbed from the lungs is diminished.

Oxygen absorption by the blood is dependent on the gradient between the partial pressure of oxygen in the alveolar air and the partial pressure of oxygen in the blood. Oxygen is ordinarily present in the venous blood at a partial pressure of 41 mm of mercury. The gradient or fall in pressure is about 70 mm. When oxygen is added to the air breathed the concentration of oxygen in the alveolar air is increased, its partial pressure raised and the gradient augmented.

It is possible by increasing the gradient to transmit a larger amount of oxygen through a diminished area in a unit of time so that the hemoglobin more unsaturated than usual becomes saturated. One can readily visualize the analogous procedure of increasing the flow through a narrow vent by increasing pressure when a reservoir of water is raised to increase the flow from the attached tube.

Ordinarily the hemoglobin of the blood is 95 per cent saturated. When the blood is only 93 per cent saturated, cyanosis appears. Rosenbluth and Block published data (Pneumonia Due to Type I Pneumococcus, *Arch Int Med* 58 102 [July] 1936) which showed that when the hemoglobin saturation was only 85 per cent the death rate in pneumonia increased. Oxygen should be administered whenever there is cyanosis, which is evidence of oxygen unsaturation of the blood, or when symptoms produced by anoxia are evident, such as irregular breathing and irregular pulse, confusion and delirium, or whenever the mechanisms that prevent cyanosis are brought into activity, i. e., acceleration of pulse and breathing.

Oxygen may be administered as satisfactorily in many cases by a nasal inhaler leading inside the nostrils as in a tent or with catheters leading to the pharynx, and it should be administered at a flow rate in liters per minute that will increase the content of the alveolar air sufficiently to overcome evidence of anoxia.

There is no reason for separating the pneumonias into separate types in considering such factors as they share in common, as increased metabolism and reduction of available alveolar tissue for oxygen transfer. The demand for statistical evidence of the value of oxygen to relieve manifest signs of anoxia does not seem reasonable. No one would reasonably demand that there should be statistical evidence that patients who are suffering from anoxia of asphyxia due to submersion and are rescued shall be compared with those who are not. Because access of fresh air to the blood is in part cut off. Patients with cyanosis from pneumonia are in a condition analogous to one drowning. Anoxia may be prevented in pneumonia patients by increasing the partial pressure of oxygen in the air breathed. Patients suffering from severe unrelieved anoxia will not recover either with or without serum, and those

who do not develop immunity of their own accord or as the result of passive transfer of antibodies die even though anoxia is overcome. In pneumonia, specific serum assists recovery by neutralizing the specific soluble substance and prevents bacteremia which is often fatal.

CAN HEAT PRODUCE FRACTURE OF SKULL AND HEMORRHAGE AFTER DEATH?

To the Editor—Some time ago I was called on to perform an autopsy on a body which had been found on the prairie near this town on the embers of a small fire. The man had apparently been dead since the previous evening. The body had been badly burned the features being charred beyond recognition. The features of the face were covered by a burned cloth which appeared to be of the texture of a handkerchief and was firmly adherent to the face, nose, mouth and ears. There were several layers of this cloth. On removing it piecemeal I found that the mouth contained a large amount of blood which had been clotted homogeneously, apparently by external heat. It had a cooked appearance and contained no layers on cut surfaces as is the case with ordinary postmortem clots. The lower jaw had been fractured completely across between the second incisor and the canine teeth on the left. The right ear was filled with hard clotted blood. The nose also contained cooked blood and also unclotted bright red blood. The eyes were probably either gray or blue although absolute identification of the color was impossible. Extending vertically above the right ear was an area 6 by 4 inches covering the right parietal region where the scalp had been separated from the skull by blood which had the same cooked appearance. On the posterior aspect of the skull was a hole measuring 4 by 5 inches involving the occipital and posterior portions of both parietal bones. The bone edges of the aperture had been burned. The substance of the brain had been shrunken by the heat but was not burned beyond recognition as the gray and white matter could be distinguished. Between the dura and the skull was a layer of cooked blood from 1 to 2 inches in thickness. On removing the brain substance from the cranial cavity I found a basal skull fracture in the petrous portion of the right temporal and the sphenoid bones extending for about 1½ inches in the general direction of the right orbit. There was also a basal skull fracture involving the left temporal bone and extending into the foramen magnum. In my opinion this is undoubtedly a case of murder followed by burning in an attempt to destroy or disfigure the body. However, as no fragments of bone were found within the skull or in the vicinity of the body the question has been raised as to whether or not the large hole in the back of the skull could have been caused by burning. The body was found face on the fire. The county attorney has stated that he is of the opinion that intense heat within the skull is sufficient to cause a blowout of the bone. I have never heard of such a possibility and rather doubt its occurrence. In view of the broken jaw and the basal fractures of the skull as well as the other abnormalities I think that the man was killed by being severely beaten on the head and was thrown on the fire a short time later. It is also possible that chloroform or ether might have been administered to the victim in view of the several layers of cloth over the nose and mouth. I believe that only a short time or no time at all elapsed between his actual death and the contact with the fire because of the fact that the blood showed no layers as would have ordinarily occurred but was cooked throughout. Can you give me any opinions as to the effect of heat on the intact skull as to whether or not it might cause cracks in the skull or whether a large hole could be burned in the skull with no marked destruction of the cranial contents? Please omit name.

MD Montana

ANSWER—It would be impossible for heat to produce the fractures and the hemorrhages described in the question. The injuries to the head and face were produced during life.

SAWDUST AS CAUSE OF ALLERGY

To the Editor—I have under my care a butcher 40 years of age weighing 225 pounds (112 Kg.) with a diagnosis of bronchial asthma. He has had allergy tests for sensitivity and is markedly sensitive to house dust among other things. He has been addicted to alcohol but at the present time does not drink and is suffering from cirrhosis of the liver with its complications. He says that his allergy and consequent asthma is due to sawdust on the floor where he worked. Please advise me whether you have any case or cases on record in which sawdust aggravated or caused asthma. Where can I look for such cases? I should also like to know a method to prepare sawdust for testing the patient's sensitivity to it and how the test should be applied. Please omit name.

MD New York

ANSWER—Sawdust as a cause of bronchial asthma has been reported in the literature (Markin, L. E. *J. Allergy* 1:346 [May] 1930) but it is a rare cause. With a marked house dust sensitivity together with other reactions indicated in the query, one would hardly place much stress on the patient's opinion regarding sawdust as a cause of his trouble unless confirmation is obtainable clinically. A simple method for doing this is to have the patient cautiously inhale some of the clean sawdust before it is placed on the floor during a time when he is clear of symptoms. If he is sensitive to the material typical symptoms of hay fever will frequently occur in a few minutes. An attack of asthma however may not occur for hours after such inhalation. The nonspecific effect of inhaled dust particles (not house dust) in causing bronchial irritation and even asthma in such a procedure must how-

ever, be kept in mind. It is quite possible that the patient is not sensitive to sawdust but is sensitive to the various dangers, including feathers, that are to be found in a butcher shop.

A simple way of preparing material for testing such a case is to soak a handful of clean sawdust in a minimum amount of twentieth normal sodium hydroxide or of a 1 per cent sodium carbonate solution. The material should form a loose mush. After permitting it to soak an hour or two some of the fluid may be squeezed out and used for a cutaneous (scratch) test. Suitable controls should be used to determine the irritant properties of the extracted material. If no positive skin reaction is obtained by a scratch test a similar amount of sawdust should be shaken in a larger amount of distilled water or physiologic solution of sodium chloride for several hours. The supernatant fluid is poured off and filtered through a Berkefeld or Sertz filter for sterilization. This should then be tried intracutaneously in dilutions of 1:10,000, 1:1,000, 1:100, 1:10 and undiluted in a number of controls to determine its irritant properties. No more than 0.02 cc should be injected in each site. It may then be tried with caution (epinephrine solution should be on hand for a possible constitutional reaction) on the patient. The most dilute solution should be used first. If after twenty minutes, the skin reaction compared to the innate irritating properties of the material, is negative, the stronger solutions should be tried one by one. A positive skin reaction however is much less significant than a careful chemical trial as previously described.

PARKINSONIAN TYPE OF LETHARGIC ENCEPHALITIS

To the Editor—Will you please inform me in regard to the probable diagnosis, prognosis and treatment in the following case. A white woman aged 47 single whose previous health has been excellent had an attack of influenza in 1918 during the epidemic. The influenza was complicated by a train of severe nervous and mental symptoms which required hospitalization for several months and which was called sleeping sickness by the attending physician at that time. The patient made an apparently complete recovery at the time however and for a period of about thirteen years was free from any evidence of disease in the nervous system. About 1931 she gradually began to note that the left side of the body felt uncomfortable and was less dexterous. There was a sensation of unrest in the muscles. Tremor began fine in character of the hand and stiffness of the muscles then weakness and fatigability. The left lower extremity began to drag in the manner of hemiplegia. From 1931 the year of onset of these symptoms up to the present (five or six years) there has been a very insidious increase in the extent and degree of the tremor stiffness and especially muscle weakness. Note worthy however is the fact that on two occasions once in March 1936 and again in July 1936 the patient had a sudden complete relief from all symptoms for a period of several seconds or minutes. She described it as though a weight had suddenly been lifted off her. The patient is extremely intelligent and cooperative and fears to lose a position she holds and probable permanent invalidism. The oropharynx and cornea are sensitive no stigmas of hysteria are present. The blood pressure is normal. There is no headache or papilledema. Does lethargic encephalitis recur or become active after a lapse of years? How can one explain the sudden disappearance of symptoms if the condition is an organic one with the reappearance just as suddenly? Has artificial fever therapy, diathermy or intravenous vaccine been used in such cases? Has insulin shock therapy been tried? Are these forms of treatment contraindicated because of the presence of a possible active infection even though of low grade virulence? Please omit name.

MD New York

ANSWER—Lethargic encephalitis usually starts as an acute encephalitis. Occasionally there is no history of any previous acute stage. The patient has the parkinsonian type of chronic lethargic encephalitis. As far as it was possible to determine the patient in 1918 had recovered from her acute encephalitis several months after the onset. The sequelae or complications may occur immediately afterward or as is usually the case any time from three to twenty years after the acute attack with an entirely normal state of health during the interval. It is common in this disease entity to have periods of apparent complete disappearance of all symptoms. This occurs during sleep and while in bed. Under extreme emotional stimulation the subjective symptoms may also disappear. The masked facies however does not disappear unless the disease is a mild one. Artificial fever therapy, diathermy and intravenous vaccines of one type or another have been tried with no real success. Insulin shock therapy has not been tried. None of these forms of treatment are contraindicated except for the insulin shock therapy. The latter treatment requires scientific management because of the reactions the insulin may produce. The following drugs are used with some success: scopolamine hydrobromide 0.00065 Gm (1/400 grain) from three to five times daily; powdered leaves of stramonium from 0.03 to 0.05 Gm (one half to three-fourths grain) three times daily. The prognosis is good for life but not good for effecting a cure. This disease is incurable.

INTRASPINAL INJECTION OF ALCOHOL FOR PAIN IN CARCINOMA OF UTERUS

To the Editor—I have been informed that there is a preparation which can be injected into the spine for the control of uterine cancer to control pain, one injection controlling pain for from four to five weeks I am writing for information from you on this preparation

A L GREEN M D Milford Ill

ANSWER—The inquiry refers to the intraspinal (subarachnoid) injection of alcohol for the purpose of relieving the pain associated with malignant conditions of the female genitalia, especially the severe pain due to carcinoma of the cervix. The pain is usually controlled for many months rather than weeks. The technic for this procedure as described by J P Greenhill and H E Schmitz (*Am J Obst & Gynec* 31 290 [Feb] 1936) is as follows

No preliminary medication is given because we wish to observe the immediate effects of the injection. Most patients with advanced carcinoma of the cervix and other genital organs have much more pain on one side than on the other. The patient is placed on the side opposite to that where most of the pain is present. A pillow or pad is placed under her pelvis and side to elevate the sacral and lumbar portions of the spine. Her back is arched as much as possible, her body turned somewhat ventrally and the head lowered slightly. By placing the patient in this attitude we raise the sacrolumbar region of the spine to the highest level and at the same time make the posterior or sensory nerve roots lie horizontally. The anterior or motor nerve roots come to lie in a plane which is usually out of reach of the alcohol. Even if the motor nerves are not removed from the field of the alcohol as occurs in the cauda equina they are not often affected because sensory nerves are more susceptible than motor fibers to the effects of alcohol.

Some one should hold the patient in the proper position. A weak solution of iodine or other antiseptic is applied over the lumbar and upper sacral regions. An ordinary lumbar puncture needle with a stylet is used. The needle is injected into the fourth interspace just as for an ordinary lumbar puncture and we prefer not to use novocain in the skin before inserting the needle. After the needle is in the subarachnoid space as evidenced by the flow of spinal fluid 0.5 cc of absolute or 95 per cent alcohol is injected into the cerebrospinal fluid. For this purpose it is best to use a tuberculin syringe so as to be sure not more than 0.5 cc is injected. Furthermore the alcohol must be injected very slowly drop by drop taking about two minutes for the injection of the 0.5 cc. This will avoid a mixture of the alcohol with the spinal fluid. The alcohol rises immediately to surround the posterior roots because the specific gravity of alcohol is about 0.806 whereas that of the spinal fluid is 1.007. No attempt should be made to draw spinal fluid into the syringe to mix it with the alcohol because this is exactly what is not wanted. After the injection is made the needle is withdrawn and the puncture hole covered with sterile gauze and adhesive. Before the injection is completed the patient will complain that the upper leg feels numb or hot and that she cannot move the leg. The numbness is almost routinely experienced after the injection but disappears spontaneously after a few hours or few days in most of the cases. In spite of what the patient says concerning her inability to move the leg she can easily move it when requested to do so. At the same time the patient informs us of the numbness she also often tells us either voluntarily or in answer to our query that her pain has disappeared. The longer the patient is permitted to lie on her side the better the results. Hence we now keep our patients on their side for two hours after the injection. Then these women are permitted to get up and walk around. Some find difficulty in getting up from a chair because their leg is asleep. Sometimes the leg feels heavy and the patient experiences some trouble in walking up steps because the knee flexes readily. These sensations usually wear off in a few hours although in some women they last a number of weeks. Nearly all of our patients who were ambulatory went home within three hours after the injection and no ill effects have been observed from this procedure.

If the patient has pain on both sides an injection is made a week later with the patient lying on the opposite side. The same amount of alcohol is injected.

ELECTROGALVANISM FROM DENTAL FILLINGS

To the Editor—Will you kindly inform me whether a bridge made of platinum and white gold fitting just above two teeth inlaid with gold can cause an electrolytic action. The area at the side of the tongue adjacent to the bridge is complained of by the patient as producing queer annoying sensations. I should particularly like to know whether such a condition if prolonged could be related to the development of a malignant lesion.

M D Florida

ANSWER—Electrogalvanism in the oral cavity between dissimilar metallic restorations is a long established fact. Within recent years, research by different investigators and clinical reports published in various medical and dental journals have called attention to the possibility of annoying subjective symptoms and visible pathologic lesions such as localized ulcers and leukoplakias, with subsequent malignant growths, bearing a close relationship to the electrolysis between dissimilar dental restorations.

The degree of irritation and pathologic change depend on numerous factors, though chiefly on the relative positions which the different metals occupy in the standard electromotive series of metals published in college textbooks on physics or dental metallurgy.

In the case in question there is an upper bridge made of platinum and white gold. Immediately below there are two teeth with gold inlays. Pure platinum and gold are electro-potentially closely related, but in dental constructions for enhancing their value each is alloyed with other agents. Gold is bleached by the addition of nickel or silver. Most dental gold also contains from 10 to 15 per cent of copper to give it hardness. Both nickel and copper bear a comparatively wide electropotential relationship to pure gold or platinum, hence, when they are immersed in saliva, a good electrolyte, the elemental factors for a galvanic current exist.

An approximate measurement of current can be made with a delicate galvanometer or micro-ammeter. The most common symptoms of galvanic irritation in the mouth are usually first felt on the margins of the tongue, or an occasional metallic taste. Therefore, if other possible etiologic factors have been eliminated in this case, it is probable that the patient is being annoyed by electrogalvanism between his dissimilar dental restorations. If this conclusion is correct, the patient will be relieved if one or both constructions are removed and replaced with metals electropotentially balanced.

More explicit information on this subject may be found in

Lain E S. Electrogalvanic Lesions of the Oral Cavity Produced by Metallic Dentures, *THE JOURNAL* March 11 1933 p 717.
Macdonald W J. Chemical and Electrogalvanic Burns of the Tongue *New England M J* 211 585 (Sept) 1934.
Lain E S and Caughron G S. Electrogalvanic Phenomena of the Oral Cavity Caused by Dissimilar Metallic Restorations *J Am Dent A* 23 1641 (Sept) 1936.

FUNCTIONAL UTERINE HEMORRHAGE TREATED AS ENDOCRINE DISTURBANCE

To the Editor—A white woman aged 24 has for the past six months been complaining of polymenorrhea. Menstruation commenced at the age of 13 without any difficulty. The menses were always regular, occurring at twenty-eight day intervals and lasting three or four days until the present trouble started. Bleeding for the past six months has occurred at irregular intervals varying from fourteen to twenty-one days with the duration increased to five or six days. The flow although not profuse is greater than formerly. The patient has no discomfort apart from some abdominal pains on the first day. Frequently in between the longer periods there occurs one or two days of bleeding. The patient is a thin woman of average build. The secondary sex characteristics are normally developed although the breasts are small. There are clinical evidences of a moderate secondary anemia. As the patient is a virgin rectal examination was made but it failed to reveal any pelvic disorder. The physical examination was otherwise normal in every respect. The onset of the present condition is related by the patient to the lifting of a heavy weight. She works in an institution where occasionally she is called to lift a weight of about 150 pounds. Her hours are long with little fresh air or recreation obtained. Her meals at the institution are of rather poor quality with the minimum of the essential elements. Her appetite is poor and she does not eat all this food. I have directed my treatment toward improving the hygienic dietetic and general health factors although her economic condition and her job limit this line. Is this therapy correct? If this fails, would endocrine therapy be indicated? Please give the rationale for the products recommended. A previous doctor advised sexual intercourse. Please comment.

M D New York

ANSWER—This patient evidently has functional uterine bleeding as evidenced by irregularity of menstruation from fourteen to twenty-one days with prolongation of the period to five or six days, and occasional bleeding more frequently. In the majority of cases of uterine bleeding of endocrine origin the anatomic basis of the condition is cystic hyperplasia of the endometrium. This hyperplastic condition of the mucosa is due to an excessive production of estrogen. Frequently a large cystic follicle is found in the ovary with absence of corpus luteum formation. These cystic follicles may continue to enlarge and secrete estrogen as long as the intracystic pressure does not cause atrophy of the granulosa cells. The continuous secretion of estrogen causes endometrial hyperplasia and vascularization. Cessation of production or decrease in the amount of estrogen allows the endometrium to regress with consequent hemorrhage, which may be excessive because of the hyperplastic endometrium. Cystic follicles may result from insufficient gonadotropic substance to effect ovulation or the ovarian tunic may be thickened and prevent rupture of the follicle. Corpus luteum cysts also may be responsible for functional uterine bleeding. Rectal examination in a virgin is rather unsatisfactory, especially in this condition of the ovary. The environment under which the woman works is of course not advantageous for the maintenance of good health and the correspondent's treatment directed toward improvement along these lines is commendable.

Gonadotropic substance from pregnancy urine or placenta has been recommended in these cases but is not altogether satisfactory in most instances. A gonadotropic preparation from the anterior pituitary may be more effective, but it must be used with care.

It might be well to give 150 units of gonadotropic substance from pregnancy urine or placenta intramuscularly every other day to the patient during the last half of her expected normal cycle each month over a period of three months and at the same time continue efforts to improve the unfavorable conditions under which she lives and works. The mild anemic condition, which is due to excessive bleeding, will improve with cessation of the flow, but she may be given any of the good preparations that are available for secondary anemia.

LATENT AND WASSERMANN FAST SYPHILIS

To the Editor—On a routine preemployment examination it was noticed in an applicant aged 29 that one pupil was slightly larger than the other. About seven years ago the patient had had an intercourse once without prophylaxis but did not later develop a penile lesion otherwise he always used a condom during copulation. Apparently he has not had a chancre rash or gonorrhea. Repeated blood Wassermann reactions however are four plus. The patient is a chauffeur. His general health is good except for frequent colds. Physical and neurologic examination (including ophthalmoscopy, visual acuity and colors is negative. Fluoroscopia by a cardiologist a spinal Wassermann test globulin and cell count were negative. A year and a half of continuous treatment has been given of a series of twelve injections of nearsphenamine 0.6 Gm at weekly intervals alternating with courses of bismuth salicylate 100 mg and bismocymol 100 mg beginning with a series of four weekly injections later lengthened to six and then to eight and also overlapping cessation of nearsphenamine. Iodides by mouth are also being taken. The patient is getting a balanced diet has sufficient sleep and does not drink or smoke. The Wassermann reaction at this time is still four plus and the Kahn reaction three plus. Has this patient syphilis? If so should further treatment be continued and for how long? Please omit name.

M D New York

ANSWER—Excluding the possibility that this patient may have either yaws or leprosy, both of which are unlikely in an individual who has spent his life in the temperate zone there is no doubt that he actually does have syphilis. Since his physical examination is completely negative except for slightly unequal pupils, and since there is no other clinical or laboratory evidence of cardiovascular or neuralsyphilis, he may be regarded as having latent syphilis and, in addition as being Wassermann fast. About 30 per cent of patients with latent syphilis have persistently positive serologic tests of the blood regardless of the type or amount of antisyphilitic treatment given.

The general management of the Wassermann fast situation is commented on in some detail in *Queries and Minor Notes* in *THE JOURNAL* Nov 4, 1933, page 1500.

In this particular patient who has already received a year and a half of continuous treatment, further medication may now be stopped except for a long course of heavy metal, i.e. from ten to twelve injections of a bismuth compound given at yearly intervals for the next five years.

The management of and the results obtained in latent syphilis are discussed by the Cooperative Clinical Group in a series of articles appearing in *Veneral Disease Information* (13 317 [Aug.] 351 [Sept.] 371 [Oct.] 389 [Nov.] and 407 [Dec.] 1932 and 14 1 [Jan.] 1933) and are more succinctly summarized in chapter 18 of Moore, J. E. *The Modern Treatment of Syphilis* Springfield, Ill. Charles C. Thomas, 1933.

In the discussion of the reference provided it will be noted that no stress whatever is laid on the presence of a persistently positive Wassermann reaction in adequately treated latent syphilis.

SULFANILAMIDE FOR GONORRHEA DURING PREGNANCY

To the Editor—A young woman five months pregnant has severe gonorrhea. So far as I can determine the tubes are not yet involved. Her general physical condition is good. Would it be safe to use sulfanilamide in this case so far as the pregnancy is concerned? If not what treatment would you advise? I have been using the Elliott method in other cases but I do not think it would be indicated here.

R S LANDER M D Victoria Texas

ANSWER—Sulfanilamide has been used to some extent in the treatment of gonorrhea in the male and female. It is however a new use for the drug. It has been proved useful for the treatment of streptococcal septicemia, but the evidence does not yet warrant its being unconditionally recommended for the treatment of gonorrhea. Experience with the drug in the treatment of patients during pregnancy is limited and physicians who employ it during gestation should use it with extreme caution. The effects of the drug on the fetus are not known and such conditions as acidosis, sulfhemoglobinemia, methemoglobinemia and even aplastic anemia which are reported to have followed its use would be especially serious during pregnancy.

Gonorrhea early in pregnancy is usually confined to the lower genital tract. It can be treated by rest in bed, plenty of fluids

and mild antiseptics. There should be no great difficulty in clearing up the infection prior to the onset of labor. The presence of the infection during pregnancy makes it especially necessary to institute prophylaxis of ophthalmia neonatorum at the time of delivery.

CYSTITIS WITH IMPOTENCE—ADDICTION TO HYPNOTICS

To the Editor—A man aged 53 has some burning sensation on urinating, he gets up once or twice at night. There is no history of gonorrhea. The teeth and tonsils have been removed. There is from 1 to 1½ ounces of residual urine. The prostate is slightly enlarged. Prostatic smear shows pus cells present. Sexual desire is diminished and the patient has a burning sensation at the time of orgasm and the thrill is missing. The patient has been married for twenty years there are no children. Kindly give a diagnosis. Do you know of any medicine I can give this man to relieve his symptoms and the pus from the prostate? Can he be brought back to a normal sex life? He is particularly interested in the latter question. A doctor has been taking second and pentobarbital sodium alternately every night for the past six months. He is healthy otherwise. He says he has developed a slight tolerance and they do not keep him under all night as they did in the start but he says he is wide awake all night if he doesn't take them and then the next day he is completely worn out and unfit to work unless he gets his sleep. Will these hypnotics hurt him? What would you suggest for him? Please omit name.

M D Illinois

ANSWER—The cystitis of the first patient is probably due to infection of the residual urine and may yield to ammonium mandelate (3 Gm every four hours) with restriction of fluid to 1 liter a day and avoidance of fruits and vegetables because of their alkalinizing tendency. This of course can be carried out only if such treatment does not increase the burning on urination. If it does, a preliminary course of alkaline diuretic therapy is desirable. The patient should refrain from sexual intercourse until he has a strong desire for it. In the meantime, improvement in the cystitis may bring about abolition of the burning sensation during orgasm, which may interfere with his experiencing the thrill.

The second patient has become habituated to barbiturates, and the hypnotics he is taking are commencing to lose even their symptomatic effect. It is obvious that the cause of the disturbance is not being remedied. The case is one for a rest cure under the care of an experienced psychiatrist, and preferably in a sanatorium. Physicians should ever remember the saying that 'a doctor who treats himself has a fool for a doctor and a fool for a patient.'

POLYNEURITIS OF PREGNANCY

To the Editor—A primipara in her seventh month at the present time began pernicious vomiting in her second month. Insulin, glycogen, the barbiturates and all reputed therapeutics were tried with varying success. At the end of the third month she was hospitalized with complete rest. At that time she showed a marked loss of memory. At the fifth month her memory had perceptibly improved but there was a very marked muscular weakness with improvement in the vomiting and an inability to walk which was attributed to almost complete lack of movements in her limbs while in bed. Now at her seventh month she is unable to walk owing to weakness in her limbs. She is fairly emaciated, the blood pressure is 100 systolic, has been 70 diastolic and for the past few weeks there has been a perceptible growth of fine hair on her face, body and limbs. It is very noticeable at present. No appreciable pigmentation is present in the skin or mucous membranes. She has a fair appetite, she does not vomit, the urine is normal and there is no elevation of temperature. I would like your opinion and recommendation of medication especially if you agree that this is a case of Addison's disease along with the pregnancy. I understand that there was an aqueous solution of adrenalin put out about 1930 by Swingle and Pfiffner but I have had no experience with it. If it would be long before this appears in *THE JOURNAL* I would appreciate anything you might offer as at any time her condition might be more serious. Please omit name.

M D Nebraska

ANSWER—This is a case of polyneuritis of pregnancy, which is a dietary deficiency disease. The clinical and pathologic picture is the same as that which occurs in alcoholism, infectious diseases and dietary deficiency diseases such as pellagra and beriberi. The disease usually occurs in the first or second pregnancy. The troublesome vomiting generally begins in the second month and, while usually mild at the beginning, becomes pernicious in type. Dehydration and emaciation result from the vomiting. The onset of paralysis is usually during the third and fourth months. The customary complaints are numbness, weakness and increased muscle pains generally in the lower extremities. Mental symptoms similar to Korsakov's psychosis appear at about the same time as the neurologic changes. The mortality of polyneuritis of pregnancy is about 25 per cent. This can be reduced considerably by early recognition of the disease and the administration of a proper diet or by the inter-

ruption of pregnancy Since the disease is due to lack of vitamin B, large amounts of this vitamin should be given as soon as symptoms of polyneuritis are recognized In fact, in all cases of hyperemesis gravidarum it is advisable to give vitamin B prophylactically For patients who do not respond readily to vitamin B, Strauss and McDonald recommend liver and liver extracts both by mouth and by injection If patients fail to improve under this therapy, the pregnancy should be terminated If this is done too late, it will not prevent death

Excellent articles have appeared, dealing with this subject

Berkwitz N J and Lufkin N H Toxic Neuritis of Pregnancy *Surg Gynec & Obst* 54 743 (May) 1932 Strauss M B and McDonald W J Polyneuritis of Pregnancy *The Journal* April 29, 1933 p 1320 Luikart Ralph Avitaminosis as a Likely Etiologic Factor in Polyneuritis Complicating Pregnancy *Am J Obst & Gynec* 25 810 (June) 1933

PURPURIC HEMORRHAGES

To the Editor—My niece has purpura haemorrhagica of four years' duration I have seen her immediately after a hemorrhage and have seen the blood spreading out under the skin which is painful She has an attack about the menstrual period each month and often has them between times She was told by three Dallas physicians that if the menopause was brought on by x-rays or radium she would get a cure Please give your opinion on bringing on the menopause for this condition

A M BOWDEN, MD, May Texas

ANSWER—As the bleeding tendency manifests itself between the periods as well as at the time of the menstrual period, there is not a sufficient relation between the bleeding and the menses to warrant x-ray sterilization Furthermore, because of the lack of definite data the exact type of purpura cannot be diagnosed No advice other than that of not producing the menopause by the x-rays can be offered

PREGNANCY AFTER MENOPAUSE

To the Editor—I am interested in the subject of pregnancy after the menopause Can you tell me where I can obtain information as to the percentage of women that become pregnant say two or three years after the cessation of the menses? B J McGOOGAN MD Morven N C

ANSWER—As far as is known there are no statistics concerning the frequency of pregnancy after the menopause There are, however, case reports of such occurrences De Lee (*The Principles and Practice of Obstetrics*, ed 5, p 19), mentions Renaudin's case of a woman who gave birth to a living child twelve years after the menopause, and of Kennedy's case of a woman who had five labors and one abortion after the fiftieth year Novak (*Menstruation and Its Disorders*, New York, D Appleton & Co, 1921) mentions Brickle's patient, who had had seven children up to 35 years of age Two years later her menses ceased entirely Eleven years after this she gave birth to another child

INJECTION OF BURSA

To the Editor—What substance if any when injected into a bursal cavity is effective in preventing further effusion? In other words is the injection treatment of bursae a recognized therapeutic measure?

M D Michigan

ANSWER—If a bursa is not inflamed and does not have a wide connection with a joint, solutions of 5 per cent sodium morrhuate or potassium oleate, injected after aspiration of the bursal fluid, are successful in a moderate number of cases After the injection, the area must be tightly bandaged or taped to help the obliteration of the sac. Usually a second and sometimes a third injection is necessary at weekly intervals Surgical excision is a delicate procedure but, when carried out with careful asepsis and hemostasis, is followed by excellent results Prior to its use, the injection treatment may be given a trial

TREATMENT OF ARTHRITIS DEFORMANS

To the Editor—Please give me the latest treatment of beginning arthritis deformans

M D, Ohio

ANSWER—There are a number of treatments that are at present in vogue in the treatment of arthritis deformans Many of them have not been tried long enough to furnish sufficient evidence as to the results Regarding the published results from the use of various sulfur preparations, concentrated iostrol and gold preparations, the correspondent is advised to consult the Third Rheumatism Review, 'The Problem of Rheumatism and Arthritis Review of American and English Literature for 1935' (*Ann Int Med* 10 754 [Dec] 1936)

Medical Examinations and Licensure

COMING EXAMINATIONS

STATE AND TERRITORIAL BOARDS

Examinations of state and territorial boards were published in *The Journal* August 7 page 456

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS *Parts I and II* Sept. 13 15 Ex Sec Mr Everett S Elwood 225 S 15th St Philadelphia

SPECIAL BOARDS

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY *Written examination for Group B applicants* will be held in various cities throughout the country in April *Oral examination for Group A and B applicants* will be held at San Francisco in June Sec Dr C Guy Lane 416 Marlboro St Boston

AMERICAN BOARD OF INTERNAL MEDICINE *Written examination* will be held in different centers of the United States and Canada Oct 18 Chairman Dr Walter L Biering 406 Sixth Ave Rm 1210 Des Moines Iowa

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY *Written examination and review of case histories of Group B applicants* will be held in various cities in the United States and Canada Nov 6 *General examination for Groups A and B* will be given in San Francisco June 13 14 *Applications must be filed not later than sixty days prior to examination dates* Sec Dr Paul Titus 1015 Highland Bldg Pittsburgh (6)

AMERICAN BOARD OF OPHTHALMOLOGY Chicago Oct 9 and San Francisco June 13 *All applications and case reports, in duplicate must be filed at least sixty days before the date of examination* Sec Dr John Green 3720 Washington Blvd St Louis Mo

AMERICAN BOARD OF ORTHOPAEDIC SURGERY Los Angeles Jan 14 15 Sec Dr Fremont A Chandler 6 N Michigan Ave Chicago

AMERICAN BOARD OF OTOLARYNGOLOGY Chicago Oct 8 9 Sec Dr W P Wherry 1500 Medical Arts Bldg Omaha

AMERICAN BOARD OF PEDIATRICS Chicago Oct 17 Los Angeles Nov 7 Boston Nov 14 and New Orleans Nov 30 Sec Dr C A Aldrich 723 Elm St Winnetka Ill

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY New York Dec 28 (tentative) Sec Dr Walter Freeman 1028 Connecticut Ave NW Washington D C

AMERICAN BOARD OF RADIOLOGY Chicago Sept 9 11 Sec Dr Byrl R Kirklm 102 110 Second Ave S W Rochester Minn

AMERICAN BOARD OF SURGERY *Part I (written)* Sept. 20 Sec Dr J Stewart Rodman 225 S 15th St Philadelphia

Virginia June Report

Dr J W Preston, secretary, Virginia State Board of Medical Examiners, reports the written examination held at Richmond, June 17-19, 1937 The examination covered 8 subjects and included 80 questions An average of 75 per cent was required to pass One hundred and thirty-eight candidates were examined, 136 of whom passed and two failed Eighteen physicians were licensed by reciprocity and three physicians were licensed by endorsement The following schools were represented

School	PASSED	Year Grad	Per Cent
George Washington University School of Medicine	(1935) 81, 83		
Howard University College of Medicine	(1935) 81, 82		
(1936) 76 77 81 81 87 (1937) 87			
Johns Hopkins University School of Medicine	(1937) 80		
Harvard University Medical School	(1934) 90		
Middlesex College of Medicine and Surgery	(1932) 85		
University of Minnesota Medical School	(1934) 81		
Cornell University Medical College	(1937) 87		
University of Rochester School of Medicine	(1937) 84		
Jefferson Medical College of Philadelphia	(1934) 81		
Woman's Medical College of Pennsylvania	(1928) 78		
Medical College of Virginia	(1936) 80		
84 (1937) 78 79 79 80 80 80 80 80 81 81			
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86 86 86 86 86 86 86 87 87 87 88 88 88			
88 88 89 90			
University of Virginia Department of Medicine	(1937) 75		
76 77 78 79 79 80 80 80 81 81 81 81 81			
82 82 82 82 82 82 82 82 82 83 83 83 83			
83 83 84 84 84 84 84 84 85 85 85 85 85			
85 85 86 86 86 87 87 87 87 89 90 90			
University of Toronto Faculty of Medicine	(1930) 88		
Rheinisch Friedrich Wilhelms Universität Medizinische Fakultät Bonn	(1927) 75*		
School	FAILED	Year Grad	Per Cent
Medical College of Virginia	(1937) 73		
University of Virginia Department of Medicine	(1937) 71		
School	LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
Georgetown University School of Medicine	(1932) New Jersey		
Emory University School of Medicine	(1935) Georgia		
University of Kansas School of Medicine (1931)	(1936) Kansas		
Johns Hopkins University School of Medicine	(1933) Maryland		
Maryland Medical College	(1904) W Virginia		
University of Maryland School of Medicine and College of Physicians and Surgeons	(1932) Maryland		
Washington University School of Medicine	(1924) Iowa		
(1933) Missouri			
Duke University School of Medicine	(1935) W Virginia		

University of Cincinnati College of Medicine	(1935)	Ohio
University of Pennsylvania School of Medicine	(1930)	Penna.
(1931) Ohio		
Meharry Medical College	(1936 2)	Tennessee
University of Tennessee College of Medicine	(1927)	Tennessee
University of Virginia Department of Medicine	(1900)	Alabama
School	Year Endorsement	Grad. of
Washington University School of Medicine	(1909)	U S Navy
Duke University School of Medicine	(1934)	N B M Ex.
Medical College of Virginia	(1935)	N B M Ex.
* Verification of graduation in process		

Book Notices

The Use of Hearing Aids By A W G Ewing I R Ewing and T S Littler Reports of the Committee upon the Physiology of Hearing IV Medical Research Council Special Report Series No 219 Paper Price 9d Pp 40 London His Majesty's Stationery Office 1936

A great deal of careful investigation into the use of hearing aids is represented here. Improvements in the field of broadcasting have been carried over into the field of otology, so that by means of sound amplifying apparatus many of the deafened have been aided. The authors tested their deaf subjects in a number of ways and arrived at several interesting conclusions. By testing patients by a series of pure tones obtained from an audiometer, they found that a reliable index of the intelligibility of speech to the deaf could be obtained. They satisfied themselves that hearing aids are not, as many deafened persons believe, harmful to the user and do not cause further deterioration of the hearing. They emphasize the necessity of standardizing tests for the intelligibility of amplified speech and suggest that this is best done by means of an amplifier system properly constructed. They admit that impairment of hearing of certain types cannot at present be improved even with the best apparatus available and that hearing aids are still a disappointment to the patient and the physician. Even the best type of apparatus requires instruction in lip reading in many cases if the subject is to obtain the fullest results. Investigations like the one reported will provide the information that will lead to better and better results for the unfortunate deafened.

Family Care of Mental Patients. A Review of Systems of Family Care in America and Europe. Editor Horatio M Pollock PhD New York State Department of Mental Hygiene Albany N Y Cloth Price \$2.50 Pp 247 with illustrations Utica, New York State Hospitals Press 1936

This is an interesting volume dealing with an important phase of psychiatry. With the increase in the number of admissions into our state hospitals a tremendous building program is in the offing, and this brings the hopelessness of psychiatric cases to the public attention, perhaps to a greater extent than it should be. Dr Pollock has collected information from a number of American and foreign sources, pointing out that in the case of the feeble-minded and certain types of psychiatric patients a number of the more harmless can be farmed out in the smaller communities to live as a member of the family in private homes. This procedure is not new, for it has been carried out for a long time in Belgium and other parts of Europe, and as far back as 1860 it was proposed in Massachusetts. The present volume is rather more of a symposium than a single essay. Aiding Dr Pollock in compiling it were Dr Edgar A Doll of the Training School at Vineland, N J, Dr Harry A Laburt of the Harlem Valley State Hospital, Wingdale, N Y, Dr Philip Smith of the New York State Department of Mental Hygiene New York, Dr Charles E. Thompson of the Gardner State Hospital, East Gardner, Mass., and Dr Charles L Vaux of the Newark State School, Newark, N Y. All these contributors have had actual experience in the care of the insane or feeble-minded in families as well as in institutions, and the picture which they present as a whole, offers considerable hope in this plan for therapy and control of mental cases. The amazing results that the Newark State School in particular has had convinces one that more of the harmless defectives and the deteriorated mental patients who have no assaultive or sexual tendencies might well be placed out in families where too much would not be expected of them and where, perhaps, they could not only improve but also make some contribution to the family life. The book also raises the question why, if it is possible for these people to get along in

a private home, they could not get along in their own homes, and the answer, an important one, is predicated on emotional factors which have not as yet been looked into either by these authors or by others. The reader who peruses this book will gain some realization of what is being done in this country as well as in Belgium, France, Germany, Hungary, Scotland and Switzerland and will probably be inspired to urge that more family placement of mental patients be instituted. Some of the chapters give specific directions and instructions in administering this technique. Certainly there would be a saving in money and hospital space, more of the patients would be social contributors rather than drains on the community pocketbook, and in many cases the outlook would be distinctly improved. As a means of educating the community as to the harmlessness of many of the insane, this type of care of mental patients is worthy of deep consideration. One can only urge that this book be carefully studied by those who have to do with the problem of the care of mental patients.

Quelques vérités premières (ou soldisant telles) en chirurgie infantile Par L Ombrédanne professeur à la Faculté de médecine de Paris Col lection publiée sous la direction de M L Ombrédanne et N Flessinger Paper Price 24 francs Pp 85 Paris Masson & Cie 1936

This little volume, entitled "Some Fundamental Truths (or So-Called Ones) in the Surgery of Children," appears as one of a collection of monographs published under the editorial direction of Louis Ombrédanne and Noël Flessinger. The former, well known in this country through his "Précis clinique et opératoire de chirurgie infantile," is the author of this contribution, which consists of a great number of extremely practical facts of surgical diagnosis, differential diagnosis, surgical indications and treatment of surgical conditions in infants and young children. These facts have been accumulated from the author's extensive experience in children's surgery and he presents them as maxims, much in the manner of Napoleon's maxims of war. They are presented in six chapters. Chapter I deals with generalities—anesthesia, postoperative complications, fractures and epiphyseal separations, burns, diseases of bone, and tumors. The remaining chapters present the facts regionally, chapter II dealing with the face and neck, chapter III with the skull, brain, spinal column and spinal cord, chapter IV with the thorax and abdomen, chapter V with genital organs and chapter VI with the extremities. The author points out the differences one must be acquainted with in the surgical handling of infants and young children in various conditions, from that which is proper in adults. He also points out conditions that may be ruled out diagnostically, in various age groups, for example, that fractures are not rare even in the new-born—that the causal trauma may pass unperceived—the person caring for the infant may have let him fall without reporting the fact and such fractures often are first noticed as an enormous callus about the clavicle or femur. Do not think of a sarcoma in case of an infant of 3 weeks or 3 months. Try to recall how long this particular member has been inert. Then take a roentgenogram and this will clinch the diagnosis. Again, with regard to infantile scurvy he says that this does not occur before the age of 6 months. It does not heal after the age of 1 year. He points out similarly that one does not observe infantile paralysis (poliomyelitis) until after 6 months of age.

In considering the differential diagnosis between osteomyelitis and tuberculosis of bone, without perforations, he advises examination of the regional lymph nodes. Adenopathy is absent in osteomyelitis, it is constant in tuberculosis. He says that a positive cutaneous tuberculin test is valueless in infants. A definitely negative result on the contrary, is of considerable diagnostic value (ruling out tuberculosis). He points out that it is never wise to attempt surgical correction of a harelip soon after birth, the optimal period being after three to four months. He emphasizes that one should be careful in arriving at a diagnosis of congenital hypertrophic pyloric stenosis in an infant less than 15 days or more than 3 months old. He reduces the diagnosis of intussusception to a mathematical equation "signs of occlusion + passage of blood by rectum = intussusception. If a child 5 or 6 years of age passes red blood rectally without any signs of intestinal obstruction, it is a waste of time to think of any other cause than rectal polyp. Tuberculosis of the hip joint reaches the height of its frequency curve in the tenth year, whereas Pott's disease, which is still commoner, reaches its peak at 5 years of age.

The book contains a wealth of information that is of great value to all who have to do with child surgery. Although there is no alphabetical index, the table of contents, being arranged regionally, makes it easy to find the information desired. The volume can be highly recommended as authoritative and clinically practical.

The Human Machine. By John Yerbury Dent. Cloth. Price \$2.50. Pp. 299. New York: Alfred A. Knopf, 1937.

In spite of the fact that on the jacket of this book appear recommendations from H. G. Wells and Bertrand Russell, it is, to the American psychiatrist, a collection of unsubstantiated clichés. The publisher says that it is supposed to explain the basic mysteries of human behavior and that its author is a scientist—a distinguished English physician. What that rather prejudiced sales talk really means is that the author summarizes the simpler ideas of human genetics, gives a simple explanation of nervous integration, more or less stressing the elementary physiology of the special senses and the reactions of lower animals, and presents a superficial personal reaction toward suggestion, memory, habit and forgetfulness. A number of more or less unrelated psychologic material is collected in a chapter called "Conflicting Reactions," and some other chapters describe naively neurotic reactions. He believes in the somewhat questionable inhibitory theory of the causation of sleep and in the short chapter discusses some of the physical adjuncts of that state. Apparently Dr. Dent has done some hypnotizing—he calls it "selected inhibition"—and tells about a few cases that he has had. A knowledge of the work of Hull and others who are thorough modern students of this field is utterly lacking, and one can say but little about his criticism of psychoanalytic treatment. Some of the features which he brings out in criticizing psychoanalysis are justified, but his logic in explaining this criticism is questionable and shows a tremendous amount of affect which invalidates the whole chapter. One can safely say that the author goes further past the landmarks of logic in condemning psychoanalysis than even its more fervid and clear thinking advocates go in the opposite direction. All in all, while it may suit lay readers in some other country, this book will probably prove to be misleading to the initiated and aggravating to the trained psychiatrist in America.

The Exploration of the Inner World. A Study of Mental Disorder and Religious Experience. By Anton T. Bolsen. Research Associate in the Psychology of Religion and Chaplain the Elgin (Ill.) State Hospital. Cloth. Price \$3.50. Pp. 322. Chicago & New York: Willett Clark & Company, 1936.

The author is a minister who was a mental patient and who, since recovery, has devoted his life to working with mental patients in state hospitals and elsewhere. In this volume he has made a thorough study of the interrelationship of mental disease and religion, and the point of view which he takes is less that of the formal sectarian and more that of the understanding psychologist or, at least, psychologically and theologically trained person. The book is not a small volume and there is a great deal of theological material and much of the author's personal affective thinking confined within its covers. He approaches the subject rather emotionally, yet because of his consistent contact with experienced psychiatrists of several schools he has a good deal of insight into the problems of the mental patient. Some of the volume is highly theoretical but, on the other hand, there is much material treating of the cases he has seen, in which he makes comparisons of clinic types, classifications being used which he himself has devised. He interprets some of the religious tendencies and symptoms exhibited by mental patients. There are chapters devoted to Paul of Tarsus and George Fox, the founder of the Society of Friends. He points out some of their mental mechanisms and also describes how they would have been treated had they come into the hands of members of the various schools of mental healers. In later chapters he deals with the influence of the Christian religion in the sense of the teachings of Christ and their interpretation on conduct, character and feelings of guilt. He devotes one chapter to theology, which he calls the queen of the sciences, and approximately the last third of the book is devoted to the practical application of religion in psychiatry. He presents a chapter on the foundations of spiritual healing, describes some of his experiences while working with the mentally ill, and devotes a chapter to the distinctive task of the

minister of religion. At the end of the book there is a glossary which contains a number of good definitions of various psychiatric, sociological and psychologic terms but which is not alphabetized. The book is undoubtedly interesting. It contains ideas for those who are equipped by religious training to understand them, and perhaps some psychiatrists may find in it an explanation of how best to make use of the chaplain of their mental institutions. The book cannot be condemned, certainly, for it contains a mass of fascinating and enlightening material, but it is so highly interpretative that an assessment of its value would be determined entirely on the emotional and religious background of the reader, be he psychiatrist, physician, theologian or layman.

Über die Ernährung des Säuglings. Von Professor Dr. Hans Beumer. Direktor des Universitäts-Kinderklinik in Göttingen. Second edition. Paper. Price 2 marks. Pp. 40 with one illustration. Leipzig: Georg Thieme, 1937.

In the first half of this instructive pamphlet on the feeding of normal infants, Professor Beumer reviews briefly the well known one-third, one-half and two thirds cow's milk dilutions and other milk modifications in vogue on the continent during the past twenty-five years. The second half is a rather convincing dissertation on the virtues of lactic acid whole milk. In 1920, after Viennese pediatricians had shown that healthy infants can tolerate undiluted cow's milk enriched with carbohydrate, Beumer began to use the undiluted milk. In his first formula, 2 per cent flour (cornstarch, rice flour or wheat flour) and from 3 to 6 per cent sugar (nährzucker or saccharose) were added to the milk before boiling. Klotz was the first to add lactic acid to cow's milk. In 1923 Marriott showed that young infants can tolerate lactic acid whole milk for long periods. Others soon tried citric acid, hydrochloric acid, orange juice and lemon juice in place of lactic acid. Although excellent lactic acid powdered milks are on the market, the price makes them prohibitive for many families. To add one lactic acid tablet (acelette) for each hundred grams of milk is more economical, and mistakes are not so likely to occur as when mothers are entrusted with lactic acid. Saccharin may be added to sweeten the sour milk. Infrequency of stools when the infant is on lactic acid milk is harmless. In extreme cases saccharose may be substituted for nährzucker, if the condition is not relieved, a tablespoonful of malt extract may be added to the daily formula. If anorexia should occur in an infant on lactic acid milk, the cause should be determined. When diarrhea occurs in an infant on feedings other than lactic acid milk the transition to the acid milk should be gradual. Skimmed lactic acid milk may prove especially useful in cases of eczema.

The Cure of High Blood Pressure by Respiratory Exercises. By Lothar Gottlieb Tirala. M.D., Ph.D., Professor of Medicine, University of Munich. Authorized Translation by Freda Douglas and Albrecht Douglas. M.D., Ph.D., Boards. Price \$1.25. Pp. 71 with 13 illustrations. New York: B. Westermann Company, Inc. [n. d.]

This small, highly personal monograph expounds the views of the author concerning the etiology, pathogenesis and therapy of hypertensive arterial disease. The basic physiologic facts are sound, but the interpretations of these facts are adapted to suit a theory. The author contends that acidosis is a primary factor in the causation of hypertension and thus that deep breathing exercises for five or six minutes from two to five times a day are curative through improved aeration and bettered elimination of carbon dioxide. The thesis is not convincing. There are some curious applications of logic, for example, the fact that hypertension is rare among professional singers in Munich is cited as proof of these contentions. The specific cases cited are unimpressive, to better the apparent results Tirala clings to the long discarded axiom that the normal arterial tension is 100 plus the age. The resulting figures are far too high. He also advocates a purely vegetarian diet and states that sexual activity should be uncurbed as repression upsets the chemical equilibrium. Constipation is said to play an important part in the etiology of high blood pressure, these concepts have long been discarded here. The monograph is thought provoking in places, but the general impression is that Tirala is so thoroughly convinced of his theory that he attempts to make the facts fit the theory. Scientifically the book is disappointing.

Vitamins in Theory and Practice By Leslie J Harris ScD Nutritional Laboratory University of Cambridge and Medical Research Council Second edition Cloth Price \$3 Pp 242 with 66 illustrations New York Macmillan Company Cambridge University Press 1937

Although the first edition of this book was printed in December 1935, it has been necessary, as the author points out, to subject the text to considerable revision for the second printing. During the year 1936 vitamin B₁ became chemically identified and synthesized, and the recognition of riboflavin and other factors as important constituents of the vitamin G complex became clear. Readers will find this little volume packed with up to the minute information on the vitamins. The book is noteworthy because of the number of new and interesting illustrations and because of the readable and authoritative way in which the subject is presented. One may see for example, a facsimile of a page from the book by Sir Richard Hawkins published in 1593 describing the symptoms of scurvy, a picture of Captain Cook and a reproduction of a page from Lind's treatise on scurvy, and illustrations showing the petechial hemorrhages and bleeding gums of scorbutic patients. Each of the important vitamins is described briefly and yet adequately. There are numerous anecdotes regarding the contributions of modern research workers, so that the reader obtains what might be described as a personal knowledge of the subject. The final chapter takes up the practical question of what to eat and affords a number of suggestions.

A Hand Book of Ocular Therapeutics By Sanford R Gifford MA MD FACS Professor of Ophthalmology Northwestern University Medical School Chicago Second edition Cloth Price \$3.75 Pp 341 with 60 illustrations Philadelphia Lea & Febiger 1937

The author prefaces the second edition of his popular textbook on ocular therapeutics by stating that he has modified certain opinions and that the efficacy of certain new preparations and procedures has been sufficiently proved clinically to justify their inclusion. But the real reason for a second edition within four years is the wide demand for the book. The original book has been enlarged and includes a full discussion of the use of vitamins and glandular extracts, of the therapeutic use of heat and cold and of certain ocular conditions not described in the first edition. The chapter on physical therapy has been rewritten. The illustrations have in certain instances been replaced by ones the author considers better. Although this is essentially a one man book, the personal pronoun does not appear. The arrangement in the sequence of the chapters is orderly, for in the beginning various therapeutic measures are discussed and in the last half the application of these measures in cases of ocular disease is described. The discussion of therapeutics is based on the extensive personal experience of the author. The book is one of the foremost American textbooks and should form an essential part of every ophthalmologist's library.

The Blood Groups of the Bantu of Southern Africa By Ronald Elsdon Dew MB ChB Thesis approved for the Degree of Doctor of Medicine in the University of the Witwatersrand Johannesburg Publication of The South African Institute for Medical Research No XXXI Vol VII Edited by the Director Paper Pp 217 300 Johannesburg The South African Institute for Medical Research 1936

In this monograph the author presents the results of blood grouping tests on ten different groups of 500 individuals each from ten Bantu tribes of southern Africa. His observations demonstrate that the Bantus are not homogeneous, since there are distinct and in some cases marked serologic differences between the various tribes. His results seem to indicate that the Bantus are more primitive serologically than other black races examined up to the present time. This monograph also contains a review of certain aspects of the technique of blood grouping and the heredity of the blood groups. On the whole, it is written in an intelligent and interesting fashion. Unfortunately the author does not seem to be thoroughly familiar with the more recent literature but this handicap is compensated by his command of mathematics and his critical and intelligent presentation. In discussing the theory of von Dungern and Hirsfeld, he presents it as if heredity depended on two completely linked pairs of genes, whereas the conception of the originators of the theory was that the blood groups are transmitted by means of two independent pairs of genes situated in different chromosomes. This misconception is not of great

moment, however, since the theory of von Dungern and Hirsfeld has been disproved and the Bernstein theory of heredity, which is now generally accepted, is accurately presented in the monograph.

Agnosia Apraxia Aphasia Their Value in Cerebral Localization By J M Nielsen BS MD Associate Clinical Professor of Medicine (Neurology) University of Southern California With the assistance of J P FitzGibbon AB MD Resident in Neurology Los Angeles County Hospital Los Angeles California Cloth Price \$3 Pp 210 with illustrations Los Angeles The Los Angeles Neurological Society, 1936

This is an excellent treatise on agnosia, apraxia and aphasia. The author had the good fortune of having Dr Samuel D Ingham, a keen neurologist, as an adviser as well as a teacher. The work is based on a clinical study of 240 cases with twenty-five necropsies, thirteen surgical verifications and two roentgenologic corroborations. Because of gross errors and unwarranted conclusions in the old teaching Nielsen does not believe that the idea that aphasia can be of diagnostic value in cerebral localization should be discarded for the psychologic point of view. He shows where neurosurgical removal of portions of the brain has given confirmatory evidence to the old doctrine. He feels that a diagnostic method should not be permitted to fall into disrepute merely because it is difficult. The book is divided into three parts. Part I includes an introduction, the author's concept of eugnosia, eupraxia and euphasia, the method of presentation, agnosia, apraxia, aphasia and miscellaneous terms. Part II includes a method of examination of the patient, with presentation of cases and conclusions. Part III includes an alphabetical list of symptoms with synonyms, annotations and epitomized value in cerebral localization. There is a large bibliography. This book should be in the library of every neuropsychiatrist.

Chemistry of Food and Nutrition By Henry C Sherman PhD ScD Mitchell Professor of Chemistry Columbia University Fifth edition Cloth Price \$3 Pp 640 with 38 illustrations New York Macmillan Company 1937

A former reviewer wrote that the previous edition of this textbook on nutrition deserved an enthusiastic welcome. So much has been accomplished in the last several years in the field which this book covers so well that the present edition is more than welcome. As before, the subject is concisely discussed in a simple but authoritative manner that conveys a good general understanding of the subject. The present volume includes practically all the important newer discoveries and is just as indispensable for workers in nutrition as were earlier editions.

Das Geschlechtsleben Seine Bedeutung für Individuum und Gemeinschaft Von Carl H Csallner Der Arzt als Erzieher Heft 73 Boards Price 1.58 marks Pp 81 Munich Verlag der Ärztlichen Rundschau Otto Gmelin 1937

Csallner considers the sexual function as a natural and ordained part of human existence, the proper exercise of which makes for the welfare of the individual and the best interests of human society. It is only because of prudery and false sentiment that the sex relationship has been surrounded with mystery and shame. The binding marriage is the natural way of satisfying the full sex life. So called free love is strongly condemned not only because of its effects on the individuals concerned but because it is inimical to the regulations of human society and to the race. The tragic position of the unmarried mother and of the fatherless child is stressed, also the illusion of the double moral standard for man and woman. The finest racial characteristics, the author points out are encouraged and flourish under a state of settled, regulated marriage. The foregoing views are set forward in fifteen short chapters in this little monograph.

Modern Discoveries in Medical Psychology By Clifford Allen MD MRCP DPM Psychotherapist to the Institute of Medical Psychology London Cloth Price \$2.75 Pp 280 New York & London Macmillan & Co Ltd 1937

This is an excellent account of the development of medical psychology from Mesmer to Pavlov. The work of these two investigators and that of Janet, Morton Prince, Freud, Adler, Jung and Kretschmer is considered at length, with a complete review of their publications and an estimate of the worth of their work. Short bibliographies are given at the end of each chapter. The book is written in a clear, readable manner and

seems to be the best historical account of this field of medicine that has appeared in English. Although leaning toward the side of psychoanalysis, the author is extremely fair minded and points out the value of the work of others besides the great contributions of Freud. The one lack is a general final chapter, which is needed to summarize the entire book. The volume may be safely put in the hands of a medical student or a general practitioner, and an intelligent layman would not find it beyond his comprehension.

Études sur le spina bifida. Par Jacques Leveuf, professeur agrégé à la Faculté de médecine de Paris. Avec la collaboration de MM. Ivan Bertrand, directeur à l'Ecole pratique des Hautes Études et H. Sternberg, assistant de la clinique orthopédique de l'Université de Vienne. Préface du Professeur G. Roussy. Paper. Price 75 francs. Pp 330 with 176 illustrations. Paris: Masson & Cie 1937.

This book on spina bifida, by Leveuf in collaboration with Bertrand and Sternberg, is one of the most complete studies on the subject. It is divided into the following parts: definition, pathologic anatomy and etiology, clinical study, clinical forms and prognoses, spina bifida occulta, pathogenesis, treatment, treatment of hydrocephalus, incontinence of urine and paralysis and deformities of the extremities, study of the end results and conclusions. The entire work is brilliantly done and critically analyzed with regard to eighty cases that were observed personally. The pathology, symptomatology, pathogenesis and operative procedures are described in detail. The various associated symptoms and sequelae of spina bifida are adequately discussed. Both Bertrand's and Sternberg's chapters on malformations add greatly to the value of this book. There is an ample bibliography. This book is highly recommended to all neurologists, neurosurgeons and orthopedic surgeons.

Going to Make a Speech? By E. St. Elmo Lewis, Counsel in Consumer and Trade Relations. Cloth. Price \$3. Pp 359. New York: Ronold Press Company 1936.

The author, who is an experienced speaker, has evidently given considerable thought to the preparation of the address, the nature of the audience, the peculiarities of speeches to be made on various occasions, and many similar problems with which the average speaker is concerned. His advice in general is excellent and the examples he has chosen from the available literature on the subject are exceedingly well selected. To any one who feels that a book of advice can help him in doing the job of public speaking better, this book is as good as any that can be recommended.

The Operations of Surgery. By R. P. Rowlands and Philip Turner. B.Sc. M.S. F.R.C.S. Consulting Surgeon to Guy's Hospital. Volume II. The Abdomen. Eighth edition. Cloth. Price \$10. Pp 998 with 514 illustrations. Baltimore: William Wood & Company 1937.

The second volume of this well known English guide to operative surgery deals essentially with operations on the abdominal and genito-urinary organs. Though it presents chiefly the work and methods used in Guy's Hospital, more than one technic is usually given for any one procedure. The technic is described in step by step detail in simple, clear style and is well and adequately illustrated. Great stress is laid on the indications and complications, as well as on errors that may occur. The material is accurate and up to date. This book is a worthwhile addition to the library of any surgeon.

Take Care of Yourself: A Practical Guide to Health and Beauty Stressing the Proper Way to Use and the Prudent Way to Buy Home Remedies and Cosmetics. By Jerome W. Ephraim. Foreword by Logan Clendening, M.D. Cloth. Price \$2. Pp 287, with 18 illustrations. New York: Simon & Schuster 1937.

This combines elementary high school physiology, the old family "doctor book" and the buyer's guide in one volume. In the introduction Mr. Ephraim makes a point of the fact that the book is not an expose. Dr. Clendening, who contributes the foreword to the volume, also considers debunking a vulgarity. Because of this conservative attitude, the style frequently lacks force. There is, however, much valuable information contained in the eighteen chapters regarding the skin, cosmetics, antiseptics and pain killers. The consumer will find much entertaining reading, including such chapters as "Your Hangover and How Not to Have One." The work, which is intended primarily for the lay reader, admirably fulfills its purpose.

A History of Medicine in the State of New York and the County of Monroe. By Florence A. Cooksley, B.A. M.A. Librarian, Rochester Academy of Medicine. Reprint from New York State Journal of Medicine 1936. Cloth. Pp 63. Rochester, N.Y.: Rochester Academy of Medicine [n.d.].

Although not a member of the medical profession, the author has acquired a real sympathy and understanding of medical men and their problems through her contact with medical writings and men in her professional work. After a general discussion of medical schools and societies in America, especially those in the state of New York, she devotes about half of her writing to Rochester and Monroe County. Her familiarity with local records has enabled her to write intelligently of the progress of local medicine and of local medical societies. She has graphically related the story of the early struggles and discouragements in efforts to secure a permanent home for a scientific society, free from political affiliation, built about a medical library, and furnishing a center for all medical activities and a place for the meetings of all local medical societies. This was finally accomplished in the present Rochester Academy of Medicine. The experience of Rochester is like that of many cities and should serve to encourage those who elsewhere are still hoping for similar achievements.

Atlas of Congenital Cardiac Disease. By Maude E. Abbott, B.A. M.D. F.R.C.P. Assistant Professor of Medical Research, McGill University, Montreal, Canada. Cloth. Price \$5.50. Pp 62 with 26 plates embodying over 200 illustrations. New York: American Heart Association 1936.

Beginning with an excellent plate showing five great scientists who have made fundamental contributions to our knowledge of congenital heart disease, Dr. Maude Abbott has collected in an atlas a series of plates showing the development of the heart, a classification of cardiac defects, anomalies, pathologic specimens, congenital disturbances, valvular difficulties, dextrocardia and many similar congenital complaints. The book is beautifully printed and excellently indexed and a necessary source book for every practitioner concerned with heart disease.

Encyclopedia of Sexual Knowledge. By A. Costler, M.D. A. Willy, M.D. and others under the general editorship of Norman Haire, Ch.M. M.B. Cloth. Price. Popular edition \$3. Pp 567. New York: Eugenics Publishing Company 1934.

This collection of essays by a variety of writers on modern sexual subjects is obviously written to appeal to a public audience, although a note states that it is positively restricted to physicians, lawyers, ministers, educators and social workers. Almost anybody can qualify under those categories. The book contains a great deal that is not well established in the physiology of sex. The book answers most of the questions that would occur to any one in relationship to sexual activities and also discusses a great many things that would not ordinarily occur to every one.

Aids to Diagnosis and Treatment of Diseases of Children. By F. M. B. Allen, M.D. M.R.C.P. Lecturer in Infant Hygiene and Diseases of Children, Queen's University Belfast. Seventh edition. Cloth. Price \$1.50. Pp 329. London: Baillière Tindall & Cox; Baltimore: William Wood & Co 1937.

This little book is remarkable for its completeness. The essentially pediatric subjects are covered in considerable detail. Discussions of infant feeding, enuresis and rheumatic fever, for instance, are quite complete. As evidence of its completeness, cevitic acid is suggested for scurvy, and in Hirschsprung's disease the author states that sympathetic ramsection has been successfully performed. The consideration of blood diseases is rather superficial. There is an appendix with methods of preparing foods, prescriptions used, and incubation periods of various acute infectious diseases. There are also various tables. This little book gives considerable accurate information for the money and is easily read.

Der Blutdruck des Menschen. Von Dr. med. Eschl. Kylin, Direktor der Medizin. Abteilung des Centrallasarettet, Jönköping/Schweden. Paper. Price 24 marks. Pp 322 with 22 illustrations. Dresden & Leipzig: Theodor Steinkopff 1937.

This monograph is a thorough review of the problems of abnormal arterial tension. The work is scholarly and well planned and contains a large and well selected European bibliography. Although the views of Kylin are not all generally accepted, the monograph is worthy of serious study by those specially interested in hypertensive arterial disease. It is not adapted to general medical or student consumption.

Dust of Our Time By H. Ameroy Hartwell. Cloth Pp 82 with one illustration by Fabion Zaccane Weehawken N. J. The Author 1936

The poems in this collection have the distinct feeling and tone that physicians and biologists invariably give to their poetical contributions, yet Dr. Hartwell's poems are not primarily medical. He is concerned equally with beauty in every field and he is able to reflect this in his writings. He is inclined primarily to the sonnet form, yet there is no limit to his variations.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Dental Practice Acts Delegation of Legislative Authority to Dental Schools and to Examining Board.—The dental practice act of Florida requires, among other things, that the examination of an applicant for a license must include "such subjects as are taught in accredited dental schools, and any other subjects which in the discretion of the Board are necessary." Pridgen, arrested for practicing dentistry without a license, petitioned the Supreme Court of Florida for a writ of habeas corpus, contending that this requirement was unconstitutional in that it constituted an invalid delegation of legislative authority to accredited dental schools and to the board of dental examiners.

The requirement that the examination "shall include such subjects as are taught in accredited dental schools," said the court, should be construed in connection with another provision of the dental practice act which requires that an applicant for examination shall file "his diploma or certificate of graduation from an accredited dental college as defined by the National Association of Dental Examiners." The latter requirement was held valid, as against the contention that it was an unlawful delegation of legislative authority, in *Spencer v. Hunt*, 109 Fla. 248, 147 So. 282. The two requirements taken together sufficiently define, the court thought, what is meant by the term "accredited dental schools." The requirement "against which counsel for petitioner leveled their heaviest artillery" in the present case, namely, the inclusion of "such subjects as are taught in accredited dental schools," was neither unreasonable nor arbitrary, the court continued, if fairly and justly administered by the board in keeping with the plain language of the statute. There was no showing here of any discrimination or wrongful conduct on the part of the board, and the presumption is that the board did its duty. It might have been a desirable safeguard against possible discrimination if the act had required the board of dental examiners to adopt a general rule or regulation specifying the subjects on which all applicants would be examined. In such case, the reasonableness and validity of such a general rule could easily be reviewed by the courts. The court, however, was by no means convinced that the requirement of the act under consideration constituted a delegation of legislative power, or that it was so vague and indefinite in its meaning as to deny to an applicant due process of law or the equal protection of the laws as guaranteed by the federal constitution.

But, said the court, the act further purported to authorize the board to examine applicants in "any other subjects which in the discretion of the Board are necessary." While the legislature may expressly authorize designated officials within definite limitations to provide rules and regulations for the complete operation and enforcement of the law within its express general purpose, it may not delegate the power to enact a law, or to declare what the law shall be, or to exercise an unrestricted discretion in applying the law. Under this provision, the board would be authorized to add any other subjects to those taught in accredited dental schools which in its discretion it might think necessary, however unrelated such additional subjects might be to the science of dentistry or dental surgery, and it might change these added subjects with each examination. This would open the door to rank discrimination as

between applicants without any means of redress. This provision, in the opinion of the court, not only constituted an undefined delegation of legislative power but would easily operate to deny the equal protection of the laws. It also falls within the condemnation of the rule against the delegation of legislative power by vague and general provisions. The objectionable clause, being unconstitutional, may be regarded as stricken from the act, leaving the remainder of the requirement in full force and effect. The petition did not show, the court said, whether the elimination of this objectionable clause from the act would have had any effect on Pridgen's case. The examination might have been confined to questions on such subjects as are taught in accredited dental schools, and hence within the valid requirements of the act.

On a rehearing, the court said that the failure of the act to fix any grade or percentage that an applicant must make did not invalidate the act. The board of examiners was authorized to adopt rules, and, in the absence of evidence to the contrary, it will be presumed that it has done so. If arbitrary or unreasonable rules with respect to passing grades have been adopted, there was no evidence of it. The act contemplates that only fair and reasonable rules shall be adopted, and in the absence of a showing to the contrary it will be presumed that the board members have done their duty. The court accordingly adhered to its original opinion, remanding Pridgen to the custody of the sheriff.—*Pridgen v. Sweat, Sheriff (Fla.)*, 170 So. 653.

Patents Evidence Insufficient to Show Anticipation of Hart Copper-Iron Patent for Treatment of Anemia.—In 1932 a patent was granted to E. B. Hart, professor of agricultural chemistry, University of Wisconsin, covering a combination of copper salts and the salts of iron, to be used for the treatment of anemia. Hart assigned his patent to the Wisconsin Alumni Research Foundation. The Foundation brought suit in the district court of the United States for the Western District of Missouri against George A. Breon & Company, alleging infringement of the patent. The defendant contended that Hart's patent was invalid inasmuch as the combination covered by it had been in use in the United States and had been described in publications in foreign countries before application was made for the patent. The district court dismissed the suit, and the Foundation appealed to the United States circuit court of appeals, eighth circuit.

The theory of the Hart patent, said the circuit court of appeals, and of the infringing product of the defendant, is that, when iron salts and copper salts are fed into the alimentary canal, the iron finds its way into the hemoglobin of the blood, that the copper, although it does not become part of the blood, "actuates" the iron, and that unless a salt of iron is combined and administered with a salt of copper, the iron salt is not effective. The sole question to be determined, said the court, is whether or not the invention described in the Hart patent had been anticipated. The validity of a patent is presumed, and that presumption can be overcome only by clear and satisfactory proof. Where foreign publications are relied on as vague and general representations will not support a defense, knowledge derivable from such publications must be sufficient to enable persons skilled in the art or science to understand the nature and operation of the supposed invention and to carry it into practical use without assistance from the patent alleged to have been anticipated.

The first of the publications offered in evidence by the defendant to prove that the Hart copper-iron patent had been anticipated was a catalogue issued in 1924 by the Haver-Glover Laboratories, manufacturers of veterinary medicinal preparations. The catalogue contained various formulas including copper sulfate, iron sulfate, and other ingredients for the treatment of intestinal parasitism in sheep and swine, of coughs in horses and cattle, of heaves in horses, of fowl cholera and of white diarrhea in chicks, but nowhere in it was anemia mentioned. A veterinarian testified for the defendant that all the diseases named were associated with anemia. The facts taken together, however, did not, in the opinion of the court, show that the catalogue in evidence disclosed the invention covered by the patent here under consideration. The burden was on the defendant to prove that the combination that he claimed to be

anticipatory of Hart's patent produced the same cure as that for which Hart's patented remedy was alleged to be a specific, not to show merely that that combination was a proper treatment for some other disease

An article published in Italian in 1862 by Dr L. Mendini, on a "Remedy for Amenorrhoea," was offered in evidence by the defendant. This article, said the court, clearly does not teach with that certainty required by law to invalidate a patent, that a combination of iron and copper is a cure for anemia. It does not appear from that article that scientists or doctors of medicine learned from it the virtues of such a combination for that purpose. It does not disclose even whether a formula containing iron was or was not used by the author. On the other hand, the author, in the judgment of the court, attributed the curative effect of the combination to copper alone, for he says that he "had many times awaited in vain when using pharmaceutical iron sulfate." Liegeois, in reviewing the works of Mendini in 1901, interpreted them to mean that Mendini's cures of chlorosis were due solely to the use of copper and not of iron.

A thesis by Albert Gonnet, entitled "Contribution to the Study of Copper and Its Compounds in Toxicology and Therapeutics," was offered in evidence. It discussed the therapeutic value of the copper sulfate found in the waters of various mineral springs in Europe. Gonnet clearly said that copper salts are a cure for anemia, as well as that iron constitutes such a cure, but he did not state that copper and iron must be combined to effect a cure. Such an inference from his writings, in the judgment of the court, was not plausible.

The defendant introduced in evidence also the translation of an article by Liegeois, published in 1900, entitled "Iron, Arsenic or Copper in Chlorosis." Liegeois, the defendant claimed taught in this article the principle on which the patent under consideration was based. He discussed the beneficial effect of the waters of the springs of Arceaux, containing copper sulfate, as a treatment for chlorosis, and apparently for the purpose of showing that the good results were not due to copper alone, he said that carbonate of iron and of manganese, arsenates, and chloride of sodium in the water had to be taken into account. Liegeois' article, said the court, does not teach the formula of the Hart patent. It attempts to prove that copper sulfate alone is a remedy for one form of anemia. It admits that the proof of its efficacy is not complete because of the presence in the spring water of several other substances, including iron, but Liegeois does not claim that copper must be combined with any of these substances in order to effect a cure.

A series of publications by a group of Italian scientists, offered in evidence, recognized that iron is an element of hemoglobin, and the authors sought to prove that other heavy metals could be substituted for iron. The authors' explanation of their difficulty in segregating copper from iron and other substances in the course of their experiments, did not, however, in the judgment of the court, teach that there was efficacy in any combination of the metals referred to, which was the essence of the Hart patent under consideration.

Expert witnesses testified that some of the publications introduced in evidence disclosed the use of combined iron and copper salts to cure anemia. The circuit court of appeals was persuaded, however, that the testimony of these witnesses was inconsistent with the plain statements of the authors of the publications that they undertook to interpret. In the opinion of the court it never occurred to the authors whose publications had been produced in evidence that the remedy for which they were searching, namely, a remedy to increase the hemoglobin content of the blood was to be found in some combination of inorganic iron and copper in definite proportions. The publications produced in evidence were clear, and in the judgment of the court, the assistance of experts to understand them was wholly unnecessary. They failed to disclose any anticipation of a combination such as that under consideration in such full, clear, and exact terms as to enable a person skilled in the art to produce and use it, without the necessity of experimentation. No scientist in all the years since these publications first appeared learned from them the teachings of the patent from the publications in evidence. Hart, the inventor in the judgment of the court discovered the formula embodied in his patent through independent and original investigations.

The circuit court of appeals held that the Hart copper iron patent had not been anticipated and that it was valid. The judgment of the trial court dismissing the suit was reversed. The case was remanded to the trial court for such further proceedings as were indicated.—*Wisconsin Alumni Research Foundation v. George A. Breon & Co., Inc.*, 85 F (2d) 166

Right of Private Hospital to Recover for Medical and Surgical Services—The defendant's wife was an inmate of the plaintiff's private hospital, where she was treated by a staff physician and by a surgeon not a member of the staff, whose employment was authorized by her. The hospital sued to recover the value of services performed, classified by the court as hospital services, medical and surgical services and nurse's services. The only matters in controversy were the plaintiff's right to recover (1) for the services rendered by the nurse and (2) for the services rendered by the physicians. In the absence of evidence to show that the nurse was not one of the regular staff of nurses employed under the direction of the administrative staff of the hospital, the court held that the plaintiff might properly recover the value of her services. A comprehensive survey of the relationship existing between hospital, physician and patient, however, said the court, compelled it to adopt the view that a hospital, rather than practicing medicine per se, is a place where medicine is practiced by physicians. The cases relegate a hospital to the role of a specialized hotel where the sick or infirm in body or mind may be treated by physicians expressly or impliedly employed by them. In the present case no impediment existed to a suit by the physicians who treated the defendant's wife. To allow recovery by the hospital for medical services would conceivably lay the foundation for two recoveries for the same acts, in the absence of a legal assignment to the plaintiff of the physicians' claim for compensation for their services. In the absence of any such assignment, the municipal court of the City of New York, Borough of Queens, first district, dismissed the hospital's claim for compensation for physicians' services.—*Daly's Astoria Sanatorium, Inc., v. Blair* (N Y), 291 N Y S 1006

Society Proceedings

COMING MEETINGS

- American Association of Obstetricians Gynecologists and Abdominal Surgeons Hot Springs Va Sept 20 22 Dr James R Bloss 418
Eleventh St Huntington W Va Secretary
- American Association of Railway Surgeons Chicago Sept 20 22 Dr
Daniel B Moss 547 W Jackson Blvd Chicago Secretary
- American Congress of Physical Therapy Cincinnati Sept 20 24 Dr
Richard Kovacs 1100 Park Ave New York Secretary
- American Hospital Association Atlantic City N J Sept 13 18 Dr
Bert W Caldwell 18 East Division St Chicago Executive Secretary
- American Public Health Association New York Oct 5 8 Dr R M
Atwater 50 West 50th St New York Executive Secretary
- American Roentgen Ray Society Chicago Sept 13 17 Dr Eugene P
Pendergrass 3400 Spruce St Philadelphia Secretary
- Clinical Orthopaedic Society Chicago Sept 30 Oct 2 Dr H Earle
Conwell 215 Medical Arts Bldg Birmingham Ala Secretary
- Colorado State Medical Society Colorado Springs Sept 22 25 Mr
Harvey T Sethman 537 Republic Building Denver, Executive
Secretary
- Idaho State Medical Association Boise Aug 30 Sept 3 Dr Harold W
Stone 105 North Eighth St Boise Secretary
- Indiana State Medical Association French Lick Oct 4 6 Mr T A
Hendricks 23 East Ohio St Indianapolis Executive Secretary
- Kentucky State Medical Association Richmond Sept 13 16 Dr A T
McCormack 532 West Main St Louisville Secretary
- Michigan State Medical Society Grand Rapids Sept 27 30 Dr L
Fernald Foster 311 Center Ave Bay City Secretary
- Mississippi Valley Medical Society Quincy Ill Sept 29 Oct 1 Dr
Harold Swanberg 510 Maine St Quincy Ill Secretary
- National Medical Association St Louis Aug 15 20 Dr John T Giver
1108 Church St Norfolk Va General Secretary
- Nevada State Medical Association Elko Sept 24 25 Dr Horace J
Brown 120 N Virginia St Reno Secretary
- Northern Minnesota Medical Association Virginia Aug 27 28 Dr J F
Norman Crookston Secretary
- Pennsylvania Medical Society of the State of Philadelphia Oct 4 7
Dr Walter F Donaldson 500 Penn Avenue Pittsburgh Secretary
- Radiological Society of North America Chicago Sept 13 17 Dr Donald
S Childs 607 Medical Arts Building Syracuse N Y Secretary
- Utah State Medical Association Salt Lake City Sept 2-4 Dr F M
McHugh 17 Exchange Place Salt Lake City Secretary
- Wisconsin State Medical Society of Milwaukee Sept 14 17 Mr J G
Crownhart 119 East Washington Ave Madison Secretary

Current Medical Literature

AMERICAN

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Titles marked with an asterisk (*) are abstracted below.

Annals of Internal Medicine, Lancaster, Pa

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Address at the Annual Convocation of American College of Physicians
E B Bradley Lexington Ky—p 1739

The American Board of Internal Medicine W L Bierring Des Moines
Iowa—p 1746

*Rheumatic Heart Disease in Philadelphia School Children J M Cahan
Philadelphia—p 1752

Gonococcal Endocarditis Treated with Artificial Fever (Kettering Hyper
therm) R H Williams Nashville Tenn—p 1766

*Severe Bone Marrow Depression Following Arsphenamine Report of
Two Cases with Recovery A Lieberman and A Weiss, New York
—p 1775

*Bacillus Friedlander Infections G Baehr G Schwartzman and E B
Greenspan New York—p 1788

Blood Pressure in Stenosis at Isthmus (Coarctation) of Aorta Case
Reports J T King Baltimore—p 1802

Massive Atelectatic Collapse of Lung Complicating Pneumococcal Pneu
monia M Finland Boston and H I L Loverud Manchester N H
—p 1828

Exocrine Functions of Pancreas C W McClure Boston—p 1848

*Vitamin C and Infection J M Faulkner and F H L Taylor Boston
—p 1867

Effects of Large Doses of Benzadrine Sulfate on Albino Rat Functional
and Tissue Changes W E Ehrlich and E B Krumbhaar Phila
delphia—p 1874

Rheumatic Heart Disease in Philadelphia Children—Cahan believes that about 1 per cent of the 350,000 children in the public and parochial schools of Philadelphia have some form of heart disease. Eleven public school physicians reviewed the medical record cards of 33,293 pupils enrolled in one school district. Of the 863 pupils listed for observation of their hearts by these physicians, 391 were considered worthy of study. The study has been made with the aid of an adequate history of juvenile rheumatic infection, and physical examinations for the detection of circulatory diseases. Examination was made twice at an interval of about one year, and in many cases a third examination was made in 1936. For recording moderate cardiac hypertrophy, a new landmark (preaxillary line) on the anterior wall of the chest is being suggested. It is an imaginary line on the front of each side of the chest, drawn vertically downward, midway between the midclavicular and anterior axillary lines, and parallel to them. Unlike the parasternal line which is similarly drawn from the medial half of the clavicle, the preaxillary line does not take origin from the outer half of the clavicle. The parents, the family physician, the pediatrician, the cardiologist and the hospital clinics form the main agencies for protecting children against the spread and aggravation of juvenile rheumatic heart disease. However, it is suggested that the school physician and nurse and the school principal should also be enrolled in a permanent campaign to assist in the detection and amelioration of rheumatic heart disease in children. The school years are a very important period in the child's physical life and development and have greater potentialities for the good or evil of a child with heart disease than of a healthy pupil. Their combined efforts can guide many of these unfortunate children more safely through the early educational years, prepare more wisely for a suitable vocation and at the same time choose safe avocations. It is possible that such wholehearted cooperation may reverse the tide and cause a decrease in the incidence of rheumatic heart disease not only in children but in adults.

Severe Bone Marrow Depression Following Arsphenamine—A study of the reports in the literature of blood dyscrasias caused by arsphenamine and of their two patients followed by Lieberman and Weiss from about June 1933 has confirmed their belief that most cases may best be considered early or late instances of the same toxic process which in its

severest form causes complete aplasia of the bone marrow. The two cases of complete bone marrow depression occurred several months after the administration of arsphenamine. An individual constitutional susceptibility of the bone marrow to the toxic agent may explain the occurrence of this relatively rare disease. In mode of onset blood pictures and clinical characteristics such cases resemble those due to chronic benzene poisoning. Although there is no definite proof, it is likely that the benzene ring into which the arsenic is substituted in arsphenamine is responsible for the blood dyscrasias, and not the arsenic. A study of bone marrow depression in chronic benzene poisoning and after arsphenamine administration indicates that the toxin most often shows an early affinity for the leukoblastic tissue in the bone marrow. Thus the early, easily reversible action of arsphenamine on the hematopoietic system is most often a reduction in the white blood cells, particularly the polymorphonuclears. Clinically this is expressed as a neutropenia associated with signs of lowered resistance—weakness, persistent colds, numerous smaller infections and the like. If this early neutropenic stage is recognized and the administration of arsphenamine stopped, the patient may be spared the later and frequently irreversible effects on the bone marrow of the accumulating arsphenamine (benzene). Reduction in the number and quality of the platelets with consequent bleeding from the mucous membranes of the nose, mouth and gastrointestinal tract is more likely to be a later than an early effect. The bleeding alone explains the marked secondary anemia that finally occurs in most cases, although a direct depression of the erythroblastic tissues may be the cause of the erythrocytopenia in some. If puncture reveals a bone marrow that is not aplastic, blood transfusions persisted in for many weeks may tide the patient over the period of temporary marrow inactivity and lead to permanent recovery, as in the two cases reported. If a true aplasia of the bone marrow has already resulted, the outlook is practically hopeless. The prognostic importance of bone marrow puncture in this connection cannot be overemphasized. Persistently repeated transfusions offer the only hope at this late stage of the disease.

Friedlander Bacillus Infections—Baehr and his colleagues report 198 instances of Friedlander bacillus infections which indicate that the organism is predominantly associated with abdominal infections, especially suppurations due to perforations of the appendix and colon, and next most frequently with excretory infections of the biliary and the urinary tract. In this respect it conforms pathogenically with *Bacillus coli* and other gram negative bacilli of the intestinal flora. In comparison with the frequency of Friedländer infections of the abdominal viscera, infections of the respiratory tract with this organism are relatively uncommon. It is therefore recommended that the terms *Bacillus pneumoniae* and *Pneumobacillus* be abandoned because they have served to perpetuate a wrong conception of the essential role of the bacillus of Friedländer in infections, and that the bacteriologic designation *Klebsiella pneumoniae* be changed to *Klebsiella friedländeri*. In the 198 infections there were only two cases of pneumonia in which the clinical and bacteriologic evidence during life left no doubt that the Friedländer bacillus was the primary cause of the pulmonary infection. These were the only two proved cases observed at the Mount Sinai Hospital, New York, during a period of thirty-six years. In seven other cases of lobar or bronchopneumonia the Friedländer bacillus was recovered from the sputum or lung during life in association with pneumococci or streptococci.

Vitamin C and Infection—Faulkner and Taylor sought evidence with regard to the effect of infection on the vitamin C metabolism by estimating the blood ascorbic acid in a large group of hospital patients and controls, and by "balance" experiments in a few patients with infections. They observed that the serum ascorbic acid levels in patients with infections are usually well below the values seen in normal persons and often reach figures encountered in manifest clinical scurvy. The amount of vitamin C in the diet necessary to bring the serum level and the urinary output to normal values in the presence of infection is far greater than the normal requirements. The effect of rheumatic fever on the vitamin C metabolism appears to be the same as that of other infectious diseases.

Archives of Dermatology and Syphilology, Chicago

36 1246 (July) 1937

- Lymphatic Leukemia Report of Case Apparently Limited to the Skin Superficial Lymphatic Glands and Blood Stream J M Hitch and D C Smith Charlottesville Va—p 1
- Effect of Salts on Certain Pathogenic Fungi J W Williams and W Southworth Cambridge Mass—p 14
- Keloids and Sexual Selection Study in Racial Distribution of Disease M G Bobrod Peoria Ill—p 19
- Clinical Spectroscopy Report of Case of Pustular Dermatitis Following Fluoride Medication for Psoriasis L E Gaul New York—p 26
- Steatocystoma Multiplex L B Mount St Petersburg Fla—p 31
- Acne Necrotica Miliaris of Scalp H Montgomery Rochester, Minn—p 40
- Section on Dermatology and Syphilology of American Medical Association Its Foundation and Early Years W T Corlett Cleveland and P E Bechet New York—p 45
- Bowen's Precancerous with Carcinoma Report of Case of Organized Syphilitic Vulvar Papules Leukoplakia Bowen's Precancerous and Basal Cell Carcinoma L C Goldberg Cincinnati—p 47
- Fate and Activity of Autografts and Homografts of Skin in White Rats E O Butcher Clinton N Y—p 53
- Incidence of Dermatoses in Student Health Service H E Alderson and A Reich San Francisco—p 57
- Transient Discoloration of Nails Due to Mercury Bichloride J L Callaway Philadelphia—p 62
- Telangiectasis Macularis Eruptiva Perstans Report of Early Stage in a Child F I Ball Los Angeles—p 65
- Blastomycosis Report of Case with Involvement of Skin and Bones A W Bergstrom Grace Nugent and M C Snider Binghamton, N Y—p 70
- *Glomus Tumor Report of Two Cases with Histologic Observations A H Slepjan Chicago—p 77
- Calcinosis with Scleroderma J Brody and D E Bellin Brooklyn—p 85
- Specific Treatment of Staphylococcal Infections of Skin P F Stookey and L A Scarpellino Kansas City Mo—p 106
- Cosmetic Dermatology I Triethanolamine H Goodman New York—p 116
- Effects of Cholesterol in Petrolatum on Loss of Water by Skin and on Cleansing K K Jones and D E Murray Chicago—p 119
- Cutaneous Actinomycosis Report of Two Cases H A Salzmann and I Kessler Philadelphia—p 131

The Glomus Tumor—Slepjan cites two cases of glomus tumor which illustrate the type of neurovascular tumor that has recently attracted so much attention. In case 1 four years has elapsed since the tumor was removed. Although there is not sufficient clinical evidence to suggest a recurrence, deep pressure over the scar causes severe radiating pain up and down the anterior aspect of the leg. Recently an instance of a non-metastasizing malignant tumor of the small pelvis derived from the glomus coccygeum was reported by Kufner, who expressed the opinion that, since the glomus coccygeum is a homologue of the normal glomus, all tumors arising from it are glomus tumors. The author has been unable to find other reports of malignant changes. The history of a benign, slow growing, painful subcutaneous nodule with or without associated vasomotor changes of the extremities should suggest a glomus tumor. The histologic picture will readily confirm the diagnosis. Simple excision of the tumor leads to immediate alleviation of the pain.

Archives of Otolaryngology, Chicago

25 601718 (June) 1937

- *Direct versus Intermediate Pathways in Infections of Mastoid L G Hadjopoulos and J W Bell New York—p 601
- *Some Observations on the Management of Infections of Blood Stream from Mastoiditis R A Fenton Portland Ore—p 618
- Grafts in the Round Window in Treatment of Certain Types of Deafness W Hughson Abington Pa—p 623
- Otic Hydrocephalus H L Williams Rochester Minn—p 632
- Meningitis Due to Type III Pneumococcus Review of Literature and Report of Case of Otic Origin with Recovery Following Radical Mastoidectomy and Labyrinthectomy C H Allman Boston—p 653
- Meningitis Due to Type IV Pneumococcus with Recovery Report of Case P S Mertins and P S Mertins Jr Montgomery Ala—p 657
- Thrombophlebitis of Lateral Sinus Observations in Series of Twenty Two Cases S D Greenfield Brooklyn—p 661
- Contribution to Symptomatology of Foreign Bodies in Air Passages W Jaroslavsky Vinnytsia Ukraine U S S R—p 684
- Esophagobronchial Fistula H J Moersch and H W Schmidt Rochester Minn—p 689
- Intradural Abscess Complicating Acute Mastoiditis with Subperiosteal Abscess in an Infant Report of Case G W Olson Fresno Calif—p 693

Pathways in Infections of the Mastoid—In contrast to the general belief that the common source of infection of the mastoid is through the natural anatomic atria—the eustachian tube tympanum antrum and mastoid cells—Hadjopoulos and Bell give evidence to support the less accepted theory that the

major and more important sources of infection of the mastoid are the blood and lymph channels of the adjacent mucosa. A means of demonstrating streptococci in mastoid tissues failed to show streptococci diffusely disseminated in such tissues. On the contrary, they encountered them strictly localized in certain channels in the tissues, of which some were definitely venous, others lymphatic and still others indefinite as to origin but definite in outline.

Management of Infections of the Blood Stream from Mastoiditis—Fenton submits certain points in clinical management of two recent cases of otitic septicemia. The first of these boys had so violent an invasion of the blood stream within forty-eight hours that six large transfusions over a course of six weeks were required to bring his temperature to normal and to secure a negative blood culture. The second lad, whose tremendous drop in resistance was evidenced by his lack of fever and leukocytic response, had a complete occlusion of one jugular vein, probably at the bulb, yet he required only five small transfusions and was out of the hospital in less than four weeks. In neither case was there evidence of any inflammatory process in the mastoid portion of the sigmoid sinus or in the exposed jugular vein when tied. Yet the entire mastoid process in each child was filled with thin seropus and black clots. The bony trabeculae were still hard. It seemed wise to isolate any possible obstruction or mural clot in the region of the bulb by destroying the jugular vein below as well as the sigmoid sinus in the mastoid. As much time as possible was saved in both operations by the use of ethylene anesthesia and by having a second surgical team attend to the jugular ligation the instant the mastoid wound was packed and sutured. There was no roentgenographic preoperative evidence of anomalies of the sinus to explain the closed left jugular vein in the second case. Routine blood typing of all patients with involvement of the mastoid should be done, especially children in whom there seems any possibility of sinus involvement. Thus, it is known whether a supporting blood transfusion should precede an operation or/and follow it by as many others as may be needed. The main point in the treatment of aural disease in cases in which blood cultures are positive or in which one suspects that such cultures may be obtained by proper technic seems to be swift, shockless and complete operation, preceded or accompanied by blood transfusions. Blood culture does not fail as often if made just before an expected rise in temperature, often at the beginning of a chill.

Florida Medical Association Journal, Jacksonville

23 611668 (June) 1937

- Value of Skeletal Traction Especially in Some Fractures Near the Joints P LeBreton St Petersburg—p 623
- Some Observations on Blood Pressure J G Gaines Blountstown—p 628
- Brain Surgery and Epilepsy J G Lyster Jacksonville—p 631
- Medicine and Economics T F Hahn DeLand—p 635
- Comments on Blood Transfusions C C Mendoza Jacksonville—p 640
- Pediatric Fallacies C C Rudolph St Petersburg—p 641

Johns Hopkins Hospital Bulletin, Baltimore

60 377448 (June) 1937

- Renal Osteitis Fibrosa Cystica Report of Case with Discussion of Metabolic Aspects F Albright T G Drake and H W Sulkowitch Boston—p 377
- Attempt to Condition Adrenalin Hypertension W H Gantt S Katz enelbogen and R B Loucks Baltimore—p 400
- Occurrence of Constitutional Reactions in Treatment of Hay Fever and Asthma Analysis of Causative Factors F F Furstenberg and L N Gay Baltimore—p 412
- *Prolonged Coagulation Time Subsequent to Anaphylactic Shock H Eagle C G Johnston and I S Ravdin Philadelphia—p 478

Prolonged Coagulation Time Subsequent to Anaphylactic Shock—According to Eagle and his associates the retarded coagulation observed in six rabbits and eleven dogs immediately after anaphylactic shock was regularly associated with the presence of increased amounts of antithrombin in the blood. The increased antithrombin activity was as much as a hundred times the normal level. The fibrinogen content of the plasma was not significantly affected. There is reason to believe that even the plasmas completely noncoagulable by calcium and tissue extract nevertheless contained sufficient prothrombin to effect coagulation, and although the platelet count was usually decreased after anaphylactic shock the

amount remaining would ordinarily have sufficed to cause coagulation within approximately normal time limits. The increased antithrombic activity of the blood after anaphylactic shock is apparently the primary cause of the observed retardation of coagulation.

Journal of Bacteriology, Baltimore

33 577 678 (June) 1937

- Micro Organisms Causing Fermentation Flavors in Cane Syrups Especially Barbados "Molasses" H H Hall, L H James and E K Nelson Washington, D C—p 577
Study of *d* Arabinose Fermentation S A Koser and Elizabeth F Vaughan Chicago—p 587
Intermediate Dissimilation of Glucose by *Aerobacter Indologenes* H Reynolds and C H Werkman Ames Iowa—p 603
Inactivation of Encephalitis Virus (St Louis Type) by Means of Soft X Rays Helen Norris Moore and H Kersten Cincinnati—p 615
Insect Menace in Bacteriology Laboratory Dorothy Pease New York—p 619
Studies on Minute Hemolytic Streptococci III Serologic Differentiation Eleanor A Bliss Baltimore—p 625

Journal of Bone and Joint Surgery, Boston

19 575 872 (July) 1937 Partial Index

- Treatment of Fracture Dislocations of Cervical Vertebrae by Skeletal Traction and Fusion W Cone and W G Turner Montreal—p 584
Spinal Deformity Following Tetanus and Its Relation to Juvenile Kyphosis O T Roberg Jr Chicago—p 603
*Serum Phosphatase Its Clinical Application in Diseases of Bone C L Mitchell and R R Crawford Detroit—p 630
*Joint Changes Resulting from Patellar Displacement and Their Relation to Degenerative Joint Disease G A Bennett and W Bauer Boston—p 667
Lesions of Lumbosacral Spine Part II Chronic Traumatic (Postural) Destruction of Lumbosacral Intervertebral Disk P C Williams Dallas Texas—p 690
Conservative Therapy for Fracture of Os Calcis O J Hermann Boston—p 709
Operative Treatment of Tuberculosis of Knee Joint S Tregubov, Kharkov U S S R—p 734
Low Back Pain Anatomic Structure of Lumbar Region Including Variations T A Willis Cleveland—p 745
Operative Treatment for Low Back Pain E L Compere Chicago—p 749
Results of Fasciotomy for Relief of Sciatic Pain A D Smith New York—p 765
Root Pain Resulting from Intraspinous Protrusion of Intervertebral Disks Diagnosis and Surgical Treatment J G Love and J D Camp, Rochester Minn—p 776
Multiple Epiphyseal Anomalies in Hands of Patient with Legg Perthes Disease C O Adams Chicago—p 814
Primary Carcinoma of Liver with Metastasis to Bone Report of Case D W Hedrick Detroit—p 817
Treatment of Flatfoot by Means of Exercise E Bettmann Leipzig Germany—p 821
Acute Neisserian Intrapelvic Protrusion of Acetabulum (Otto Pelvis) D Sloane and Marian Frauenthal Sloane, New York—p 843

Serum Phosphatase in Diseases of Bone—Mitchell and Crawford review the literature pertaining to the clinical application of serum phosphatase to bone disease and present the results of their investigations. They find that, in general, there is an increase in serum phosphatase activity accompanying the formation of unusual amounts of new or of abnormal bone. There appears to be little or no increase associated with the purely destructive lesion of bone. Determinations of serum phosphatase are an important aid in the diagnosis and differential diagnosis of Paget's disease, osteitis fibrosa cystica and tumors of bone. The level of serum phosphatase activity cannot be used as an index of healing or of the ability of a fracture to heal. No significant changes in serum phosphatase activity were noted in cases of bone and joint tuberculosis and of osteomyelitis. Serial phosphatase determinations are suggested as a criterion of effective therapy in Paget's disease, hyperparathyroidism, osteoblastic osteogenic sarcoma and rickets.

Joint Changes from Patellar Displacement—Bennett and Bauer endeavored to determine the effects of patellar displacement in knee joints (in rabbits) which had not been opened surgically or traumatized in any other manner, and to compare the changes produced with those found in human knee joints with displaced patellas. From their observations, it is apparent that the chief characteristics of degenerative joint disease—degeneration of articular cartilage, condensation of subchondral bone and marginal lipping—do occur soon after displacement of the patella. That similar intra-articular changes develop at an early age in the human knee joint as a result of patellar displacement is well illustrated by a case that

they report. Patellar displacement is of itself adequate cause for degenerative and hypertrophic changes in cartilage, similar to those of degenerative joint disease. The undue pressure and friction of the experimentally displaced patellas resulted in rapid loss of the underlying articular cartilage with subsequent eburnation of the subchondral bone. The absence of normal patellar apposition and, in consequence, of lubrication of the nonarticulating surfaces with synovial fluid was responsible for articular cartilage degeneration and atrophy. Proliferation of the connective tissue at the perichondrial margins of the articular surfaces led to well defined marginal overgrowth. This marginal overgrowth was sufficiently marked to form a new patellar articulating surface on the medial side of the femur. The repeated stretching of the synovial membrane at its insertion, coincident with full extension, would seem adequate stimulus to cause the vascular, undifferentiated, perichondrial connective tissue to proliferate sufficiently to result ultimately in marginal lipping. Such marginal proliferation occurs to some degree in all joints with increasing age and long continued use but develops much more rapidly in joints with anatomic derangements such as patellar displacement. The clinical and pathologic observations from the patient with bilateral displacement of the patella were identical with those of degenerative joint disease. These studies emphasize the importance of early corrective measures in patients with a displaced patella if irreparable joint damage is to be prevented.

Journal of Comparative Neurology, Philadelphia

67 1 182 (June) 1937

- Structure of Primary Olfactory Cortex of Mouse J L O Leary St Louis—p 1
Function of the Brain in Auditory Localization III Postoperative Solution of an Auditory Spatial Problem L A Pennington Chicago—p 33
Quantitative Studies of Vagus Nerve in the Cat I Ratio of Sensory to Motor Fibers J O Foley and F S DuBois University Ala—p 49
Id II Ratio of Jugular to Nodose Fibers F S DuBois and J O Foley University Ala—p 69
Structural Variations of Visual Cortex in Primates Gu Ngowyang Nanking China—p 89
Function and Structure in Chronically Isolated Lumbosacral Spinal Cord of Dog Sarah S Tower Baltimore—p 109
Innervation of Abdominal Chromaffin Tissue W H Hollinshead, Durham, N C—p 133
Localization Within Cerebellum of Reactions to Faradic Cerebellar Stimulation W K Hare H W Magoun and S W Ranson Chicago—p 145

Journal of Pediatrics, St Louis

10 719 852 (June) 1937

- Recurrent Vomiting in Children Its Etiology and Treatment C H Smith New York—p 719
Interpretation of X Ray Films in Diagnosis of Rickets T B Cooley and L Reynolds Detroit—p 743
Calcium and Phosphorus Studies XIII Effect of Emulsification on Potency of Viosterol in Treatment of Rickets in Children D H Sbellings Brooklyn—p 748
Composition of Average Pediatric Practice A H London Jr Durham N C—p 762
Roentgen Rays in Treatment of Acute Cervical Adenitis S Hurwitz and S N Zuckerman San Francisco—p 772
*Lymphatic Leukemia with Pertussis W Levy M J H Grand and S A Krakauer New York—p 781
Incidence of Breast Feeding in Suburban Metropolitan Area R Blessing Evanston Ill—p 792
Von Gierke's Disease with Marked Lipemia Case P Hogg and J B Sidbury Wilmington N C—p 798
*Rapid Micro-Hinton and Capillary Hinton Test for Syphilis with Discussion of Detection of Syphilis by Serologic Methods J A V Davies Boston—p 802
*Hemophilia in Negroes Three Cases and Two Genealogical Charts D J Pachman Durham N C—p 809
Extremity Restraint Splint G Wilens Torrington, Conn—p 817

Lymphatic Leukemia with Pertussis—Levy and his associates report a case of lymphatic leukemia with pertussis and emphasize the absence of similar case reports. The difficulties encountered in differentiating lymphocytic reactions in acute lymphatic leukemia and pertussis are discussed. Attention is called to the confusion that may arise in differentiating between a remission of a lymphatic leukemia and a case of convalescent whooping cough. Hyperleukocytosis in pertussis should be followed by repeated blood counts so that latent leukemias may be detected.

"Rapid" Micro-Hinton Test for Syphilis—Davies developed a micro-Hinton and a capillary Hinton flocculation test (*J Lab & Clin Med* 22 952 [June] 1937) which employ

small amounts of serum. Since February 1935 more than 500 blood specimens, obtained in most instances in a routine way by skin puncture from patients at the Infants' and Children's Hospitals, have been examined by either the micro-Hinton or the capillary Hinton method or both. It has been possible to check the accuracy of 464 of these tests against the clinical diagnoses and the results of other tests. The micro-Hinton and the capillary Hinton tests were found to be 91.9 per cent sensitive and 100 per cent specific. The control Hinton test, performed on the same specimens in another laboratory, was 88.6 per cent sensitive and 100 per cent specific. The micro-Hinton and the capillary Hinton tests share the general advantages of the regular Hinton flocculation test in accuracy, ease of performance, economy and stability of the glycerinated antigen or "indicator" employed. No apparent loss of sensitivity has followed the shortening of the incubation period to one-half hour from sixteen hours. Of 238 "rapid" micro-Hinton and capillary Hinton tests, all but three agreed with the regular Hinton tests. One micro-Hinton test was positive when the Hinton test was doubtful, one capillary Hinton test was negative when the Hinton test was doubtful, and one capillary Hinton test was positive when the regular Hinton test was negative.

Hemophilia in Negroes—Pachman has seen three Negro hemophilic patients, two of whom have a definite family history and a genealogy which is fairly typical. In the third case the diagnosis may be questioned, but the history and the x-ray studies are typical of hemophilia. Blood coagulant extract from the placenta was tried in two cases, with apparent good results in one case. Theelin therapy was followed by improvement in one case.

Journal of Thoracic Surgery, St. Louis

G 477 594 (June) 1937

*Control Group for Studying End Results of Thoracoplasty. Analysis of Course of Those Patients Refusing Operation. S O Freedlander and S E Wolpaw. Cleveland—p 477.

Paraffin Pack and Thoracoplasty in Closure of Large Apical Cavities. J R Head. Chicago—p 491.

Partial Resection of Lower Scapula as an Aid in Compressing Apical Tuberculous Abscesses and in Conserving Vital Capacity. E Holman. San Francisco—p 496.

*Closed and Open Intrapleural Pneumonolysis. Results in 111 and Twenty-Nine Cases Respectively. R S Anderson, Howell Mich. and J Alexander. Ann Arbor Mich.—p 502.

Artificial Pneumothorax with Particular Reference to Ambulatory Patient. J A Myers. Minneapolis—p 513.

Studies on Tuberculin Hypersensitivity. I. Relation of Hypersensitivity to Tuberculin to Postthoracoplasty Reaction. W M Tuttle, E J O'Brien. Detroit and E A Graham. St. Louis—p 544.

Diagnosis, Treatment and Prognosis in Tuberculous Tracheobronchitis. P C Samson. Ann Arbor Mich.—p 561.

End Results of Thoracoplasty—Freedlander and Wolpaw compare the results in 153 patients to whom thoracoplasty was recommended, eighty-five of these patients accepted operation and fifty-eight refused. From one to four years later 66 per cent of the thoracoplasty group were closed or improved, in contrast to 17 per cent of the control group. On the other hand while 21 per cent of the thoracoplasty group were worse or dead, this was the fate of 61 per cent of the control group. Therefore, in the series, thoracoplasty increased by four times the chance of therapeutic improvement and decreased by two thirds the possibility of becoming worse. In the slipping chronic group thoracoplasty increased by seven times the possibility of therapeutic improvement and decreased by slightly less than two thirds the possibility of becoming worse. In the good chronic group thoracoplasty increased by three times the chance of therapeutic improvement and decreased by slightly more than two thirds the possibility of becoming worse. To delay operation in the good chronic case in the hope of spontaneous recovery is unjustifiable. A study of ten patients whose operation was delayed from one to three years after it was first advised contributes further evidence that procrastination is hazardous.

Closed and Open Intrapleural Pneumonolysis—Anderson and Alexander used the closed intrapleural pneumonolysis in 111 patients between 1927 and 1934. The operation was performed in the 111 cases an average of 8.6 months after the induction of pneumothorax. Open intrapleural pneumonolysis was used in twenty-nine cases. Of the 111 and twenty-nine

patients, respectively, 20.7 and 20.7 per cent were arrested or apparently arrested, 14.4 and 3.4 per cent were quiescent, 42.3 and 55.1 were improved, 10 and 10.4 per cent were unimproved or worse and 12.6 and 10.4 per cent died. The authors conclude that closed intrapleural pneumonolysis is a highly valuable operation for certain carefully selected cases of inadequate pneumothorax that are unsuitable for treatment by phrenic paralysis. In well selected cases, closed pneumonolysis is decidedly preferable to thoracoplasty. In a considerable proportion of patients for whom closed pneumonolysis is technically possible, thoracoplasty is contraindicated because of too active lesions in the contralateral lung. Open intrapleural pneumonolysis is valuable for a small group of patients whose adhesions are too short or complex in arrangement for safe division by the closed method of pneumonolysis. An open operation may be used for certain cases of bilateral active tuberculosis for which a thoracoplasty would be definitely contraindicated. Open intrapleural pneumonolysis should be reserved for those patients in whom phrenic paralysis, if indicated, and closed intrapleural pneumonolysis have already been tried, and in whom thoracoplasty is contraindicated and to whom the open operation offers the only chance of recovery.

Michigan State Medical Society Journal, Lansing

36 357 440 (June) 1937

Postgraduate Education in Medicine. J D Bruce. Ann Arbor—p 369.

Clinical Application of Coagulant Substance Obtained from Human Placenta. R C Eley. Boston—p 377.

Various Anesthetic Agents Especially Some of the Newer Preparations. J S Lundy and E B Tuohy. Rochester Minn.—p 381.

Corneal Lesions. N Bentley. Detroit—p 385.

Some Observations on Epithelial Tumors of Bladder. W E Keane. Detroit—p 388.

Trichophytids in Relation to Eczema. S J Levin and G W Hyde. Detroit—p 392.

Pruritus. L Orecklin. Detroit—p 394.

New England Journal of Medicine, Boston

216 961 1002 (June 3) 1937

The Medical Society and Maternal Mortality. J W O'Connor. Worcester Mass.—p 961.

George W. Gay. Lecture on Medical Ethics. L K Lunt, Valleyhead. Concord Mass.—p 965.

Postoperative Pulmonary Complications. A H Miller. Providence. R I—p 973.

Pasteurized versus Raw Milk in Undulant Fever. J I Weisman. Springfield Mass.—p 977.

*Insulating Patches and Absorbable Sutures Made from Fetal Membranes. H L Johnson. Boston—p 978.

Absorbable Sutures Made from Fetal Membranes—

Johnson believes that by the use of properly prepared and

preserved membranous patches, made from human amniotic and

bovine allantoic and amniotic membranes, a substantial con-

tribution can be made to the successful handling or rather

prevention of the formation of postoperative adhesions. A care-

ful operative technic in the application of the patch is essential

if good results are to be obtained. Gross and microscopic

study of the tissues involved shows that this new technic is

safe and effective in the experimental animal. The use of

insulating patches may prove especially applicable to surgery

of the peritoneal cavity, tendons, nerves, blood vessels and

joints.

New Jersey Medical Society Journal, Trenton

34 367 428 (June) 1937

Society and Organized Medicine. C G Heyd. New York—p 313.

What Can the Private Physician Do to Aid in Control of Syphilis? T Parran. Washington D C—p 375.

Social Aspects of Medicine. H W Haggard, New Haven Conn.—p 377.

Abdominal Emergencies Associated with Meckel's Diverticulum. Report of Case. P M McCray, E R Rustine and J U Gunter. Camden—p 384.

Ectopic Pregnancy. Maternal Welfare Article Number Sixteen. E G Waters. Jersey City—p 386.

Philippine Islands Med Association Journal, Manila

17 263 326 (May) 1937

Present Status of Hemoglobin Estimations. N Cordero. Manila—p 263.

Labyrinthitis. Clinical Analysis of Fifteen Cases. A S Fernando and G de Ocampo. Manila—p 271.

Endocrine Studies. Hypothyroidism and Hyperthyroidism. R M de Manila—p 287.

Surgical Correction of Uterine Retroversion. C D Franco. Manila—p 297.

Radiology, Syracuse, N Y

28 651 780 (June) 1937

- Pulmonary Pneumatocele (Localized Alveolar or Lobular Ectasia) Certain Considerations in Cystic Disease of Lung C B Peirce and P R Dirkse Ann Arbor Mich—p 651
- Radiographic Appearances About the Shoulder Joint with Especial Reference to Cystlike Shadows Clinical Cases J J Morton and W W Fray Rochester N Y—p 668
- Effect of Position on Productions of Cystlike Shadows About the Shoulder Joint W W Fray Rochester N Y—p 673
- Gastro Intestinal Tract in Children J S Bouslog Denver—p 683
- Method for Decreasing Ionization in Skin Applicable to Supervoltage X Ray Therapy G Failla G Twombly and L Marinelli, New York—p 693
- *Roentgenologic Findings of Posttraumatic Sequels of Head Injuries Encephalographic Study J T Travers New York—p 704
- Roentgen Analysis of Spine Description of Some New Technical Instruments H Jordan New York—p 714
- Carcinoma of Ovary Results Secured by Radiation Therapy L G Jacobs and W Stenstrom Minneapolis—p 725
- Treatment of Hypotonic Megacolon by Administration of Pancreatic Tissue Extract R J Reeves and E K Harrison Durham N C—p 731
- Some Lawsuits I Have Met and Some of the Lessons to Be Learned from Them (Second Series First Instalment) I S Trostler Chicago—p 736

Roentgen Signs of Sequels of Head Injuries—In his experience, Travers has found encephalography of definite value in the study of posttraumatic sequels, and particularly in the differential diagnosis of subdural hematoma. In a recent series of fourteen cases with posttraumatic sequels of head injuries there were four cases of subdural hematoma (confirmed by operation). The encephalographic studies in these cases revealed a marked shift of the ventricular system to the side opposite the lesion, with compression and deformity of the ventricle on the side of the lesion or (in one instance) a failure to demonstrate this ventricle at all. Failure of the subarachnoid space to fill on the side of the lesion was also discerned in another instance. In only one case was a diagnosis of subdural hematoma made preoperatively which could not be confirmed at operation. In the remaining nine cases there was roentgenologic evidence of brain atrophy. In three cases there was enlargement of both lateral ventricles, and in two of these a corresponding dilatation of the third ventricle. In all three cases the cerebral sulci were coarse, an indication of cortical atrophy, and in one case the basal cisterns were enlarged showing atrophy of the adjacent structures. In the latter case one of the lateral ventricles was slightly larger than the other. In five of these nine cases, one lateral ventricle was dilated and the sulci were coarse, in one case porencephaly was noted. In these five cases there was almost complete relief of symptoms following encephalography. Any displacement of the ventricle in these cases of cortical atrophy was toward the site of the lesion, owing to cortical fibrosis. In one case—in which the exact diagnosis was doubtful—there was air in the subdural space but no evidence of brain atrophy.

Tennessee State Medical Assn Journal, Nashville

30 191 230 (June) 1937

- *Unusual Types of Intracranial Tumors Reports of Five Cases C Pilcher Nashville—p 191
- An Abstract of the Literature on Protositis E Rosamond Memphis—p 200
- Roentgen Therapy of Malignancy of Head and Neck V W Archer and W D Hankins Charlottesville Va—p 203
- The Management of Home Deliveries H H Jenkins Knoxville—p 211

Unusual Types of Intracranial Tumors—Pilcher states that the majority of intracranial tumors fall into three great groups: the gliomas, arising from the brain itself, the fibroblastomas, arising from the covering membranes of the brain and cranial nerves, and the tumors arising from the pituitary body and its related structures. There are, however, numerous unusual or rare types of tumor many of them benign, encapsulated and amenable to operative removal and cure. Five of these unusual cases are given. 1 The patient complained of right-sided headaches for ten years nocturnal convulsions for three years and tinnitus, dizziness and dreamy spells for three months. Removal of an osteoma of the right temporal bone resulted in recovery. 2 This patient had severe right-sided headaches for one year, following a blow on the head, and essential hypertension. Removal of a large intradural bony plaque on the right resulted in recovery. 3 Blindness and headache were present in this patient for two months after a

fall. A cystic tumor was located in the left occipital lobe and emptied by needle puncture. Then followed exploration and partial removal of a papilloma of the choroid plexus, reexploration and radical extirpation of the tumor. Two subsequent operations were necessary for removal of recurrent tumors in a period of fifteen months, followed by high voltage roentgen therapy. The patient is symptom free at present. 4 The fourth patient suffered from left-sided jacksonian convulsions for twelve years, left hemiparesis and hemihypesthesia. There was a history of treated syphilis. The removal of a cystic polar spongioblastoma resulted in complete recovery. 5 In the last patient, vision in the right eye had been failing for three years. There was a tiny spot of calcification in the right suprasellar region. Exploration revealed a large aneurysm of the right internal carotid. This was remedied, but subsequent spontaneous rupture of the aneurysm occurred, followed by death. The author believes that these cases serve as a pointed reminder that, whenever faced with obscure headache or visual disturbance, one should keep the possibility of brain tumor in mind.

Virginia Medical Monthly, Richmond

64 123 180 (June) 1937

- Clinical Diagnosis of Irregularities of Heart P D Camp Richmond—p 123
- Difficulties in Treating Fractures M H Todd Norfolk—p 127
- Cancer of Uterus N B Sackett New York—p 129
- Fever Therapy in Neurosyphilis R F Gyle Jr Richmond—p 135
- Nonpadded or Ambulant Plaster Cast in Treatment of Fractures M K King Norfolk—p 137
- Carcinoma of Colon in Childhood Report of Case H J Warthen Richmond—p 140
- Hysterical Dysphagia Report of Typical Case P P Vinson and H W Schmidt Rochester Minn—p 142
- *Carcinoma of Sigmoid and Rectum Common Diagnostic Errors Which Are Readily Avoidable Case Reports A S Graham Richmond—p 143
- Early Manifestations of Carcinoma of Cervix with Discussion of Pathologic Findings I Trachtenberg Brooklyn—p 146
- Resuscitation of the New Born W McMann Danville—p 149
- Circulatory and Blood Changes Due to Physical Exercise J E Davis, Richmond—p 154
- Medical Education as Factor in Solution of Present Problems W B Porter Richmond—p 158

Carcinoma of Sigmoid and Rectum—Graham is concerned with the two features which in his experience have most frequently given rise to confusion in the establishment of a diagnosis of carcinoma of the sigmoid or rectum: the passage of bright red blood at stool and persistent diarrhea, the so-called compensatory diarrhea which exists in the face of almost complete obstruction of the large intestine. There are no pathognomonic symptoms of cancer of the large intestine. For this reason early diagnosis can be accomplished in a high percentage of cases only if a thorough examination is made whenever a patient in the middle decades of life complains of symptoms referable to the gastro-intestinal tract (diarrhea, gradually increasing constipation, alternating constipation and diarrhea, bright red blood at stool or other symptoms even though vague in nature), especially if the symptoms persist over a period of two or more weeks. Failure to recognize the presence of bright blood at stool as the most constant sign, and often the only one, of cancer of the left half of the colon is of frequent occurrence. Of thirty-two consecutive cases of carcinoma of the rectosigmoid and rectum in which the author operated during the last three years, ten were treated for bleeding hemorrhoids prior to a diagnosis of cancer but during the period in which symptoms of the cancer were present. Yet in six a growth could be palpated with the finger, in three others it could be observed through the sigmoidoscope, and in the tenth case the defect caused by the lesion was readily visualized roentgenoscopically. Approximately 50 per cent of the thirty-two cases were originally diagnosed incorrectly: bleeding piles or colitis yet only two required diagnostic measures not available to every physician.

West Virginia Medical Journal, Charleston

33 241 288 (June) 1937

- Socialization of Medicine W S Fulton Wheeling—p 241
- Indications and Contraindications for Tonsillectomy and Adenoidectomy T M Goodwin Elkins—p 250
- Use of Protamine Zinc Insulin in Treatment of Diabetes M I Mendeloff Charleston—p 251
- Better Obstetrics H G Steele Bluefield—p 255
- Fractures of Elbow R L Anderson Charleston—p 258
- Nasal Allergy I M Hinnant Cleveland—p 261

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Dermatology and Syphilis, London

49 209 262 (May) 1937

Dermatomyositis T M Greenaway and C G Lambie—p 209
*Relation Between Systemic Lupus Erythematosus and Peculiar Form of Thrombocytopenic Purpura H Keil—p 221

Clinically Resembling Morphea with Tuberculous Background and Indeterminate Histology Suggestive of Necrobiosis Lipoidica Case D B S Bruce Jones—p 238

"Systemic" Lupus Erythematosus and Thrombocytopenic Purpura—Keil reports a case in which "superficial" lesions of lupus erythematosus, accompanied by constitutional symptoms, were succeeded or replaced by discoid atrophic patches scattered over the entire body. The lesions of the skin were healed or in the process of healing yet the clinical course was progressively downhill, ending in death ten months later from renal insufficiency. The lack of conformity between the course of the lesions of the skin and visceral phenomena (Keil) was shown clearly. Although the hematologic data supported the diagnosis of essential thrombopenia, an opinion apparently corroborated by the excellent result achieved by splenectomy, the peculiar subsequent course appeared to place the case in a distinct category. The association of systemic lupus erythematosus with the syndrome of thrombocytopenic purpura might at first be considered a coincidence were it not for the increasing number of cases in which the two disorders have been observed. The relation between systemic lupus erythematosus and a peculiar variety of thrombocytopenic purpura is given under the following headings: (1) relation of systemic lupus erythematosus to thrombopenia (Templeton) and to vascular disease affecting chiefly the smaller vessels of the body, mention being made of the formation of so-called hyaline thrombi, (2) "vascular nature" of a peculiar form of thrombocytopenic purpura, the distinctive feature being the generalized formation of 'hyaline thrombi' in smaller blood vessels, (3) association of systemic lupus erythematosus and thrombocytopenic purpura (when the former followed the latter at variable intervals of time, measured in months and when both occurred in close relation to each other). There is no clinical or physiologic basis for the belief that thrombopenia can be correlated with "extravascular bleeding" into the tissues or outside the body. The tendency to superimposed purpura in systemic lupus erythematosus, in most instances, is probably related to the capillary damage found in the disease. Other factors may also occasionally play a part—azotemia. The author has seen no instance in which diseased liver or superimposed bacteremia could be held responsible for the appearance of hemorrhagic manifestations. Gold therapy as a factor in the production or accentuation of purpuric phenomena in lupus erythematosus is discussed.

British Journal of Radiology, London

10 437 500 (June) 1937

Some Notes on Craniostenosis H R Sear—p 445

A Case of Luckenschadel W S Shearer—p 488

Cooley's Anemia Showing Characteristic Skull Changes Case G B Bush—p 491

Further Contribution on Spacing of Radiation According to Variation in Radioactivity J C Mottram—p 494

British Medical Journal, London

1 1103 1144 (May 29) 1937

Pathogenesis of Eclampsia W R Addis—p 1103

Intermittent Venous Occlusion in Treatment of Obliterative Vascular Disease J J M Brown and W M Arnott—p 1106

Incidence of Syphilis Among School Children at Kingston Jamaica Dahlia Whitbourne and G M Saunders—p 1108

Epidemiology of Epidemic Dropsy R B Lal and S C Roy—p 1110

Inexpensive Flow Meter and Humidifier for Administering Oxygen E P Poulton—p 1112

*Treatment of Trichomonas Vaginitis by Silver Picrate W A MacCall—p 1112

Treatment of Trichomonas Vaginitis by Silver Picrate—The full treatment as given by MacCall consisted of insufflation with 0.3 Gm. of silver picrate powder followed by daily dry swabbing and insertion of a pessary. Of the twenty-eight patients receiving the full treatment, on insufflation, Trichom-

onas vaginalis disappeared the next day from the secretions in twenty-six. In the two cases in which the trichomonads present on the second examination it was observed that numbers had decreased and that the organisms were sluggish in movement. The parasites were absent on the third examination. Of the twenty-eight cases fifteen (53.5 per cent) remained persistently negative, but in thirteen (46.4 per cent) a relapse or reinfection occurred. Of the relapses or reinfusions, five (38.4 per cent) occurred following a menstrual period. In all cases the local condition showed marked clinical improvement, the discharge becoming markedly less in amount, local inflammatory signs settling down, and such symptoms of irritation and soreness abating, in spite of the fact that in eleven of the cases there was coexisting gonococcal infection.

Glasgow Medical Journal

9 253 312 (June) 1937

Pituitary: Its Relation to Endocrine System E G Ostler—p 253
Later Results of Treatment of Peptic Ulceration of Duodenum A Imrie—p 279

Journal of Physiology, London

89 331 466 (June 3) 1937

Absorption Spectrums of Visual Purple and of Indicator Yellow R Lythgoe—p 331

Cholinesterase in Voluntary Frog's Muscle A Marnay and D Nauman—p 359

Cholinesterase in Invertebrate Muscles Z M Bacq and D Nachmansohn—p 368

Observations in Man on Blood Pressure Raising Reflex Arising from Voluntary Muscles M Alam and F H Smirk—p 372

Further Observations on Action of Acetylcholine Prostigmin and Related Substances on the Knee Jerk A Schweitzer and S Wright—p 373

Etioporphyrin and Hemoglobin Regeneration After Hemorrhage J Hughes and A L Latner—p 403

Afferent Fibers from Stomach and Small Intestine J T Irving B McSwiney and S F Suffolk—p 407

Simple Closed Circuit Metabolism Apparatus for Small Animals W Newton—p 421

Cholinesterase in Sympathetic Ganglions F T v Brucke—p 429

Actions of Acetylcholine on Denervated Mammalian and Frog's Muscles G L Brown—p 438

Duration of Recovery Period Following Strenuous Muscular Exercise Measured to Base Line of Steady Mild Exercise C R Cowan and O M Solandt—p 462

Medical Journal of Australia, Sydney

1 733 772 (May 15) 1937

Coarctation of Aorta Report of Case C B Sangster—p 733

*Tumors of Base of the Brain Their Relation to Pathologic Sleep and Other Changes in Conscious State L B Cox—p 742

Tumors of Base of Brain—Cox presents cases of tumors unassociated with internal hydrocephalus, involving the midbrain and hypothalamic and thalamic regions, each accompanied by certain changes in the conscious state. These changes included such phenomena as drowsiness and hypersomnia, trance-like conditions, periods of apathy, catatonic states, alterations in disposition, disorientation for time and place, marked loss of memory and mental excitement. In certain cases the removal of the tumor resulted in recovery from the abnormal mental state. An attempt is made to explain the conditions of lessened consciousness as a disturbance of a sleep mechanism. A working hypothesis is formulated, based on the possible relation of sleep to an inhibitory process. The relation of conditions of exalted consciousness to the excitation or release from control of mechanisms for the expression of the emotions is discussed. It is indicated that the region of the brain stem, hypothalamus and basal ganglions may be of importance in the better understanding of the problems of insane conduct.

Practitioner, London

138 665 792 (June) 1937

The Care of the Preschool Child K Wood—p 665

Acute Respiratory Disorders in the Preschool Child C McNeil—p 668

Tuberculosis in the Child of Preschool Age L Findlay—p 666

The Care and Treatment of Inflammations of the Nervous System in the Preschool Child C Worster Drought—p 687

Diagnosis and Treatment of Congenital Deformities in Young Children B W Howell—p 703

Disorders of the Skin in the Preschool Child R T Brain—p 716

Diet of the Preschool Child Catherine Chisholm—p 727

Plaster of Paris Technic in Treatment of Surgical Tuberculosis and Other Conditions H Gauvain—p 736

Chronic and Irregular Gout W S C Copeman—p 749

Radioactive Vaseline New Technic for Surface Radium Therapy A Eidinow—p 769

General Practice VII Fees I G Briggs—p 774

Journal de Médecine de Lyon

18 313 346 (June 5) 1937

- Tuberculosis and Ranke's Stages A Dufourt and J Brun—p 313
Phrenicectomy in Physical Therapy and Its True Indications F Dumarest A Roulet and Szejnberg—p 321
*Nonprogressive Solitary Arterial Hypertensions of Juveniles of Sympathetic Origin A Tourniaire—p 331
Lepra Bacillus Summary of Researches F L Acosta—p 335

Arterial Hypertensions of Juveniles, of Sympathetic Origin.—Among juvenile hypertension Tourniaire noticed a solitary, sympathetic type which has a favorable prognosis. The blood pressure in these young persons is mostly moderately increased and attains but rarely its maximal height. Exercise increases the pressure considerably, which in certain cases yields for a short while to sufficient rest. This hypertension remains latent and manifests itself in the form of functional disorders occasioned by physical strain, large intake of food and emotional disturbances. At times it is accompanied by a slight increase in the basal metabolism, but it is never the cause of a left ventricular hypertrophy. It is quite similar to the high pressure reaction commonly observed in tachycardic neuroses except for the rhythm of its heart beats, which remains normal. The author believes that he is dealing with an essential cardiovascular hypersympathicotony originating, as it were, from functional disturbances in the vasomotor center, close to the hypothetic center which regulates basal metabolism. The pathogenesis is still obscure and it must be differentiated from other juvenile high blood pressure diseases. From the latter it may be distinguished by its all round benignity, as it does not under any circumstances develop into a hypertension cardiopathy. The treatment is directed toward the cardiac instability. The patient needs a readaptation to gradually higher strains, or, in severe cases, functional radiotherapy, according to Gravier and Gounet, may be resorted to.

Presse Medicale, Paris

45 761 776 (May 22) 1937

- Skull Fractures of Infants 109 Cases E Sorrel, Mme Sorrel Dejerine and Gigon—p 761
Planigraphy of Skeleton and Lungs Delherm Thoyer Rozat and Jacques Bernard—p 765
Disturbances in Myocardial Conductivity Ascending Blocks R Lutembacher—p 768
*Hereditary Syndrome Characterized by Hypoplastic Patella Malformation of Radius and Hemiatrophy of the Thumb Nails R Montant and A Eggermann—p 770

Hereditary Syndrome.—Montant and Eggermann have noticed certain hereditary characteristics in the bony system and nails of certain families. Those peculiarities concern exclusively blonds of either sex with light blue eyes. No relation to malformation has been observed. It concerns primarily the joints of the knees and the elbows (mesodermal origin) as also the nails of both thumbs (ectodermal origin). The hypoplastic development of the patella brings characteristic changes in the flexion of the knee joint and peculiarities of gait. In very pronounced cases of small or deficient patellas those persons have difficulties in descending stairs or slopes. Humeral condyles are found hypoplastic, the head of the radius projects itself beneath instead of above the coronoid apophysis, and the bicipital tuberosity is directed downward. The changes in the nails of the thumb vary from simple striations to ungual atrophy or dystrophy, and certain authors made the observation that those changes often go hand in hand with some mental or somatic degenerations such as idiocy or short and rare growth of hair, which is often white. According to Aschner a pertinent pathologic factor (one dominant gene) is situated in the chromosome so closely to other genes that they are inherited as a unit. The inheritance of those traits is therefore simply dominant and regular.

45 857 872 (June 9) 1937

- Venous and Coronary Vasodilatation and Vasodistention C Champy and Jacques Louvel—p 857
*Therapeutic Extrapleural Pneumothorax E Hautefeuille and Dreyfus Le Foyer—p 859

Extrapleural Pneumothorax.—Hautefeuille and Dreyfus-Le Foyer direct attention to extrapleural pneumothorax, a new form of collapse therapy, which effects the collapse of pulmonary lesions by creating a surgical cavity between the thoracic wall and the parietal pleura and by filling this cavity with gas, as

is done in the case of intrapleural pneumothorax. After describing and illustrating the technic, which they employed for the extrapleural pneumothorax of the pulmonary apex, the authors stress the advantages of this method. Like the intrapleural pneumothorax, it has the advantage of being elective. It maintains the collapse of the subhilus region of the lung by means of an elastic and modifiable gas pressure. Moreover, it is less trying for the patient than other methods of collapse: it preserves the expectorating function and it limits its effect to the apex or the base. The authors state that their experiences with the extrapleural pneumothorax confirm the favorable results obtained by Graf and Schmidt, who were the first to employ this method. They point out that extrapleural pneumothorax is indicated in the presence of pulmonary adhesion not yet extensive enough to justify a thoracoplasty, in patients with uncertain resistance or in those in whom the lesions are incompletely stabilized and in those with an apicomediastinal cavity, when it is feared that costal resection may produce inadequate results. Extrapleural pneumothorax is indicated especially in cases in which the lesions are still new but far enough away from the cortex so that an intrapleural pneumothorax may be judged ineffective. In cases in which collapse is incomplete on account of apical adhesions, the combination of the two types of pneumothorax may effect the desired collapse. The authors reach the conclusion that extrapleural pneumothorax deserves the attention of phthisiologists.

Schweizerische medizinische Wochenschrift, Basel

67 569 592 (June 26) 1937

- *Ganglioneurofibromatosis of Mesentery and Intestine with Malignant Degeneration Case A Jentzer and H Fatzer—p 569
Problem of Commotio Cordis O Spubler—p 571
Two Typical Injuries in Shooting with Infantry Cannon W Schmid—p 577
Studies on Quantity of Vitamin C in Urine M Demole and J Lupu—p 578
Clinical Aspects and Diagnosis of Pempheblitis Phlebitis and Thrombophlebitis E Stotzer—p 580
*Cure of Urticaria Gigantea Perstans by Solution of Posterior Pituitary W Rosenberg-Schauss—p 583

Ganglioneurofibromatosis of Mesentery with Malignant Degeneration.—Jentzer and Fatzer say that, in his first publication on neurofibromatosis of the skin, Recklinghausen pointed out that such tumor formations may develop also on the internal organs, particularly the gastro-intestinal tract. After citing several reports from the literature and after pointing out that such tumors are referred to also as neurinomas or schwannomas, the authors give a detailed report of a case which they observed. The patient, a youth aged 17, was hospitalized with the diagnosis of ascites of obscure etiology. The patient stated that he had observed the development of a tumor in the abdomen for the past two or three years. There was a gradual increase in size, but no other disturbances. However, a thrust against the abdomen ten days before hospitalization had caused severe pain, and five days later the mother of the patient observed that his abdomen rapidly increased in size. On the basis of the clinical examination, the condition was diagnosed as mesenteric tumor, the malignant nature of which was deduced from the rapid course and from the appearance of the ascites. An operation was performed, but the patient died five days later. The microscopic examination of the surgical specimen revealed (1) a plexiform neuroma of the mesentery and (2) a plexiform ganglioneurofibroma of the intestinal wall, which originated in Meissner's plexus. Although the patient had no other sign of neurofibromatosis, he did have other disturbances in the nervous sphere. The authors emphasize that, particularly in young persons, connections with the nervous system should be searched for whenever mesenteric tumors exist.

Cure of Urticaria Gigantea Perstans with Solution of Posterior Pituitary.—Rosenberg-Schauss observed a severe case of urticaria gigantea perstans in a man, aged 30. The condition had existed for six years, and during the last two years the patient had undergone various treatments (medications, rays, diets) without avail. The author, having obtained favorable effects with solution of posterior pituitary in various dermatoses that were accompanied by acute or chronic edema, gave this patient an injection of 1 cc of a proprietary brand of solution of posterior pituitary. After nine days the efflorescences showed a decrease. A second injection was given, and

twelve days later some of the efflorescences had completely disappeared. A third injection resulted in complete cure. Later the patient was given three more injections. The author thinks that chronic urticarial dermatoses should be treated with solution of posterior pituitary whenever an angioneurosis predominates in the dermatosis.

Minerva Medica, Turin

1 567 598 (June 3) 1937

- Clinical Examinations of Pulmonary Circulation L. Gedda—p. 567
Action of Digitalis on P and T Waves Comparative Studies on Significance of Final Oscillations P. Occhioni—p. 571
*Pachyderma and Pachyperiostosis of Extremities G. Gromo—p. 577
Development of Apical Focus of Tuberculosis from Apical Concretion A. Campani and E. Menozzi—p. 580
Santini Sign in Diagnosis of Echinococcus Cyst Critical and Experimental Study in Comparative Pathology A. Grazzini—p. 582

Pachyderma and Pachyperiostosis of Extremities—

According to Gromo, pachyderma in association with pachyperiostosis of the long bones is rare. The condition develops in growing children with few symptoms (fatigue and dull pain in the extremities). When puberty is passed the disease evolves no more, but the abnormal thickness of the long bones and of the skin of the extremities, scalp and face does not regress. The skin is hard, elastic and seborrheic and the features of the face, feet and hands show various alterations. The fingers are hippocratic. The cause of the condition is not known but is believed to be endocrine disorder. The evolution is chronic and benign. Otophary, local and hypophyseal roentgen therapy and plastic surgery fail. Heliotherapy relieves the pain of the extremities. The author reports a case in a girl, aged 18. The condition was previously described by Tourniaire, but in his cases the pachydermal skin was pleated, whereas in the author's case it was plane.

Semana Médica, Buenos Aires

44 1533 1588 (June 10) 1937 Partial Index

- *Paraffin Embedding of Sputum in Diagnosis of Cancer of Lung D. Mosto and M. Polak—p. 1549
Puerperal Endometritis Myoma with Necrobiosis Spontaneously Eliminated R. Pastorini—p. 1554
Etiology of Cancer A. Guadagnini—p. 1561
Large Fibroma of Broad Ligament M. M. Nebbia and M. Nicastro—p. 1569
*Acidified Milk with High Fat Content in Feeding Infants with Eczema J. C. Traversaro—p. 1578
Surgical Threshold of Gastric Cancer Importance of Anemia in Operatory Prognosis A. Lodice—p. 1579

Paraffin Embedding of Sputum in Diagnosis of Cancer of Lung—Mosto and Polak state that early in the development of cancer of the lung the sputum contains groups of tumoral cells by means of which a diagnosis of cancer of the organ can be made. The histologic examination of paraffin embedding of the sputum is of diagnostic value. The diagnostic interpretation depends on the experience of the one who makes the examination. The diagnosis is tissular rather than cytologic. It is made by the structural changes and loss of orientation and of polarity of cells in groups. The presence of horny substances in the sputum indicates the advisability of performing further clinical and histologic examinations. It is advisable to make the examinations in serial sections of the paraffin embedding. In the author's hands the method has given 68.5 per cent of positive results. In all cases the diagnosis was verified by the clinical evolution of the disease or by necropsy.

Acidified Milk with High Fat Content in Eczema—According to Traversaro acidified milk with high fat content in the diet of infants suffering from eczema is well tolerated. It improves the nutritional condition of the patients and has a favorable effect on the evolution of eczema. The results of the diet are satisfactory regardless of the weight (diminished, normal or increased) of the infants. No local treatments are necessary. Satisfactory results in four cases are reported by the author. The treatment is complementary or supplemental to breast or artificial feeding. The infant is given three or four times a day a bottle containing from 100 to 200 Gm of acidified milk with high fat content, 5 Gm of water and 5 or 10 Gm of sugar. The treatment is discontinued altogether at complete disappearance of eczema, which takes place soon during its administration.

Beitrage zur klinischen Chirurgie, Berlin

165 513 672 (June 9) 1937 Partial Index

- Acute Pancreatic Disorders in Spite of Previous Surgical Treatment of Cholelithiasis I. Bernhard—p. 513
Anomalies on Elbow Joint Patella Cubiti R. Kienbock and G. Decker—p. 524
*Roentgenologic Examination in Rectal Cancer, Particularly in Cancer of High Rectum F. J. Irsigler—p. 530
Tuberculosis and Osteomyelitis on Anterior and Posterior Pelvic Ring F. Bordsch—p. 554
*Treatment of Traumatic Rupture of Symphysis G. Sommer—p. 607
Indication for and Technic of Extirpation of Semilunar Bone W. Nell—p. 619

Roentgenologic Examination in Rectal Cancer—After citing inspection, digital examination, rectoscopy and roentgen examination as the methods that are used in the diagnosis of rectal cancer, Irsigler gives his attention to the roentgen examination. He attempts to answer the question when a roentgen examination is necessary and when it is desirable and describes the results obtained with this method at his clinic. He does not agree with Fischer, who maintained that roentgenoscopy of the rectum is unnecessary, since digital examination and rectoscopy provide all the information that is needed, but points out that in some cases, particularly cancer of the so called high rectum (pelvic colon), neither digital examination nor rectoscopy will reveal the cancer. Moreover, even in cancers that are lower down, roentgenoscopy will provide information not obtainable by other examinations. In rectal cancers in which there is a possibility that the neoplasm has already attacked the bone, a roentgenogram of the sacrum should be made. Roentgenoscopy of the rectum itself should be done with the aid of a contrast medium. It should always be preceded by a careful digital examination and, in order to avoid disturbing fecal shadows, the rectum should be irrigated before the roentgenoscopy. The contrast medium is introduced slowly and screen observations are made while this is being done. If after discharge of the contrast medium only a thin wall covering remains, the intestine is slowly inflated and the gradual unfolding of the intestinal wall is carefully watched. The patient is turned and exposures are made in the left and right oblique and lateral positions. The rather frequent tumors of the anterior wall are observable only if the rays pass through from the front. On the basis of typical cases, the author explains some of the fundamental aspects of the rectal carcinoma, such as the valve closure, the malignant contour, the malignant outline, the carcinomatous filling defect and the carcinoma crater. He discusses the differentiation of disorders, which resemble rectal cancer (metastases in Douglas' pouch in gastric cancer, the rectal complications of inguinal lymphogranuloma or proctitis). He admits that roentgenoscopy frequently fails to aid in the differentiation and that serologic reactions, exploratory excisions and so on must decide the diagnosis in such cases.

Treatment of Traumatic Rupture of Symphysis—

According to Sommer, traumatic ruptures of the symphysis are comparatively rare, he reports four cases that were observed at his clinic. After citing the histories of the cases, he discusses the mechanism of this type of ruptures admitting that it has not been fully explained as yet. However he is inclined to accept Finsterer's suggestion that the position of the legs at the time of the accident may be of decisive significance. In discussing the treatment he cites various surgical measures, such as wire suture and implantation of a piece of bone but emphasizes that it is better if a surgical intervention can be avoided, for it involves considerable risk. He thinks that surgical treatment should be restricted to the cases in which the conservative measures do not produce the desired results. He says that the latter are quite effective, provided they are applied correctly. Reposition should be done, if necessary, under anesthesia. Fixation requires well fitting bandages of linen or adhesive tape, moreover, circular plaster of paris casts or other rigid bandages are likewise helpful. Three of the four reported cases were treated conservatively. In two of these cases the cure and final result was favorable. The third patient died suddenly, after two months of treatment as the result of a pulmonary embolism. The necropsy revealed that in this case too the conservative treatment of the ruptured symphysis had produced satisfactory results. The author admits, however, that in severe cases in which the separation is especially

wide, the force of a simple compression bandage is inadequate. In order to overcome this deficiency of the conservative method, he employed an apparatus that exerts a sufficiently strong concentric pressure and effects a good approximation of the pubic bones. He describes and illustrates this simple apparatus, which can readily be applied to the side frame of a hospital bed.

Munchener medizinische Wochenschrift, Munich

84 921 960 (June 11) 1937 Partial Index

- Renal Anomalies Deficient Growth Rickets and Disturbances in Cystine Metabolism G O E Lignac—p 921
Problem of Formation of Renal Calculi C Bruck—p 923
Circulatory Therapy in Severe Diphtheria H Muller—p 924
*Significance of Vitamin B (Riboflavin) for Surgical Diseases H J Lauber—p 927
Estimation of Roentgenogram in Biliary Diseases H Durst—p 932
Case of Stuttering Caused by Industrial Accident and Cured by Suggestion Lorenz—p 935

Significance of Vitamin B for Surgical Diseases—Lauber investigated the importance of vitamin B (riboflavin) in the treatment of acute infections, of wounds and of bone fractures. His studies were made on rats, mice and rabbits. The experiments demonstrated that riboflavin is absolutely necessary for the maintenance of the defense powers of the organism but that the riboflavin requirements are not increased during acute infections. The cure of wounds and bone regeneration likewise do not increase the need of the organism for riboflavin.

84 961 1000 (June 18) 1937 Partial Index

- *Dental Infection and New Method of Diagnosing It by Short Wave Provocation K Gutzeit and W Kuchlin—p 961
Treatment of Hypophyseal Cachexia W Menzel—p 969
*New Therapeutic Principle in Idiopathic Trigeminal Neuralgia O Meyer—p 971
Practical Titrimetric Determination of Sugar in Blood and Urine M Beck—p 971
Hypersomnolence and Pseudotuberculous Syndrome Caused by Excessive Intestinal Gases A Valerio—p 975
Anterolateral Elastic Thoracoplasty K Hohenner—p 976
*Tumors Caused by Irradiation Experimentally Produced Bone Sarcoma H Hellner—p 980

Diagnosis of Dental Infection by Short Wave Provocation—Gutzeit and Kuchlin describe a method of application of short waves to the dental root, which permits the differentiation of infectious foci that cause systemic disorders or diseases in other organs from those which are localized and not connected with the circulatory system. In the presence of the first type of focus the sedimentation speed of the erythrocytes is noticeably accelerated from two to four hours after a provocative irradiation with short waves, whereas the irradiation of the second type of focus does not have such an effect. Such a differentiation of the active and the inactive foci had not been possible, for neither the clinical nor the roentgenologic examination of the teeth permits such a qualitative differentiation. The recognition of the active foci prevents the blind, radical removal of all suspected foci and thus overcomes the chief objection of the conservative physicians against the radical treatment of infectious foci. The possibility of identifying the offensive foci prevents unnecessary crippling of the dental apparatus. The electrodes used for the short wave irradiation of the dental roots are 2 by 3 cm in size. They are applied in such a manner that the one is on the palatine or the lingual side and the other one on the buccal side of the tooth. According to the statement of the patients, the short waves produced a pleasant feeling. Pains or burning sensations should not develop if the apparatus is intact. The authors describe their experiences with the test on healthy and diseased teeth.

Therapy of Idiopathic Trigeminal Neuralgia—Meyer says that in treating cases of phlebitis of the lower extremities he observed that some cases were refractory to the otherwise successful treatment according to Fischer's method. Since such cases of phlebitis frequently originate in a tonsillar infection, he gave his attention to the cervical veins, particularly the jugular veins, which Dietrich had found inflamed in many cases of acute tonsillitis. By examining the cervical veins for sensitivity to pressure the author was able to corroborate the suspected involvement of the cervical veins in a number of cases. He also observed that nearly all patients in whom a latent phlebitis of the cervical veins existed complained of neuralgia and headaches but that, after the venous infection

had been counteracted, neuralgia and headaches ceased. In treating latent phlebitis of the cervical veins, he took into account his experiences in purulent phlebitis of the leg. He had observed that bandages were contraindicated in such cases but that the application of leeches produced excellent results. Accordingly he applies three leeches on both sides of the neck, over the jugular vein. The bleeding should be continued for a considerable time (in one case it was carried on for ten hours). As the result of the loss of blood the patients may feel weak after the treatment, but since the neuralgic disorders disappear promptly, the patients do not object to this. In view of the lack of effective methods for the treatment of idiopathic trigeminal neuralgia, the author recommends a trial with the leech treatment in all cases of idiopathic trigeminal neuralgia in which the cervical veins are sensitive to pressure.

Tumors Caused by Irradiation—Hellner points out that the incidence of roentgen cancers has decreased in recent years, despite the wider application of roentgen rays. Nevertheless, three cases of chronic roentgen ulcers and five cases of roentgen cancers came up for observation at the surgical clinic of the University of Munster during recent years. The three roentgen ulcers and two of the cancers developed in cases in which eczema was treated by means of roentgen rays, two roentgen cancers appeared after irradiation of parasitic scycosis on the face and the other roentgen cancer developed in the shoulder region on the basis of numerous wart formations and of a roentgen dermatitis following irradiation of apparently tuberculous lymph nodes of the axilla. None of these five cases of roentgen cancer developed on the basis of a roentgen-irradiated lupus. The author considers it important to emphasize this, because a large number of roentgen cancers develop after irradiated cutaneous tuberculosis. The periods which elapsed between the irradiation and the recognition of the cancer were four, eleven, fourteen, eighteen and nineteen years, respectively. In the case in which the cancer developed after four years the first disorder, the eczema had existed for eleven years. The author is unable to make definite statements regarding the doses that caused the cancers in the five cases, but he says that they were large in all instances. Moreover, the irradiations were given frequently and in most of the cases not by one but by several physicians. After pointing out that irradiation with radium may produce radium cancer, the author gives his attention to the roentgen sarcoma. He surveys fifteen cases of roentgen sarcoma of the joints after tuberculosis which were reported in the literature and then gives a detailed description of one case of his own observation. In this case the sarcoma developed eleven years after irradiation of a tuberculosis of the wrist joint. Further the author reviews the experimental production of bone sarcomas and of sarcomas of the soft parts in animals by means of radium irradiation. He reaches the conclusion that in tuberculosis of the bones and joints and in other bone changes, the application of ray treatment requires extreme caution, particularly if the lesions are near the epiphyses.

Zeitschrift f Geburtshulfe u Gynakologie, Stuttgart

115 1 140 (June 18) 1937

- Adenomyosis and Endometriosis O Frankl—p 1
*Two Rare Uterine Tumors Originating in Wolffian Bodies H Limburg—p 17
Atypical Embolism in Puerperium H Kolbow—p 38
Structure and Function of Corpus Luteum Produced by Estrogen E Klaffen—p 64
Examination of Surgical Preparations for Trichomonas M Rodcirt—p 99
*Pathogenicity of Trichomonas Vaginalis H Mohr—p 115

Uterine Tumors Originating in Wolffian Bodies—Limburg describes two rare forms of uterine tumors the histologic structure of which greatly resembles that of the epoophoron and of the wolffian duct. This structure makes probable their development from misplaced portions of the wolffian bodies. Both tumors consist chiefly of canalized, coiled, cylindric strands, the walls of which consist of an external circular a median longitudinal and an inconstant internal circular layer of spindle-shaped muscle or connective tissue cells, the lumens of which are lined with cubical epithelium, which usually appears in a single layer. In one of the two reported cases the connective tissue of the tumor underwent sarcomatous

degeneration and relapses and metastases developed. As regards their histogenesis, both of the reported cases are of the same type as the first one on record, a case of uterine adenomyoma originating in the wolffian bodies, which was described by Richard Meyer in 1903. The author was unable to find other reports of such cases in the literature.

Pathogenicity of Trichomonas Vaginalis—In reviewing the literature on the pathogenicity of *Trichomonas vaginalis*, Mohr points out that some investigators regard this parasite as harmless while others consider it pathogenic. He then describes his own studies on 212 women, most of whom had no complaints and underwent an examination to obtain a health certificate. In determining the incidence of *Trichomonas vaginalis*, he found that of the women examined for the presence of these parasites 41 per cent gave positive results by microscopic test and, in addition to these, 21 per cent gave positive results when cultures were made. The remaining 38 per cent of the women gave negative results. Whereas 526 per cent of the women without vaginal disorder proved to be carriers of *Trichomonas vaginalis*, 29 per cent of the women with vaginal discharge and other disorders were free from *Trichomonas*. After studying the behavior of *Trichomonas vaginalis* as regards acidity, and after determining that the organisms produce no glycogen decomposition and practically no sugar fermentation, the author examined the bacterial flora in cases of infestation with trichomonas. He found the bacterial flora practically the same as in cases without *Trichomonas vaginalis*. He reaches the conclusion that his observations fail to prove the pathogenicity of *Trichomonas vaginalis*.

Wiener klinische Wochenschrift, Vienna

50 923 954 (June 18) 1937 Partial Index

- Aspects of Pneumothorax Lung Fixed by Adhesions and Indications for Surgical Detachment of Adhesions A Winkler—p 923
Climatotherapy of Pulmonary Tuberculosis K Schuherth—p 926
Benign Bronchial Hemorrhages F Fleischner—p 929
*Meincke's Tuberculosis Reaction and Forms of Tuberculosis According to Neumann K Fröhlich—p 931
*Do Crepitant Sounds in Cases of Pneumothorax Indicate Disappearance of Air? A Kirch—p 937
Newer Aspects of Surgical Collapse Therapy of Pulmonary Tuberculosis H Kunz—p 937

Meincke's Tuberculosis Reaction—Fröhlich reports his experiences with the Meincke reaction in 258 cases. Attention was given to the outcome of the reaction in the various forms of tuberculosis, which Neumann classifies according to their pathogenesis and dissemination into hematogenic, bronchogenic and lymphogenic forms. The author observed no difference in the incidence of the positive reactions whether the mode of dissemination of the cavernous tuberculosis was bronchogenic, hematogenic or lymphogenic. In fibrous tuberculosis and in case of exudates, the reaction was usually negative. Bronchial carcinomas produced only negative results, except when they were complicated by tuberculosis. The author reaches the conclusion that, although the Meincke reaction is of no value for the exact determination of the type of tuberculosis and for the prognosis, it has considerable diagnostic value in the differentiation of pulmonary disorders, as was exemplified by the negative reactions in nine cases of bronchial carcinoma.

Crepitant Sounds in Cases of Pneumothorax—Kirch says that pneumothorax patients often come for consultation before the day that had been appointed for refilling, because they fear that the air has already completely disappeared. They base their fear on the appearance of crepitant sounds on the side of the pneumothorax. The examination of such patients actually reveals the crepitant sounds, so that even the physician suspects that the air has disappeared. Roentgenoscopy, however, discloses that, although the air space has become smaller, the two pleurae do not come in contact at any point. Thus the crepitant sounds cannot be ascribed to pleural friction in the strict meaning of the term. The author suggests that the crepitant sounds originate in the following manner. The patients who make this complaint are usually those who have undergone pneumothorax treatment for long periods. The roentgenoscopy often reveals the visceral pleura as a thick lamella. This condition of the visceral pleura, the changes which develop in the collapsed portions of the lung, the partial atelectasis, lymphatic stasis and so on cause the crepitant sounds in the lung in a certain stage of expansion. The crepitant

sounds are audible, but they cannot be felt with the palpating hand. Crepitation that can be felt with the hand indicates contact between the pleurae.

Vrachebnoe Delo, Kharkov

20 86 175 1937 Partial Index

- *Clinical Course of Tropical Malaria V A Tarnogradskiy—p 94
Symptomatology of Cranial Injuries E M Vizen—p 99
Roentgenologic Errors T G Shlifer—p 103
*Treatment of Acute Chorea with Block of the Sympathetic Nervous System D M Zalkan and E M Ebich—p 114
Therapeutic Action of Extract of Leaves of a Nut Tree in Tuberculosis F L Shpanir T E Korman and Associates
Mechanism of Alimentary Hyperglycemia S G Genes P M Charnaya and T S Yakusheva—p 122

Clinical Course of Tropical Malaria—According to Tarnogradskiy, involvement of the liver during the very first attacks is much more pronounced in the tropical form than in other forms of malaria. This malarial hepatitis continues to occupy the central position in the pathologic picture of chronic tropical malaria. The hepatic lesion gives rise to jaundice and to the development in many of the chronic cases of a symptomatic hemolytic anemia. It likewise plays an important role in the disturbance of water balance. Manifestations of a toxicosis and the resulting degenerative lesions of the parenchyma of the myocardium, the kidneys and other organs, are likewise the result of profound disturbance of liver function. The hepatitis in the course of time leads to the development of a liver cirrhosis. The liver must therefore be accorded particular consideration in the treatment of patients with tropical malaria. The appearance of manifestations of malarial cachexia in regions in which tropical malaria is endemic calls for renewed treatment with quinine or plasmochin, even in the absence of parasites in the peripheral blood. The frequently accompanying amebiasis and helminthiasis demands thorough treatment. One must exercise great care in prescribing for malarial patients such hepatotropic poisons as arsphenamine, cinchophen or chloroform. The author suggests a predominantly carbohydrate diet accompanied by insulin administration, when necessary, in order not to overload the liver with albuminous foodstuffs.

Treatment of Acute Chorea—Zalkan and Ebich report fifteen cases of acute chorea treated by procaine block of the sympathetic trunk. The treatment was successful in thirteen, the earlier in the course of the disease, the more striking was the result. The effect of the block in the early cases was rapid and in some of the cases abortive. A prompt improvement in the symptoms frequently took place on the day following the injection, all symptoms disappearing in the course of the following four or five days. A decisive improvement was likewise noted in cases of longer duration, but the recovery consumed more time from ten to fifteen days. These patients were given two or three additional injections. The treatment failed in two cases of long duration, one of one year and one of six months, in patients aged 25 and 15 years, respectively. Good results were obtained in recurrences as well as in the recent cases. There were no recurrences in the cured cases. The author did not experience any difficulty in applying the method in children. The method consists of injecting into the region of the renal fossa from 60 to 100 cc of 0.25 per cent solution of procaine hydrochloride on the side of the predominating symptoms. From one to three injections were given.

Hospitalstidende, Copenhagen

80 601 628 (June 1) 1937

- Traumatic Compression of Thorax with Masque Ecchymotique H L Pedersen—p 605
*Significance of Precordial Leads in Acute Myocarditis V Mortensen—p 617

Precordial Leads in Acute Myocarditis—Mortensen describes two cases of acute myocarditis following undulant fever and influenza respectively. In the first, changes in the precordial leads during the last part of the course were the only certain signs of the heart disorder, the changes continuing for a time after the extremity leads became normal. In the second instance the changes in the precordial leads were an important aid in diagnosis. In both cases the changes in the precordial derivations were considerably more marked than in the extremity derivations and allowed a far more certain judgment as to the course of the disease.

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A PLEA FOR A BETTER UNDERSTANDING BETWEEN THE LARYNGOLOGIST AND THE VOCAL TEACHER

CHAIRMAN'S ADDRESS

ROBERT F RIDPATH, M D
PHILADELPHIA

There are a number of facts which, if more generally known, would be of considerable value both to the laryngologist and to the vocal instructor. It is well known that few singers survive the period of vocal instruction. Is this because of inadequate vocal equipment of the pupil or because vocal teachers overlook the importance of certain factors or are we at fault? These are the questions before us.

Have laryngologists ever realized the importance of the part they play in the lives of singers, actors, lecturers and teachers who come for advice when they find themselves in vocal difficulties? It seems to me, after many years of teaching the mechanism of the larynx and voice production, and numerous consultations with vocal teachers and vocalists that we, the laryngologists, and they, the vocal teachers, are both at fault—at fault because of our lack of scientific cooperation. There are few laryngologists who have more than a meager knowledge of the art of vocal training and there are fewer vocal teachers who have any knowledge of the anatomy, physiology or the phenomenon of voice production. It is mainly this unfamiliarity or ignorance of the subject at both sources that is responsible for a great many vocal tragedies. Most of these tragedies could be avoided if the cooperation of which I speak would be employed. Each fault in a voice has its explanation anatomically, physiologically and acoustically and, if the laryngologist and the teacher would cooperate, the proper diagnosis could be more readily arrived at and the proper treatment prescribed, for the fault that the vocal teacher discerns by ear the laryngologist should recognize unmistakably and scientifically by his examination.

When the singer applies to the laryngologist for advice and relief of a throat or voice difficulty, the actual examination of the upper respiratory tract is necessary, but the laryngologist is not doing the patient or himself justice unless a careful history is obtained as to the causative factors in the present trouble. For instance, knowledge must be solicited as to the social life of the patient. Has he been fatigued? Has he any worry or fear or have there been any family difficulties or any sadness in the history of this present illness? All or any of these conditions are of the greatest importance to the vocalist. For instance, the use of the voice

in anger raises the pitch considerably, and fear is often the chief factor of hysterical aphonia or the complete loss of the voice.

From the singer's standpoint, proper breathing and control of the expired air must be evaluated. The speaker may comma or period his sentences as he wishes. He inhales and exhales and makes his pauses where most effective according to his own interpretation of the matter at hand, but the singer must follow the written music, breathing at stipulated intervals, and he is compelled to retain under control sufficient air pressure to vocalize successfully the passage before he may again inhale. We can now visualize the difficulties that might be encountered if free egress or exit of the air flow should be interfered with in any manner.

The correction of the diet is a phase that must be considered. Digestive disturbances can have a decided effect on the mucous membrane and thus change the character of the vocal production. As with an athlete who has overtrained, so there are those who through striving to attain certain ends in a short time overstrain their voices with resultant fatigue of the muscular elements. Rest must be advised for this, or certain forms of humming or exercises must be suggested. I am purposely keeping away from pathologic conditions in this presentation, as I feel that the diagnosis and proper treatment of these would be well and thoroughly taken care of by the laryngologist.

As vocal teachers are dependent on the results they obtain from their students for increased prestige, I feel that, if the physical condition of their prospective pupil were known, they would have a better chance of producing a singer who would be more worthy of their effort.

I have been told on reliable authority that in Italy all vocal aspirants before being enrolled as students in singing schools and conservatories undergo a complete physical examination. As an example, Adelle Borghi, one of the greatest mezzo sopranos Italy ever produced, told one of her American pupils that she, at the tender age of 9, was examined for her physical fitness before her acceptance as a pupil because singing, being an arduous physical exercise, requires a sound physical body, and that was seventy years ago.

The character of the adult voice depends on the size, shape and length of the cords and this again depends on the age of adolescence. Those whose voice assumes the tenor quality, for instance, mature early. The larynx, which up to the beginning of sexual life is infantile in character, grows more rapidly at this time, with resultant diminution in size of the anatomic members and shortness of the cords. This phenomenon also takes place in the female, the earlier her menstrual life begins, the shorter the vocal cords and the higher the vocal pitch. There exist the various characteristics, as the coloratura, the lyrie or the mezzo soprano, according to the age at which sexual life begins. It is thus easily

understood why there are the various ranges of voice, the tenor maturing early and the basso maturing later. Also the tenor is usually of short stature, as is also the soprano, whereas the baritone, the basso and the contralto are of tall and large build. In addition, the tenor is characterized by certain other features, such as a clear and soft skin, a tendency toward a female pelvis and a sparsity of abdominal, chest and other body hair, whereas the basso is tall and thin, with a prominent Adam's apple, and is decidedly masculine in all his bearings. The baritone would naturally come in between these two extremes.

The general characteristics of the body are particularly noticeable in the female. The soprano is decidedly feminine in all her bearings, whereas the contralto has many of the masculine characteristics, such as facial contour and more hair, and even the stride assumes that of the male rather than the short, quick step of the soprano.

It is a fact that most vocal teachers try to make sopranos of all girls and tenors of all men, with resultant failures, whereas if they would consider the individual from the physiologic point of view they would not expect a student who is anatomically unsuited to produce high tonal effects to become a tenor, and vice versa.

Having already mentioned the general health of the student, I feel that each should have a thorough and complete examination made of the heart, lungs, kidneys and intestinal activity by a competent diagnostician, as no one can be expected, when physically unfit, to produce his best vocally. Just so a careful ear examination should be made. An accurate sense of hearing is absolutely necessary for a good voice. If the auditory sense is not normal, how can singers sense whether they are giving forth the proper pitch and tonal effect? The tongue is also an important member of the vocal apparatus and should be freely movable. The palate should be examined as to its height and contour, as it is the sounding board of the voice. Its broad surface collects the sounds and deflects them wholly or partially through the mouth. An examination of the larynx is absolutely essential, as by this means we are not only able to tell whether any pathologic condition is present but also whether the cords approximate correctly and also judge by their length the character of the voice they are fitted to produce normally and anatomically. Many times I have found students striving for higher pitch when their normal range was much lower. The effort of their straining in trying to attain an anatomic impossibility produces vocal nodules, with the ruination of the voice.

As the sinuses and nasal chambers act as resonators, these should be healthy and any disorder or occlusion corrected. No person even with training can produce the tonal quality necessary for perfection unless the proper resonance is present.

After the proper medical examinations have been made and the pupil has been approved for instruction, the laryngologist having also given his opinion as to the vocal sphere in which that particular voice belongs and the teacher having concurred with regard to this category, the real work of training the voice begins.

During cultivation of the voice, many pitfalls are encountered which are not easily discernible by the ear alone. However there are certain definite signs, the beauty of the tone will be lost, a slight tremolo occurs, there may be hoarseness and shrillness, and during scales and runs the voice becomes sluggish not because the pupil is lazy but because the voice refuses to

respond. These are danger signals the neglect of which may lead to real vocal ruin. For this reason it has been said that "voice cultivation is voice deterioration."

This is why I believe the physician is so vitally important in voice cultivation. By periodic examinations the physician can see and sometimes forestall such conditions as inflammation of the cords, vocal nodules, relaxation of the vocal cords and other ills that afflict singers. That the physician is finally called on to treat the pathologic condition is to be deplored because the mischief may be beyond repair, the mechanism being permanently damaged.

Therefore it stands to reason that the art of voice cultivation cannot be left in the hands of the singing teacher alone but is something in which the laryngologist must also participate, and if laryngologists as specialists will give this subject more thought, there may be fewer casualties among singers. It would not then be said that out of a thousand singers only one survives the rigor of vocal training.

This is my plea to the laryngologist to serve the singer in the capacity of scientific adviser and to work along with the teacher during the period of training rather than to be consulted when it is too late and after singers have sung their "swan songs."

1737 Chestnut Street

FACTORS AND EVENTS ASSOCIATED WITH ONSET OF CORONARY ARTERY THROMBOSIS

A. M. MASTER, MD

SIMON DACK, MD

AND

H. L. JAFFE, MD

NEW YORK

During the past decade, knowledge of the clinical course of coronary artery thrombosis and the pathologic changes associated with it has been increased rapidly. Nevertheless, the actual events which precipitate an attack remain a matter of speculation. Characteristically, an attack of angina pectoris follows physical exertion or emotional stress, and without critical analysis the same factors have been considered responsible for inducing coronary artery thrombosis.

Fitzhugh and Hamilton¹ and others² expressed the belief that coronary thrombosis follows unusual exertion. Riesman and Harris³ and Wolff and White⁴ concurred with them but pointed out that an attack often occurs while the patient is at rest or even in bed. Other authors⁵ found no definite relationship between physical stress and coronary thrombosis.

From the Cardiographic Laboratory and the Medical Services of the Mount Sinai Hospital.

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¹ Fitzhugh, Greene and Hamilton, B. E., Coronary Occlusion and Fatal Angina Pectoris: Study of the Immediate Causes and Their Prevention, *J. A. M. A.* 106:475 (Feb. 18) 1933.

² Sproul, John A., General Practitioner's Views on the Treatment of Angina Pectoris, *New England J. Med.* 215:443 (Sept. 3) 1936.

³ Riesman, David and Harris, S. F., Disease of the Coronary Arteries with a Consideration of Data on the Increasing Mortality of Heart Disease, *Am. J. M. Sc.* 187:1 (Jan.) 1934.

⁴ Wolff, Louis and White, I. D., Acute Coronary Occlusion, *Boston M. & S. J.* 195:13 (July 1) 1926.

⁵ Parkinson, John and Bedford, D. F., Cardiac Infarction and Coronary Thrombosis, *Lancet* 1:4 (Jan. 7) 1928.

⁶ Levine, S. A., Coronary Thrombosis: Its Various Clinical Features, *Medicine* 13:245 (Sept.) 1929.

⁷ Harrison, T. R., The Failure of the Circulation, *Bl. M. J.* 1929.

⁸ Williams & Wilkins Company, 1936, p. 353.

⁹ Jermain, W. M., Coronary Thrombosis and Its Sequelae, *Wi. Cons. M. J.* 34:361 (June) 1935.

¹⁰ Phipps, Cadis, The Relation of Physical Exertion to Heart Disease, *Bur. Lab. Stat.* 149:1:5 (Dept. of Labor Contribution 1935).

¹¹ Causes of Coronary Thrombosis, *J. A. M. A.* 106:761 (March 1) 1935.

Luten⁶ went so far as to state that the attack invariably occurs in the absence of effort

Similarly, the importance of occupation and social status as factors in coronary thrombosis remains a moot question. Some writers⁷ have agreed with Osler⁸ that the upper classes principally are affected and particularly persons engaged in professional life. However,

TABLE 1—Occupation in 522 Cases of Coronary Artery Thrombosis

Occupation	Number	Incidence
Workers and laborers	196	37.5%
Store workers	26	5.0%
White collar and office workers	52	10.0%
Business men	52	10.0%
Professional people	41	7.8%
Housewives	117	22.4%
None or retired	38	7.3%

a number of writers⁹ have stated that the incidence is practically the same in all walks of life

For some years we have been interested in the factors determining the formation of a coronary artery thrombus.¹⁰ A brief preliminary report has been made, in this paper we will consider a large series in greater detail

MATERIAL AND RESULTS

Eight hundred and seventeen attacks of coronary artery thrombosis occurring in 555 patients were studied. One hundred and eighty-five of the patients were private and 370 ward patients. There were 432 men and 123 women. The ages ranged from 27 to 88 years, the majority of the patients were in the sixth or seventh decade.

Occupations were recorded in 522 cases (table 1). Forty-nine per cent of the men were laborers, skilled or unskilled, and the remaining 51 per cent ran the gamut of the complex social system, including storekeepers, office workers and business and professional men. The women included a few nurses and teachers and some in domestic employment but were in the main housewives. It must be assumed that occupation plays little or no part in the occurrence of coronary thrombosis, since the disease is common in all strata of society.

Similarly, the time of day at which the attacks occurred, as recorded in 371 attacks, was found to exert no influence. None of the four periods—morning, afternoon, evening or night—showed a definite preponderance of attacks, the number in each being 104, 83, 77, 107, respectively. The number of attacks at night, that is, from 7 p. m. to 7 a. m., was approximately the same as during the day, 49.6 and 50.4 per cent, respectively. The exact hour of the onset of the attack was reported in only 183 instances. In this small series 50 per cent of the occlusions began between 10 p. m. and 6 a. m., a period usually devoted to rest and sleep.

We were able to ascertain the circumstances under which the thrombosis occurred in 530 cases (table 2). All the attacks that began while the patient was lying

down or sitting were included under rest. These comprised 21.7 per cent of the attacks. The next largest number (19.6 per cent) occurred during sleep. Before any significance can be attributed to rest or sleep as factors in the onset of an attack, it is important to consider not only the percentage of attacks associated with each but also the fraction of time customarily spent by the patients in resting and sleeping. One third of the twenty-four hours is usually devoted to sleep, and since only 19.6 per cent of the attacks occurred during this period, sleep is probably not a factor. The same is true of rest, for more than one fifth of the day is usually spent lying down or sitting. Therefore, one may conclude that although 41.3 per cent of the attacks began while the patient was asleep or resting, the onset was not contingent on these states.

We designated as mild activity the routine habits of everyday life, at home or in the office or store. The percentage of attacks during mild activity was only 13.6. Under moderate activity (5.3 per cent) were included attacks occurring during actual manual labor as well as while the patient was straining at stool, coughing, running upstairs or shopping. In 18 per cent of the cases the attack began while the patient was walking, in most instances at an ordinary pace but occasionally while he was climbing upstairs or up a hill or walking against the wind. Thus 36.9 per cent

TABLE 2—Attending Events in 530 Attacks

1	Rest (lying down or sitting up)	115 (21.7%)
2	Sleep	104 (19.6%)
3	Walking	95 (18.0%)
	74 in street, 7 up stairs, 5 against cold wind, 2 in snow storm, 2 up hill, 5 after meal	
4	Ordinary mild activity	72 (13.6%)
	21 in home dressing, standing, walking about play ing with children, talking, retiring, etc., 17 in store or office, 8 sitting in car or train, 7 driving car, 8 getting out of bed (usually after previous attack), 4 in doctor's office or clinic, 3 doing housework, 3 taking showers or bath, 3 attending a meeting	
5	Moderate activity (except walking)	23 (4.3%)
	17 working as laborers (painter, engineer, carpenter, baker, tailor, presser, etc.), 5 during bowel movement or straining at stool, 2 coughing, 2 running up stairs, 2 shopping	
6	Unusual or severe exertion	11 (2.1%)
	3 lifting or moving a heavy load, 4 during or immediately after sports or games (football, swimming, dancing, skating), 2 running for train	
7	Trauma	1 (0.2%)
	Fall on chest	
8	During or after meal	28 (5.3%)
	12 light meal (including 2 after cold drink), 16 heavy meal, 5 while walking after meal (under walking), 6 in sleep after heavy meal (under sleep)	
9	Excitement—mental or emotional	27 (5.1%)
	8 playing card or gambling, 6 argument, 3 news of death of relatives, 2 fright (lightning), 2 during basal metabolism and Ruffini test meal, 2 after colitis, 3 miscellaneous	
10	Postoperative	22 (4.1%)
	7 laparotomy, 5 genito-urinary operations, 5 eye, ear, nose and throat operations, 2 leg operations, 1 thoracotomy, 1 tooth extraction, 1 laceration of furuncle, 1 paravertebral block	
11	Infection	10 (1.9%)
	7 infections of upper part of respiratory tract, 2 grip (1 included under meals), 1 bronchopneumonia, 1 erysipelas of face	
12	Gradual onset with increasing angina on exertion	9 (1.7%)
13	No definite onset, no history of pain or other acute symptoms (silent coronaries)	8 (1.5%)

of the attacks occurred during mild and moderate activity and walking. However, since 50 per cent of the day is spent in these activities, more than half of the attacks should take place during work or while the patient is walking if these activities are to be considered factors.

Eleven patients (2.1 per cent) gave a history of an unusual occurrence or severe exertion (table 2) preceding their attacks. Such efforts as lifting a heavy load, running for a train or participating in sports were included. In view of the importance usually attributed

6 Luten D. W. Contributing Factors in Coronary Thrombosis. *Am Heart J* 7: 36 (Oct.) 1931.
7 Lloyd T. P. Coronary Thrombosis. *Tri State M J* 6: 145 (July) 1934.
8 Allen O. S. Acute Coronary Thrombosis. *Delaware State M J* 6: 252 (Nov.) 1934.
9 Wolff and White.
10 Osler W. *Lumleian Lectures*. *Lancet* 1: 697-839 973 1910.
11 White P. D. *Heart Disease*. New York: Macmillan Company, 1931. p. 414.
12 Boas E. P. and Donner Samuel. *Coronary Artery Disease in the Working Classes*. *J A M A* 98: 2186 (June 18) 1932.
13 Levy R. L., Bruenn H. G. and Kurtz Dorothy. *Facts on Disease of the Coronary Arteries Based on a Survey of the Clinical and Pathologic Records of 762 Cases*. *Am J M Sc* 187: 376 (March) 1934.
Footnote 5.
10 Master A. M., Dack Simon and Jaffe H. L. *The Relation of Various Factors to the Onset of Coronary Artery Thrombosis*. *J Mount Sinai Hosp* 3: 224 1936.

to the rôle of strenuous exertion in the onset of coronary artery thrombosis, the very low incidence of attacks during such activity was surprising and seems to exclude exertion as a factor. Moreover, since this group includes compensation cases, the percentage is probably lower than 21, because patients seeking compensation are apt to emphasize a specific event as the cause of their attacks. It should also be noted that what is strenuous effort for one may be a routine pro-

TABLE 3—Monthly Incidence (1930-1936) of 612 Attacks

Month	Attacks	Incidence
January	75	12.2%
February	43	7.0%
March	48	7.8%
April	48	7.8%
May	56	9.2%
June	44	7.2%
July	54	8.8%
August	50	8.2%
September	46	7.5%
October	46	7.5%
November	39	6.4%
December	63	10.3%
Autumn winter (October-April)	314	51.3%
Spring summer (April-October)	293	48.7%

cedure for another, thus, lifting a 150 pound weight may be no more effort for a stevedore than moving 20 pounds is for the grocer or carpenter. Nor should one expect strenuous effort to be of importance, since quickening of the circulation would not make for thrombosis. If exertion is a factor, the majority of attacks in our series would have occurred during the day, but, as we have shown, the time of day was of no significance and, in the cases in which the exact hour of the onset was obtained, half the attacks began between 10 p. m. and 6 a. m. It is interesting to note that not once did occlusion occur while the patient was playing golf, a sport so often indicted on this score.

There was only one instance of trauma in our series.

Excitement was associated with the onset of the attack in 51 per cent of the cases. Since emotional stress is inevitable in the lives of most people, and because the percentage of attacks following excitement was small, we do not feel that excitement is a factor. It may be noted that only twice did an attack occur during sexual intercourse.

The number of attacks coincident with meals was 53 per cent. The incidence was no greater after a heavy meal than after a light one. In a few instances the attack began after the first mouthful of food or after a cold drink. Walking immediately after a meal was followed by an attack only five times. It thus seems evident that the occurrence of coronary thrombosis after the partaking of food was merely a coincidence, and we therefore cannot agree with the theory¹¹ that a full stomach or one dilated by gas is the usual cause of the disease.

Whether or not operation is a factor in the initiation of coronary artery thrombosis is of considerable practical importance. There are numerous reports¹² of occlusion following all types of operation and anesthesia. The incidence in our series was small, 4.1 per cent, yet it is possible that there is a relation between the two events for the thrombosis usually occurred

within the first three days after operation. Furthermore, cases of thrombosis are extremely rare in the medical services, only four having been recorded in the past seven years.

Campbell¹³ stated that there was a definite association between infection and coronary thrombosis, but Herrick¹⁴ and MacCallum¹⁵ found little evidence of this. Our experience is in accord with the latter view, the incidence of infection in our series being only 1.9 per cent (eleven cases). Nine of these patients had contracted infection of the upper part of the respiratory tract the week before the onset of the coronary artery thrombosis, one had erysipelas and one broncho pneumonia.

It is commonly believed that coronary thrombosis occurs rarely in the presence of heart failure. On the other hand, Luten⁶ expressed the opinion that heart failure is conducive to coronary thrombosis because of the enforced rest and diminished cardiac output. In our series, thrombosis was engrafted on cardiac failure nine times. We believe that this was merely a coincidence, and thus we are unable to confirm either of these views. While nine cases are a considerable number, if heart failure were a factor in coronary thrombosis the latter would be more frequent in our wards, where there are always numerous patients with heart failure who remain in bed for long periods.

Fitzhugh and Hamilton¹ reported that only one attack in 100 cases of coronary thrombosis was induced by the administration of insulin. In our series, twenty patients were receiving insulin regularly, and in only one case were we able to connect the attack with the injection, in this case the administration of insulin had been begun several days prior to the attack. However, we cannot attach too much importance to this circumstance, since the patient also had an eye operation.

TABLE 4—Incidence of Smoking* in 364 Patients

	Males	Females
Nonsmokers	84 (30.8%)	88 (9.5%)
Light smokers	26 (9.6%)	1 (1.3%)
Moderate smokers	57 (21.0%)	3 (3.3%)
Heavy smokers	105 (38.6%)	0
	272	92

* Light 15 cigarettes or 1 cigar or 1 pipeful daily; moderate 61 cigarettes or 2.4 cigars or 2.4 pipefuls daily; heavy 16 or more cigarettes or 5 or more cigars or 5 or more pipefuls daily.

TABLE 5—Incidence of Alcohol Drinking in 379 Patients

	Males	Females
Nondrinkers	145 (61.4%)	90 (9.9%)
Light or occasional	93 (33.0%)	4 (4.1%)
Moderate	33 (11.7%)	0
Heavy	11 (3.9%)	0
	282	97

Further investigation will be necessary to establish a relationship between insulin and coronary thrombosis, as has already been noted regarding insulin and angina pectoris.

Several authors¹⁶ have found the incidence of coronary artery thrombosis greatest in cold weather.

13 Campbell S. B. B. Influence of Gallbladder and Other Infections on the Incidence of Coronary Thrombosis. *Brit. M. J.* 1 (April 18) 1936.

14 Herrick J. B. The Coronary Artery in Health and Disease. *Am. Heart J.* 6: 589 (June) 1931.

15 MacCallum, W. G. in Cowdry E. V. Arteriosclerosis. A Review of the Problem. New York, Macmillan Company, 1933. P. 361.

16 Wood F. C. and Hedley, O. F. The Seasonal Incidence of Acute Coronary Occlusion in Philadelphia. *M. Clin. North America* 19: 151 (July) 1935. Footnote 5.

11 Jackson D. E. and Jackson H. L. Experimental and Clinical Observations Regarding Angina Pectoris and Some Related Symptoms. *J. Lab. & Clin. Med.* 21: 993 (July) 1936.

12 Randall O. S. and Orr T. G. Postoperative Coronary Occlusion. *Ann. Surg.* 92: 1014 (Dec.) 1930. Menard O. J. and Hurvath L. M. Painless Coronary Thrombosis as a Postoperative Complication. *S. M. Clin. North America* 11: 395 (April) 1931. Weiss Edward. Fatal Coronary Occlusion Following an Injection of a Local Anesthetic. *M. J. & Rec.* 135: 61-62 (Jan. 20) 1932. De Santo D. A. Operation and Trauma as a Cause of Coronary and Cerebral Thrombosis. *Am. J. Surg.* 26: 33 (Oct.) 1934.

Wood and Hadley¹⁶ reported ninety-five cases during the autumn and winter and only fourteen in the spring and summer. Of 612 attacks in our series (table 3), however, 51.3 per cent occurred between October and April and 48.7 per cent in the spring and summer. The element of cold, therefore, seems to have no role in the formation of a coronary thrombus.

Recently, much has been written concerning the important effect of the use of tobacco on cardiovascular disease, including thrombosis. We therefore investigated this point. Table 4 shows that one third of the men and practically all the women were nonsmokers. Furthermore, the proportion of heavy and moderate smokers did not differ from that of society in general. Therefore, we believe that tobacco has no influence on the occurrence of coronary thrombosis. White and Sharber¹⁷ came to a similar conclusion concerning coronary sclerosis.

A glance at table 5 makes it obvious that alcohol also has no role in coronary thrombosis, since more than half the patients did not drink at all. In fact, it may protect, since only 4 per cent of our patients were heavy drinkers. It is noteworthy that in only one case did occlusion follow a drinking bout.

COMMENT

From the foregoing report it would seem that the onset of coronary artery thrombosis during the various states considered was merely a temporal coincidence and that no specific factor precipitates an attack. This contrasts with the situation in angina pectoris, which is often confused with coronary thrombosis. While both conditions are probably manifestations of a metabolic disturbance, as Libman¹⁸ stated, and while the local pathologic process is sclerosis of the coronary artery, yet the two conditions differ widely. Angina pectoris is a functional syndrome. It appears when there is temporary insufficiency of coronary blood flow as a result of exertion or reflex spasm. The nervous element is paramount. Although some attacks of angina pectoris occur without discernible cause, the majority are definitely related to specific acts, such as playing golf, walking against the wind, eating a meal or excitement. The attack is relieved by glyceryl trinitrate. Coronary thrombosis, on the contrary, occurs irrespective of rest, activity, excitement or emotion and season or temperature and is not helped by glyceryl trinitrate. It is not our intention to minimize the value of physical and mental rest in the treatment of chronic disease of the coronary artery, but thus far medicine has been unable to prevent the formation of a thrombus.

SUMMARY

A statistical study of over 800 attacks of coronary thrombosis was made to determine what factors may have initiated the thrombosis.

Coronary thrombosis occurred in all walks of life and in all types of occupations.

Although 40 per cent of the attacks occurred during rest or sleep, this was probably a coincidence, since half the day is ordinarily spent in these states.

Exertion, even severe, was of little or no significance in the precipitation of an attack. This held good for walking, straining at stool, coitus and playing golf.

Excitement, ingestion of food, infection, tobacco, alcohol, heart failure, time of day and season of year were found to have no significance.

¹⁷ White P D and Sharber Trimble. Tobacco, Alcohol and Angina Pectoris. *J A M A* 102:655 (March 3) 1934.

¹⁸ Libman Emanuel. Symposium Angina Pectoris with Special Reference to Coronary Artery Disease. *Bull. New York Acad Med* 11:427 (July) 1935.

The effect of operation and of insulin require further study.

Although both angina pectoris and coronary artery thrombosis have the same underlying pathologic condition, namely, coronary sclerosis, they differ entirely in respect to the exciting cause of the attack.

125 East Seventy-Second Street

CLINICAL OBSERVATIONS ON THE EFFECT OF BENZEDRINE SULFATE

A STUDY OF PATIENTS WITH STATES OF CHRONIC EXHAUSTION, DEPRESSION AND PSYCHONEUROSIS

DWIGHT L WILBUR, M D

ALEXANDER R MacLEAN, M D

Fellow in Neurology, the Mayo Foundation

AND

EDGAR V ALLEN, M D

ROCHESTER, MINN

Pharmacologic studies¹ of benzedrine (beta-amino-propylbenzene or benzyl methyl carbinamine) indicate that it has a sympathomimetic action and a profound stimulating effect on the central nervous system. Clinically its sympathomimetic action has been utilized particularly in the treatment of congestion of the nasal mucosa,² in maintaining blood pressure during spinal

From the Division of Medicine (Drs Wilbur and Allen) the Mayo Clinic.

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1 Pharmacologic studies

Barger G and Dale H H. Chemical Structure and Sympathomimetic Action of Amines. *J Physiol* 41:159 (Oct 11) 1910.

Piness George, Miller Hyman and Alles G A. Clinical Observations on Phenylaminoethanol Sulfate. *J A M A* 94:790-791 (March 15) 1930.

Hartung W H and Munch J C. Amino Alcohols. VI. The Preparation and Pharmacodynamic Activity of Four Isomeric Phenylpropylamines. *J Am Chem Soc* 55:1875-1879 (May) 1931.

Alles G A. The Comparative Physiological Action of dl Beta Phenyl isopropylamine. I. Pressor Effect and Toxicity. *J Pharmacol & Exper Therap* 47:339-354 (March) 1933.

Tainter M L. Comparative Actions of Sympathomimetic Compounds. Phenyl and Substituted Phenyl Derivatives. Nonphenylic Ring Compounds and Aliphatic Amines. *Arch internat de pharmacodyn et de therap* 46:192-232 (Oct 15) 1933.

Alles G A and Prinzmetal Myron. The Comparative Physiological Actions of the dl Beta Phenylisopropylamines. II. Bronchial Effect. *J Pharmacol & Exper Therap* 48:161-174 (June) 1934.

Myerson Abraham, Loman Julius and Dameshek William. Physiologic Effects of Benzedrine and Its Relationship to Other Drugs Affecting the Autonomic Nervous System. *Am J M Sc* 192:560-574 (Oct) 1936.

Lagen J B, Soley M H and Leake T B. Effect of Benzedrine Sulfate on Basal Metabolic Rate. *Proc Soc Exper Biol & Med* 35:276-278 (Nov) 1936.

Myerson Abraham, Rinkel Max and Dameshek William. The Autonomic Pharmacology of the Gastric Juices. *New England J Med* 215:1005-1013 (Nov 26) 1936.

Schube P G, Ritvo Max, Myerson Abraham and Lambert Ruth. Human Autonomic Pharmacology. IV. The Effect of Benzedrine Sulfate on the Gallbladder. *ibid* 216:694-697 (April 22) 1937.

2 Clinical studies

Giordana A A S. Benzyl Methyl Carbinamine (Benzedrine). A Study of the Rapidity and Duration of Its Shrinkage Action in the Nasal Turbinates. *Pennsylvania M J* 39:20-22 (Oct) 1935.

Hulka J H. A Simple Method of Introducing Benzedrine Vapors into Eustachian Tube. *Arch Otolaryng* 23:692-693 (June) 1936.

Wood E L. Use of Benzedrine in Eustachian Tube and Middle Ear with Apparatus for Application. *J M Soc New Jersey* 33:410 (July) 1936.

Sulman L D. Certain Conditions in Which Volatile Vasoconstrictor Has Proved of Particular Value. Preliminary Report. *N Times & Long Island M J* 63:374-375 (Dec) 1935.

Bertolet T A. Benzyl Methyl Carbinamine Carbonate. A Report Based on Its Clinical Effect in One Hundred and Twenty Two Rhinological Cases. *N J & Rec* 136:75-76 (July 20) 1932.

Byrne H V. The Use of Benzyl Methyl Carbinamine Carbonate in the Treatment of Rhinitis. *New England J Med* 209:1048-1051 (Nov 23) 1933.

Scarano J A. Rapidity of Shrinkage and Immediate and Secondary Reactions Following Applications of Ephedrine and Benzedrine. *N Rec* 140:602-604 (Dec 5) 1934.

Wood E L. A New Drug for Treatment of the Eustachian Tube and Middle Ear with an Apparatus for Its Use. *Arch Otolaryng* 21:588-590 (May) 1935.

anesthesia³ and in orthostatic hypotension,⁴ and for the relief of spasm affecting the gastro-intestinal tract⁵. The stimulating effect on the central nervous system has led to observations on the effect of benzedrine in many psychiatric and neurologic conditions, including narcolepsy,⁶ disorders of mood and affect (chiefly depression⁷), postencephalitic parkinsonism,⁸ psychoneurosis,⁹ and to observations on its effect on normal persons and on those¹⁰ suffering from states of exhaustion¹¹.

The method by which benzedrine produces a stimulating action on the central nervous system and the part of the brain which it stimulates is unknown. Marked stimulation of the nervous system is the most striking effect of the drug. The long duration of this effect is noteworthy. From the evidence which has so far accumulated, benzedrine does not appear to be toxic in usual doses nor does it seem to be habit forming.

This report, which supplements a previous one,¹² is concerned with the effects of administration of the drug to 100 patients during a short time and to forty-four patients during periods varying from two weeks to eight months. All of these patients were carefully examined and had no detectable evidence of organic disease. The drug was administered orally in the form of the sulfate, in doses of from 2.5 to 20 mg before breakfast and frequently the dose was repeated at noon. In all our work the sulfate was used. A placebo tablet identical in appearance with that which contained benzedrine, was administered on occasions and failed regularly to cause any change of symptoms.

We have divided the 100 cases, according to the symptoms, in three groups under the headings (1)

chronic exhaustion, (2) psychoneurosis and (3) depression. To distinguish clearly between a state of chronic exhaustion and a psychoneurosis often is difficult if not impossible. For the purposes of this presentation, states of chronic exhaustion may be considered to be characterized by persistent sensations of fatigue, lack of energy and lassitude, for which no organic cause can be determined. These sensations may be part of a syndrome of biologic inferiority or may result from environmental difficulties, overwork or infections. A description of many of the features of this syndrome, and justification for the diagnosis, have been given previously by Macy and Allen.¹³ The term "psychoneurosis" is used in this presentation to designate the condition of a group of patients whose chief symptoms were nervousness, anxiety, restlessness, irritability, inability to relax and who had numerous somatic symptoms. In this group of cases fatigue ordinarily was not a prominent symptom. It is frequently difficult to evaluate the results of any form of treatment if patients are subject to nervous and mental disorders and fatigue states, because of the marked variability in the course of these conditions. We cannot say definitely that the use of benzedrine was responsible for all the beneficial effects noted in our study, for reassurance of the absence of organic disease, correction of environmental difficulties and rearrangement of methods of living, as well as other factors, may have contributed significantly to improvement.

CHRONIC EXHAUSTION

Immediate Effects—The effects of one or two doses of benzedrine on thirty-two patients who had chronic exhaustion are noted in table 1. The condition of twenty-five, or 78 per cent, of the patients was improved following the use of benzedrine. In some instances the results were spectacular, leading to complete disappearance of exhaustion, marked exhilaration and increased capacity for physical and mental work. Along with this there were, in some cases extra version of thought and activity, speeding of mental processes, cheerfulness, elation and loquaciousness. Vague neuromuscular aches and pains and consciousness of abdominal discomfort frequently were greatly benefited or entirely relieved. When symptoms such as nervousness, anxiety, restlessness and irritability were present, they were frequently uninfluenced or even accentuated. Many of these patients stated that they felt "jittery" or stimulated and that they noted dryness of the mouth, palpitation, tremor and excessive sweating. Some of these unpleasant symptoms which frequently followed the use of the drug and outweighed its beneficial effects may have been the result of the administration of the rather large amounts of the drug that were required to relieve fatigue.

Effects of Prolonged Administration—The effects of benzedrine administered daily for from two weeks to eight months, in doses of from 2.5 to 20 mg once or twice daily, were studied in twenty-three cases of chronic exhaustion in which the immediate effects of the drug were beneficial. The results are indicated in table 2. Improvement of the condition of seven patients (30 per cent) continued for from three weeks to four months while they used the drug but they discontinued the use of it after variable periods because improvement was only slight because of the subsequent development of undesirable effects or because the

3. Toyell R M. Control of Blood Pressure During Spinal Anesthesia. Preliminary Report of the Use of Benzedrine. Proc Staff Meet Mayo Clin 11: 550-588 (Sept 9) 1936.
4. Davis P L and Shumway Davis Margaret. Orthostatic Hypotension. The Treatment of Two Cases with Benzedrine Sulfate. J A M A 108: 1247-1249 (April 10) 1937.
5. Kornis H M and Randall W L. Orthostatic Hypotension Treated with Benzedrine. Report of Case. Am Heart J 13: 114-118 (Jan) 1937.
6. Myerson Abraham and Ritvo Max. Benzedrine Sulfate and Its Value in Spasm of the Gastro Intestinal Tract. J A M A 107: 24-26 (July 4) 1936.
7. Ritvo Max. Drugs as an Aid in Roentgen Examination of the Gastro Intestinal Tract. The Use of Mechoh. Phystostigmine and Benzedrine in Overcoming Atonicity. Sluggishness of Peristalsis and Spasm. Am J Roentgenol 36: 568-574 (Dec) 1936.
8. Effect in narcolepsy. Prinzmetal Myron and Bloomberg Wilfred. The Use of Benzedrine for the Treatment of Narcolepsy. J A M A 105: 2051-2054 (Dec 21) 1936.
9. Ulrich Helmuth Trapp C E and Vigdoff Ben. The Treatment of Narcolepsy with Benzedrine Sulfate. Ann Int Med 9: 1213-1221 (March) 1936.
10. Nathanson M H. The Central Action of Beta Aminopropylbenzene (Benzedrine). J A M A 108: 528-531 (Feb 13) 1937.
11. Guttman Erich and Sargent William. Observations on Benzedrine. Brit M J 1: 1013-1015 (May 15) 1937.
12. Effect in disorders of mood and affect. Schube P G McManamy M C and Trapp C E. Unpublished Data.
13. Myerson Abraham. Effect of Benzedrine Sulfate on Mood and Fatigue in Normal and Neurotic Persons. Arch Neurol & Psychiat 36: 816-822 (Oct) 1936.
14. Davidoff Eugene. A Clinical Study of the Effect of Benzedrine Therapy on Self Absorbed Patients. Psychiat Quart 10: 652-659 (Oct) 1936.
15. Guttman Erich. Effect of Benzedrine on Depressive State. J Ment Sc 52: 618-620 (Sept) 1936.
16. Nathanson M.
17. Guttman and Sargent.
18. Wilbur MacLean and Allen.
19. Davidoff and Reifenstein.
20. Sargent and Blackburn.
21. Solomon Philip Mitchell R S and Prinzmetal Myron. The Use of Benzedrine Sulfate in Postencephalitic Parkinsonism. Dis Case J A M A 108: 1763-1770 (May 22) 1937.
22. Solomon Philip and Prinzmetal Myron. The Use of Benzedrine in Postencephalitic Parkinsonism. J Nerv & Ment Dis 85: 202 (Feb) 1937.
23. Myerson Abraham. The Physiological and Psychological Effects of Benzedrine. Ibid 85: 202-206 (Feb) 1937.
24. Myerson Davidoff.
25. Benzedrine. Ibid 85: 202-206 (Feb) 1937.
26. Wilbur MacLean and Allen.
27. Davidoff.
28. Nathanson.
29. Myerson.
30. Wilbur MacLean and Allen.
31. Nathanson.
32. Myerson.
33. Wilbur MacLean and Allen.
34. Clinical Observations on the Effect of Benzedrine Sulfate. Proc Staff Meet Mayo Clin 12: 97-104 (Feb 17) 1937.
35. abstr J A M A 108: 587-588 (Feb 13) 1937.

13. Macy J W and Allen F V. A Justification of the Diagnosis of Chronic Nervous Exhaustion. Ann Int Med 7: 861-867 (Jan) 1934.

effect of the drug eventually wore off entirely. As often expressed by the patient, "the effect wore off" or "I seemed to get used to it." Five patients (22 per cent) felt improved during use of benzedrine over periods of from one week to one month but discontinued the use of it because unpleasant effects noted previously continued and offset the beneficial effects. Eleven patients (48 per cent) are continuing to use benzedrine after periods of from one to eight months and feel that the favorable effects have persisted.

TABLE 1—Immediate Effects of Administration of Benzedrine

Diagnosis	Number of Patients			Total	Percentage of Patients Improved
	Worse	No Change	Improved		
Psychoneurosis	12	7	16	35	45.7
Depression	5	4	21	30	70.0
Exhaustion	3	4	25	32	78.1
Total	20	15	62	97*	63.9

* Three patients not included in the table had depression associated with chronic alcoholism.

A review of the records of the patients whose condition was improved and of those for whom improvement was only temporary or was associated with unpleasant symptoms failed to reveal any distinguishing features that could be used to explain the divergent results. The following report of a case illustrates the gradual loss of effect that may occur even though the immediate result was remarkable.

CASE 1—A man aged 27, came to the clinic complaining of headaches, constipation and marked fatigue of three years' duration. He was so fatigued that he had been unable to complete his studies as a law student. Extensive clinical, roentgenologic and laboratory examinations failed to reveal evidence of organic disease, and a diagnosis of chronic exhaustion was made. The patient was given 20 mg of benzedrine before breakfast and 20 mg before lunch, following which he stated that he noticed very marked relief of fatigue and a markedly increased desire and capacity for physical and mental effort. He felt that "a cloud had been lifted from his brain"; he regained his former confidence and "felt normal for the first time in three years." During the day he played twenty-seven holes of golf without particular fatigue whereas previously nine holes had been thoroughly sufficient to exhaust him. Previously noted muscular aches and vague abdominal discomfort disappeared. The patient was advised to take benzedrine in amounts of 20 mg before breakfast and 10 mg before lunch for a trial period. One month later he reported that his condition was so much improved that he seriously contemplated returning to law school. Five months after his examination at the clinic, his condition was still much improved. He had returned to law school and was working continuously with reasonably good success. However, he was taking benzedrine in a dose of 10 mg every three days because otherwise it lost its effect. Seven months after his first visit to the clinic he reported complete exhaustion at the end of the day and inability to concentrate, which were symptoms of which he originally complained. Benzedrine not only was no longer useful in overcoming these symptoms but it made him "terribly irritable."

The following case is illustrative of persistent improvement following administration of benzedrine for eight months.

CASE 2—A woman, aged 28, came to the clinic complaining of exhaustion of three years' duration. The feeling of tiredness had begun while she was teaching and had progressed to such an extent that she had been obliged to give up her work. She rapidly lost interest in all activities and for one year she had required from twelve to thirteen hours of sleep daily. Despite the fact that her appetite was large she felt that she did not get "any energy out of her food." Extensive examination failed to reveal evidence of organic disease and a diagnosis of chronic

exhaustion was made. The patient was given 20 mg of benzedrine before breakfast and 10 mg before lunch following which she stated that she obtained marked relief from fatigue and that she felt better than she had felt for four years. The improvement was so marked that she did many things, such as cleaning her room, which she had not done for a long time. The patient was advised to take benzedrine in amounts of 20 mg before breakfast and 10 mg before lunch for a trial period. At the end of eight months during which the daily dose of benzedrine had been continued, the patient reported that she still experienced very marked increase of energy, increase of desire and capacity for physical and mental effort, as well as a marked feeling of well being and exhilaration. There had been no change in blood pressure which had been normal when she was originally examined at the clinic. Her appetite had been persistently lessened since taking benzedrine and it had been a little more difficult for her to sleep than it was previous to her taking the drug. However, the patient wrote that she felt "like living."

PSYCHONEUROSIS

Immediate Effects—The immediate effects of benzedrine on a group of thirty-five patients on whom a diagnosis of psychoneurosis was made are presented in table 1. The dominant symptoms noted were nervousness, anxiety, inability to relax, and lack of energy. If exhaustion was present, frequently it was improved but the dominant symptoms were frequently exaggerated. In many instances it was possible to predict beforehand the results to be obtained with benzedrine in this group of cases. It will be noted that the percentage of psychoneurotic patients who obtained immediate good results was not as large as was the corresponding percentage of patients who had chronic exhaustion and we have noted, in addition, that the degree of improvement of patients with psychoneurosis was less striking. Many of them noted that unpleasant symptoms were accentuated by administration of the drug. Because of the foregoing observations, the effect of prolonged administration of benzedrine on patients with psychoneurosis has not been studied.

DEPRESSION

Immediate Effects—Of a group of thirty patients who were suffering from depression the immediate effects of benzedrine were striking on twenty-one, or

TABLE 2—Effects of Continued Administration of Benzedrine in Cases of Chronic Exhaustion*

Result	Cases		Duration of Treatment Weeks
	Number	Per Cent	
Continued improvement	11	47.8	1.32
Improvement but administration discontinued	7† 5‡	29.4 21.8	3.12 1.4
Total	23	100.0	

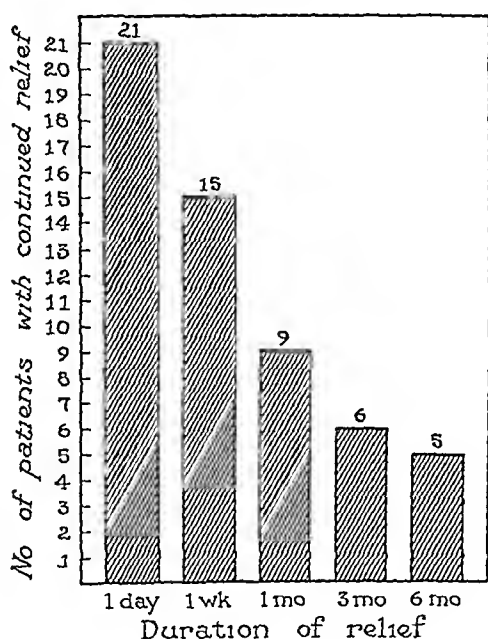
* The immediate effect of the drug was beneficial in all cases.
† After variable periods because (a) improvement was slight (b) effect wore off (c) undesirable effects developed.
‡ Because a isolated unpleasant symptoms persisted.

70 per cent (table 1). These patients were carefully selected, depression, with mental and physical slowing was the predominant feature of the clinical picture. Patients who had marked anxiety and physical and mental hyperactivity associated with depression were not ordinarily benefited by benzedrine, for the symptoms mentioned were accentuated. Of twenty patients who had simple or reactive depression, fourteen experienced marked relief, four noted no change and the condition of two became worse. Of ten patients who were in the depressed phase of manic depressive psychosis, seven experienced marked relief and three

noted exacerbation of symptoms. The patients who experienced relief were not severely depressed.

Three patients not included in table 1 who had depression associated with chronic alcoholism were greatly benefited by benzedrine, which appeared to act as a supplementary stimulant.

Effects of Continued Administration—Although the immediate results of administration of benzedrine to depressed individuals were excellent, our experience with its continued use in this group has been disappointing, as shown in the chart. Twenty-one patients whose initial response to benzedrine was excellent continued to take the drug for variable periods. Thirteen had simple depression and eight had the depression of a manic-depressive psychosis. Of these twenty-one depressed individuals, six reported that in spite of continued medication the initial favorable results were not repeated after the first week. Because benzedrine failed to relieve their condition, an additional six



Decreasing effect of continued administration of benzedrine to patients who are in states of depression

patients discontinued its use in one month and three more patients discontinued its use at the end of three months. Six remain to be accounted for. Of these, one discontinued use of the drug before six months had elapsed and five reported after six months that they continued to obtain relief from the medicine. It is obvious that relief of depression as a result of administration of benzedrine is temporary in many instances.

The following report of a case is illustrative of the persistent improvement following continued administration of benzedrine.

CASE 3—A man, aged 45, was seen at the clinic in August 1936. Since 1918 he had suffered from repeated episodes of depression, which had alternated with periods of mild exaltation. When examined at the clinic he had been depressed for a year and was unable to work. Examination of the patient did not reveal significant abnormalities. Twenty milligrams of benzedrine given by mouth resulted in marked relief and the patient was dismissed with instructions to take 10 mg of benzedrine in the morning and again at noon. Three months later he wrote the following letter:

"As soon as I started taking the benzedrine the depression and feeling of fear left me at once. It felt like the 'do or die' emotion had come to life again and had driven the fear feeling

out of my mind, or in other words it made me feel like I felt before under normal conditions when I have been at the best of vigour. Due to luck I was able to obtain work. I was able to put it over the first week and the firm was satisfied, and as time has gone on I have gathered more confidence in myself. I now sleep well without the use of sleep tablets, and I do not have those terrible regrets in the morning but I still have a strong tendency to day dream and am a bit weak yet to withstand any real disappointment."

The following report of a case illustrates gradual loss of effect from continued use of benzedrine, even when effects of the initial administration were excellent.

CASE 4—A man, aged 52, was examined at the clinic in July 1936 because of mental depression. In 1925 he had suffered from depression for six months following financial reverse. He had recovered completely from this episode but there had been a recurrence in 1927 which had lasted one year. In 1930 he had become depressed again, this state had lasted for two years but he again had recovered completely. The episode of depression at the time of examination had begun in 1935 and had continued with no remission. During the states of depression the man was obsessed with suicidal thoughts and it was only with the greatest difficulty that he could tend to his personal needs. He was unable to work. Following administration of 20 mg of benzedrine there was a marked change in mood. The patient became happy and confident and there was marked increase in psychic and motor activity. He went to two motion picture shows on the day he took the benzedrine, he said that he was able to follow the action closely and that he had enjoyed himself for the first time in a year. He was dismissed with instructions to take 10 mg of benzedrine in the morning and again at noon. Two months later he was again examined at the clinic. He complained that although he had continued the daily use of benzedrine, and had been greatly relieved for a month, the drug was failing in its effect. His depression had returned and it was impossible for him to work. The dosage of benzedrine was increased to 30 mg a day but no benefit resulted. Medication has been continued for six months but the patient never again has experienced the marked relief that was so evident during the first few weeks of administration of benzedrine.

UNFAVORABLE EFFECTS

The unfavorable effects of one or two doses of benzedrine have been noted previously and include exaggeration of nervousness, apprehension and anxiety, a feeling of being "fidgety" or "jittery" and insomnia, excessive sweating, dryness of the mouth, light headedness, irritability and melancholia. Some patients who have continued to take benzedrine for periods of weeks or months occasionally have noted persistence of the symptoms or development of them. We have not noted unfavorable gastro-intestinal symptoms, such as abdominal cramps and an increased desire to go to stool, which other observers¹⁴ have reported.

Loss of weight, apparently resulting from reduced appetite and increased activity, have been noted by some observers¹⁵ as an unfavorable effect of the drug. It has been suggested that the relative anorexia result from diminished tonus of the gastro-intestinal tract. Of the twenty-three patients with chronic exhaustion who took benzedrine from two weeks to eight months, two reported loss of 20 pounds (9 Kg) after using benzedrine for two and four months respectively. Two patients, however, reported a gain of 5 and 6 pounds (2.3 and 2.7 Kg) respectively and the weight of the remainder did not change significantly. One possible harmful effect of prolonged administration of benzedrine may be encountered if the drug is given to patients whose exhaustion or fatigue is a protective

¹⁴ Davidoff, Eugene and Reifstein, E. C. The Stimulating Action of Benzedrine Sulfate. A Comparative Study of the Response of Normal Persons and of Depressed Patients. *J. A. M. A.* 105: 1, 1937 (May 22).

¹⁵ Nathanson, Davidoff and Reifstein.

symptom, abolishment of the exhaustion or fatigue may result in expenditure of energy beyond the capacity of the individual

There are no reports in the literature to suggest that use of benzedrine leads to formation of a habit, and because of its chemical structure one would not anticipate such an effect. The possibility of formation of a habit is not excluded, however. The first patient with narcolepsy to whom Prinzmetal and Bloomberg⁶ reported giving the drug is still taking the same dose after three years.

That benzedrine may cause elevation of the blood pressure for periods varying from five to seven hours has been noted by several observers.¹⁶ In at least one case (case 5) when benzedrine was given in relatively small doses to an elderly patient who had hypertension, undesirable increases in blood pressure and cardiac symptoms were produced.

In the following two cases, alarming symptoms referable to the heart arose in the course of treatment with benzedrine.

CASE 5—A woman, aged 72, who had received treatment for carcinoma of the breast and who had essential hypertension came to the clinic because of a feeling of depression of several months' duration. She stated that in the morning she frequently felt "blue" "that life was hardly worth living" and that she seemed to be exhausted. There were no significant cardiac symptoms and examination of the heart gave objectively negative results. The systolic blood pressure in millimeters of mercury was 140 and the diastolic blood pressure was 80. A diagnosis of depression was made. Following administration of 20 mg of benzedrine before breakfast the patient's condition was remarkably improved. Exhaustion disappeared completely and she felt that the day was not long enough for doing the things she wanted to accomplish. The patient was advised to continue to take benzedrine in amounts of 20 mg before breakfast, under the care of her physician. The dose was subsequently reduced to 10 mg. The improvement originally noted continued, but about two months after the patient had begun to use the drug retrosternal discomfort and dyspnea developed, symptoms interpreted by her physician as being due to coronary sclerosis. The blood pressure was 180 systolic, the diastolic pressure was not recorded. Benzedrine was discontinued.

CASE 6—A man, aged 46, came to the clinic because of marked fatigue, abdominal discomfort and mushy stools. He was so exhausted that it was difficult for him to force himself to work for several hours and many simple routine duties required great effort on his part. Physical examination gave essentially negative results and extensive roentgenologic and laboratory examinations did not reveal any abnormalities. A diagnosis of chronic exhaustion and irritable gastro-intestinal tract was made. All symptoms were relieved following administration of benzedrine. By using 10 mg before breakfast for four months, the patient continued to note the remarkable improvement that he had experienced originally. At the end of this period of four months he had several attacks of severe pain in the chest, which he related to his heart. Although objective examination of the heart by a competent cardiologist gave negative results, it was felt advisable to discontinue the use of benzedrine.

DOSAGE

Benzedrine was administered orally to our patients in doses of from 10 to 20 mg before breakfast and frequently the amount was given again at noon. When the drug is taken after noon, insomnia usually results.

It has been our experience that, if the condition of a patient fails to improve with one of the doses noted, he will not be benefited ordinarily by larger amounts of benzedrine. Many of the patients with exhaustion and depression whom we have observed, and who have taken benzedrine over a period of weeks or months, have found that they were able to reduce the dose to as little as from 2.5 to 5 mg before breakfast, with continuation of good results. In other cases 10 mg in the morning and from 2.5 to 5 mg at noon will maintain a favorable effect. Occasionally patients find that intermittent use of the drug proves more satisfactory than continuous administration. One fortunate quality of benzedrine is that the effects of its administration almost always can be determined in one day. If there is no beneficial effect from its administration before breakfast and lunch on one day, it appears useless to administer it over longer periods.

Benzedrine does not appear to be toxic in the doses that should be utilized clinically. Hartung and Munch¹ found the minimal lethal dose of the hydrochloride of benzedrine to be 25 mg for each kilogram of body weight of rats and rabbits.¹⁷ Solomon and his associates¹⁸ have given as much as 160 mg a day for three weeks to a man without apparent harmful effect, and Davidoff and Reifenstein¹⁴ have administered 200 mg in one day to a patient without severe reaction.

COMMENT

Although the initial results that follow the administration of benzedrine to patients who are in states of chronic exhaustion and depression are favorable in a high percentage of instances, it is obvious that continued use of the drug lessens its effectiveness. Thus, our studies show that although the initial effects of the administration of benzedrine are favorable to about 70 to 80 per cent of patients who are in states of exhaustion that are not due to organic disease, and to about the same percentage of patients who are in states of depression, the percentage of favorable effects decreases significantly if administration of the drug is continued for weeks or months. This is in sharp contrast to the results of the treatment of narcolepsy, reports of which indicate that it continues to respond uniformly and favorably to administration of benzedrine for as long as three years. If the results of our studies of the continued administration of benzedrine to patients who are in states of chronic exhaustion or depression are confirmed, it will become apparent that the usefulness of the drug in treatment of these conditions is substantially limited. Observations over longer periods of time than those which we are reporting may show still further limitation of the use of benzedrine.

It is probable that eventually benzedrine will be found to have its greatest value in the treatment of chronic exhaustion or depression when it is used temporarily or perhaps intermittently. While it appears to us that in states of exhaustion benzedrine may simply decrease awareness of fatigue, we are uncertain whether this is the result of stimulation of the central nervous system or of sympathomimetic activity. From our experience it appears that the field of usefulness

16 Observations on elevation of blood pressure.
O'Connor D M. Benzedrine. *Brit M J* 43 (Jan 2) 1937.
Peoples S A and Guttman E. Hypertension Produced with Benzedrine. Its Psychological Accompaniments. *Lancet* 1: 1107-1109 (May 16) 1936.
Anderson E W and Scott W C M. Cardiovascular Effects of Benzedrine. *ibid* 2: 1461-1462 (Dec 19) 1936.
Guttman E. Some Psychiatric Observations in Arterial Hypertension. *Proc Roy Soc Med* 29: 1389-1391 (Sept.) 1936.
Fisher J H. Cardiovascular Effects of Benzedrine. *Lancet* 1: 52 (Jan 2) 1937.
Fovell.

17 Since this paper was presented W E Ehrlich and F B Krumbhaar (The Effects of Large Doses of Benzedrine Sulfate on the Albino Rat. Functional and Tissue Changes. *Ann Int Med* 10: 1874-1888 [June] 1937) have reported studies on the effects of benzedrine sulfate on the albino rat. They reached the conclusion that the minimum lethal dose of benzedrine sulfate given subcutaneously to rats is from a hundred to a thousand times per kilo the usual therapeutic dose given man orally. The greatest nontoxic dose is that which fails to produce transient variations appears to be from 2 to 5 mg per kilo in other words about 10 to 50 times per kilo the usual human therapeutic dose.

of the drug in the conditions just named has been gradually narrowed. It is of interest to note that the effects of administration of benzedrine vary widely when it is used in treatment of apparently similar clinical conditions. It seems impossible, therefore, to predict results in any specific instance, only by actual trial can one determine effects.

While the usual initial dose of benzedrine given our patients was from 10 to 20 mg twice daily, many of them noted that as little as from 2.5 to 5 mg, taken once or twice daily, was adequate. Such relatively small amounts may eliminate or reduce unpleasant effects. Inexplicably, two of our patients, one of whom had chronic exhaustion and the other depression, have continued to feel well for several months after discontinuing the use of benzedrine. This suggests that improvement following use of the drug may not be the effect of benzedrine entirely.

Because some of the startling results which follow administration of benzedrine have been widely commented on in the medical and lay press,¹⁸ the drug has rapidly acquired a vogue for all sorts of conditions. People have kept themselves awake and alert for unreasonably long automobile drives and students have utilized the drug, in many instances unwisely, for stimulation and acceleration of mental processes during examinations. In such instances more common sense and less benzedrine are ordinarily advisable. It is worthy of note that Blackburn,¹⁹ in a study of forty-eight persons, many of whom had disturbances of emotion and mood, reported that these persons, following administration of small doses of benzedrine, increased the score obtained in an intelligence test by an average of 8 per cent. It is also of interest to note that some persons who have indulged in too large quantities of alcohol may find that the characteristic morning "hang over" is greatly benefited by benzedrine.

The indiscriminate use of benzedrine cannot be too severely criticized. It is never advisable, in states of exhaustion, to substitute its use for careful search for the causes of the exhaustion and the correction of them if this is possible. While, as far as we know, toxic effects from administration of benzedrine have not been noted, the possibility that they may occur must be considered. It should be particularly emphasized that benzedrine is a stimulant and therefore that it probably does not fundamentally and permanently alter a psychotic disorder or a state of chronic exhaustion or neurosis. Whether it is logical and safe continuously to stimulate an individual who presents such a disturbance is a question which cannot be answered at present. We feel that until further observation is made it probably will be unwise to recommend the continuous use of benzedrine except to patients who are less than 60 years of age, who present no evidence of hypertension or cardiac disease and who can be closely observed by a physician.

SUMMARY

The immediate effects of oral administration of benzedrine to a group of 100 patients in which after careful examination, diagnoses were made of chronic exhaustion, depression and psychoneurosis, were beneficial to approximately 80, 70 and 46 per cent respectively. In some instances the results were spectacular.

The effects of the continued administration of the drug were less favorable. Of the patients initially benefited, about 50 per cent who had chronic exhaustion and 25 per cent who had depression continued to receive benefit for periods of from one to eight months.

Benzedrine is a stimulant and therefore apparently does not fundamentally and permanently alter a psychotic disorder or a state of chronic exhaustion. Whether it is logical and safe continuously to stimulate individuals who present such disturbances is a question that cannot be answered at present.

RELATION OF THE FASCIA LATA TO CONDITIONS IN THE LOWER PART OF THE BACK

FRANK R. OBER, M.D.

BOSTON

The object of this paper is to show what has been learned to date from the results of fasciotomy on patients with lame back and sciatic pain. Early in the winter a general questionnaire was sent out to the members of the American Academy of Orthopedic Surgeons and others asking them to send in the number of patients operated on by them and the results obtained and to make any comments on their observations. Forty-one reports were received, giving data on 340 cases. To these are added seventy-five reports from the clinic with which I am associated, making a total of 415 cases from which to draw conclusions. Of the 415 patients, eighty-four (21 per cent) obtained no relief, seventeen (4 per cent) showed only partial relief and 314 (75 per cent) had complete relief. The symptoms were relieved immediately or after intervals up to one year. The average time before relief took place was about three months.

It is hoped that what has been learned from analysis of the questionnaires will bring out some points which are necessary for arriving at a proper diagnosis and which will make the indications for the operation more specific, although it will probably be some time before more definite rules of procedure can be laid down.

HISTORY

Several important factors are to be considered in arriving at a diagnosis if one recognizes that fascial pull in the lower extremity has any relation to conditions low in the back. First there is the history of the condition as related to body mechanics before any story of lame back enters the picture. Have there been any postural disturbances? What is the favorite position in bed? Is the patient able to bend over and touch the floor with his hands when his knees are held straight? What positions induce or aggravate the pain low in the back and the sciatica? How are these conditions affected by sitting, standing, stooping, twisting and walking? Most persons who have difficulties in the lower part of the back associated with contracted fasciae latae lie on their sides with the knee or knee-flexed. Lying on the back or the abdomen usually makes them more uncomfortable.

The history, of course, should be as complete as possible regarding the many other factors which are

¹⁸ Simpson S. L. Benzedrine. *Brit. M. J.* 1937 (Jan. 9) 1937.
Allen E. V. Benzedrine editorial. *Minnesota Med.* 20: 301-302 (May) 1937.
¹⁹ Benzedrine editorial. *Brit. M. J.* 2: 1204 (Dec. 12) 1936.
Noller Hyman. Benzedrine Sulfate editorial. *California & West. Med.* 46: 295-296 (May) 1937.
¹⁹ Sargent William and Blackburn J. M. The Effect of Benzedrine on Intelligence Score. *Lancet* 2: 1385-1387 (Dec. 12) 1936.

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known to cause lame back. These factors are sufficiently well known so that it is unnecessary to discuss them in detail.

PHYSICAL EXAMINATION

Any patient who complains of lame back should have a thorough general examination, including neurologic tests and adequate roentgenograms of the back. This means anteroposterior, stereo, lateral and oblique views of the affected regions.

In cases of bilateral sciatic pain and in cases of diminished or increased reflexes, a lumbar puncture should be considered to rule out intraspinal lesions. If the fluid shows increased protein a test with iodized oil may be necessary. Examination of the rectum should not be overlooked. The local examination should be made with the patient standing, if he can stand, and with his back to a good light. His standing position should be noted from his head to his feet, from the front, side and back. One must pay attention to any increase or decrease in the normal physiologic curves and observe whether there is structural or functional curvature of the spine and whether it is to the left or to the right. There may be limitation of forward bending either by irritation of the spine itself or by shortening of the posterior muscles of the legs. Does the patient stand with a list to the side, and is it on the sciatic side or the opposite one? Is the list increased on forward bending? Is there restriction of lateral or backward bending and rotation? Is the patient able to reverse his lumbar curve in forward bending? Are the spinal muscles in spasm?

The patient should have the same tests while sitting with the knees flexed, and restriction of forward bending should be noted when he is in the sitting position with the knees held extended. Areas of tenderness along the spine and about the ilio-lumbar angle and the sacro-iliac joints should be noted. Tenderness and muscle spasm along the superior part of the gluteus maximus muscle is constant with pain low in the back. Tenderness about the posterior aspect of the greater trochanter is common with fascial contracture. In cases of sciatica moderate pressure along the posterior edge of the iliotibial band just above the trochanter, will often increase the pain along the sciatic nerve.

The patient should be tested for limitation of straight leg raising. This is usually pronounced when sciatica is present and causes a good deal of pain. It may be due, as many have stated, to short hamstrings. It may be due also to contracture of the gluteal fascia or to spasm of the gluteal muscles. It was surprising to note in the answers to the questionnaire how few writers recorded whether or not there were curves in the spine, and only a very few recorded Ely's test, which has been described elsewhere.¹ I believe that a positive result in Ely's test means only contracture of the anterior structures of the thigh. The reaction is usually negative after a thorough fascial section.

The abduction test has been added to these tests, since it has been observed for many years that in cases of infantile paralysis contracture of the iliotibial bands keeps the spine in lordosis when the legs are extended. It is well known that a lordotic spine may be a painful spine but this of course is not true in every case. The drag of a low prominent abdomen often produces lordosis which may or may not be accompanied by pain. If this is so, then other conditions producing lordosis should show symptoms although they may not appear until after trauma, often

very slight, precipitates the trouble. In previous articles² it was stated that when the maximum amount of fascial contracture is on the side and in front of the femur, the spine is held in lordosis, and that if the contracture is posterolateral the lumbar curve is flattened. The former condition is common, the latter is rare. Either condition may be associated with pain low in the back and sciatica. Unilateral contracture may produce lateral curvature of the spine.

THE ABDUCTION TEST

Since so many persons do not clearly understand the making of the abduction test, it would appear that the explanation and photographs which appeared in the first publication¹ on the subject were not sufficient. Therefore, I will try to describe the test more specifically, as follows:

1 The patient lies on his side on a table, the shoulders and pelvis being perpendicular to the table.

2 The leg on which he is lying is flexed at the knee, and the hip is flexed and kept flexed to flatten the lumbar curve.

3 If the patient is on his left side the examiner places his left hand over the patient's hip in the region of the trochanter to steady him.

4 The right leg is flexed to a right angle at the knee and is grasped just below the knee with the examiner's right hand, the leg and ankle being allowed to extend backward under his forearm and elbow.

5 The right thigh is abducted widely and then hyperextended in the abducted position the lower part of the leg being kept level and care being taken to keep the hip joint in a neutral position as far as rotation is concerned.

6 The examiner slides his right hand backward along the leg until it grasps the ankle lightly but with enough tension to keep the hip from flexing.

7 The thigh is allowed to drop toward the table in this plane. (Caution: Do not bear down on the leg.) If the fascia lata and the iliotibial band are tight the leg will remain more or less permanently abducted. If the hip is allowed to flex or internally rotate, the iliotibial band becomes relaxed and the leg falls from its own weight.

8 The same procedure for the opposite side is followed in every case.

In some cases the pain on one side can be increased by doing the abduction test on the opposite side. The pain will be increased in these cases also if the patient is asked to stretch his tight iliotibial band on the affected side while standing and leaning the hip toward a table, keeping his body upright.

It is not the intent of this paper to treat lame back and sciatic pain as if all the ills in the lower part of the back were due to disturbances of the fascia lata. In many instances the contracted fascia lata has nothing at all to do with the underlying condition, for example in cases of malignant growth, spinal tumor, arthritis, bad posture or numerous other conditions that are often at the bottom of the patient's troubles with his back.

One writer stated that he believed all thighs remain in abduction when the abduction test is done. Several said that they had never seen positive results in the abduction test in any case of lame back or sciatic pain. According to my experience, the abduction test is not always positive. Many persons who have no symptoms

referred to their backs exhibit an abduction sign and Ely's sign and limitation of straight leg raising. They do, however, have the mechanical set-up for the production of such symptoms if there is an exciting cause.

There are two analogies. First, many patients have astigmatism but do not have headaches. Second, a great many people have highly arched feet without the symptoms of foot strain, and by the same token many patients have severe symptoms of strain in such feet. If these two analogies can be adequately explained, then numberless other conditions can be clarified. It is also true that many persons have lame back who do not have fascial contracture.

The point is that in cases of backache in which the x-ray examination reveals nothing significant and there is abduction contracture, usually associated with Ely's sign, and limitation of straight leg raising, some method of therapy should be instituted to overcome this condition.

ETIOLOGY

Normal persons who lie in bed for a long time during a severe illness can and do acquire contracture. It is possible that the pernicious habit of keeping an infant's legs abducted and externally rotated by the wedging effect of voluminous diapers over a long period may cause mild abduction contracture. Certainly the position is favorable for such a condition to occur. Green, in his studies of children during the first six years of life, noticed that when a child first attempts the erect position he stands with knees and hips flexed. It may be that children who learn to stand late in infancy are longer in overcoming this position and that contracture thus develops as a result of delay in standing and walking.

Perhaps if it were known why some people have highly arched feet or certain facial characteristics it would be possible to answer the question about short posterior muscles of the legs and fascial contracture. All physicians who treat poliomyelitis know that contracture will develop if the patient is allowed to assume bad positions. This is especially true with relation to the hips. If the child lies with his hips flexed, hip flexion may result. If he lies on his back with his legs in the frog position, he gets abduction contracture and often flexion contracture. Limitation of straight leg raising and shortening of the posterior leg muscles are common complications of poliomyelitis. Some of the persons who answered the questionnaire stated they had never seen lame back follow these contractures in cases of poliomyelitis. However, lame back does occur in such cases. One reason it is not common is probably that the legs are so weakened by paralysis that the patient does not do things which hurt his back.

POSTOPERATIVE RESULTS

In eighty-four cases there was no relief or the symptoms recurred. In a few cases the symptoms of lame back were increased.

In most of the cases in which there was no relief there was either a new growth bad arthritis or an anomaly of the spine. In cases in which there was a recurrence, the tight fascia on the opposite side was at fault or else an incomplete operation had been done, i. e., the intermuscular septums were not divided or the anterior portion of the fasciae was not, especially that around the tensor fasciae latae and the sartorius. In one of my cases it was necessary to go down to the rectus femoris before the fascia was freed.

The reason for an increase after fasciotomy in the symptoms referred to the back may be explained. It

does not matter much how a back is strained, the symptoms of strain are about the same, i. e., pain, muscle spasm and limitation of motion. When fascial structures which have been contracted for years exert pull on a spine that holds it in lordosis, it must be expected that the lumbar fascia, the erector spinae muscles and the interspinous ligaments will become adaptively shortened. What happens then as a result of release of the fascial contracture of the leg is that the lordosis is lessened and all the shortened soft parts in the region of the lower part of the back are constantly stretched, pain is the result until the adaptive shortening is finally overcome.

According to my experience with chronic, long-standing disabilities referred to the lower part of the back it takes considerable time before pain and stiffness of the spine disappear after fascial division.

If it is proposed to fuse a lame back for the relief of symptoms and fascial contracture holds the lower portion of the spine in a deformed position, it would appear wise not to do the fusion or at least not to do it until some of the deformity has been corrected. The reason for so many failures following fusion may be this factor of deformity since the spine may be fixed in the position of discomfort. It would seem proper then to relieve deformity first and do the fusion later. In twelve cases reported in the questionnaire fusion had failed and a subsequent fasciotomy had given relief. There were fifteen failures when the fasciotomy had been done after a lumbosacral fusion.

CONCLUSIONS

- 1 Division of the fascia lata above the trochanter has a place in the treatment of troubles low in the back.
- 2 The operation should not be performed when there is x-ray evidence of abnormality of the spine.
- 3 The operation is indicated in cases of lame back and in cases of pain along the sciatic nerve if the normal lumbosacral angle is increased or decreased.
- 4 Contracted fasciae latae can exert abnormal pull on the pelvic bones and as a result disturb the mechanics of the whole spine.
- 5 Three hundred and fourteen patients were completely relieved as a result of fasciotomy.
- 6 With such a high percentage of good results the operation has a distinct place in the treatment of sciatic pain and pain low in the back in well selected cases.
- 7 Sciatic pain is not the prime indication for surgical operation on the fascia lata until pathological changes of the spine or the nerve have been ruled out.
- 8 Fasciotomy should not be done unless there is evidence by all the tests mentioned that the fascia lata shows contracture.
- 9 It is impossible to state definitely at present whether the mechanical distortion of the spine causes sciatic pain or whether this pain is due to pressure from spasm of the muscles about the posterior aspect on the hip joint.

234 Marlborough Street

ABSTRACT OF DISCUSSION

DR. ALAN DE F. SMITH, New York. Ninety-eight fasciotomies for sciatica have been performed at the New York Orthopaedic Hospital. A study of the results has been made of forty-nine patients operated on between October 1934 and February 1936 with an average follow up period of six months. In all, sixty-one operations were performed on nine extremities. In those cases in which a fasciotomy was performed uncomplicated by other operations, 75 per cent. showed excellent or good results. In twenty patients who had previous

sciatica after spine fusion, this symptom was relieved by fasciotomy in only 25 per cent. The latter group was composed of patients having pronounced abnormalities of the lumbosacral joints and in this respect differed from the first, in which the results were so much better. However, many of those classed as unsatisfactory obtained temporary relief lasting from two to sixteen months. In several other cases the reason for the failure could be traced to factors other than the operation. In all, twelve patients who had had low back pain, as distinguished from sciatica, had none after fasciotomy. Twenty obtained no relief from back pain, and four who had no back pain before fasciotomy did have it afterward. The operation, therefore, does not appear to be useful in cases of back pain aside from sciatica, since relief resulted in only 33 per cent and in some of these probably was attributable to spine fusion rather than to fasciotomy. It must be realized that sciatica is a symptom rather than a clinical entity and that it may be caused by a number of different conditions. That it can be relieved by fasciotomy in certain cases has been definitely proved. How to select those cases more certainly, it is now our task to determine. Until we have a better understanding of the mechanism by which fasciotomy relieves pain, this will be difficult. Dr. Ober says that he would not expect the operation to be successful in the presence of marked skeletal abnormalities at the lumbosacral junction. This, in the main, probably is true but I have had several brilliant successes by this operation in such cases, and my feeling now is that in a case in which there is such an abnormality but with sciatica as the only symptom I would try fasciotomy first, provided, of course, the fascia lata was tight, and would do a spine fusion only if that failed. I wish to emphasize, however, that I still believe that spine fusion has an important part to play in the group of cases caused by abnormalities of the lumbosacral junction, prominent among which are posterior displacements of the fifth lumbar vertebra. Little can be expected of fasciotomy in patients with much arthritis in the lumbar spine. It is incumbent on us to exclude spinal cord tumors and protrusion of the intervertebral disk as causes of sciatica and stress should be laid on the importance of a careful neurologic examination. If there is any doubt, a spinal puncture with manometric reading and estimation of the total protein should be made.

DR. FRANK D. DICKSON, Kansas City, Mo. For two years following Dr. Ober's first presentation, none of these operations were done in our clinic, but during that time we examined our cases rather carefully, and after months of observation we found that the abduction sign occurred in a very definite percentage of cases of low back disability and sciatic pain and that the Ely sign was rather consistently associated with a positive abduction sign. With this positive evidence of shortening of the fascia lata in mind, we commenced to do these operations, setting up as our criteria (1) that there should be positive objective evidence of low back disability, (2) definite abnormal alignment of the lumbar spine, usually lordosis, (3) a roentgenologically negative spine, and (4) a definitely positive abduction and Ely sign. Operations were done in cases meeting these mentioned criteria, and we were so well satisfied with our results that we have continued to do them. I have not the exact number of cases in which operation was performed as I did not expect to discuss this paper. We have operated on between thirty-five and forty patients, and our results have been satisfactory in 75 per cent of these. We have been so well satisfied that in two cases we have abandoned our own rules and have done fasciotomies on spines showing roentgenologic congenital abnormalities. In both of these cases there was unilateral sacralization of the first lumbar vertebra. In both there has been relief from all symptoms. The one is over a year old, and the other is some months, and both patients have to use their backs strenuously. There is one point in Dr. Ober's presentation that I should like to emphasize, and that is the importance of a thorough division of the intermuscular septums particularly of the sheath of the sartorius, where it is often necessary to divide the sheath completely. My present attitude toward the division of the fascia lata is this: I think Dr. Ober has offered a very effective addition to the armamentarium for treatment of low back disability. I believe, however, that the operation must be used with caution and restraint, and it must be remembered that it is not a cure all for all low back or sciatic difficulties.

DR. EDWIN W. RYERSON, Chicago. Again there is offered a solution for low back pain and sciatica. In the years in which I have been coming to these meetings I have seen many new procedures advised and adopted. What is the reason that it is so difficult to find out the pathologic conditions underlying low back pain and sciatica? Obviously these people don't die of low back pain and sciatica. No specimens are obtained nor any scientific evidence as to what is causing these troubles except in those few who are subjected to laminectomies and in whom the foramen of the fourth or fifth lumbar nerve is exposed, or who can be seen post mortem in rare instances after accidents or the results of intercurrent disease. We do not have a good pathologic scientific foundation for most of our work on the low back and the sciatic region. Dr. Ober's operation is the result of experience and not of pathologic investigation, and yet no one can disregard an operation which relieves 75 per cent of the sciatic and low back pains uncomplicated by other pathologic conditions. One should not perform this operation except under the indications which the author has prescribed. Obviously we all have seen many cases of contracture of the thigh dozens of patients with infantile paralysis have been operated on by all of us, either with Soutter's method or the Campbell method, and we have lengthened the structures that hold the thigh contracted, yet how many of those patients have had low back pain? I can't recall that any of my patients complained sufficiently of low back pain to make me want to operate on them for the relief of that pain. Patients with spondylolisthesis have a very exaggerated lordosis and I can't recall any of the very many on whom I have performed spine fusions who complained especially of sciatic pain. Pathologically scientific evidence is lacking as to just what is causing the sciatic pain in these cases under discussion and the scientific proof of the results after the operation is lacking. Is the pain in these cases due to a narrowing of the fifth lumbar foramen? We don't know. Is it due to irritation at the fifth or fourth lumbar foramen? We don't know. We are doing something which gives relief and it is perfectly proper to do so. I am not objecting in the least to it, but here we have an operation for the relief of a symptom the cause of which symptom we do not know, the result of the operative procedure which may or may not give relief we do not know. I should like to wait another year or two before I do any of these operations for the symptoms as presented by the author. Why are the fascia lata and these anterior structures contracted? We don't know. We know we used to walk on all fours and we know that a horse or a mule can't kick upward very far because he has a short set of structures that hold his thigh in more or less flexion. It may be a relic of prehistoric days when we walked on all fours.

DR. BECKETT HOWORTH, New York. I wish to record two observations in this problem which may be a bit unusual. Dr. Ober has mentioned the importance of the abduction and the straight leg raising signs and Dr. Smith has mentioned the observation that the former sign may be quite variable. Variations between different examiners in different hospitals are to be expected, but when the sign is tested by the same examiner in the same way on the same patient on different days often there is a distinct variation and this has been cause for wonder. Recently I did a fasciotomy on a woman of 35 who had had sciatica of six months' duration and also had a low back abnormality. I realized she might not be relieved. The type of low back abnormality is not pertinent to the point. She was relieved of what she called "tension" on the table the operation being done under a local anesthetic. She felt better for ten days or two weeks, all during this time the two signs having been negative, her leg dropping to about 15 degrees of adduction in the Ober test and her straight leg raising having increased from 30 degrees to 60 or 70 degrees. Suddenly she had an attack of sciatica again, a very acute severe attack and immediately thereafter the signs again became quite positive as positive as or more positive than they were in the first instance. The fascia the intermuscular septums and the sheath of the sartorius had all been divided and at no time was there any evidence of positiveness of the Ober sign until the sciatica recurred. I record this as an instance which may help in solving the puzzle of what causes the positiveness of the sign, although I realize that it might be due to contrac-

ture, to muscle spasm, or in some cases to both. The second instance concerns a little different problem, that of a dental student who was compelled in his school to run his dental engine with his foot. He had to work the pedal and he said that when he did his thigh was so uncomfortable that he couldn't do his hour's work and he was afraid he would have to drop out of the school. He had been seen by two or three orthopedists and they told him he had myositis. He had had all kinds of physical therapy for months without relief. A roentgenogram, which had not previously been taken, showed that he had a slightly displaced upper femoral epiphysis which had united. He also had a contraction of the fascia lata, observed several times. Because of this I did a fasciotomy and he noticed immediate relief of "tension" and the feeling of tightness in his thigh. After three weeks he went back to his dental school, finished the year and ran his machine without any difficulty.

DR G. E. HAGGART, Boston. In view of the belief that fasciotomy is not indicated in the presence of a pathologic condition of the bone, the following observations, in four cases of severe hypertrophic arthritis of the lumbar spine, are of interest. These particular patients were seen in the past year. In addition to extensive hypertrophic changes of the lumbar spine, all had marked sciatica as well as contracture of the fascia lata. A variety of medical treatments did not relieve the pain. It was therefore decided that fasciotomy should be performed, since the operation was relatively simple and would not prolong the patient's period of hospitalization. In each instance there was immediate pronounced relief of pain. One other case was of interest from a different standpoint. A 38 year old carpenter was first seen two years ago because of severe sciatica and low back pain. Examination revealed a marked unilateral contracture of the fascia lata. Operation was advised but refused. The patient returned a year and a half later at which time there was a definite contracture of the fascia on both sides. Again fasciotomy was advised. This time it was accepted. However, he was first submitted to lumbar puncture, as is our custom in all cases of sciatica. The total protein of the spinal fluid was elevated and therefore studies with iodized oil were performed, which revealed definite evidence of a herniated disk. This patient was then operated on by Dr. Poppen of the Neurosurgical Service, who found and removed a herniated disk between the fourth and fifth lumbar vertebrae. Within one week following operation the bilateral contracture of the fascia had diminished 60 per cent, while the sciatica had almost disappeared.

DR FRANK R. OBER, Boston. I should like to ask all men here who have had experience with fasciotomy to write me some time in the near future so that I may send them a questionnaire. The trouble about the operation is that it is too easy and may be a pitfall for those who are not careful in making a diagnosis. I am convinced of this because I have been told that there are many who have gone ahead and done a fasciotomy in the presence of sciatica without going into details about a patient's condition. The first patient was a young neurologist in New York. This was three years ago last May and he has had complete relief from symptoms ever since. Several years ago I was convinced that many patients with lumbar lordosis and low back pain without obvious changes in their spine by x-ray examination might possibly have some condition outside the spine causing the disability. I had already found out in severe cases of flexion contracture of the hip that there would be pain in the lower part of the back. In those cases in which there was paralysis of the gluteal muscles a transplantation was devised to aid the weakened gluteal muscles. It was noted that after this operation had been done on both sides a severe lumbar lordosis would disappear within a few weeks. It was also noted that in severe cases of sciatica the patients complained of a snapping hip. A snapping hip is due to a tight iliotibial band slipping back and forth over the trochanter. The test for snapping hip as shown by me is exactly the same as that which is now practiced in testing for contracted iliotibial bands. Dr. Dickson is to be commended for his remarks and also for the careful way he went about working up his cases. I see a great many patients with sciatica and lame back that I never

operate on. They get well without any fasciotomy. In the last three years there must have been ten backs that I have seen without operation to one case in which a fasciotomy has been done. Dr. Ryerson has discussed the question as a solution for all back troubles. That is far from the case. I simply want to add that contracted fascia lata has something to do with some of the low back conditions. It is just another monkey wrench thrown into these troubles. One of the reasons for the recurrence of the sciatic pain in some of these cases, as mentioned by Dr. Howorth, is that these patients have a healing wound and there is irritation of the muscles, especially the gluteus maximus.

CONGENITAL HYPERTROPHIC PYLORIC STENOSIS IN INFANCY

EDWARD J. DONOVAN, M.D.

NEW YORK

In a former paper on congenital hypertrophic pyloric stenosis published in 1932, I reported a series of 100 consecutive cases in which I had operated at the Babies Hospital, New York, with only one death. The purpose of this paper is to show the continued success of surgical treatment as evidenced by an additional 143 consecutive cases without a death. No important changes in the treatment have been made since my last report.

Congenital hypertrophic pyloric stenosis is one of the most interesting surgical conditions encountered in early infancy because, while it can be permanently and easily cured by the Fredet-Rammstedt operation after proper preparation, there are still several phases of the disease and its cure about which little is known. Why the tumor disappears after the age of 3 months or why it disappears after the circular muscle is cut has not yet been determined.

The various forms of medical treatment, such as the administration of atropine, thick feeding or refeeding after vomiting, have not been successful in my hands, and I continue to advocate surgical intervention as soon as the diagnosis is established, except in a few mild cases in patients who are nearly 3 months old. At its best, medical treatment is prolonged and uncertain and requires expert nursing, long hospitalization and the removal of the baby from the breast. Surgical treatment, on the other hand, is quick, certain, and permanent in its results and allows nursing to be resumed a few days after operation. From an economic standpoint alone, the advantages of surgical treatment are obvious.

The causation of pyloric stenosis has not been definitely determined, but perhaps the most plausible theory is that of developmental hyperplasia of congenital origin of the circular muscle of the pyloric ring. To support this theory, I mention that two 7 month premature infants at the Babies Hospital have had well developed tumors and that tumors have been felt many times shortly after birth. All authorities agree that the essential feature of the pathologic condition is hypertrophy of the circular muscle of the pylorus. The growth of the circular muscle, which may be so great as to occlude almost completely the lumen of the pylorus, forms the tumor that is characteristic of the disease. This tumor, which is usually about 2.5 cm. in length and of cartilaginous consistency, stops abruptly

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at the duodenal end but merges gradually with the stomach at the gastric end. Because of this almost complete obstruction, the stomach may be four or five times its normal size. It is the spasm of the pylorus accompanying this hypertrophy that causes the symptoms.

The symptoms may date from birth, but they usually start between the second and the fifth week, the average age being 3 weeks. Vomiting, which is always the first symptom, may start abruptly but ordinarily does not. It may follow each feeding and is almost always projectile, the food often being projected several feet. The quantity vomited is small at first but later increases. The vomitus never contains bile, which is an important point in the differentiation of this condition from duodenal obstruction. It may, however, contain blood. There is always gastric retention so that the amount vomited at one time may be considerably more than the previous feeding. As a result of this vomiting and loss of nourishment, the babies soon become dehydrated and, with the rapid loss of weight, they may become emaciated in a comparatively short time. For the same reasons their stools are usually small and dry and there is a marked decrease in the amount of urine voided.

If the abdomen is watched carefully after a feeding, visible gastric peristaltic waves may be seen in the epigastrium passing from left to right, often in rapid succession. These waves may vary considerably in size and are best seen when the stomach is partially filled. Waves were present in all cases of this series, and, while not pathognomonic of the condition, they are a help in establishing the diagnosis. In addition to the gastric waves, a pyloric tumor can always be felt. It is usually located to the right and above the umbilicus, and, while it varies considerably in size with the contractions of the pylorus, to feel it has been well compared to feeling a small olive. Writers disagree on the importance of locating the tumor, but I believe it is pathognomonic of this condition and may be felt in every case if a painstaking examination of the abdomen is made. It is not always possible to feel the tumor at the first examination, as the child is hypertonic and sufficient relaxation of the abdominal muscles may not be obtained at once. A sugar pacifier is generally sufficient to relax the baby after his stomach has been emptied with a small stomach tube. Sometimes the lineae transversae of the rectus muscle may be mistaken for a tumor if the abdomen is not well relaxed. I have often found it helpful to press the fundus of the stomach gently toward the right with the left hand while palpating for the tumor with the right hand. The tumor is always felt best when the stomach is empty, and it is easy to feel in infants who have lost considerable weight. Light anesthesia has been suggested for the abdominal examination, but I have not found it necessary.

Some authors see distinct advantages in using roentgenograms or the fluoroscope to make the diagnosis, even to the extent of differentiating by this method the cases in which an operation should be done from those in which medical treatment should be used. I have purposely avoided this method of diagnosis because I feel that it is possible to make the diagnosis by other means, having always obtained all the information desired, even to the amount of gastric retention, without it.

Preoperative preparation is perhaps the most important factor in lowering the operative mortality. Previous to my last 243 cases, it was customary to operate in the bad cases as an emergency measure. As

a group, they presented the poorest possible surgical risks, and the result was a very high mortality. At that time the mortality from collapse alone was reported in some series as high as 9 per cent. This high mortality is well illustrated by the fact that there were six deaths in nineteen cases at the Babies Hospital before the value of preoperative preparation was understood. I now feel that there is no need to hurry operation even though the child is vomiting everything. If the baby is in a particularly bad condition, he is given one or two preoperative transfusions by the Lindemann method, 20 cc of whole blood for each kilogram of body weight being used. Most of these babies have alkalosis, with a high concentration of serum carbon dioxide and a low concentration of blood chlorides, therefore all patients receive from one to four hypodermoclyses of 100 cc of physiologic solution of sodium chloride before operation. It is amazing how easily one may convert a particularly bad surgical risk into a fair one in two or three days by this means.

The Fredet-Rammstedt submucous pyloroplasty was used in every case. It has been found entirely satisfactory and gives a permanent result, as shown by the follow-up. It may be done in about fifteen or twenty minutes with no attempt made to hurry the operation. Ether by open cone was used in all but three cases (these three being done with procaine hydrochloride block because of the presence of an infection in the respiratory tract). Local anesthesia is contraindicated in the majority of cases, it prolongs the operating time and may interfere with the healing of the wound. There was one case of postoperative infection in the respiratory tract in this group. While the operation is mechanically simple, a few details are essential for its success. To maintain the body heat during operation, a hot water bottle is placed under the child on the operating table. Just before the abdominal incision is made, the stomach is emptied by passing a soft rubber catheter, size 18 F. The incision used is an upper right rectus incision about 4 cm long, 1 cm from the midline and high enough to overlie completely the right lobe of the liver. This not only makes closure of the abdomen easier but practically insures against postoperative rupture of the wound. When the abdomen is opened, the right lobe of the liver is retracted upward and the pylorus delivered into the wound. The tumor is held between the thumb and the index finger of the left hand. Beginning at the duodenal end, an incision is made over the entire extent of the tumor in its least vascular part and through the peritoneum and the superficial part only of the circular muscle. The cut edges of the muscle are then separated with a small mosquito forceps until the mucous membrane completely fills the incision. Any bleeding encountered can usually be controlled by application of hot moist pads. If not, the vessel is under-run with fine black silk. In some of the older cases separation of the cut edges may be more difficult and more bleeding may be encountered. If it cannot be stopped by these means a small strip of muscle from the rectus may be sutured in the pyloric incision. (This procedure was necessary in only two cases.) It is important to see that all bleeding is stopped before the abdomen is closed, because some deaths due to hemorrhage from pyloric incisions have been reported.

After the bleeding is stopped, the pylorus is dropped back and the abdomen closed in layers, continuous chromic catgut sutures being used for the parietal peritoneum and anterior rectus sheath, with Michiel

clips for the skin. A piece of gauze just large enough to cover the incision is strapped into place with adhesive plaster in order that any bleeding from the incision may be quickly detected. From the operating room the child is taken to a constant temperature room used exclusively for such patients. The head of the bed is lowered until he recovers from the anesthetic to prevent aspiration of mucus. Two hours after operation, 15 cc of water is given by mouth, and four hours after, the first feeding of 4 cc of breast milk and 4 cc of barley water is given. The breast milk and barley water are increased from 5 to 10 cc with each three hour feeding until the child is taking 30 cc at the end of forty-eight hours. The breast milk is then increased from 5 to 10 cc daily until the caloric requirements are met. One or two clyses of physiologic solution of sodium chloride or 3 per cent dextrose in such a solution are given each day for the first three days. All feedings for the first five days are given with the medicine dropper, and breast-fed babies are allowed to nurse once on the fifth day, twice on the sixth day, and so on until they are completely breast fed. If the baby is to be discharged on a formula, evaporated milk seems to be well tolerated, and, beginning about the seventh day, one formula feeding is substituted for a breast milk feeding until he is completely on the formula. These children have a low food tolerance because of their long period of starvation, and postoperative feeding must therefore be very carefully planned and an effort made to obtain breast milk for all patients for the first five days. With this routine, it is exceptional to have anything but a smooth convalescence, and 90 per cent of the patients in this series showed an appreciable gain in weight before being discharged from the hospital between the tenth and the fourteenth day after operation.

The complication most to be dreaded is accidental opening of the duodenum. The change from thick pyloric tumor to thin duodenum is rather abrupt, and great care must be exercised in separating the cut edges of the muscle toward the duodenal end. This complication did not occur in this series. There was no bleeding either from the pylorus or from the abdominal incision. There have been no postoperative hernias to date and only one case of postoperative pneumonia. The course of 92 per cent of the patients has been followed, and in no case has the result not been entirely satisfactory.

SUMMARY

1 Congenital hypertrophic pyloric stenosis occurs about seven times more often in boys than in girls. In the group reported on there were seventeen girls and 126 boys.

2 Vomiting is always the first symptom and in the majority of the cases begins between the second and the fifth week of life.

3 The tumor, caused by hypertrophy of the circular muscle of the pylorus, is pathognomonic of the condition and may be felt in every case.

4 The Fredet-Rammstedt submucous pyloroplasty is the most satisfactory operation and gives a permanent result, as shown by the follow-up of the cases reported.

5 There were no deaths in this group. One death occurred in a group of 100 cases reported in 1932, making a total of one death in the last 243 cases.

6 Preoperative preparation is the greatest factor in bringing the mortality to its present level.

424 Park Avenue

ABSTRACT OF DISCUSSION

DR WILLIAM E LADD, Boston. Dr Donovan should be congratulated on the results achieved in his series of cases of congenital hypertrophic pyloric stenosis. It is interesting that two clinics running entirely independently of each other should have arrived at identical conclusions. The only differences in our methods are minor ones. Since 1915 at the Children's Hospital in Boston, 635 patients suffering from congenital hypertrophic pyloric stenosis have been treated in the surgical wards. In this series thirty-four died, giving a mortality of 5.4 per cent. The greater number of these deaths occurred in the earlier years when our care of infants was less advanced, and when we treated these patients as emergency cases without adequate preoperative care. From 1930 to 1934 there were 160 consecutive operations performed for pyloric stenosis without a fatality. In 1935 several deaths occurred, but since Jan. 1, 1936, there have been fifty additional patients operated on without a death. I am in accord with Dr Donovan on the time selected for operation, with his preoperative preparation, and with his choice of ether as an anesthetic. Our operative technique is identical with his, except for the suture material used for closure. In the early part of our series, catgut was used but recently fine silk has been satisfactorily substituted in its place. The reason for this change is that in these emaciated infants with almost no subcutaneous fat the catgut knot occasionally gathered serum around it, and it would extrude through the incision. This is less likely to occur with silk. Our postoperative care, in general, is similar to Dr Donovan's. Instead of using breast milk and barley water, we use whey for the first twelve hours, then breast milk and whey for twenty-four hours, and gradually supplant the whey by breast milk at succeeding feedings. In our regimen, at the end of seventy-two hours the infant's feeding has been increased to meet his caloric requirements. In reviewing the deaths in our series, it is apparent that the majority were in the early years of the series and were due to inadequate preoperative preparation. There were, however, three deaths from hemorrhage which I consider inexcusable. There were also three deaths following failure of the wound to heal and evisceration without evidence of infection. A possible reason for this unfortunate occurrence is the presence of asymptomatic scurvy, which my associate Dr T H Lanman has found to be common in ill nourished infants. Vitamin C deficiency carries with it delayed and weak wound healing. We have therefore in recent months given all these infants prophylactic doses of cevitamic acid and we hope this may prevent any future difficulties with wound healing.

DR ALFRED JEROME BROWN, Omaha. In the preoperative diagnosis I believe that the use of barium sulfate and the x rays is unnecessary. The diagnosis can be made without them. Furthermore, I would prefer that the baby's first meal after the lumen of the pylorus has been restored be either mother's milk or a modification of milk prescribed by a pediatrician rather than a mixture of residual barium. No matter how carefully the stomach may be washed out after the x-ray examination, some barium will remain in the stomach, to pass through after operation. Operation for congenital hypertrophic pyloric stenosis is not an emergency, for the most pressing indication is to see that these children are given fluids to restore water balance before any surgical procedure is undertaken. The method of restoring fluids which I use is intraperitoneal injection of salt solution, which is quickly and simply done. It has not increased the difficulty of the operation nor has it resulted in infection in any of my cases. General anesthesia, preferably ether by the drop method, is the anesthesia of choice in these cases. The operation is short, rarely lasting over ten or fifteen minutes, and can be done under primary anesthesia. I have had no postoperative complications in any of my cases that can be ascribed to general anesthesia. I have operated with the patient under local anesthesia but have been more worried after local than after general anesthesia. There is always the danger of an infant crying suddenly and increasing the intra-abdominal pressure, with the possibility of evisceration. Another factor against local anesthesia is the amount of drug used. It is difficult to obtain proper anesthesia of a sufficient area of the abdominal wall to make a 1 or 1½ inch incision without using at least 10 cc, or 2½ teaspoonful of

fluid If a 1 per cent solution of procaine hydrochloride is used, there is 10 mg of procaine in each cubic centimeter of solution If 10 cc is used, this will make a total amount of the drug of 100 mg, which equals 0.1 Gm, or $1\frac{1}{2}$ grains The lethal dose of procaine is from 40 to 50 mg of the drug per kilogram of body weight A kilogram is $2\frac{1}{4}$ pounds Consequently, if 10 cc of a 1 per cent procaine solution is used, 100 mg of procaine is given, and this for a child of 5 pounds weight is equal to the lethal dose of the drug injected intravenously, and most of these infants weigh but a little over 5 pounds It is true that from the subcutaneous tissue the procaine is absorbed much less rapidly than when injected intravenously, otherwise, all these children would be in serious danger But, in the use of local anesthesia, these infants are subjected to a real danger of procaine poisoning

DR JOHN J. GILBRIDE, Philadelphia Congenital hypertrophic pyloric stenosis is not common The diagnosis is usually made comparatively late, because the disease frequently pursues a rapid course and terminates fatally within four or five weeks in genuine cases Vomiting is the first symptom, but vomiting is always common in young babies, and unless it becomes severe and persistent it is often not regarded seriously The first case of this type that came under my observation was in about 1909, and I published a report of it Large series of cases were reported by others soon afterward in the literature, and claims were made for their cure under medical treatment, but these claims, I believe, can be discounted Surgical operation does save some cases of pyloric stenosis of a lesser degree of severity, but most of the patients with complete pyloric obstruction die early from starvation or from aspiration pneumonia as the result of the severe vomiting

DR ALFRED A. STRAUSS, Chicago I fully agree with the essayist on the points that he has brought out I have had a similar experience I have done 431 operations in these cases since 1915, with a mortality of a little less than 2 per cent Since 1924 I have had no mortality in a series of 167 cases The earlier mortality was similar to that which Dr Ladd described and was due to the poor preparation of the patients In other words, they were being operated on before they were properly prepared with fluids, dextrose and blood transfusions I will add that occasionally in some of the cases, possibly, blood transfusion is necessary after the operation I differ with Dr Donovan in only one respect, and that is in the operating technic I describe the pylorus using the musculature of the stomach, using the free edge of the attached omentum to protect this area from leakage and hemorrhage It is true that Ladd and Donovan and these men can do this operation without mortality, but what about the general surgeon who does one in a year, or three in two years, or five in three years? He will report that he has lost one out of five from hemorrhage or a pinpoint perforation Therefore a much safer procedure and one that takes little effort, is to suture the free edge of the attached omentum over the split muscularis, which will first, prevent bleeding, and, second, prevent a pinpoint leakage, which often leads to fatal peritonitis I make this plea for the men who do not have so much material to work on

DR MISCH CASPER, Louisville, Ky Considering the large number of case reports, I wonder whether in the larger cities, where better pediatricians are available, the diagnosis is made more often than in districts where there is a large country practice My experience differs from that of one of the speakers on anesthetics I think that ether is more dangerous than possible procaine poisoning in such cases My custom is to give procaine and just a whiff of chloroform, not for the physiologic effect of the latter but just enough to keep the baby from crying and interfering with the surgeon's work I have had no mortality from the anesthesia I wish to emphasize the point made by the last speaker on covering the wound with omentum That is a splendid point in the technic Recently I had occasion to reopen the abdomen of such a patient operated on about a year ago, the second operation being a strangulated hernia, having no relation to the first When I inspected the site of the old operation I found that the effects of the operation had almost entirely vanished, there being no evidence of the former condition, tumor or anything else, and the patient had made a good recovery

HUMAN AUTONOMIC PHARMACOLOGY

IV THE USE OF ACETYL-BETA-METHYL CHOLINE CHLORIDE (MECHOLYL) AS A DIAGNOSTIC TEST FOR POISONING BY THE ATROPINE SERIES OF DRUGS

WILLIAM DAMESHEK, MD

AND

OSCAR FEINSILVER, MD

BOSTON

We have recently had the opportunity of observing five cases with brief psychotic episodes following administration of from three to six drops of a medication prescribed for mydriasis The first patient, a medical student in our laboratory, presented a diagnostic problem on her admission Although the diagnosis of atropine poisoning with psychosis was finally considered, it was at first thought that the patient might have dementia praecox or an acute manic-depressive episode The use of acetyl-beta-methyl choline chloride (mecholy, Merck), suggested itself as a diagnostic test for possible atropinism, since in our experimental work¹ it had been shown that even a very small dose of atropine ($\frac{1}{100}$ grain, or 0.00065 Gm) was sufficient to cause complete inhibition of most of the effects of mecholy, even when the latter drug was given later in large dosage (from 25 to 50 mg) Thus the complete absence of the characteristic mecholy effects (sweating, rhinorrhea, salivation, lacrimation) when the drug was given in a dosage of 20 mg served to confirm the final clinical impression of atropinism When the patient's psychosis had subsided, reinjection of mecholy was followed by the typical effects of the drug Within a relatively short period after this first patient was studied, four other cases with the same type of psychosis appeared at the hospital The same tests performed in these cases gave similar results We feel that the data obtained in these cases are sufficiently important from both diagnostic and prognostic standpoints to warrant reporting It was later discovered that the drug responsible for these unusual psychotic episodes following administration into the conjunctival sac was neither homatropine nor atropine but scopalamine, one of the atropine series

REPORT OF CASES

CASE 1—A woman, aged 24, a medical student, was brought to the hospital after having been found wandering about the streets for several hours in a dazed condition On admission to the hospital she was exceedingly "jumpy" and apparently frightened Repeated questioning elicited only an occasional response, and replies, when obtained, were for the most part irrelevant and incoherent Spontaneous speech was considerably disjointed She appeared emotionally inert, although an occasional smile was seen which was not elicited by any apparent external stimulus Although no auditory hallucinations were elicited, there were many visual hallucinations and she talked a good deal of seeing various types of animals cotton-fields and other completely unrelated objects The sensorium was considerably clouded She was obviously disoriented as to time and person, although she appeared to know her sur-

From the Division of Psychiatric Research Boston State Hospital
1 Myer on Abraham Loman Julius and Dameshek William
Physiologic Effects of Acetyl Beta Methyl Choline (Mecholy) and Its
Relationship to Other Drugs Affecting the Autonomic Nervous System
Am J M Sc 1933 198 (Feb) 1937 Myer on Abraham Rinkel
Max and Dameshek William The Autonomic Pharmacology of the
Gastric Juices New England J Med 215 1005 (Nov 26) 1936
Dameshek William Loman Julius and Myerson Abraham Human
Autonomic Pharmacology VII The Effect on the Normal Cardio-
vascular System of Certain Sympathomimetic and Parasympathomimetic
Drugs—Acetyl Beta Methyl Choline Chloride Atropine Prostigmin,
Benzedrine with Especial Reference to the Electrocardiogram to be
published

roundings Her memory for events for the past twenty-four hours was markedly impaired and insight was wholly lacking

In addition to the obvious psychosis, examination showed widely dilated pupils which failed to react to light or distance

leukocyte count was 11,000 per cubic millimeter, with an essentially normal differential count.

When atropine poisoning was suspected, the patient's purse was searched and a vial of medication found which was

Results of Tests in Case 2

	Pulse	Blood Pressure	Tongue	Flushing of Face	Perspiration	Lacri- mation	Saliva- tion	Rhin- orrhea	Mental Condition
8 hrs. after instillation of 3 drops each eye	90	100/70	Dry	0	0	0	0	0	Hyperactive pugnacious
0.012 of mechohyl 1 m									Hallucinations sees father other chil-
At 1 minute	112		Dry	0	0	0	0	0	dren money in bed
3 minutes	110	80/50	Dry	0	0	0	0	0	Delusions believes other children are
Comment negative reaction									stealing money from him is angry
									at every one
24 hrs. after instillation of drops in eyes	92	100/68	Dry	0	Slight in axil- lae and palms	0	0	0	Still irritable and pugnacious but
0.012 of mechohyl 1 m									hallucinations are questionable
After 3/4 minute	120	86/50	Dry	0	Slight in axil- lae and palms	0	0	0	
At 2 1/2 minutes			Moist	Slight	Beginning on anterior chest	Slight	Slight	0	
At 3 1/2 minutes		80/50	Moist	Slight	Beginning on anterior chest	Slight	Slight	0	
At 4 1/2 minutes		80/50	Moist	Slight	Beginning on anterior chest	Slight	Slight	Slight	
At 15 minutes	120	80/50	Moist	Slight	Beginning on anterior chest	Diminish- ing	Diminish- ing	0	
Comment slight reaction									
48 hrs. after instillation of drops in eyes	104	100/60	Moist	0	Slight in palms and axillae	0	0	0	Normal (agreed on by parents)
0.012 of mechohyl 1 m									
At 1/2 minute			Moist	Mod- erate	Slight in palms and axillae	0	Moderate	0	
At 1 minute	138		Moist	Marked	Chest is moist anteriorly	Slight	Profuse	0	
At 3 minutes	130	93/0	Moist	Marked	Chest is moist anteriorly	Profuse	Profuse	Slight	
At 4 minutes	120		Moist	Marked	Moderate perspiration at anterior and posterior chest	Profuse	Profuse	Moderate	
At 5 minutes			Moist	Marked	Moderate perspiration at anterior and posterior chest	Profuse	Profuse	Profuse	
At 6 minutes	156		Moist	Marked	Moderate perspiration at anterior and posterior chest	Profuse	Profuse	Profuse	
Comment moderate reaction									

Results of Tests in Case 3

	Pulse	Blood Pressure	Tongue	Flushing of Face	Perspiration	Lacri- mation	Saliva- tion	Rhin- orrhea	Mental Condition
8 hrs. after instillation of 3 drops in each eye	64	90/40	Dry	0	0	0	0	0	Very voluble and facetious visual and
0.012 of mechohyl 1 m									auditory hallucinations visual are
After 1 minute	100		Dry	0	0	0	0	0	more prominent
2 minutes	88	80/40	Dry	0	0	0	0	0	
3 minutes	80	80/40	Dry	0	0	0	0	0	
Comment negative reaction									
24 hrs. after instillation of mydrilate	92	106/74	Dry	0	0	0	0	0	No hallucinations patient is still
0.012 of mechohyl 1 m									voluble and somewhat facetious
After 1 minute	100		Dry	0	0	0	0	0	
2 minutes	100		Dry	Slight	Subjective sensation of moisture on upper lip	0	0	0	
3 minutes	104	94/0	Moist	Slight	Slight on face and neck	Slight	Slight	0	
5 minutes	124		Moist	Slight	Slight on face and neck	Moderate	Moderate	0	
8 minutes	120	107/0	Moist	Mod- erate	Profuse on face slight on upper back	0	Slight	0	
Comment slight reaction									

The tongue appeared unusually dry. The heart rate was rapid, and there was reduplication of both the first and second sounds. The blood pressure was 138 systolic, 100 diastolic. The reflexes were equal on the two sides but were markedly hyperactive. The abdominal reflexes were absent. The urine showed no albumin or sugar and the sediment was negative. The

apparently homatropine. Repeated questioning finally disclosed that she was to have had refraction of the eyes that morning and had instilled several drops of the medication into the conjunctivae. Memory following this was blank.

It was felt by some observers that, although the paralysis of the pupillary reflexes was probably a homatropine effect, the

psychosis could not adequately be explained in the same manner. On the other hand it was reasoned that, if the psychosis was due to central absorption of one of the atropine series, the presence of atropine in the body in concentration however small would prevent the characteristic effects of mechohyl. In a large series of experiments in the Research Laboratory of the Boston State Hospital, the strikingly uniform effects of the latter drug had been demonstrated: within thirty seconds there was always marked rise in pulse rate with concomitant slight to moderate drop in blood pressure, within one minute there was a marked flush of the face and upper portion of the trunk,

patient was either allergic to homatropine or had mistakenly been given atropine. Six hours after admission to the hospital the psychotic symptoms began to clear rapidly, and nine hours after admission the mental status was completely normal. The following morning, twenty-four hours after admission, mechohyl was again administered in the same dosage of 20 mg. On this occasion the pulse rate rose from 90 to 120 per minute within thirty seconds and the blood pressure dropped from 130/80 to 86/64. Extreme flushing of the face and upper half of the body, lacrimation, salivation, rhinorrhea and drenching per-

Results of Tests in Case 4

	Pulse	Blood Pressure	Tongue	Flushing of Face	Perspiration	Lacri- mation	Saliva- tion	Rhin- orrhea	Mental Condition
8 hrs after instillation of mydriatic before mechohyl	72	100/60	Dry	0	Slight in palms and axillae	0	0	0	Normal except for volubility hallucinatory experiences and disorientation have completely disappeared
40 seconds after 20 mg of mechohyl 1 m	120		Dry	Slight	Slight in palms and axillae	0	0	0	
After 1 minute			Moist	Slight	Slight in palms and axillae	Slight	0	0	
2 minutes			Moist	Marked	Slight in palms and axillae	Profuse	0	0	
3 minutes	160	80/50	Moist	Marked	Slight on face and neck	Profuse	0	0	
4 minutes			Moist	Marked	Moderate on face, neck and chest	Profuse	Slight	Slight	
7 minutes	146	80/50	Marked	Slight	Moderate on face neck and chest	Profuse	Slight	Slight	
8 minutes	Reaction subsiding								
Comment	slight reaction								

Results of Tests in Case 5

	Pulse	Blood Pressure	Tongue	Flushing of Face	Perspiration	Lacri- mation	Saliva- tion	Rhin- orrhea	Mental Condition
8 hrs after instillation of mydriatic before mechohyl	69*	110/64	Dry	0	Slight in palms and axillae	0	0	0	Patient quiet hallucinatory episode has disappeared
½ minute after 20 mg mechohyl 1 m	100		0	Slight	Slight in palms and axillae	0	0	0	
After 1 minute	112		Moist	Moderate	Slight in palms and axillae	Slight	Slight	0	
2 minutes	108†	110/60	Moist	Moderate	Slight on face and hands	Slight	Moderate	Slight	
4 minutes		130/60	Moist	Moderate	Moderate on face hands and chest	Moderate	Moderate	Moderate	
8 minutes	88‡		Moist	Dimin- ishing	Slight	Slight	Slight	0	
Comment	slight reaction								

* Frequent extrasystoles

† Extrasystoles have disappeared

‡ Return of extrasystoles

together with lacrimation, rhinorrhea and salivation, perspiration, usually drenching in type, then occurred. This reaction could readily be terminated by the injection of a small dose of atropine sulfate, conversely, if a small dose of atropine (or scopolamine) was previously injected, the full mechohyl reaction failed to develop, although there might be slight flush and slight increase in pulse rate. The patient was accordingly given a subcutaneous injection of 20 mg of mechohyl. Absolutely no sweating, lacrimation, salivation or rhinorrhea occurred, although the pulse rate rose from 100 to 120 per minute and a slight flushing of the upper part of the body occurred. This almost complete lack of reaction to mechohyl was considered presumptive evidence of the presence of an atropine compound within the body. The diagnosis of acute atropinism with psychosis was therefore made and a favorable prognosis given. It was believed that the

spiration then followed in rapid succession. The patient complained of a sensation of tightness subternally. It was now apparent that the effects of the atropinism had completely disappeared and on the following day the patient was discharged well, although the pupils still remained moderately dilated. She has been well for six months and suffered no after-effects of her experience. Within the next few days, four more patients with an almost identical psychotic state presented themselves. In each instance drops, supposedly homatropine, had been instilled in the eyes for mydriasis prior to refraction. In a few minutes the patients felt queer and then became psychotic. Diagnosis was now readily made, but it was decided to utilize the diagnostic test with mechohyl further. Accordingly, mechohyl was administered in each case. For the sake of brevity, the results are presented in abstract. Patient 2, a boy aged 9, presented the

most severe psychosis Twenty-four hours after use of the drops he was still irritable and pugnacious and had a few visual hallucinations, in forty-eight hours he became mentally clear The first injection of mecholyl caused no effects, the second (at twenty-four hours) produced a slight reaction, the third (at forty-eight hours) caused the typical reaction Patient 3, twenty-four hours after use of the mydriatic, was still somewhat facetious and voluble, she showed a slight to moderate mecholyl reaction Patients 4 and 5, with mild psychotic episodes, apparently already diminishing at the time of entrance to the hospital, showed slight reactions to mecholyl at its first administration All patients showed complete clearance of their psychosis within six to forty-eight hours after the drops were instilled into the eyes, at which time the response to mecholyl injection was maximal

COMMENT

Pharmacologic and chemical tests of the preparation that was prescribed as homatropine in 1 per cent solution have resulted in identification of the drug as a 1 per cent solution of scopolamine hydrobromide From three to four drops were instilled by each patient into the conjunctival sac of each eye The amount of drug introduced in this manner was thus between 2 and 3 mg ($\frac{1}{30}$ - $\frac{1}{20}$ grain) Since much or the greater part of each drop must have been immediately lost by overflow, the exact amount of the drug remaining for absorption could not be determined, although this must have been small Constitutional reactions resulting from homatropine instillation into the eyes have been described but they are exceedingly rare² The psychosis resembled more closely that produced by scopolamine or atropine,³ although since all these drugs are closely related it is impossible to make any absolute clinical differentiation between their effects Absorption must have taken place by way of the mucosa lining the nasolacrimal duct and the nasal mucosa The fact that psychosis occurred in every instance and was accompanied by only slight constitutional reactions makes one speculate regarding absorption of the drug along the olfactory nerve endings and thus directly to the brain Scopolamine psychosis is not rare, even when the ordinary very small doses ($\frac{1}{200}$ - $\frac{1}{100}$ grain, or 0.0003-0.0006 Gm) for sedative purposes are used Doses of 0.002-0.003 Gm ($\frac{1}{30}$ - $\frac{1}{20}$ grain) even though much was lost, were undoubtedly excessive for the children, the adult medical student (patient 1) has the weight and build of a 12 year old child

Scopolamine, atropine, hyoscyamine and stramonium are drugs which belong to the atropine series and as such have their most striking effects on the parasympathetic nervous system, on which they cause blocking ("paralysis") of the acetylcholine effect on the nerve endings In the presence of small amounts of atropine or scopolamine, the characteristic and strikingly constant effects of mecholyl are almost without exception abolished¹ Mecholyl is otherwise the most active drug that has been introduced into pharmacology in recent years⁴ Not only are its effects so striking but their constancy and predictability from patient to patient are even more noteworthy Thus, the absence of a mecholyl reaction in a given patient may be taken as presumptive evidence of the presence of one of the

atropine series As far as we know, no other drugs than those of this group have this inhibiting effect on the action of acetylcholine and mecholyl Mecholyl may thus be utilized as a clinical diagnostic test for the presence of an atropine drug within the body Its diagnostic value in our first case was of great importance

Not only may the "mecholyl test" be used as a diagnostic procedure, but it has some prognostic value as well The degree of psychosis (and presumably of the amount of atropine within the body) was found to correlate very closely with the degree of reaction to mecholyl With the psychosis in full bloom there was no reaction whatever to mecholyl, with lessening in the psychosis, a slight to moderate reaction to mecholyl followed, when the psychosis had terminated, the complete mecholyl reaction occurred

CONCLUSION

In the presence of a very small amount of one of the drugs of the atropine series within the body, acetyl-beta-methyl choline (mecholyl) fails to cause its characteristic effects of perspiration, salivation, lacrimation and rhinorrhea Thus mecholyl may be used as a diagnostic test for poisoning created by any one of the atropine series of drugs In a series of five cases of psychosis following the use of scopolamine, the test proved of distinct diagnostic and prognostic value

371 Commonwealth Avenue

GONADOTROPIC SUBSTANCE IN THE
TREATMENT OF ACNE

GRACE E WILLIAMS, M D
AND

RUBEN NOMLAND, M D

Medical Adviser to Women and Professor of Dermatology Respectively
State University of Iowa College of Medicine

IOWA CITY

The existence of a probable endocrine dysfunction in acne has been assumed for many years The exact nature of this dysfunction and the identification of the specific factor responsible is still a matter of research and experimentation Clinical trial of the gonadotropic factor from pregnancy urine has given variable results according to several recent reports In none of these series were controls run to compare the improvement in patients not receiving the gonadotropic preparation

To determine the effectiveness of gonadotropic substance from pregnancy urine (antuitrin-S) in the treatment of acne, thirty-nine students were studied These all received the same local treatment but half were given gonadotropic substance and the half used as a control received injections of sterile water

Lawrence¹ reported favorably on the use of gonadotropic substance from pregnancy urine in a study of two series of acne patients In his opinion the gonadotropic mechanism was probably the one involved in an endocrine imbalance existing in acne patients

Rosenthal² reported a series of cases in which slight improvement of acne followed administration of a

² Ellett E C Cycloplegic Complications J Tennessee M A 19 242 (Jan) 1927 Unusual Effects from Use of Cycloplegic Drugs New York State J Med 27 523 (May 16) 1927

³ Lundquist G Schizophrenic Syndrome of Exogenous Origin Symptomatology of Atropine Poisoning Acta psychiat et neurol 10 97 1935 Schneider P Poisoning Simulating Alcoholic Delirium Two Criminal Cases Beitr z gerichtl Med 7 124 1928

⁴ Simonart Andre On the True Methylcholines J Pharmacol & Exper Therap 54 105 (May) 1935 Hunt Reid Note on Acetyl Beta Methyl Choline ibid 52 61 (Sept) 1934 Hunt Reid and Renshaw R R Further Studies of the Methyl Cholines and Analogous Compounds ibid 51 237 (June) 1934

From the Department of Dermatology and the Department of Student Health of the State University of Iowa College of Medicine

¹ Lawrence C H and Feigenbaum Jacob A Preliminary Report Treatment of Acne with Pregnancy Urine Extract New England J Med 212 1213 (June 27) 1935 Lawrence C H The Anterior Pituitary like Hormone A Clinical Study of Its Effects in Acne Vulgaris J A M A 106 983 (March 21) 1936

² Rosenthal Theodore Acne and Its Relation to the Endocrine Journal Lancet 56 496 (Sept) 1936 Therapy of Acne Vulgaris with Hormone Preparations New York State J Med 37 244 (Feb 1) 1937

gonadotropic preparation. He thought that it justified the belief that some abnormality of the pituitary-like sex hormone was associated with the development of acne.

McCarthy and Hunter³ were less optimistic after a study of a larger series of cases in which gonadotropic substance of pregnancy urine was used. They demonstrated a dysfunction of either the pituitary gland or the gonads in 41 per cent of the males and in 78 per cent of the females by means of the hormone tests of blood and urine. Although an endocrine imbalance was shown, the administration of gonadotropic substance to these patients failed to bring about improvement any greater than that obtained by other methods.

With this equivocal evidence in mind of a deficiency of sex hormone in acne patients, and in view of the variable degrees of improvement reported by others, we studied a group of thirty-nine college students. They were 19 years of age on an average and included twenty-eight women and eleven men. Eleven of these had severe, twenty had moderately severe and eight had mild acne. One student had received roentgen irradiation for two years previously without benefit.

Although a relationship seems to exist between endocrine imbalance and the acne of adolescence, we felt that local conservative therapy and faithful meticulous attention to details in the care and treatment of the skin was of greatest importance. With few exceptions the instructions for local therapy were as follows: Stop all picking or squeezing, discontinue the use of all cosmetic creams, wash with soap and water twice daily, keeping the skin nongreasy almost to the point of scaling, eat a diet low in carbohydrates and eliminate candy entirely, remove comedones as directed, apply the prescribed lotion two or three times a day, avoid iodized salt and shampoo the hair twice a week. The lotions were a drying lotion of the following formula: sodium bichlorate 10, starch 15, zinc oxide 15, lime water 120 and rose water to make 240, often alternated with lotio alba, made up of sulfated potash 4, zinc sulfate 4, and water to make 120. Comedones were removed by placing hot towels on the face for five minutes, then applying a thin coating of 3 per cent resorcinol in cold cream to the face and again applying hot towels for five minutes. The blackheads were then squeezed out with a comedone remover, the face rinsed with cold water and hamamelis water applied.

All thirty-nine patients were given these directions for local treatment. Half were given injections of gonadotropic substance, while the remainder were given injections of sterile water. The local treatment was directed by the department of dermatology and syphilology and progress notes were made there without knowledge of which patients were getting gonadotropic substance and which were getting water. The individual dosage was 2 cc intramuscularly three times a week, over a period of from eight to eleven weeks. The average dose was 5,700 rat units, the minimum dose 4,800 rat units and the maximum dose 6,600 rat units. The controls were given injections of sterile water according to the same schedule, so that the psychologic effect of the injections was the same.

There were no local reactions to the injections at any time, and in the women there was no effect on normal menstruation even though the injections were given during the menstrual period. The irregular menstrual periods of six became practically regular while receiving

the injections of gonadotropic substance from pregnancy urine, but four in the control group also became regular. Two of those receiving gonadotropic substance were also taking thyroid extract because of a low basal metabolic rate.

The progress of these patients was followed over a period of from four to six months after the beginning of treatment and the last observation was made from five to sixteen weeks after the cessation of injections. In about half of the cases it has been twelve weeks since the course of gonadotropic substance and the control injections were ended. All these patients continued the same local care and treatment of their skin.

The accompanying table indicates the response to treatment.

There was a slightly greater degree of improvement observed in the women over that observed in the men, but the difference was not striking. It is difficult to tell whether this might have been due to greater effectiveness of the pituitary-like hormone in the women or to their more faithful following of the instructions given for the local therapy. A comparison of the control group of women and those given injections of gonado-

Response to Treatment

	Total		Gonadotropic Substance		Controls	
	Num ber	Per Cent	Num ber	Per Cent	Num ber	Per Cent
Great	19	49	10	50	9	47
Moderate	13	33	7	35	6	32
Slight or none	7	18	3	15	4	21
	39		20		19	

tropic substance from pregnancy urine would lead one to believe that the latter was the explanation of this difference.

COMMENT

Of the thirty-nine cases of acne vulgaris treated in this series, 85 per cent of those given gonadotropic substance from pregnancy urine showed moderate to marked improvement, while 78 per cent of the control group given sterile water showed the same degree of improvement.

Although menstrual periods became more regular in nearly all the women given gonadotropic substance, they also became more regular in more than half of the patients of the control group. We could not find a correspondingly uniform improvement in the condition of the skin of those whose menstrual periods became regular. There were individual cases in which improvement of the skin paralleled the change from an irregular menstrual cycle to a regular cycle, but there were also individual cases in which this did not occur. The series was not large enough to justify any definite conclusion in this regard.

CONCLUSION

Our observations on thirty-nine students with acne lead us to believe that a deficiency of the pituitary-like hormone is not an important etiologic factor in acne. The results show a slightly greater degree (7 per cent) of improvement in the acne of the group treated with gonadotropic substance from pregnancy urine compared with the control group. The difference is hardly sufficient, however, to justify the expense and effort of intramuscular administration of the gonadotropic preparation. It would seem that local therapy is the most important factor in the management of acne.

³ McCarthy, Lee and Hunter: O. B. Failure of Therapy with Glandular Preparations in Acne Vulgaris. *Arch. Dermat. & Syph.* 35: 211 (Feb.) 1937.

STUDIES WITH HUMAN INFLUENZA
VIRUS

DURING THE INFLUENZA EPIDEMIC OF 1936 1937

THOMAS FRANCIS JR, MD

T P MAGILL, MD

M DOROTHY BECK, MA

AND

E R RICKARD, MD

NEW YORK

While the theory that a filtrable virus is the etiologic agent of epidemic influenza had been repeatedly expressed, no convincing evidence had been adduced to support the thesis until the recent studies initiated by the observations of Smith, Andrewes and Laidlaw.¹ These investigators reported in 1933 that ferrets were susceptible to infection with a filtrable virus present in the nasopharyngeal washings of patients suffering from epidemic influenza. Since that time strains of the same virus have been isolated in different parts of the world, and in each instance the recovery of virus has been associated with an epidemic of influenza. In addition, it was found that antibodies capable of neutralizing the infectious agent were present in the serum of human beings, most marked in those who had recovered from recent attacks of the disease. Furthermore, it was our opportunity to observe in 1934 the actual development of antibodies to the virus in three patients during recovery from influenza. These data constitute the evidence for considering the virus to be the primary causative agent of epidemic influenza.² The recent outbreak of epidemic influenza afforded an opportunity to study these points of evidence in greater detail and more accurately to evaluate their significance in relation to the disease.

CLINICAL CHARACTERISTICS OF THE EPIDEMIC
DISEASE

Epidemiologically and clinically the epidemic of influenza of December 1936-January 1937 in New York City presented no apparent differences from similar outbreaks which have occurred repeatedly since 1918. The epidemic appeared suddenly, spread rapidly and subsided spontaneously. Clinically, the onset was usually abrupt and the outstanding symptoms were chills, fever, generalized aches, prostration, nasopharyngeal irritation and a persistent dry cough. Coryza, if present, was of brief duration and mild. Apart from the irritation of the upper part of the respiratory tract, the physical examination revealed nothing noteworthy except relative bradycardia. The throat was edematous and somewhat glazed, and numerous red, dewy, swollen lymphoid follicles were seen on the pharyngeal wall and frequently on the soft palate. The leukocyte count was usually reduced below the normal level, in the present series it averaged 5,700. Fever commonly subsided on the third or fourth day. In fact, there was a surprising uniformity in the complaints and clinical course of most of the patients, and among the cases actually observed complications were extremely unusual. Bacterial studies revealed no con-

sistent results, Pfeiffer's bacillus was not prominent. In the latter part of December a rapid increase in the incidence of pneumonia occurred. While statistics are not available, the impression was gained in services where large numbers of patients were seen that the two diseases were coincidental and that pneumonia developed secondarily in very few of the patients who had epidemic influenza when admitted.

THE PLAN OF STUDY

Because other epidemic diseases of a mild nature have been confused clinically with epidemic influenza it was extremely important to establish if possible criteria which could serve as a basis for differential diagnosis. For this purpose, in addition to clinical observation, attempts were made to demonstrate the presence of virus in the upper part of the respiratory tract. To ascertain whether the illness was associated with the virus of human influenza, throat washings were obtained from the patient and inoculated into the nostrils of a ferret. Since facilities for maintaining ferrets under isolation precautions were limited, it was necessary to store some of the specimens of throat washings in a frozen state at -80°C before testing them. Either the test ferret was killed and serial passages made in additional ferrets, so as finally to permit identification of the filtrable agent, or the animal was kept for sufficient time to permit the development of immunity. In the latter case blood was taken and the serum of the ferret tested for its capacity to neutralize known human influenza virus. The presence of protective antibodies in the ferret's serum was interpreted to mean that the immune substances had developed as a result of infection by virus present in the patient's throat washings. Negative results meant that virus was not present in the material used. Certain specimens of throat washings were also introduced into mice in attempts to isolate virus directly in these animals without intermediate ferret passage.

Furthermore, serum was collected in the acute stage of illness and again from three to four weeks later so that the development of circulating antibodies to human influenza virus might be studied. Comparative titrations of neutralizing antibodies in the patient's acute and convalescent serum were made by the mouse protection test, different dilutions of serum and a constant amount (1,000 lethal doses) of virus being used. The test was terminated on the tenth day after inoculation, and the titer of the serum was considered to be that dilution which enabled 50 per cent of the test mice to survive. Parallel titrations of serum antibodies were made by means of the complement fixation test, a modification of the procedure described by Fairbrother and Hoyle³ being followed, with a saline suspension of infected mouse lung as antigen.

The results to be recorded comprise only a representative part of the complete studies conducted during the epidemic period. The present report deals primarily with the observations on a group of twenty-eight patients in one institution,⁴ together with those in four other cases that illustrate certain variables of interest.

DEMONSTRATION OF VIRUS

In this institution a group of twenty-eight patients, from 19 to 36 years of age, were seen in January 1937. From twenty-six, throat washings were obtained by

From the laboratories of the International Health Division Rockefeller Foundation.

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¹ Smith Wilson Andrewes C H and Laidlaw P P. Virus Obtained from Influenza Patients. *Lancet* 2: 66 (July 8) 1933.

² For a recent review of the literature see Francis Thomas Jr. Epidemiological Studies in Influenza. *Am J Pub Health* 27: 211 (March) 1937.

³ Fairbrother R W and Hoyle L. Observations on the Aetiology of Influenza. *J Path & Bact* 41: 213 (Jan.) 1937.

⁴ Dr Marian Tyndall of the New York Hospital cooperated by making these cases available for study.

having them gargle with meat infusion broth Individual ferrets were inoculated with each sample Specimens of blood were taken early in the acute illness and again three weeks later for comparative antibody titrations In twenty-four of the twenty-eight cases a final diagnosis of epidemic influenza based on clinical and laboratory evidence was made, in three, acute hemolytic streptococcus tonsillitis was observed One was a case of afebrile recurrent sinusitis No pulmonary complications occurred in any of the group In table 1 the results of studies on these patients are summarized Virus was shown by inoculation of ferrets to be present in eighteen, or 81 per cent, of twenty-two throat washings obtained in the twenty-four cases of epidemic influenza The high incidence of positive results is extremely striking and emphasizes the relative ease with which the presence of virus may be detected Since a fair number of

it was necessary to make simultaneous tests with the convalescent serum and with serum taken from the same subject during the acute stage of the illness

In the accompanying chart the record of one patient is presented graphically to illustrate the clinical course of the disease in relation to the presence of virus in the respiratory tract and the development of neutralizing antibodies in the blood Virus was obtained from the patient's throat on the first, second and fourth days of illness On the seventh day, seventy-two hours after subsidence of the fever, virus was present in only small amounts in the throat washings, as evidenced by the fact that the ferret receiving this material exhibited fever only after a delayed incubation period of five days Neutralizing antibodies which were present in the patient's serum in low concentration during the acute stage of the illness rose abruptly on the seventh day and had reached their height by the fourteenth

TABLE 1—Summary of Studies on Twenty-Eight Patients During Influenza Epidemic, January 1937

Diagnosis	Number	Past History			Average Day of Disease	Average Maximum Temperature	Average White Blood Cells in 1000	Virus in Throat Washings			Antibody Titer			
		Nega tive	1918 Posi tive	Other Posi tive				Posi tive	Nega tive	Test Not Done	Neutralization Test		Complement Fixation	
											Acute	Convalescent	Acute	Convalescent
Epidemic influenza	24	15	7	2	2.6	101.6	5.7 (8.5-3.3)	18	4	2	26 (0-200)	210 (15-640)	11 (0-32)	119 (8-512)
Hemolytic streptococcus tonsillitis	3	3	0	0	2.6	101.5	16.5	0	3	0	63 0	60 0	24 0	24 0
Recurrent sinusitis	1	1	0	0	5.0	98.0	4.8	0	1	0	0	0	0	0

Numbers in parentheses represent the range of variation The antibody titers are expressed in terms of the final dilution of serum

the samples had been maintained in storage for from one to two months before testing, the significance of the results is heightened

Moreover, after the single observation already recorded of direct transmission of the disease from man to mice,⁵ five samples of throat washings from these patients were instilled into the nostrils of mice Virus was isolated directly in mice from three of the five specimens tested Little or no evidence of infection was observed in the mice during the first three passages, but in mice of the fourth serial passage early lesions were seen in the lungs Thereafter a rapid enhancement of virulence occurred

The virus recovered from the throat washings of all these patients was shown immunologically to be the human influenza virus It was neutralized by serum of animals known to be immune to human influenza virus Furthermore, the serum of animals recovered from infection with the newly isolated strains of virus possessed the capacity to protect mice against older established strains of human influenza virus but not against swine influenza virus The actual recovery of human influenza virus in the great proportion of the cases of this series indicates the close association of that virus to the epidemic disease

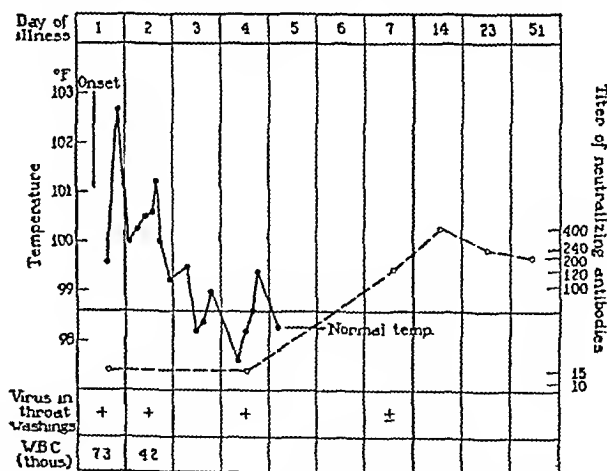
On the other hand, no virus was recovered in the three cases of hemolytic streptococcus infection or in the one case of afebrile recurrent sinusitis which were included in the group (table 1 and cases 52 and 53 in table 3)

DETERMINATION OF CIRCULATING ANTIBODIES TO THE VIRUS

Since a comparatively high proportion of adult serum contains some antibody to human influenza virus, to evaluate the antibody content of the convalescent serum

day Thereafter, a gradual decline began The observations in this instance appear to typify the general results and suggest, furthermore, that the time of disappearance of virus from the throat tends to coincide with the onrush of antibodies in the blood

Considerable variation occurred in the titers of the acute serums as measured by the mouse protection test



Recovery of virus and development of antibodies in the course of influenza

for neutralizing antibodies The average titer of the acute serums was 1 26, and although the titer in the case of sixteen of the twenty-four patients with influenza was 1 15 or less, in two instances titers of 1 100 and 1 200, respectively, were noted Nevertheless, comparative tests with the convalescent serums revealed that in each instance after recovery from epidemic influenza a sharp rise in the neutralizing antibodies had occurred In comparison with an average titer of 1 26 for the acute serum, the average titer of the con-

5 Francis Thomas Jr and Magill T P Direct Transmission of Human Influenza Virus to Mice Proc Soc Exper Biol & Med 36: 132 (March) 1937

valescent serum was 1 210, with a variation of from 1 15 to 1 640, and while the titers of the majority of the acute serums were 1 15 or less, the titers of all but one of the convalescent serums were higher than 1 15

Parallel titrations of antibodies in the same serum as measured by the complement fixation test gave similar results. The complement fixation titers of the acute serums varied from 0 to 32, with an average of 11. The average titer of the convalescent serums was 119. The titer of all but three of them was greater than 32, with fourteen having titers of 128 or more. In table 2 are presented individual cases that illustrate variations in the serologic reactions observed in proved instances of the epidemic disease. Thus it is seen that the marked rise in antibody titer during convalescence from epidemic influenza is observed not only with the neutralization test but with the complement fixation

VARIATIONS IN THE CLINICAL PICTURE

With these procedures as a basis it becomes possible to elicit information regarding the variability in the clinical picture exhibited by different patients during an epidemic period. A few examples are cited to illustrate these features. One person after heavy exposure was found to be harboring influenza virus in the throat although no evidence of infection presented itself. In another proved case (case 79, table 2) there were minimal symptoms of twenty-four hours' duration, with a normal leukocyte level and a temperature of 99 F six hours after throat washings had been obtained. Both these persons, who later showed an increase of antibodies in the serum, might well be considered to represent carrier states or subclinical infections. In another instance virus was obtained from the throat washings of a healthy exposed person who twenty-four hours later became ill with a typical attack.

TABLE 2—Results of Clinical and Laboratory Studies in Individual Cases of Epidemic Influenza

Case Number	Past History	Day of Disease	White Blood Cells	Temperature F	Recovery of Virus		Antibody Titer			
							Neutralization Test		Complement Fixation Test	
					Ferret	Mouse	Acute	Convalescent	Acute	Convalescent
49	Negative	3	4 600	100.4	+	Direct	1 4	1 218	0	1 128
57	Negative	2	7 880	100.7	+	Direct	1 10	1 60	1 8	1 512
39	Negative	2	5 000	102.9	+	Not done	1 6	1 100	1 16	1 64
79	Negative	1	8 350	None	+	+	1 20	1 200	1 8	1 32

TABLE 3—Results of Studies on Patients with Clinical Diagnosis Other than Epidemic Influenza

Case Number	Past History	Day of Disease	White Blood Cells	Temperature F	Recovery of Virus		Antibody Titer			
					Ferret	Mouse	Neutralization Test		Complement Fixation Test	
							Acute	Convalescent	Acute	Convalescent
Streptococcus Infection of Throat										
52	Negative	3	20 000	100.7	0	Not done	1 60	1 50	1 32	1 32
53	Negative	2	12 080	100.7	0	Not done	1 100	1 100	1 64	1 64
Pneumonia (Atypical)										
68	Negative	9	17 000	103.6	0		1 60	1 60	1 32	1 128
69	Negative	4 10	10 900	102.0	0		1 200	1 70	1 1 024	1 512
Common Cold Followed by Persistent Cough										
H. F.	1926			None			0	0	1 16	1 16
A. M.	1918			None			1 10	1 10	1 32	1 32

test as well. Further, no rise in antibodies was observed in the convalescent serums of the four patients with bacterial infection when tested either by the method of complement fixation or by the mouse protection test (table 1 and cases 52 and 53 in table 3).

The general agreement in the trend of the tests of the same serums by the two different methods is of extreme interest. The uniform rise in antibodies in the serum of the patients convalescent from epidemic influenza together with the recovery of virus from such a high proportion of the same patients serves to establish the validity of the results obtained by the different procedures, since they are mutually corroborative.

Furthermore, the negative results in the four cases of straightforward bacterial infection occurring in the same group of persons during the epidemic of influenza suggest that failure to recover virus together with negative serologic tests can properly be interpreted to mean that the case in question is not infection with human influenza virus. In fact, these observations indicate that such cases, although contemporary with the influenza epidemic, were of entirely different origin. The possible value of such observations as an aid to differential diagnosis is apparent.

One person suffering from the disease had as her only complaint coryza with a profuse discharge and without constitutional symptoms other than fatigue, although a mild elevation of temperature occurred on the second day. On the other hand, other persons were observed who, at the time of the influenza epidemic, experienced symptoms characteristic of the common cold without fever but with a subsequent, persistent cough. It was demonstrated by serologic tests that these patients had not suffered from infection with human influenza virus, since the antibody titer of their serum remained unchanged as a result of the experience (table 3, A M and H F).

In table 3 (cases 68 and 69) are also presented data on two subjects who were admitted to hospital as having atypical pneumonia with antecedent illness of four or five days. One of them acquired no definite signs of pulmonary consolidation, the other showed minimal evidence of pulmonary involvement by x-ray and physical examination. Neither had gone to bed before the sudden rise in temperature which occasioned hospitalization. From the sputum of both patients pure cultures of pneumococcus of undetermined type were obtained. Leukocytosis occurred in both instances.

Virus was not recovered from the sputum, but the serologic tests, as evidenced by the high titer of antibodies to the virus in their acute serums, indicated that these two patients were in the stage of convalescence from infection with influenza virus infection at the time of their admission to the hospital.

It seems evident, therefore, that while the great majority of patients exhibit a fairly uniform clinical picture, a small percentage show variations ranging from the asymptomatic to those resembling lobar pneumonia.

SUMMARY AND CONCLUSIONS

While the number of patients included in the present report is small, they appear representative of the epidemic of influenza which occurred in New York City during the past winter. Furthermore, the results of the studies carried out among these patients were striking in their uniformity. The virus recovered during this epidemic either by the inoculation of ferrets or by direct transmission to mice was the same as that which has been isolated in recent years during epidemics of influenza in different parts of the world. The high percentage of clinical cases of influenza in this group in which the virus was actually demonstrated emphasizes the close relationship between the disease and the presence of virus.

Moreover, the demonstration of virus in the nasopharynx of a patient was regularly associated with a subsequent rise of antibodies in the patient's convalescent serum, as measured by the mouse protection test or the complement fixation test. The agreement between the recovery of virus and the development of antibodies serves to indicate that the antibody response is a direct response to infection with influenza virus and can be considered as positive evidence of the disease even though virus is not recovered from the patient's throat.

This is further suggested by the negative results with all procedures in the four cases of incidental bacterial infection observed at the same time. It appears, therefore, that the demonstration of human influenza virus and the development of antibodies to the virus either jointly or alone may be sufficient to warrant a diagnosis of epidemic influenza.

The application of these results to the study of epidemic respiratory disease should be of great value. It permits the more accurate charting of the clinical boundaries of epidemic influenza and by closer association of laboratory procedures with careful clinical observation may serve as a guide in the study of other diseases of similar clinical characteristics.

ABSTRACT OF DISCUSSION

DR FRANCIS G. BLAKE, New Haven, Conn. In addition to further confirmation of the relationship of a characteristic virus to epidemic influenza and the demonstration that the virus isolated in 1936-1937 is immunologically homologous with strains of virus that have been isolated since 1933 from all over the world, this paper includes three other important points. The first is the demonstration that the virus can be quite easily isolated from approximately 80 per cent of cases, without difficulty. The second is the confirmation of the earlier studies of Dr. Francis concerning the increase in antibody titer during convalescence, beginning about a week after onset. The third and perhaps most important point is the utilization of these two laboratory procedures in an effort to define more sharply the variation in the clinical picture of influenza. If these laboratory methods are to be used for this purpose, they must be examined quite critically as to their validity and their accuracy. Since Dr. Francis and his co-workers have failed to isolate the virus in about 20 per cent of the cases, failure

cannot subsequently be taken as a certain indication that a given patient did not have influenza. Obviously, then, the final determination in cases in which one has failed to isolate the virus must rest solely on whether or not there is a higher antibody titer in the serum collected during convalescence than in that collected during the acute stage of the disease. I should like to ask Dr. Francis what he considers a diagnostically significant rise in antibody titer. If the original titer, as occurred in a few cases, was 100, would a convalescent titer of 200 be considered diagnostically significant? Furthermore, it would seem surprising, as I gathered that the authors implied, if every case of influenza should show a rise in antibody titer during convalescence. At least I think it is fair to say that physicians have had no such experience with antibody tests in other diseases. There are always a few that fail to show the usual antibody response. I should like to ask whether there was any relationship between the titer of antibodies early in the disease and the clinical picture. Did patients with high titers have a mild infection, those with low titers a more typical disease?

DR THOMAS FRANCIS JR., New York. The point Dr. Blake raises is the possible relationship between the titer of antibodies in the patient's blood at the time of acute illness and the clinical characteristics of the disease. So far as we have been able to determine, it has not been possible to relate accurately the titer of antibody and the type or severity of illness that ensued. For instance, in the two subjects that were presented, which represented what one might call subclinical infection, the antibody titers of their original serums were certainly no higher than in numerous other individuals who had the typical disease. In the same manner, of the patients whom we did observe who had high titers, there were three in an entire group larger than the present one who had titers of 100, 120 and 200 in the acute illness, and it was not possible to see any very clear difference between their illness and the illness of others who had lower titers. Consequently it leaves the subject open as to the actual mechanism of immunity. I don't think we want to imply that we consider the development of antibodies the sole mechanism of immunity. It can, however, be used as a demonstration of infection. Dr. Blake has raised a question as to what is responsible for the failures in recovering virus. There are perhaps two different reasons that are quite obvious in our experience. The first of these was that with the facilities at hand it was not possible to test all the washings immediately at the time they were taken, consequently, some of these had to be stored until they could be conveniently inoculated into ferrets. Some of the failures might have been due to that. On the other hand, the possibility that individuals had what might be termed an accelerated immune reaction does occur. We have observed in certain animals that, while they may not be entirely immune, inoculation of virus in late convalescence will result in fever but no other evidence of infection. If one tries to recover virus from those ferrets, one usually fails. It is possible that some mechanism such as this does occur in human population as well. As to what rise of antibodies is significant in making the diagnosis, I think it requires really a correlation of all the studies to decide. When one considers the incidence of virus recovery and the results of serologic tests in the same subjects, I don't believe the difference of one dilution can be taken to be extremely significant unless one recovers virus from the patient. On the other hand, when the serums are tested at the same time, a difference logarithmically of twofold is decidedly significant, that is, although the subject may not have antibodies and his titer may go only to 1:15, that has much more significance than a rise from 1:40 in the acute to 1:80 in the convalescent.

Osler's Bibliography—730 Titles.—His charm as a writer had much to do with his great success as a teacher, and his bibliography, covering a period of forty-nine years, is most extensive, 730 titles, including his collected essays and addresses, having been assembled by Miss Blogg in commemoration of his last birthday. There is a great range of subjects besides those pertaining to medicine and medical history.—Cushing, Harvey. *Consecratio Medici and Other Papers*, Boston, Little, Brown & Co., 1928.

STUDIES ON OXYURIASIS

V THERAPY WITH SINGLE DOSES OF TETRACHLORETHYLENE

WILLARD H WRIGHT, PH D

JOHN BOZICEVICH, MA

AND

LEON S GORDON, MD, PH D

WASHINGTON, D C

Oxyuriasis is the subject of a group study in the Division of Zoology, and in connection with this study attention is being given to the matter of developing an effective therapy. Wright and Cram¹ have reviewed many of the methods recommended in the literature for the control and treatment of oxyuriasis, have pointed out defects and inadequacies in some of these methods and objections to the use of others, and have outlined the requirements for a satisfactory therapy. The present paper deals with the results of the treatment of fifty cases of oxyuriasis with single doses of tetrachlorethylene, and supplements a preliminary report² on the use of this drug.

During the late summer of 1936, one of us³ conducted a pinworm survey in a group of more than 200 boys attending the summer camp of the Metropolitan Police Boys' Club near Scotland, Md. Among the group of pinworm cases disclosed by this survey, fifty boys were selected for hospitalization and treatment. For the most part, these individuals were underprivileged boys whose parents were in a low economic-social status and not financially able to employ private physicians. Dr. Edgar A. Bocock, superintendent of the Gallinger Municipal Hospital, provided the necessary hospital facilities and cooperated in carrying out these tests. Mr. J. M. Schaffer, a director of the Metropolitan Police Boys' Club, assisted in arranging the many details of this experiment.

METHOD OF CONDUCTING TESTS

The patients came to the hospital at 4 p. m. on the day of admission and were given a light supper of fat-free foods. At 8 o'clock each was given a high soap-suds enema with the patient in the knee-chest position. At 7 a. m. the next day a second soap-suds enema was given in order to clear the lower bowel and to facilitate the rapid evacuation of the anthelmintic, with the idea of preventing, to some extent, unfavorable reactions to the treatment. No breakfast was allowed. The anthelmintic was administered at 8 o'clock and no food was given until after the bowels had moved copiously, following which the diet consisted of the regular hospital fare. The tetrachlorethylene was administered at a dose rate of 0.1 cc. for each year of apparent (not chronological) age, the drug being given in 30 cc. of a saturated solution of magnesium sulfate plus 60 cc. of water, or in a suitable dose of a solution of magnesium citrate. In order to determine the value of magnesium citrate alone for the removal of pinworms, three of the patients were given a dose of this purgative

without tetrachlorethylene, followed the next morning by a high enema consisting of 1 cc. of tetrachlorethylene in a coconut oil soap emulsion in 1 liter of water. All stools passed following treatment, including those from the enemas, were collected and washed through a series of screens of mesh sizes graduated from coarse to fine, and all worms, including pinworm larvae, were recovered and counted. The patients were discharged at 4 p. m. on the second day after admission.

In addition to the worm count on each individual the results of treatment were checked in a number of ways. To determine whether the patient had been freed of all worms by the treatment, we used the anal swab described by Hall⁴ and designated the NIH swab, a device which has been found eminently satisfactory for the diagnosis of pinworm infestation. Swabs were taken on each individual on approximately the fourteenth and twenty-first days after treatment.

TABLE 1—Results of Treatment for Oxyuriasis with Tetrachlorethylene at a Dose Rate of 0.1 Cc. for Each Year of Apparent Age, When Administered in 30 Cc. of Saturated Magnesium Sulfate Solution plus 60 Cc. of Water

Case No.	Age of Patient, Years	Dose of Tetrachlorethylene Cc.	Worms Passed Following Treatment			Result of Post Treatment Swab Examinations
			Enemas	Stools	Total	
1	13	1.2	14	132	146	Positive
2	7	0.6	91	120	211	Positive
3	9	0.8	40	95	135	Positive
4	9	0.8	207	308	515	Positive
5	11	1.1	52	264	316	Positive
6	9	0.9	140	830	970	Positive
7	10	0.8	20	13	33	Positive
8	13	1.0	15	53	68	Positive
9	11	0.7	64	46	110	Positive
10	10	1.0	22	128	150	Negative
11	11	1.1	5	18	23	Negative
12	10	0.7	10	9	19	Negative
13	7	0.4	4	6	10	Negative
14	10	0.7	28	35	63	Negative
15	8	0.6	30	100	130	Negative
16	13	0.8	38	70	108	Negative
17	7	0.4	15	58	73	Negative
18	10	0.7	37	23	60	Negative
19	13	1.0	2	2	4	Negative
20	10	0.7	3	10	13	Negative
21	13	0.9	5	12	17	Negative
22	14	1.0	56	60	116	Negative
23	10	0.7	3	2	5	Negative
24	16	1.5	Stools not examined			Negative
25	11	0.8	1	27	28	Negative
Averages	10.6	0.84	38	101.3	139.3	Positive 9 Negative 16

Clinical improvement following treatment was determined by weight records taken before and after treatment and by information obtained by direct interview of the parents of all patients both before and after treatment. In addition to these methods of judging effects of treatment, we obtained from the school teachers of twenty-four of the patients at the end of the school semester, from six weeks to two months after treatment, detailed information relative to any noticeable change in the deportment, general attitude and scholastic standing of the individual. We were assisted in collecting these data and in the hospital nursing of the patients by Miss Edith Adams, R.N., of the staff of the Metropolitan Police Boys' Club. The information from these data will form the subject of a later paper.

Wright and Cram¹ have noted the necessity for adequate post-treatment checks in attempts to evaluate the exact efficacy of any method of treatment for oxyuriasis and have pointed out that apparently most of

From the Division of Zoology, National Institute of Health, U. S. Public Health Service, and the Medical Department of the Metropolitan Police Boys' Club, Washington, D. C.

1 Wright, W. H., and Cram, Eloise B. Studies on Oxyuriasis. IV. Some Aspects of the Problems of Therapy. *Am. J. Dis. Child.* to be published.

2 Wright, W. H., Bozicevich, John, and Rose, Joseph. Studies on Oxyuriasis. II. A Preliminary Note on Treatment with Tetrachlorethylene. *Virginia M. Monthly* to be published.

3 Bozicevich, John. Studies on Oxyuriasis. III. The Incidence of Pinworm Infestation in a Group of 230 Boys in Washington, D. C. *M. Ann. District of Columbia* to be published.

4 Hall, M. C. Studies on Oxyuriasis. I. Types of Anal Swabs and Scrapers with a Description of an Improved Type of Swab. *Am. J. Tric. Med.* 17: 445 (May) 1937.

the treatments for oxyuriasis, as recommended in the medical literature, are based on clinical evidence only and are not substantiated by the evidence necessary to indicate complete freedom from infestation following the use of the treatment or treatments advocated. In our series of cases, it is realized that two negative swab examinations are not conclusive evidence of complete freedom from infestation, for the reason that in some cases more swab examinations are needed in order to establish this point definitely. However, we found the post-treatment checkup of our series of cases a formidable task, since many of the parents failed to cooperate in seeing that the boys reported for post-treatment examination, and it was not possible to make more than two swab examinations following treatment. In order to arrive at a correction figure for our post-treatment check, Dr Selwyn D Collins, principal statistician of the U S Public Health Service, has analyzed data on 628 individuals examined by swabs for pinworm infestation. The data have been placed at our disposal through the courtesy of Dr E B Cram. Dr Collins's analysis of the data indicates that 70 per cent of cases of pinworm infestation in the Washington groups studied were detected on the first two swab examinations. Our post-treatment check in the present series is therefore probably 70 per cent accurate, and we are accordingly allowing a correction figure of 30 per cent in determining the results of treatment in this series. Because of the high variables in such studies, the appropriate corrective figure would have to be obtained anew for any series of cases studied under different conditions.

REACTIONS TO TREATMENT

Disagreeable reactions to the tetrachlorethylene-magnesium sulfate mixture led us to discard the magnesium sulfate solution as a purgative, and in the later phases of the tests we adopted the use of the magnesium citrate solution. The following symptoms were noted in the twenty-five boys receiving the tetrachlorethylene-magnesium sulfate mixture: dizziness in seven cases, nausea in three cases, vomiting in three cases, headache in two cases, and respiratory depression, cyanosis and loss of consciousness in one case. Of the twenty-two patients receiving the tetrachlorethylene-magnesium citrate mixture, two complained of slight dizziness and two vomited, one of these vomiting before treatment also. It has been the frequent observation of public health workers in administering mass treatments of carbon tetrachloride or tetrachlorethylene in hookworm control campaigns that many individuals complain of nausea, vomiting, dizziness, abdominal pain and other symptoms following the use of these chlorinated hydrocarbons with magnesium sulfate. In investigating the nature of these reactions, Malloy⁵ administered magnesium sulfate solution alone to a number of patients assembled for hookworm treatment and noted that the patients who received the purgative solution alone showed reactions as severe in nature as those exhibited by patients who received carbon tetrachloride with the magnesium sulfate. Malloy believed that some reactions of the before-mentioned character, following the administration of such hookworm treatments, are due to the magnesium sulfate and not to the anthelmintic, an opinion shared by most workers in this field. Hall⁶ has noted that headache, nausea and dizziness occur

in a large minority of cases treated with almost any anthelmintic and usually disappear after the bowels move, an observation which suggests the purgative as the cause.

One of our patients, an 11 year old boy who received 11 cc of tetrachlorethylene in 30 cc of a saturated magnesium sulfate solution plus 60 cc of water, showed symptoms of dizziness and depression one hour after treatment, the extremities were cold and the respirations were shallow. The patient complained of eructations of the drug. One and one-half hours after treatment he became cyanotic and during the next half hour lost consciousness four times. He was given 0.2 cc of a 1:1,000 solution of epinephrine hydrochloride intramuscularly, following which his condition showed immediate improvement. Eight hours after treatment he complained of nausea and vomited several times, he was then given bismuth subcarbonate and elixir of

TABLE 2—Results of Treatment for Oxyuriasis with Tetrachlorethylene at a Dose Rate of 0.1 Cc for Each Year of Apparent Age, When Administered in Magnesium Citrate Solution

Case No	Age of Patient Years	Dose of Tetrachlorethylene Cc	Dose of Magnesium Citrate Solution Cc	Worms Passed Following Treatment			Results of Post Treatment Swab Examinations
				Enemas	Stools	Total	
26	8	0.5	200	13	32	45	Positive
27	13	1.1	200	781	340	1151	Positive
28	11	0.9	150	573	370	949	Positive
29	16	1.2	250	4194	764	4958	Positive
30	11	0.9	175	343	206	549	Positive
31	12	0.9	280	10	51	70	No exam left city
32	14	1.0	300	10	40	50	No exam left city
33	7	0.4	100	1	0	1	Negative
34	12	0.9	250	7	11	18	Negative
35	17	1.2	300	8	18	26	Negative
36	14	1.0	250	7	33	40	Negative
37	11	0.8	250	1	36	37	Negative
38	17	1.5	300	78	29	107	Negative
39	12	1.0	250	89	116	205	Negative
40	14	1.2	250	0	0	0	Negative
41	12	1.0	200	170	95	271	Negative
42	13	0.9	150	13	11	24	Negative
43	11	0.8	150	21	9	30	Negative
44	12	0.9	225	86	174	260	Negative
45	9	0.6	175	17	79	96	Negative
46	13	0.9	200	24	63	87	Negative
47	12	0.6	175	36	52	88	Negative
Averages	12.3	0.92	217	309.4	122.1	431.5	Positive 5 Negative 14 No check 2 Infestation lost 1

* This patient apparently lost his infestation spontaneously between the date of diagnosis and the time of treatment an interval of approximately four months.

phenobarbital equivalent to one-eighth grain (0.008 Gm) of the drug. Following this medication he returned to normal. This patient was found later to be suffering from pulmonary tuberculosis, a condition not disclosed by his previous medical history, and three months after treatment was admitted to a tuberculosis sanatorium. Had this condition been known to us, he would not have been treated.

RESULTS OF TREATMENT

For purposes of comparison, the results of treatment have been set down in three tables. Table 1 comprises those patients who received tetrachlorethylene in magnesium sulfate solution, table 2 comprises those patients who received tetrachlorethylene in magnesium citrate solution and table 3 comprises those patients who received magnesium citrate without tetrachlorethylene by mouth but followed by a tetrachlorethylene enema.

Patient 24 (table 1) was treated at camp for the reason that he was a food handler. As facilities were

⁵ Malloy, D. M. Work of the Department of Uncinariasis of Nicaragua in 1924 and 1925. Bull. Internat. Health Board 7: 77, 1926.
⁶ Hall, M. C. Principles and Theories of Anthelmintic Medication. Puerto Rico J. Public Health & Trop. Med. 9: 418 (June) 1934.

not available for screening the stools, the worms passed by him were not recovered. However, this boy was negative on post-treatment swab examinations and is being included in this series. Of the twenty-five cases in table 1, nine were positive and sixteen were negative on post-treatment swab examinations.

In table 2 patients 31 and 32 moved away to a distant state within a week after treatment, so no post-treatment swab examinations were made. Patient 40 passed no worms following treatment and was negative on post-treatment swab examinations. It seems probable that this boy was lightly infested at the time of diagnosis and subsequently lost his infestation spontaneously between the date of his appearance at camp and the time of treatment, an interval of approximately four months. Of the nineteen infected boys represented in table 2 on whom post-treatment checks were made, five were positive and fourteen negative after treatment.

Post-treatment swab examinations in the three cases represented in table 3 indicated that all three boys were negative after treatment. However, it will be noted that in no case did the magnesium citrate solution, preceded by a soap-suds enema, remove all worms, since additional worms were removed by the tetrachlorethylene enema administered on the following morning.

TABLE 3—Results of Treatment for Oxyuriasis with Magnesium Citrate Solution Followed the Next Day by an Enema Consisting of 1 Cc of Tetrachlorethylene and 20 Cc of Coconut Oil Soap in 1 Liter of Water

Case No.	Age of Patient Years	Dose of Magnesium Citrate Solution Cc	Worms Passed Following Treatment				Results of Post Treatment Swab Examinations
			Soap-suds Enema	Stools	Tetrachlorethylene Enema	Total	
48	14	275	9	14	1	24	Negative
49	15	300	41	39	17	97	Negative
50	10	175	5	5	2	12	Negative
Averages	13	250	18	19	7	44	Three cases all negative

Of the forty-seven cases of infestation carried to completion in this series, fourteen were still positive for pinworms on post-treatment swab examinations and thirty-three were negative. Three of these boys did not receive tetrachlorethylene orally, leaving forty-four treated orally. Of these forty-four, fourteen were positive after treatment and thirty were negative. If our correction figure of 30 per cent, representing the percentage of positive cases not disclosed by two swab examinations, is applied to these results, it is found that nine of the thirty cases would probably have been disclosed as positive had we been able to make additional swab examinations. The corrected figures for the forty-four cases would therefore be probably twenty-one negatives, or 47.7 per cent apparently and probably cured. While this is not a high figure, it still appears, as indicated in the paper by Wright, Bozicevich and Rose,² that this is the best single-dose treatment for which we have adequate evidence.

COMMENT

In an analysis of our data we have attempted to correlate the efficacy of the treatment with the degree of infestation. It seems reasonable to assume that heavy pinworm infestations would be more refractory to treatment with single doses of anthelmintics than would light infestations, since in heavy infestations it is more likely that some worms would be located in

the appendix, where they would be reached only through the accidental penetration of the anthelmintic into that organ.

The mean number of worms recovered from individuals receiving tetrachlorethylene in magnesium sulfate solution (table 1) was 139.3 worms. Disregarding case 24, in which no worms were collected after treatment, fourteen of the fifteen remaining cases negative after treatment showed infestations below the mean for the group.

The mean infestation, as indicated by worms recovered, in the group receiving tetrachlorethylene and magnesium citrate solution (table 2), was 431.5 worms. In this group all the cases negative after treatment showed infestations lower than the mean.

In the group receiving magnesium citrate followed by a tetrachlorethylene enema (table 3), all three patients were negative after treatment, in each case the number of worms recovered was relatively small.

The average number of worms recovered from the forty-nine boys from whom stools were secured was 255.8. Only two of our thirty negative cases showed infestations above this mean. This figure and those already set forth indicate, apparently, that tetrachlorethylene is more dependably efficient in effecting cures in persons lightly infested with pinworms than it is in persons heavily infested with pinworms although in cases of heavy infestation the drug will remove many worms. The failure of the drug to effect cures in these heavy infestations, as pointed out previously, may be correlated with the greater likelihood of the presence of pinworms in the appendix, an organ into which the anthelmintic would probably not penetrate regularly but would enter only accidentally, and perhaps correlated also with the probability of an increased dilution factor for the anthelmintic by the time it reaches the large intestine, a factor which might account for its failure to remove all of relatively large numbers of worms although it might remove all of relatively small numbers of worms. While we cannot predict with any degree of certainty that all anthelmintics, or most anthelmintics, when given orally in single doses, will effect cures in many cases of light pinworm infestation and fail to effect cures in many cases of heavy pinworm infestation, it would seem that this result, observed in the case of tetrachlorethylene, might follow even more certainly with those anthelmintics of recognized merit which have a greater water solubility than has tetrachlorethylene. This assumption would seem to apply at least in the case of hexylresorcinol, particularly in view of Brown's⁷ failure and our own clinical failures to clear up pinworm infestations by the oral administration of single doses of this drug.

SUMMARY AND CONCLUSIONS

In experiments reported in this paper, forty-seven boys infested with pinworms were treated with single doses of tetrachlorethylene administered orally at the rate of 0.1 cc for each year of apparent age. The administration of this drug in a solution of magnesium sulfate provoked disagreeable reactions in a considerable percentage of twenty-five cases, but these reactions were largely obviated by the substitution of magnesium citrate as a purgative in the remaining cases.

Of forty-four infested boys who received tetrachlorethylene orally and were checked by post-treatment swab examinations on approximately the fourteenth and

⁷ Brown, H. W. Treatment of Pinworm (*Enterobius Vermicularis*) Infestation with Hexylresorcinol. *Proc. Soc. Exper. Biol. & Med.* 30: 221 (Nov.) 1932.

twenty-first days after treatment, thirty, or 682 per cent, were negative, but the true percentage of cures is probably about 477 per cent as arrived at after the application of a correction figure of 30 per cent for positive cases not disclosed by two swab examinations.

Three boys received magnesium citrate solution alone, followed the next morning by an enema consisting of 1 cc of tetrachlorethylene in a coconut oil soap emulsion to 1 liter of water. These three boys were negative on post-treatment swab examinations, but in no case did the magnesium citrate solution remove all worms.

The number of worms recovered from individuals in these tests varied between 1 and 4,958, the average infestation was 255.8 worms.

Evidence indicated that tetrachlorethylene administered orally in single doses was more effective in eradicating relatively light pinworm infestations than it was in eradicating relatively heavy infestations, since only two of our thirty negative cases treated in this manner showed infestations above the mean.

So far as there is available evidence, it would appear that tetrachlorethylene is one of the best drugs for a single-dose treatment for pinworms. It is especially effective, apparently, for light pinworm infestations but will probably fail to effect cures in the majority of persons heavily infested with pinworms, a failure which would probably be shared by other anthelmintics of merit when similarly administered.

Twenty-Fifth and E streets NW—1801 Eye Street NW

Clinical Notes, Suggestions and New Instruments

MYIASIS

W J BRYAN JR, M.D. TULSA, OKLA.

The term myiasis means the invasion of the tissues or organs of animals, including man, by the larvae of flies. There are a number of species of flies that will invade living animals, even to the most specialized and parasitical types.

These types are, first, Oestridae (bots, warbles). The bots or warbles have under certain cases become highly specialized. The ox warbles (*Hyperma lineata*) confines itself to one host, the relationship being so close that if it should be removed prior to normal maturity it will die. Most authorities believe that the entrance is through the esophagus to the back. The sheep bots (*Estrisovis*) attack primarily animals, as do also the horse bots, but cases are on record in which man has been infected. The eggs are deposited in the mouth or nasal passages, the larvae transferring their location to the sinuses, the base of the tongue or the orbit of the eye. Among Oestridae is also found the species *Dermatobia hominis*, which is the common cause of dermal myiasis in man.

At this time I am writing of the species of flies the larvae of which will attack healthy tissues as well as diseased or traumatized tissues. These species come under the classification of Muscidae and Sarcophagidae. In the United States the Muscidae most commonly noted are *Lucilia*, *Phormia* and *Culliphora*, most commonly known as green bottle, blue bottle or blow flies. These flies deposit eggs on a large variety of human foods most commonly though on cold meats.

Flies belonging to the Sarcophaga group are the ones I am most concerned with in the case to be reported. The Sarcophaga family is especially partial to meat and is also larviparous, that is it deposits living larvae. Under favorable conditions the life cycle is very fast. The maggots develop to full growth in from four to five days after which they leave the host for drier conditions for pupation. The entire cycle from egg to mature fly is from fifteen to eighteen days. This period varies according to conditions.

REPORT OF A CASE

G M., a boy, aged 13 years, came under my observation Aug 9, 1935. His chief complaint was that, beginning at Christmas 1933, diarrhea developed, resulting in from four to six liquid stools each day, with no abdominal cramps or vomiting. The stools at first contained undigested foods but no blood. There was no elevation of temperature and no loss of weight. This frequency continued for from two to three months, with a gradual increase in the odor of the stools and tenesmus. There was a marked halitosis. He was put on a low carbohydrate diet, which seemed to reduce the diarrhea. For the next three or four months he would have from one to four stools a day, then from seven to ten days there would be a week or ten days of diarrhea, in which from nine to twelve very foul stools were passed. In August 1934, acute tonsillitis developed. The maximum temperature for three days was 103 F. Following this the diarrhea became severe there being almost constant stools. The mother stated that there must have been from thirty to forty stools a day. After one week's duration the stools became bloody and mucopurulent, with a terrific odor. Abdominal cramps and anorexia were present. This attack lasted for three weeks, gradually the stools were reduced in number to from four to six each day.

During December 1934 he had only one stool each day and was eating everything. In January 1935 he had diarrhea again, passing from four to eight stools each day. Then from January to June he had daily, four or five stools. In June there was another flare up, in which about twenty stools a day were passed. The stools were bloody and mucopurulent. There was never any nausea or vomiting. Since this period he has had from five to ten stools each day, all being bloody. One month ago a severe attack of nausea, vomiting and diarrhea occurred. There is nothing of any importance in his past history, except that as a baby he had had some intestinal disorders of short duration. The patient was susceptible to colds. There had been some tonsillitis. The tonsils had been removed. There had been no headaches or dizziness and no chronic nasal discharge and no chronic cough or any symptoms referable to the lungs, heart or genito-urinary tract. At times recently some swelling of the hands, knee and ankle joints developed, with a few red blotches over the skin. This never lasted more than from one to three days.

On examination the patient was slender, sallow appearing and underweight, with markedly dry skin and hair. The mucous membranes were of fair color. The temperature was 99.4 F, the pulse 108. He weighed 82 pounds (37 Kg) and was 61½ inches (156 cm) tall. The examination was negative, except that the lower part of the abdomen was distended. There was much gas. The liver, spleen and kidneys were not felt. The sigmoid rolled under the fingers and was very tender, there was also tenderness throughout the abdomen but no rigidity. The patient was referred to Dr C A Pay for examination of the head and a negative report was obtained. X-ray study of the gastro intestinal tract revealed nothing except a small defect on the anterosuperior wall of the first part of the duodenum and evidence of a marked spastic colitis. The colon was ropelike from the cecum to the rectal pouch. Roentgenograms of the chest showed only slight peribronchial thickening. There was no evidence of a tuberculous lesion.

The gastric analysis at forty-five minutes, 50 cc of 7 per cent alcohol solution having been used for the test, revealed free hydrochloric acid 17 per cent, total acid 27 per cent, combined acids 4 per cent. Microscopically mucus and some pus cells with a few red blood cells were seen. Culture from the blood agar plate was negative. The urine was normal. The blood Wassermann reaction was negative. The hemoglobin was 87 per cent (14.5 Gm per hundred cubic centimeters), red blood cells 4,570,000, white blood cells 8,300, polymorphonuclear neutrophils (lobulated) 27 per cent, polymorphonuclear bands 33 per cent, polymorphonuclear eosinophils 17 per cent, small lymphocytes 14 per cent, large lymphocytes 1 per cent, large mononuclears and transitionals 8 per cent.

Specimens of the stools were obtained in the laboratory and were collected in a clean glass beaker. Microscopically they consisted of pus, mucus and blood. No ova or amebas were found. Cultures made on blood agar plates at 37.5 C showed a heavy growth of hemolytic and nonhemolytic *Bacillus coli*.

after twenty-four hours. After another twenty-four hours at room temperature a large number of maggot-like organisms were found on the plates. August 12, this procedure was repeated with identical results, that is, after forty-eight hours numerous maggots were obtained on the plates. We felt that there was no possibility of contamination because the stools were collected in the laboratory, there were no flies present, the beaker was freshly scrubbed before being used and the stool was covered immediately. August 14 a third examination and culture was made, this time a sterile beaker being used. No growth was obtained on the blood agar plates, but the stool, which was also incubated at 37.5 C for twenty-four hours, was teeming with maggots. This stool was covered immediately after passage, sealed and placed in the incubator and never opened.

The sigmoidoscope was then introduced for 16 cm. It revealed the entire mucous membrane to be markedly injected and granular. Numerous ulcers varied from the size of a pin-head to 1.5 cm. These ulcers were crater-like and the floor was covered with a grayish bloody purulent membrane. This membrane wiped off easily, leaving a red bleeding surface. No scar tissue was present and no living organisms were observed. Cultures were made with sterile cotton swabs, the swabs being immediately placed in 7 cc of 0.85 per cent sterile saline solution, one 5 mm loop of this material was streaked on the blood agar plates. On one plate a small portion of mucus from the swab was used. Within forty-eight hours on three of the four plates there developed a flourishing crop of maggots. Specimens of these maggots, both on plates and in the stool itself, were forwarded to Maurice C. Hall, chief of the zoological division in the U. S. Department of Agriculture. Mr. C. T. Greene of the U. S. National Museum identified the larvae as *Sarcophaga haemouidoides* Fallen (gray flesh fly). The Oklahoma Agricultural and Mechanical College also received specimens, and their identification was the same.

Incubations of stool specimens were repeated frequently with positive results. August 20 no growth either in the stool or on the plates was obtained. August 22 another stool was examined and incubated. No maggots were obtained in the stool, but on the plates the larvae appeared in forty-eight hours. August 26 we obtained negative results. The larvae of a previous culture were kept for four days in the stool medium and then several full grown specimens were planted in dry sandy soil that had been sterilized in the dry sterilizer. These required nine days to pupate to the fly. Each time the gray flesh fly was obtained. During the interval the patient continued to have from four to nine stools a day. The blood count remained about the same as previously mentioned, with the eosinophils varying from 14 to 17 per cent. During this investigation a rectal fistula developed. The patient was sent to the hospital and colonic irrigations of thymol were given. The fistula was operated on by Dr. Fred Y. Cronk. His progress in the hospital was fairly satisfactory with four courses of thymol irrigations. On discharge from the hospital we were unable to culture any larvae from the stools, and since that time neither in the stools nor from the smears taken directly from the colon mucous membrane. On examination the ulceration appears much improved but not well by any means.

COMMENT

Knowledge of intestinal myiasis to date and the type of fly involved in this case would point to the fact that it is acquired originally through ingesting cold meats. *Sarcophaga* being carnivorous. This patient, however, lived in a clean, modern home, and his mother used all care possible in the preparation and storing of food. The other alternative in the long duration of the illness, with periodic severe attacks of diarrhea, is that of pedogenesis, that is the ability of grown larvae to produce other larvae in the intestinal tract. Numerous attempts were made to procure eggs from small and large larvae, but with negative results. Identification of ova was attempted from stools but this was impossible. To date I have been unable to produce an artificial medium that would simulate the intestinal tract. If one were able to do so it might be possible to further our knowledge in the habits and life cycle of this species of fly.

801 Medical Arts Building

ENDOMETRIAL CYST OF THE UTEROSACRAL
LIGAMENT

S. LEON ISRAEL, M.D. PHILADELPHIA

This case report, in which a solitary endometrial cyst of one uterosacral ligament is described, is of interest because such a lesion is rare.

REPORT OF CASE

Mrs. R. C., a white woman, aged 40, admitted to the Mount Sinai Hospital, April 16, 1935, complained chiefly of a constant, dull pain in the left lower part of the abdomen of two months' duration. There were no associated gastro-intestinal or urinary symptoms. The menarche had occurred at 14 years, the menses appearing thereafter every twenty-eight to thirty days for three days. She said there had been no dysmenorrhea but stated that her last menstrual period, March 20, had been accompanied by an augmentation of the already present, left-sided abdominal pain. Aside from a single normal pregnancy twenty years earlier, her past medical history was irrelevant. She had never had either a vaginal or an abdominal operation.

On admission, the patient's temperature, pulse and respiratory rates were normal. The blood pressure was 124 systolic, 74 diastolic. General examination was negative, with the exception of several carious teeth, slight vertebral lordosis and moderate obesity. A soft, round, slightly mobile and tender tumor, which seemingly arose from the pelvis in the midline, filled the lower part of the abdomen. Bimanual (pelvic) examination revealed that this mass filled the posterior cul-de-sac. The vaginal mucosa moved freely over its surface, and the normally sized uterus lay anterior to it. Urinalysis, blood count, blood urea nitrogen and blood sugar were entirely normal. The serologic reactions were negative. A barium sulfate enema roentgenogram delineated a completely normal colon.

The preliminary diagnosis was ovarian cystadenoma.

An exploratory laparotomy was performed April 22, and a hemorrhagic cyst the size of a grapefruit was found attached by a broad base to the left uterosacral ligament. The uterus and its adnexa appeared normal. Excision of the cyst, subtotal hysterectomy, bilateral salpingo-oophorectomy and appendectomy were performed. The abdominal wound healed by primary intention and the patient had an uneventful convalescence. She was discharged from the hospital in good condition on the thirteenth postoperative day.

The patient was seen several times during the course of the following eighteen months. When last examined, Dec. 11, 1936 she was symptom free and presented a healthy, well supported cervical stump.

Pathologic Report (Dr. David R. Meranze).—The excised cyst contained 16 ounces (480 cc.) of thick (syrup-like) dark brown fluid and, in the collapsed state, measured 8.5 cm. in diameter. Grossly the cyst wall presented nothing of especial interest. Microscopic study, however, revealed the presence of fibrous and muscle tissues. It was lined with a single layer of flat epithelial cells, except for one surface. The latter was lined with a gland-containing tissue, which in all respects resembled endometrium as shown in the illustrations. The cyst was considered to be an endometrioma which developed in a ligamentous structure.

The appendix and fallopian tubes showed nothing of exceptional pathologic interest. One ovary had several follicle cysts and the other contained a mature, well developed corpus luteum. The uterus was normal, and its endometrium was of premenstrual (secretory phase) type. In this respect it is interesting to note the strong resemblance that the glands of the endometrioma bore to those of the endometrium itself. As may be seen in figure 2, the epithelial proliferation (giving a saw-tooth appearance), the basal location of nuclei and the frayed character of the lumen surface indicate a response to the corpus luteum principle.

COMMENT

The fact that uterosacral endometriomas are uncommon was stressed many years ago by Cullen¹ who stated with reference to them: "I know of only one case of this character." My colleague Dr. W. W. Russell, removed a pea-sized nodule

From the Department of Gynecology, Mount Sinai Hospital.
¹ Cullen, T. S. The Distribution of Adenomyomata. *Cor. am. J. Uterine Mucosa*. New York State J. Med. 10: 295 (Aug.) 1919.

from the uterosacral ligament.¹ Ten years later Smith² in reporting 159 endometriomas described two that occurred at the base of the broad ligament. More recently Dawson³



Fig 1—Section (X 100) of portion of cyst wall showing stroma and glands resembling endometrium

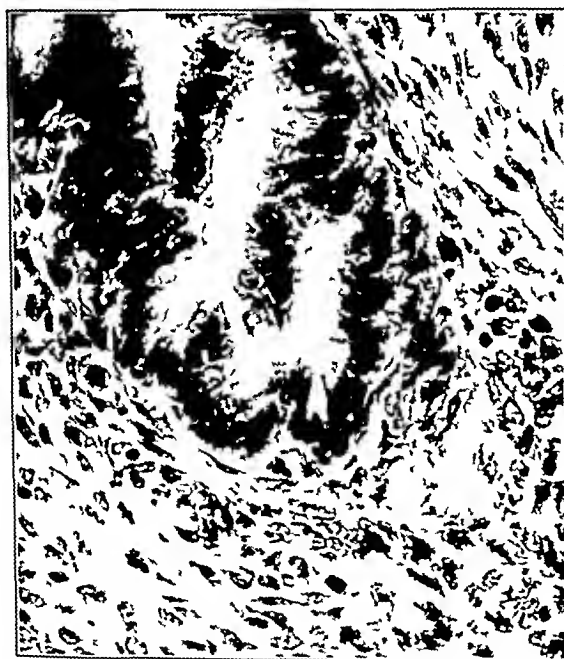


Fig 2—Section (X 430) of gland in central portion of figure 1. Note the saw tooth appearance (epithelial overgrowth), basal nuclei and frayed interior surface of the gland and the swollen stromal cells suggesting premenstrual (secretory phase) endometrium

reported a similar case. Keene and Kimbrough⁴ do not specifically refer to such lesions in their description of intraperitoneal endometriosis.

² Smith G van S. Endometrioma. *Am J Obst & Gynec* 17: 806 (June) 1929.
³ Dawson B. Early Endometrial Invasion of the Broad Ligament. *M J Australia* 1: 350 (March 21) 1931.
⁴ Keene F E, and Kimbrough R A Jr. Endometriosis in Curtis A H. *Obstetrics and Gynecology*. Philadelphia W B Saunders Company 1933 vol 3.

The etiology of endometriomas in this location in association with generalized pelvic endometriosis⁵ may be readily understood. However, more interesting is speculation concerning the pathogenesis of such a solitary endometrioma so far removed from both the endometrium and the tubal ostia in a woman having no surgical history. It seems unlikely, more especially in the absence of adenomyosis of the uterus that the lesion could have been derived either from direct endometrial extension⁶ or by reflux of menstrual blood and endometrium through the fallopian tubes.⁷ An endocrinopathic origin⁸ of this cyst seems improbable because of the presence of a mature corpus luteum in one ovary and the apparent response of both the endometrium and the aberrant glands to the progestin elaborated by it (fig 2). Sitzenfrey's⁹ theory suggesting a derivation from lymphatic endothelium might be applicable in this instance since the uterosacral ligaments are richly endowed with lymphatic vessels. However the most attractive explanation for such an oddly placed endometrioma is the serosal metaplasia theory proposed long ago by Iwanoff¹⁰ later championed by Meyer¹¹ and more recently approved by Nicholson¹² and Novak.¹³ This hypothesis based on the coelomic origin of müllerian tissue serves to explain many similar lesions because it suggests that heterotopic peritoneal (coelomic) epithelium may give rise to endometriomas by metaplasia.

2116 Spruce Street

PRIMARY HYPERPLASIA OF THE THYROID IN ONE OF STILL BORN TWINS

SHIELDS WARREN, M.D. AND LEONARD B. SHPINER, PH.D., M.D.
BOSTON

Many observers have reported the postnatal development of various disease entities in either one or both of fraternal and identical twins. There have been many hypotheses advanced as to the operating causes producing these changes. A perusal of the literature reveals that marked primary hyperplasia of the thyroid in one of still-born twins probably identical has not been reported. Because of the relatively early stage of fetal development a clearer evaluation of the inciting factors involved can be obtained in this instance.

REPORT OF CASE

History—C. S., a woman aged 34 admitted to the Lahey Clinic September 29 complained of a swelling of the neck of two years duration. The patient said that there were no symptoms of toxicity except for a loss of from 30 to 35 pounds (14 to 16 Kg.) over a period of three years. The patient a quadripara at this time was three months pregnant. The third child had been stillborn. A bilateral phlebitis developed following the birth of her last child. Other history was essentially noncontributory.

Examination—The patient was highly activated and apprehensive with warm moist skin and a slight stare. Her weight was 165 pounds (75 Kg.) pulse 120 blood pressure 150 systolic, 70 diastolic. There was a marked pulsation of the vessels of the neck, palpitation and tachycardia were also present. The thyroid gland was three times its normal size.

⁵ Sampson J A. Endometriosis of the Sac of a Right Inguinal Hernia Associated with a Pelvic Peritoneal Endometriosis and an Endometrial Cyst of the Ovary. *Am J Obst & Gynec* 12: 459 (Oct.) 1926.
⁶ Cullen T S. Adenomyoma of the Uterus. Philadelphia W B Saunders Company 1908.

⁷ Sampson J A. Perforating Hemorrhagic (Chocolate) Cysts of the Ovary. *Arch Surg* 3: 245 (Sept.) 1921.

⁸ Witherspoon J T. The Estrogenic Principle the Common Etiological Factor of Endometrial Hyperplasia, Uterine Fibroids and Endometriomas. *Surg Gynec & Obst* 61: 743 (Dec.) 1935.

⁹ Sitzenfrey A. Ueber epitheliale Bildungen des Lymphgefäße und Lymphräume in Beckenlymphknoten bei Uteruskarzinom und bei karzinomfreien entzündlichen Adnexerkrankungen. *Ztschr f Geburtsh u Gynak* 57: 419 1906.

¹⁰ Iwanoff N S. Drusiges cystenhaltiges Uterusfibrom compliciert durch Sarkom und Carcinom. *Monatsschr f Geburtsh u Gynak* 7: 295 1895.

¹¹ Meyer R. Eine unbekannte Art von Adenomyom des Uterus mit einer kritischen Besprechung der Uterushypothese v. Recklinghausens. *Ztschr f Geburtsh u Gynak* 49: 464 1903.

¹² Nicholson G W. Studies on Tumor Formation IX. The Mixed Tumors. *Guy's Hosp Rep* 76: 188 (April) 1926.

¹³ Novak Emil. The Significance of Uterine Mucosa in the Fallopian Tube with a Discussion of the Origin of Aberrant Endometrium. *Am J Obst & Gynec* 12: 484 (Oct.) 1926.

From the Laboratory of Pathology, New England Deaconess Hospital. Dr K B Lawrence dissected the twins and supplied the sketch shown in figure 1.

The Wassermann reaction was negative red blood cells numbered 3,620,000 with hemoglobin 68 per cent white blood cells 12,800, polymorphonuclear leukocytes 81, lymphocytes 17 and large monocytes 2 per cent. The basal metabolic rate on entrance was +62.

The clinical diagnosis was primary hyperthyroidism. Complete bed rest and iodine medication brought the basal metabolic rate down to +29 four days before the first stage of the operation.

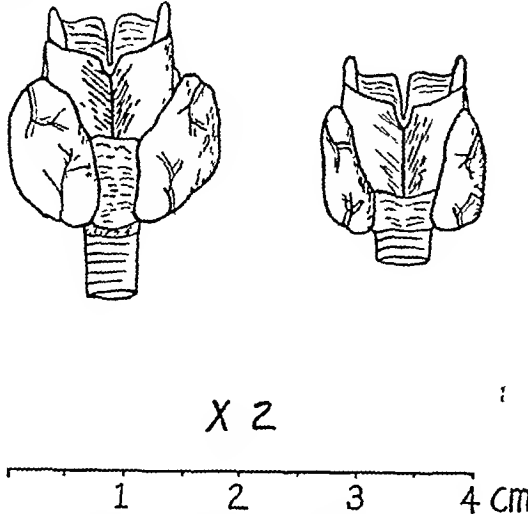


Fig 1—Drawing of larynges with thyroids attached showing size of the thyroids of the twins in relation to the larynx.

Operation—First Stage *October 10, the first stage of the hemithyroidectomy was done on the right. The thyroid presented a somewhat variable appearance but was markedly hyperplastic. There was but little stroma and there were fairly numerous dilated blood vessels. The follicles varied from small clusters of columnar cells devoid of colloid through large branching follicles devoid of colloid to moderate sized, or even large, follicles containing fairly compact colloid. The epithelium was predominantly columnar, although there were foci in which the follicles were lined by cuboidal cells or even by flat epithelium. Rare foci showed follicles lined by flattened epithelium and distended colloid. The diagnosis at this time was primary hyperplasia with irregular involution and foci of hyperinvolution.

Second Stage After six weeks of iodine medication and bed rest she was again admitted to the Lahey Clinic for the second stage of the operation. The basal metabolic rate two

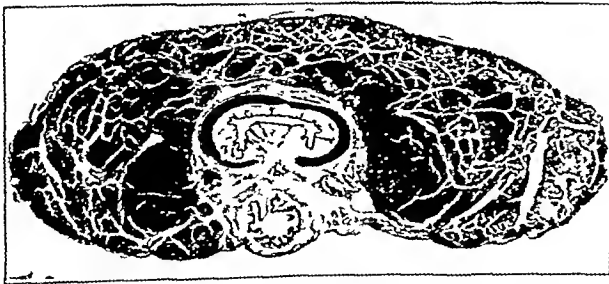


Fig 2—Section through thyroid trachea and esophagus of twin with impaired circulation. Phloxine methylene blue stain reduced from a photomicrograph with a magnification of 10 diameters.

days before operation was +6. The patient now was five months pregnant and had felt life the week prior to her entrance into the hospital. Owing to the fact that vaginal bleeding also developed at this time she was put at complete bed rest. November 23 the second stage of the hemithyroidectomy was done on the left. Microscopic examination revealed that practically the entire section was occupied by moderate sized follicles lined with low cuboidal to flat epithelium and filled with fairly compact colloid. There were rare papillary projections into the follicles and some branching although in general the con-

tour was even. In scattered foci were large follicles distended with colloid and lined with flat epithelium. The diagnosis was primary hyperplasia with late involution and foci of hyperinvolution.

Three days following the second partial thyroidectomy the first fetus was delivered as stillborn of the male sex. Two hours later the patient passed a small amount of placental tissue and another fetus of the male sex was delivered, the placenta was then expelled in toto.

We consider the twins identical because of the following observations: 1. The twins were both males, of the same size and same stage of development, except for the thyroid and for edema of the right arm from a twisted cord in one of the twins. 2. There was one placenta monootyledonous. Points of uncertainty arose from the failure to demonstrate placental attachment of the second cord and from failure to reconstruct the placental fragments first passed.

Pathologic Examination—The specimen consisted of two fetuses, both males, each 27 cm long, each weighing 300 Gm. and one placenta with one cord arising from it. The cord had one turn over the chest and one loop around the upper right arm of one of the fetuses and then passed to the placenta. That there had been considerable compression was evidenced by marked edema of the hand and the arm up to the point of compression. The diameter of the right arm was one third greater than that of the left arm. The placenta measured 11 by 12 by 3 cm. The one cord attached measured 22 cm long. The placental tissue was soft and somewhat fragmented and to it was attached considerable elastic blood clot. On dissection of the fetuses the viscera appeared normal with exception of the thyroids. In the fetus with the edematous arm the thyroid

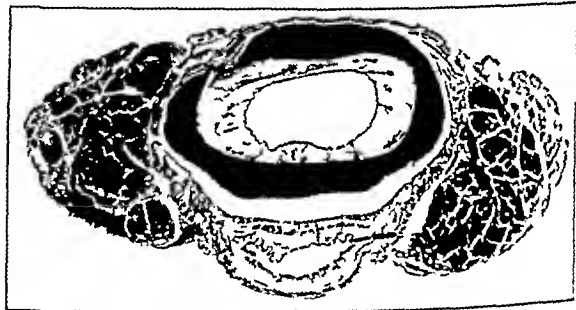


Fig 3—Section through thyroid trachea and esophagus. Note parathyroid at margin of thyroid tissue. Thyroid from twin with normal circulation. Phloxine methylene blue stain reduced from a photomicrograph with a magnification of 10 diameters.

appeared pale red-brown and of a meaty texture, each lateral lobe measuring 1.3 by 0.7 by 0.4 cm. In the other fetus the thyroid was pale and fibrous, each lateral lobe measuring 0.9 by 0.6 by 0.3 cm (fig 1). The parathyroids were not identified grossly in either fetus.

The pituitary in the fetus with the enlarged thyroid was grossly normal. There was no abnormality evident of the other glands of internal secretion. There was no tracheal compression by the thyroid in either case. The thyroids were not weighed separately but were fixed in toto with the trachea and adjacent tissue (figs 2 and 3) in the hope of finding the parathyroids which proved to be normal microscopically.

Microscopic Examination—Fetus with the Large Thyroid and Twisted Cord. The thyroid tissue was highly vascularized. Fibrous stroma separated individual acini and slightly more definite bands of connective tissue somewhat edematous separated the lobules. No solid masses of thyroid cells were present. A few apparent masses were seen, on serial sections to represent tangential sections of follicles. Lumens of follicles varied markedly in size, from approximately 10 to 100 microns in their greatest diameter. Some of the larger follicles contained heavily scalloped colloid. Traces of granular precipitate apparently representing colloid were present in a few of the smaller follicles. Some of the larger follicles showed branching. Rarely papillary projections into the lumens were suggested. The epithelium ranged from columnar to high cuboidal. There was a slight variation of nuclear size. Mitotic figures were not seen (fig 4).

Second Fetus Tissue of the smaller thyroid was made up largely of well defined follicles. No definite cell masses were made out. Lobulation was rather less distinct than in the first fetus. A majority of follicles contained colloid apparently well defined, with slight or no scalloping. Lumens of follicles ranged from 10 to 80 microns, with the majority about 30



Fig 4—Section of thyroid from twin with impaired circulation showing hyperplasia. Phloxine methylene blue stain, reduced from a photomicrograph with a magnification of 475 diameters.

microns in diameter. The epithelium ranged from cuboidal to low cuboidal. The nuclei were fairly uniform. No mitoses were seen (fig 5).

COMMENT

Clinicians have assumed the following etiologic factors as being causative agents in influencing pathologic changes in one or both of fraternal and identical twins: syphilis, maternal exhaustion, endocrine imbalance, atavism, defect of the germ plasma, and neuropathic familial taint. Neff¹ reported a case of exophthalmic goiter in identical twin girls developing at 8 and 10 years of age respectively, as being due to an apparent dietary deficiency. It seems that no single etiologic factor can stand the test.

Involution of the thyroid gland may occur under the following conditions: (1) spontaneous development, (2) administration of iodine, (3) partial thyroidectomy, (4) change of diet, (5) treatment with x-rays, (6) altered blood supply.

From the salient features of our case we postulate the following *modus operandi*: Antedating conception and continuing to the period of stillbirth of the twins, the mother developed marked symptoms of hyperthyroidism, had been medicated with iodine and underwent two partial thyroidectomies. In utero at first and almost throughout life the twins were subjected to the same environmental influences. The initial pathologic changes might have originated with abnormal thyroid anlagen and the subsequent transmission of the hormones across the placental barrier affected the twins equally so that they mirrored the pathologic condition of the mother, the two developing primary hyperplasia to the same degree. This is in accordance with the observations of Siemens² who stated that in spite of the exogenous causes of endemic goiter it is

conditioned by hereditary influence, since it practically always, if present, affects identical twins to the same degree.

However, in the further fetal development, the mechanical factor of the twisted cord (one turn over the chest and one loop around the upper right arm, to the point of producing compression edema) in one fetus, intervened to cause differences in the reactivity of their thyroid glands. Whereas the thyroid of one fetus underwent involutionary changes parallel to the clinical improvement of the mother to the point of approaching the upper limits of normal, the thyroid gland of the twin with the twisted cord remained static, showing only the primary hyperplasia that the mother had at first shown, and practically no involution was microscopically discernible.

Taking cognizance of the fact that histologic normality of a tissue may not be a criterion of its physiologic activity nevertheless, by the accepted standards of judging pathologic conditions there were no other changes noted in the fetuses. It seemed to us that the differences in the thyroid glands suggested a qualitative rather than a quantitative response to the circulating hormone. It is tenable to assume that one of two or both pathologic changes took place in the thyroid gland of the fetus with the compression edema.

1. Owing to the reduced circulating volume of the blood through the thyroid gland there occurred an alteration in the pH , this inactivated the thyroid struma at a time of maximum hyperplasia and through the progressive development of this alteration in pH the thyroid was unable to assimilate or mobilize an adequate amount of hormone.

2. Owing to the concomitant development of the thyroid hyperplasia with the progressive alteration in the pH of the blood, the thyroid hormone was shut off from its normal intermediary catalyst, the thyroid gland, becoming inactivated or rendered inert.

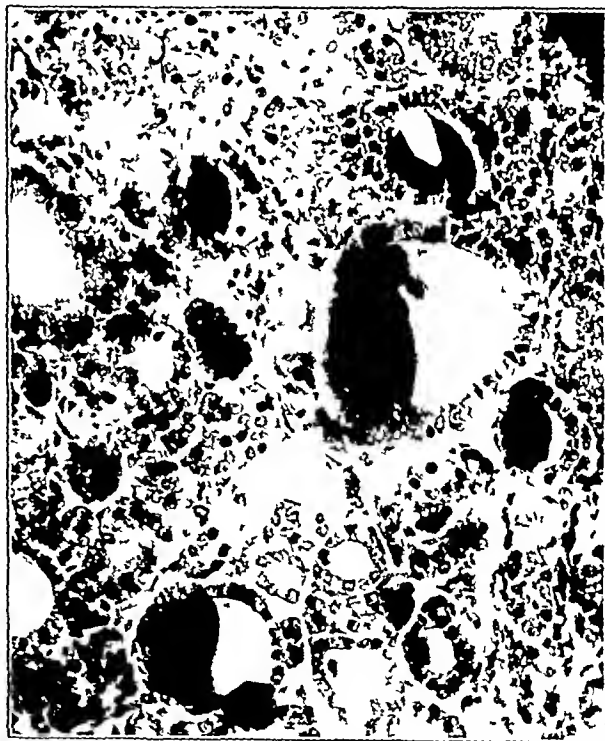


Fig 5—Section of thyroid from twin with normal circulation showing evidence of hyperplasia and involution. Phloxine methylene blue stain, slightly reduced from a photomicrograph with a magnification of 475 diameters.

CONCLUSION

We wish to avoid generalizations on the basis of our observations in this one case. However, our case demonstrates clearly (1) the factor of organic inheritance of primary hyperplasia of the thyroid in twins, almost certainly identical, and (2) that mechanical factors may alter the character of the blood supply, thus rendering the thyroid gland inert to change.

195 Pilgrim Road—311 Commonwealth Avenue

¹ Neff F C J Pediatr 1:239 (Aug.) 1932.
² Siemens H W Munchen med Wchnchr 71:11 (Jan.) 1924.

SYMMETRICAL ADRENAL NEUROBLASTOMA METASTASIZING TO THE RIGHT AURICLE

JOSEPH C. DOANE, M.D. AND LEON SOLIS-COHEN, M.D.
PHILADELPHIA

The antemortem diagnosis of tumors of the heart is quite rare, probably because alterations in the normal size, shape, rhythm or valvular sounds of the heart are usually attributed to some of the more usual degenerative or infectious pathologic states. Even though a primary neoplasm has been detected and the possibility of cardiac metastasis has not been forgotten by the clinician, the actual diagnosis of this condition is often made



Fig. 1—Cardiac enlargement to the right. Right cardiac border flattened and dense in appearance. Metastatic nodule in right lower lobe of lung.

only at the postmortem table. The patient who serves as the subject of this communication presented marked evidences of a disease state the symptoms of which suggested vascular inflammation or obstruction affecting the right lower limb. As will be detailed, a malignant tumor of the heart was diagnosed ante mortem. The location of the primary neoplasm, while erroneously suspected to be the pelvis, was discovered only at autopsy. Moreover,

the service that the x-rays and the electrocardiograph rendered in explaining certain cardiac symptoms and signs was of the greatest aid in pointing to the condition actually revealed. The nature of the primary neoplasm and its bilateral location added interest to the case.

It is not uncommon to find a bilateral adenoma of the adrenal cortex. It is unusual to discover, however, as in this case, a symmetrical bilateral neuroblastoma of the adrenal medulla. While cortical adrenal tumors are most commonly adenomas, they are occasionally carcinomas. Tumors of the adrenal medulla may be pheochromocytomas, ganglioneuromas or neuroblastomas. The latter term was originally employed by Wright¹ in 1910. Bailey and Cushing² applied the term "sympathicoblastoma" to these tumors, although this term implies a more anaplastic neoplasm and an earlier phase in the stage of embryologic development. Grossly these tumors are soft and hemorrhagic and often exhibit areas of necrosis. Metastases are likely to be widespread and follow venous or lymphatic channels. Holmes and Dresser³ have pointed out the frequency of skeletal involvement. The adrenal cortex may be extensively invaded. When this is the case hypotension, pigmentation, asthenia and other well known symptoms of adrenal dysfunction may be observed. In the case to be presented, although but little normal functioning tissue remained such symptoms until very late in the disease were conspicuous by their absence. Both kidneys were secondarily involved, the renal vein was invaded and a number of metastatic nodules could be traced to the superior vena cava with direct extension to the right auricle (fig. 1). Secondary metastasis to the pleura and retrocardiac space was also present. The right auricle was dilated in consequence of the mechanical obstruction to the outflow of venous blood caused by the neoplasm jutting out from the auricular wall.

REPORT OF CASE

History.—J. H., a man, aged 62, a baker, admitted to the Jewish Hospital March 17, 1936, complained of pain in the right leg of five weeks duration, swelling of the right leg of

two weeks' duration, and inability to walk of one week's duration. The patient had been under the care of a physician for five weeks, various therapeutic measures having been instituted without relief. For the past week walking had caused such great distress that he had remained in bed. His past medical history was negative except that he had suffered some loss of weight during the past month. He had experienced night sweats but no hemoptysis.

On admission the patient's skin appeared wax and pale. There was no dyspnea, cyanosis or jaundice. The pupils were regular in outline but the left pupil was dilated and did not react to light. The ocular movements were normal. The tonsils and teeth were grossly infected. Physical examination of the chest was negative. Examination of the abdomen was difficult owing to the patient's inability to assume the dorsal position, but no gross pathologic condition was discovered. The right leg from the toe to the thigh was swollen to thrice its normal size. There was an absence of pulsation in the right dorsalis pedis and posterior tibial arteries.

A provisional diagnosis of phlebitis, embolism of the femoral artery or a pelvic tumor, probably malignant, with obstruction of the venous channels of the right limb was made.

During the patient's stay in the hospital the swelling of the leg subsided considerably. Auricular flutter developed, March 28, with accompanying moderate dyspnea. April 2 the patient became extremely weak, somnolent and dyspneic. A thrombotic process in the midbrain was suspected. Lethargy increased April 4, and the auricular flutter persisted. A neurologic examination, April 9, assigned the third nerve palsy to a vascular cause. April 10 fluoroscopy of the chest revealed an enlarged right side of the heart, diminished pulsation, and fixation of the right border of the cardiac shadow. This led us to suspect an infiltrating process of the right auricle and myocardium. Film study confirmed the enlargement of the heart. A dense shadow adjacent to the right hilus and right border of the heart was interpreted as possible atelectasis (fig. 1). April 13 the spinal fluid was found to be under increased pressure (22 mm. of mercury). The blood pressure on this day was 95 systolic and 60 diastolic. The patient died, April 14, twenty nine days after admission.

Special Studies.—The x-ray examination revealed no evidence of an organic lesion of the colonic tract. March 6 the post-



Fig. 2—Autopsy specimen of heart viewed from epicardium shows malignant mass in right auricle.

ability of a tumor of the heart and atelectasis or neoplasm of the right lower lobe of the lung was suggested by x-ray examination.

The electrocardiogram on March 26 suggested the presence of a recent right branch coronary thrombosis and on March 28 an auricular flutter was diagnosed. April 10 an auricular ventricular heart block was present.

The urine continually contained a trace of albumin with hyaline and granular casts and a few white blood cells. The Wassermann reaction was negative.

From the Medical Department of the Jewish Hospital.
Dr. David Fishback assisted in the pathologic and histologic work incident to the preparation of this paper.
1. Wright, J. H. Neuroblastoma or Neurocytoma—A Kind of Tumor Not Generally Recognized. *J. Exper. Med.* 12: 546-561, 1910.
2. Bailey, Percival and Cushing, Harvey. Classification of Tumors of Gloma Group on a Histogenetic Basis with Correlated Study of Prognosis. Philadelphia: J. G. Lippincott Company, 1926, p. 64.
3. Holmes, G. W. and Dresser, Richard. Roentgenologic Observations in Neuroblastoma. *J. A. M. A.* 91: 1246-1248 (Oct. 27) 1928.

At autopsy the right auricle was found to be almost completely infiltrated by a myocardial and endocardial malignant process with grayish white masses protruding into its chamber. The malignant nodules extended up into the lowermost portions of the superior vena cava the orifice of the latter being partially occluded by this tissue. The malignant process stopped abruptly at the tricuspid valve. The right coronary artery



Fig 3—Autopsy specimen of heart viewed from within showing malignant mass

showed pressure from the thickened grayish white mass. There was involvement of the neurogenic mechanism of the heart which accounted for the auricular flutter and the heart block. The left auricle showed secondary malignant nodules breaking through the entire auricular septum. The ventricles were not involved (figs 2 and 3). The right kidney showed a malignant

Review of the Literature

Author	Number of Autopsies	Metastasis to Heart Cases
Chambers	2 161	7
Willig	4 547	9
Uskoff	4 500	1
Napp	8 500	3
Karrenstein	6 655	15
Blumensohn	1 078	34
Blumensohn	160 (sarcoma)	12
Pic and Bret	1 708	25
Thorel	3 000	15
Ely	2 161	7

nodule 2 cm in diameter near its pelvis. The retroperitoneal glands were all markedly enlarged. The lowermost portion of the vena cava and the right common iliac vein were compressed by malignant glands the size of small walnuts, accounting for the swelling of the leg. There were no gross lesions in the brain. Secondary malignant nodules were found in both lungs. The spleen weighed 1 000 Gm. The primary growth was found in the adrenals. Both adrenals were enlarged to the size of a normal kidney (fig 4). Histologically this tumor was found to be a neuroblastoma of the adrenals with metastasis to the heart.

COMMENT

It has been indicated that metastatic tumors of the heart are rarely diagnosed antemortem from clinical symptoms. Moreover that the occurrence of metastasis to the heart is not frequent is indicated by the statistics in the accompanying table derived from a comprehensive review of the literature as reported by W. M. Gayer.

Burke⁴ reported fourteen cases of metastatic tumors of the heart among 327 autopsies performed in cases of known malignant growths. In none of these patients were the valves found to be involved. This writer also pointed out that in no instance was an antemortem diagnosis made, since cardiac symptoms were not demonstrated during life. Moreover in this series the majority of cases presented more involvement of the left than of the right side of the heart and in all x-ray evidence was lacking. In only one of these cases was the original neoplasm an embryonal renal tumor.

Polp⁵ reported in 1932 a case of sarcoma of the appendix with metastasis to the right auricle producing through infiltration of the cardiac muscle, weakened pulsation, which phenomenon was observed as in this case by means of the fluoroscope. The electrocardiographic diagnosis of coronary thrombosis is no doubt explained by partial obstruction of this vessel by malignant tissue. The involvement of the right side of the heart was due to invasion through the renal vein and interior vena cava.

CONCLUSION

An extensive bilateral adrenal cortical neuroblastoma invading the renal parenchyma and vein exhibited the following features:

- 1 Massive metastasis to the right auricle giving rise to an interesting symptom picture
- 2 Absence of secondary sexual changes



Fig 4—Kidney and adrenal showing tumor mass

3 Swelling of the right lower extremity which was the symptom necessitating hospitalization

4 Fixation and decreased pulsation of the right border of the heart which was observed fluoroscopically, pointing toward cardiac metastasis

York and Tabor roads

4 Burke E. M. Metastatic Tumors of the Heart. *Am J Cancer* 20: 33 (Jan. 19) 1934.
5 Polp L. *Fortschr. a. d. Geb. d. Röntgenstrahlen* 46: 23 (July) 1932.

*Special Clinical Article*CONGENITAL AND PRENATAL
SYPHILIS

CLINICAL LECTURE AT ATLANTIC CITY SESSION

HAROLD N. COLE, M.D.

CLEVELAND

Various terms have been employed to denote syphilis in the new-born. The commonest are "congenital syphilis" and "hereditary syphilis," and yet neither is exactly correct. When one uses the term hereditary syphilis, it immediately brings up the idea of a condition transferred from mother to child according to certain laws of heredity. The word congenital, on the other hand, implies a child "born with syphilis existing at or from birth." In certain cases this might be correct, and again it might not bring out the true significance. If possible, it would be preferable to indicate in the definition the duration of the disease, its exact implication. The term "prenatal syphilis" has been suggested by Kolmer, *i. e.*, syphilis before birth. This has been adopted by the Cooperative Clinical Group. Hoffmann has suggested the term "syphilis innata," *i. e.*, inborn, existing in one from birth, for the severe fetal forms, and "syphilis connatalis," *i. e.*, born with, and "syphilis postnatalis," *i. e.*, after birth, for the milder types which appear after birth but which are diaplacental. Diaplacental, of course, refers to the fact that the infection has taken place through the medium of the placental tissues and differentiates such cases from the rare cases in which the child is infected in passing through the birth canal. In such a child a local primary lesion develops, followed later by a secondary eruption, and the infection is in the true sense acquired syphilis in the infant. For the purpose of this paper the term prenatal syphilis will be employed for syphilis contracted by the placental route. *Spirochaeta pallida* are conducted by way of the blood stream to the maternal side of the placenta and deposited. Foci of syphilitic change then occur in the placental tissue with further extension to the fetal circulation and thus throughout the fetal tissues. Spirochetes are relatively infrequent on the maternal side of the placenta and more numerous in the fetal portion, possibly because the fetus lacks immunity to the infection while the mother has a certain amount of resistance to the syphilitic invasion.

HISTORICAL REVIEW¹

Torella, 1498, Vella, 1508, and Cataneus, 1516, had the idea that a mother's syphilis was transferred to the child in its passage through the birth canal or later from infected milk or infected mammae. Fallopius, body physician of Pope Alexander VI and of Pope Julius II, noted that wetnurses were infected from syphilitic babies and in 1504 gave the first clinical description of the syphilitic fetus. Paracelsus, 1529, seemed to have some idea of the true significance of prenatal syphilis and mentioned that syphilitic parents under some conditions did not pass the disease on to the child. Ferrier, body physician of Catherine de

Medici, thought the infectious virus was contained in either the male or the female seed, or if the mother was first diseased on the day of conception, then the bad juices were carried from the mother to the fetus. In other words, he seemed to grasp much of the problem as to possible maternal and paternal transmission and diaplacental transmission. The writings of both these authors were apparently neglected until the time of Astruc, 1738, who thought the poison might come from the father or mother. Van Swieten and Boerhave had much the same ideas. The great John Hunter, on the other hand, felt that only primary syphilis was contagious and consequently was forced to deny entirely the possibility of prenatal syphilis. Ricord recognized prenatal syphilis and inoculated some



Fig. 1—Early prenatal syphilis: bullous eruption of the hands and feet.

2,500 persons with syphilis in his desire to combat Hunter's theory that syphilis and gonorrhea were the same disease.

Abraham Colles in 1837 made several interesting observations on syphilis. Thus he noted that an apparently healthy man might get married and transfer syphilis to his wife without showing any evidence of the disease himself. He also mentioned a further important item without attempting to explain it: "One fact deserving our attention is this, that a child born of a mother who is without any obvious venereal symptoms and which without being exposed to any infection subsequent to the birth shows this disease when a few weeks old. This child will infect the most healthy nurse whether she suckle it or merely handle it and dress it, and yet the child is never known to infect its own mother even though she suckle it while it has venereal ulcers of the lips and tongue."

Profeta in 1865 proposed a dictum somewhat different from Colles'. In certain apparently healthy children he noted no clinical syphilis even though they

¹ From the Department of Dermatology and Syphilology, Western Reserve University School of Medicine.

Read in the General Scientific Meetings at the Eighty-Eighth Annual Session of the American Medical Association, Atlantic City, N. J., June 8, 1937.

² For much of the historical notes Hans Rietschel is quoted. *Kongenitale Syphilis* in J. J. Handbuch der Haut u. Geschlechtskrankheiten, Berlin Julius Springer, 1927, vol. 19, p. 1.

were nursed by then syphilitic mothers. In other words, some children seemed to have an immunity to the disease. The later discovery of the Wassermann reaction showed the true situation—the children were syphilitic but did not always show it clinically.

Somewhat later than Colles, Jonathan Hutchinson came on the scene as a profound student of medicine as well as of syphilology. He noted the relationship between interstitial keratitis and certain peculiar changes in the teeth. These symptoms along with disease of the eighth nerve are known the world over today as Hutchinson's triad. Moreover, some years before Kassowitz he had called attention to the decreasing virulence of a syphilitic infection in a syphilitic mother as concerning successive children. He and the French syphilologist Alfred Fournier did much to decry the practice of vaccination with the "scab" because of many cases in which syphilis was thereby transferred.

FREQUENCY OF PRENATAL SYPHILIS

The incidence of prenatal syphilis varies greatly according to countries, population and race. The social status and education, likewise, have a bearing on the situation. In Russia prenatal syphilis as well as syphilis insontium, are very common. On the other hand, in Denmark the last case card is indexed, and Hoffmann² quoted Lomholt to the effect that in 1931 there were but twenty-nine cases. Hoffmann said that the German census of 1927 revealed 7,500 living children with prenatal syphilis. This figure probably is low. Jeans and Cooke³ estimated that 2.89 per cent of the babies born in St. Louis had prenatal syphilis and that while the Negroes represented but 9 per cent of the population they contributed one half of the cases of syphilis in infancy. Probably there is an incidence of from 15 to 20 per cent of prenatal syphilis in various stations of society of the United States. The highest



Fig. 2—Severe prenatal syphilis extensive ulcerocrustaceous lesions around the mouth

incidence seems to be found among the Negro race. This is easily understandable, when Vonderlehr⁴ has found the incidence of syphilis in the Negro race in the South to run from 20 to 35 per cent. Jeans and Cooke reported Vedders' study of a hospital group of pregnant women in which more than 7 per cent of the white women were found to be definitely syphilitic and 16 per cent probably syphilitic. In a like group of Negro women the respective percentages were 19 and 31. In a group of white soldiers 8 per cent were undoubtedly syphilitic and 16 probably so, while in a like group of Negro soldiers the percentages were 22 and 36 respectively.

Under such circumstances the death toll is bound to be great. Jeans said (page 99) 'Twenty-five per cent or more of the pregnancies in syphilitic families result in miscarriages or still births'. He estimated that fetal death was at least twice as frequent in syphilitic as in nonsyphilitic families. The infant mortality is much higher when there is syphilis. It formerly ran as high as from 40 to 95 per cent. Conservatively it was 75 per



Fig. 3—Interstitial keratitis and rhagades at the corner of the mouth (courtesy of Dr. Robert Stecher)

cent before the days of arsphenamine, and it is probably from 20 to 30 per cent even now. Since the wider adoption of arsenical salts and of bismuth preparations in the treatment of syphilis the incidence seems to have fallen off sharply.

ETIOLOGY AND PATHOLOGY

In 1905 Fritz Schaudinn, working in Hoffmann's laboratory, discovered the germ of syphilis while hunting for a totally different organism reported to be the cause of the disease. He gave it the name *Spirochaeta pallida*, later changing its name to *Treponema pallidum*. Either term may be used. The organism is not particularly difficult to see with the darkfield illuminator in the mucocutaneous syphiloderm of the new-born babe. At autopsy on such babies it is observed in enormous numbers in the liver, spleen, lungs and kidneys when the silver impregnation method of staining is used. There has been much discussion as to the time at which the fetus is infected and as to the method of infection. Even today there is a school that believes it to be possible for the infection to take place by way of the male sperm. This brings up the point of view of the great Ricord of Dijon and of others that the fetus is thus infected and later infects the mother—the so-called "choc en retour" of the French school. The discovery of *Spirochaeta pallida* has undoubtedly done much to blast this point of view even for physicians who believe in a granular stage of the organism. Moreover, if an ovum were penetrated by a spirochete as well as by a sperm cell, it would undoubtedly succumb at once for it is well known that the fetus has no immunity against the infection. Further *Spirochaeta pallida* has not been observed in the fetus before the fifth or at the earliest the fourth month of pregnancy. As Hoffmann so convincingly pointed out if there were a generative infection the organisms would be expected to develop so rapidly in the fetus that they would be easily demon-

² Hoffmann, Frick. Congenital Syphilis in the Light of Thirty Years' Investigation of the Spirochete and Twenty-Five Years' Experience with Salvarsan. J. Mediat. 9: 369-603 (Nov.), 1931.

³ Jeans, Philip C. and Cooke, Jean V. Prepubescent Syphilis. New York: D. Appleton & Co. 1930.

⁴ Vonderlehr, R. A. Venereal Disease Information.

strated in the first months of the pregnancy. The mother then it must be concluded, is first infected, and by the diaplacental route the disease is transmitted to the fetus around the fifth month. Naturally with a later infection of the mother it would be even later. In fact, cases are seen in which the mother's infection takes place so late that the symptoms in the child do not show up until several weeks after birth. Hoffmann would use the term "syphilis connatalis" for such cases.



Fig. 4—Late prenatal syphilis, complete destruction of the nose, eyes and upper lip.

Not every syphilitic mother will transfer the disease to her unborn child. According to Kassowitz's law there will be progressively less chance of transmission as her disease gets older. To illustrate, there was a woman of the moron type at the Cleveland City Hospital with syphilis of the central nervous system of several years' duration. She had successive miscarriages followed by a syphilitic stillbirth and then by the birth of a living, syphilitic child. Early in life the child acquired syphilitic paraplegia. The patient by an order of court was then sterilized. Every syphilitic mother as the infection ages has showers of spirochetes in the blood stream, and it is at such times that an infection would take place if the mother were pregnant. It is for this reason that a syphilitic mother may even bear a syphilitic child, then a normal child and again a syphilitic babe. Even the rare contingency is encountered in which with twins of the double ovum type one placenta and child are infected and the other normal (Jeans). In other words, only rare spirochetes were circulating in the blood stream, and by chance the placenta of only one child was infected. However, on account of this occasional shower of spirochetes in the blood of the syphilitic woman, it should be a hard and fast rule that every syphilitic woman should be treated through every pregnancy. She might be unable to infect by contact, but the intimate association of fetus and mother may be likened to a blood transfusion. The experience of the Scandinavian school, of the Cooperative Clinical Group,* of Findlay,⁶ of Turner and McKelvey⁷ and of others has been almost uniformly that if the syphilitic mother is treated with arsenicals and with bismuth or mercury compounds throughout the pregnancy a normal child will be born. On the other hand, Boas and Gammeltoft⁸ have shown that as long as the syphilitic woman is capable of con-

ceiving one may find cases of syphilis if she receives no treatment. They have observed such cases even twenty years after infection.

The pathologic changes in the child and the placenta are characteristic. The placenta is larger than usual and has thickened rather avascular villi. In some cases it reveals little and yet the child shows plenty of positive evidence. At autopsy the spirochetes are observed in large numbers in the liver, spleen, kidneys, adrenals, heart muscle, bone marrow and testes. Diffuse fibrosis is seen in the various organs, particularly the lungs, pancreas, heart and adrenals. The liver may show areas resembling gummas but which are infiltrated with enormous numbers of spirochetes. There are extensive endovasculitis and perivasculitis. Hoffmann expressed the opinion that the greatly increased number of spirochetes in the fetal tissues is compared to the number in the maternal tissues is to be explained by a lack of immunity on the part of the fetus as compared to the mother and to a lack of oxygenation in the fetus. *Spirocheta pallida* is anaerobic. One of the great changes found in the fetus is the involvement of bones which is recognizable even before birth by x-ray examination. There is extensive osteochondritis of the long bones, so called Wegner's disease of the bones. The line of ossification at the end of the bones, instead of being a thin regular, pearly gray line, is an irregular, thickened zigzag yellowish band. There may, in severe cases even be complete separation of the epiphyses as the result of a fracture in this zone. In these cases there may also be periostitis, e.g., in the phalanges or small bones. Later in life diffuse osteitis may appear, as in the "saber shin." Later in life too there is a tendency to gummas involving bones in various areas, such as the nasopharynx, hard palate and inner end of the clavicle. These are typical granulomas. Involvement of the central nervous system consists of vascular disease with meningo-arteritis and encephalitis. Parenchymatous changes are associated with juvenile dementia paralytica.

CLINICAL PICTURE

For convenience the clinical picture may be divided into early and late manifestations.

The early manifestations of the disease correspond to the secondary stage of acquired syphilis. Ordinarily they show up some weeks after birth. If they are seen at birth the case is usually very severe. It has been well said that prenatal syphilis can ape any of the characteristics of acquired syphilis and then some more. This is certainly true outside of cardiovascular manifestations. Aortitis, aortic insufficiency and aneurysm are not encountered in cases of prenatal syphilis. The face of the babe often looks strikingly like that of a senile little old man (fig. 1). The child is restless, cries feebly but frequently and has snuffles and a reddish brown or coppery eruption most frequently on the palms, soles and diaper area. These may be sharply defined macular, papular, crusted and scaly lesions. Rarely nowadays there is a bullous eruption of these areas. In severe cases the eruption may even be generalized, and around the mouth (fig. 2) will be noted papulocrustaceous radiating infiltrates with moist



Fig. 5—Hutchinson's teeth, late prenatal syphilis.

S. Cole, H. N. Moore, J. E. O'Leary, P. A. Stokes, J. H. Wile, U. J. Clark, Tahaferro, Parran, Thomas, Jr., Vonderlehr, R. A. and U. Sifton, Lida, J. Cooperative Clinical Studies in the Treatment of Syphilis. *Syphilis in Pregnancy*. Ven. Dis. Inform. 15: 83-107 (March) 1934.

6. Findlay, Leonard. *Ante-natal Treatment of Congenital Syphilis with Salvarsan and Mercury*. Brit. M. J. 2: 887 (Nov. 26) 1921.

7. Moore, J. E. *The Modern Treatment of Syphilis*. Springfield, Ill.: Charles C. Thomas, Publisher, 1933.

8. Boas, Harold. *Die Prophylaxe der Angeborenen in Jadassohn's J. Handbuch der Haut u. Geschlechtskrankheiten*. Berlin: Julius Springer, 1927, vol. 19, pp. 327-350.

papules and ulcerations extending from the insides of the lips outward. Rarely moist papules will be found around the genitalia and between the buttocks. In some cases the fingers may show perionychitis characterized by reddish crusts. It is comparatively simple to isolate *Spirochaeta pallida* with the dark field from the perionychium, from the rhagades and from moist papules or bullae. General examination will reveal an enlarged liver, perhaps down to the level of the umbilicus, and an enlarged spleen. The child may show a diffuse, shiny, ham-red, slightly thickened eruption of the palms and soles which is almost pathognomonic.

Disease of the bones will be found in a fair percentage of the cases, consisting of thickening at the end of the long bones, e.g., the radius and ulna. Owing to pain the child holds the limb as if it were paralyzed, this is Parrot's pseudoparalysis. X-ray examination will reveal the characteristic epiphysitis. Periostitis may also be encountered and occasionally dactylitis. The child may suffer from convulsions or have true paraplegia, and lumbar puncture will reveal involvement of the central nervous system.

LATE PRENATAL SYPHILIS

There is a later stage of prenatal syphilis, as of acquired syphilis, in which the disease has more of a tendency to localize itself to certain parts or organs. In the cooperative group study⁹ of 1,010 patients under observation or treatment for two years or more, approximately one third suffered from parenchymatous or interstitial keratitis, 12 per cent had involvement of the central nervous system and 7.2 per cent had involvement of bones and joints.

Interstitial keratitis may appear at any time from the first four or five years of life to the age of 20 or 25. A fair proportion of the patients are seen in the period from puberty to the age of 18 or 20 (fig. 3). The cornea has a diffuse ground glass appearance in contradistinction to the sharply defined phlyctenules seen in tuberculous persons. There are extreme accompanying photophobia and lacrimation and circumcorneal injection due to the prominence of the ciliary vessels. In fact, these vessels may even invade the cornea, the "salmon patch." In severe cases there may be accompanying iritis, changes in the choroid and peculiar opacities in the vitreous. It is not uncommon for the second eye to be involved, especially when therapy has been neglected. Rarely does ulceration take place in cases of parenchymatous keratitis. Chorioretinitis reveals itself with localized or generalized blackish spots interspersed with yellowish red areas distributed over the surface of the retina.

Late involvement of the bones is seen most frequently in the form of diffuse osteitis or in a peculiar chronic form of hydrarthrosis of the joints first described by Clutton and spoken of as Clutton's joints. The knees are most frequently affected. The great Fournier called attention to a not uncommon syndrome of interstitial keratitis and chronic painless swelling of the knee joints. Unfortunately, its true cause is all too often overlooked. Osteoperiostitis is a diffuse hyperplastic process most often affecting the tibia. The periosteum is first affected, and secondarily there is thickening from new bone laid down.

Gummas may affect the bony structure anywhere but are found most frequently over the tibia, the skull, particularly in the bones of the nasopharynx, the bones

of the upper extremities, and the inner insertion of the clavicle. Trauma has an important role in the production of these lesions. Hutchinson called attention to the saddle nose due to destruction of the bones of the nose (fig. 4).

Gummas may affect soft parts as well as bony structures. Gummatous lesions occur not only in internal structures, e.g., the liver, but in the throat and over the skin. Nowadays it is somewhat uncommon to see the serpiginous ulcerocrustaceous syphiloderms observed in a past generation. Occasionally one encounters gummosis dactylocystitis.

One of the most distressing accidents of late prenatal syphilis is deafness. It may be mild or total. It may come on slowly or at a certain stage progress with great rapidity. If it has progressed very far, it does not seem to respond well to therapy. Naturally it is aggravated if acute lesions and old syphilitic scars are present in the nasopharynx. It affects the sexes about equally and usually reveals itself from the age of 6 or 8 years to the age of 20 or 25. Alexander¹⁰ found that the components of the Hutchinson syndrome were not always equally evident. In 25 per cent of the cases all three symptoms, deformities of the eyes, ears and teeth, were noted. Changes in the internal ear and deformities of the teeth were present in about 10 per cent, involvement of the eyes and ears in 40 per cent and involvement of the internal ear alone in 25 per cent. Cases in which congenital syphilis affects the hearing are of three types: (1) isolated involvement of the eighth nerve, (2) labyrinthine disease and (3) a combination of the two. On the whole, this is one of the most difficult problems to be met in prenatal syphilis.

Medicine is above all indebted to Jonathan Hutchinson¹¹ for proper orientation regarding changes in the second teeth seen in prenatal syphilis. The Fourniers, father and son, have likewise done much to emphasize the important diagnostic side of the disease. The teeth on which Hutchinson laid greatest stress are the upper central incisors. The teeth are narrowed and somewhat smaller than normal, are bowed out on their sides, and show a central depression of the cutting edge due to hypoplasia of the middle lobe. While the other incisors, especially the lower ones, may be affected, Hutchinson advised that there would be less error in the diagnosis if attention was confined to the two upper teeth, (fig. 5).

Another tooth¹² is about as frequently involved as these, the first, or six year, molar, often called the Moon molar, Fournier's tooth, or the "mulberry molar." The grinding surface of the molar is roughened and has three or four small projections covered with enamel—the cusps. Owing to the syphilitic hypoplasia, they are closely grouped, and the enamel slopes outward from this chewing surface to the neck of the tooth, which is of normal size. The tooth has an almost collar-like atrophic process. It usually decays early.

It must be remembered that hypoplasia affecting the teeth may have numerous other causes e.g., rachitis, acute infectious diseases and other severe illnesses. In these cases, however, there is usually general involvement of all the teeth and the picture is quite different. The Hutchinson teeth and the mulberry molar are looked on as pathognomonic of prenatal syphilis, but

⁹ Cole H. N., Usilton I. J. and others. Late Prenatal Syphilis with Special Reference to Interstitial Keratitis. Its Prevention and Treatment. Arch. Dermat. & Syph. 35: 563-579 (April) 1937.

¹⁰ Alexander G. Konigliche Syphilis und Ohr in Jada's ohn J. Handbuch der Haut u. Geschlechtskrankheiten Berlin 1927, vol 19 pp 224-239.

¹¹ Hutchinson Jonathan. Syphilis London Cassell & Co Ltd 1887 p. 85.

¹² Karnosh L. J. Histopathology of Syphilitic Hypoplasia of Teeth Arch. Dermat. & Syph. 13: 25-42 (Jan.) 1926.

in case of doubt other stigmas of the disease should be looked for and will usually be found. However, in case of doubt it should always be remembered that practically 100 per cent of persons with prenatal syphilis show a positive Wassermann reaction of the blood.

THE WASSERMANN REACTION IN CASES OF PRENATAL SYPHILIS

The query is often raised as to the value of the Wassermann reaction of the cord blood. Rietschel said that Brunner found 18 per cent of nonspecific reactions in his series of cases. Kiukenberg put the figure as high as from 30 to 55 per cent. Boas and Thomsen in two of eighty-eight cases found the Wassermann reaction of the cord blood negative when it turned out that the child had syphilis. Turner and McKelvey, working in Moore's clinic, have shown that too much stress must not be laid on the test of the cord blood. Sufficient "reagin" from the mother may be present in the new-born babe to make a positive reaction even though later the child is found to be normal. Again, a child with a negative reaction may later be found to have prenatal syphilis. However, as Moore⁷ puts it, a child with a negative Wassermann reaction of the cord blood is five times as likely to be normal and only one-fifth as likely to acquire other evidence of congenital syphilis as one whose Wassermann reaction of the cord blood is positive. A Wassermann test of the blood at the age of from 3 to 6 months and thereafter will give positive results in almost 100 per cent of cases of prenatal syphilis, and the fastness of the reaction is renowned—even despite therapy. This is so much the case that syphilologists and public health authorities urge the routine use of the Wassermann test of the blood on all children at the age of 1 year and at school age. Thereby latent prenatal syphilis may be discovered, and through treatment the later devastating crippling effects of the disease may be arrested.

INVOLVEMENT OF THE CENTRAL NERVOUS SYSTEM IN PRENATAL SYPHILIS

A not uncommon involvement in prenatal syphilis is that of the central nervous system. It seems to be somewhat more frequent in the earlier years of life than later. Hoffmann suggested that the reason it is not found so frequently later is that the patients die. An incidence of from 20 to 40 per cent has been quoted by Stokes. Jeans and Cooke found neurosyphilis in two fifths of white infants up to the age of 2 years—active in one twelfth of all white syphilitic infants. Of older white children, one sixth had serious neurologic lesions. The incidence is not so high in Negro children. According to Jeans and Cooke's experience syphilitic meningitis is most frequently found in infants. The patients give evidence of pressure symptoms: the fontanel is tense, acute hydrocephalus may be present, and convulsions may occur. Naturally the spinal fluid shows the changes usually observed in cases of meningitis in which the cell count is high and the Wassermann reaction positive. Paralysis of various types is also seen in these young patients, e.g., monoplegia, paraplegia and hemiplegia. With syphilitic meningo-arteritis, such changes are to be expected, as well as occasional paralysis of the cranial nerve. With deeper parenchymatous involvement of the brain tissue, juvenile dementia paralytica is encountered. The symptoms may show up at any time from the age of 5 or 6 years to 20 or 25. In cases in which there is involvement of the posterior column of the cord, the picture of tabes dorsalis presents itself, often with optic

atrophy. Tabetic dementia paralytica of the juvenile type is probably the most unfortunate complication of prenatal syphilis.

SYPHILIS IN THE THIRD GENERATION

Is it safe for the person with prenatal syphilis to marry? Certainly there is no possibility of a man transmitting the disease to his wife or to the next generation. It is probably true that under certain rare circumstances, if the person acted as a donor in a blood transfusion, the disease might be transmitted. This is the problem that arises with the woman who has prenatal syphilis: ordinarily such a person has no organisms in her blood stream. The spirochete, of low vitality and activity, will be observed only sparingly in lymph nodes and perhaps in bone marrow. There is a slight chance that she might transfer the disease to the fetus—it is very slight. Perhaps such persons should receive some antisiphilitic treatment through their pregnancy if they have not been adequately treated in the past.

DIFFERENTIAL DIAGNOSIS

In the average case of early prenatal syphilis the reddish brown or coppery red eruption on the palms, soles and buttocks, perhaps accompanied with snuffles and with radiating superficial ulcerations around the mouth, should suggest to the physician the possibility of prenatal syphilis. In some cases the diffuse, shiny, leathery, brown-red eruption on the palms and soles is almost pathognomonic. If it is bullous, one may be forced to consider a differentiation from bullous impetigo or so-called pemphigoid of the new-born—due to the streptococcus or the staphylococcus. However, the bullous syphilitic eruption is in a sick child and is too diffuse for an ordinary local infection, and the physician should remember that always, in case of doubt, he has a "sheet anchor to windward" in the Wassermann reaction of the blood, which will practically always be strongly positive. Some of the later manifestations of the disease are more likely to be confusing. The child from 8 to 12 years of age with chronic hydrarthrosis of the knees and perhaps with a suggestive Hutchinson's tooth, or with a suggestive diffusely steamy cornea, should cause one by all means to remember the dictum when prenatal syphilis is suspected to take a Wassermann test of the blood. Likewise, there are certain vague cases of early deafness, not associated with acute infectious disease in which syphilis should be kept in mind. Moreover, in any case of eye trouble in the child and in cases of suspected disturbance of the central nervous system, in addition to a careful physical examination, take a Wassermann test of the blood.

TREATMENT OF PRENATAL SYPHILIS

The best treatment of prenatal syphilis is, after all prophylaxis. As long ago as 1923 Almkvist¹³ showed that if the pregnant syphilitic mother received plenty of arsenical therapy and mercury throughout her pregnancy, generally a normal child would be born. He advised treating every syphilitic mother through every pregnancy, using continuous therapy. Strandberg¹⁴ in 1922 proposed the dictum that it is probably best to treat every syphilitic woman through the pregnancy without regard to the age of the infection or to earlier treatment. Ohman¹⁵ treated fifty syphilitic women

13 Almkvist, Johan. Prophylaxis of Congenital Syphilis. *Acta F. Scandinav.* 59: 1-47, 1923.
14 Strandberg, J. *Acta dermat. venerol.* 3: 469, 1922.
15 Ohman. *Acta dermat. venerol.* 5: 262, 1924.

with arsphenamine and mercury in pregnancy and watched the children for at least two years. Only seven children had syphilis, and their mothers had had poor, irregular treatment through their pregnancy. The other forty-three mothers had normal children. Most of these mothers had previously, after no treatment or only a little mercury, borne a series of syphilitic children. Adams¹⁶ and Findlay,⁶ in England, likewise expressed the opinion that the pregnant syphilitic woman should be treated throughout the pregnancy. This is the consensus of Jeans and Cooke,³ Stokes,¹⁷ Moore⁷ and McCord,¹⁸ in this country. Moreover, the Cooperative Clinical Group arrived at the conclusion that "the syphilitic mother should be given early and adequate treatment throughout every pregnancy whether her Wassermann blood test is positive or negative." Treatment practically assures a living child, free from syphilis.

On the other hand, if the child is born with prenatal syphilis, it is well to start him at once on arsenical treatment, using neoarsphenamine, from 0.01 to 0.015 Gm per kilogram (about 2 pounds), as a subfascial injection under the scalp in the parietal region. Jeans said that it is rare for a skilful clinician to be forced to use any but intravenous therapy, i. e., injection into the jugular vein. The drug is dissolved in 2 cc of distilled water. Moore preferred sulfarsphenamine, from 0.010 to 0.015 Gm per kilogram, the drug to be administered intramuscularly into the buttock in a concentrated solution. Ordinarily a course of eight weekly injections of either preparation is employed. It is immediately followed by a series of weekly intramuscular injections into the buttock of a preparation of bismuth, e. g., oil suspension, bismuth salicylate 2 mg per kilogram. Courses of the two drugs may be alternated until a year's therapy has been completed—about twenty-five injections of each preparation. If the Wassermann reaction is still positive at the end of the year, further treatment for six months or a year is in order, especially if the spinal fluid shows evidence of involvement of the central nervous system. In fact, in the latter case, further treatment may even be necessary. Some doctors occasionally use mercurial ointment, 50 per cent, in the form of 1 Gm put on the inner surface of the binder every day, in place of the injections of bismuth. The amount absorbed is somewhat problematic (Smith¹⁹).

With an older group of children, from 6 to 8 years, are found osteitis, periostitis, interstitial keratitis and involvement of the central nervous system. Here arsenical preparations can be administered intravenously, and it is wise to use alternating courses of arsenic and bismuth compounds with no rest periods between courses. Potassium iodide is also indicated in all such cases unless acute interstitial keratitis is present.

With an older group, around puberty, interstitial keratitis, eighth nerve deafness and involvement of the central nervous system are the great problems. All three require the care of an expert and will simply be mentioned here. Heavy arsenical therapy, local measures and foreign protein therapy seem to be of greatest value in cases of interstitial keratitis. Potassium iodide

may be used in chronic cases. In resistant cases, use should be made of malaria or heat cabinet therapy. As in many other phases of syphilis, it will be found that the child adequately and vigorously treated for prenatal syphilis in the early years of life will not be so disposed to later relapse with interstitial keratitis. Involvement of the eighth nerve is extremely resistant to therapy, and the results many times are poor. Children with resistant involvement of the central nervous system, certainly children from 5 years upward, should have the benefit of malaria therapy followed by further arsenical and bismuth treatment. It is not wise to use trypanamide in little children, owing to difficulty in eliciting effects on the optic nerve. While malaria will often stop the progress of juvenile tabes or the tabetic form of dementia paralytica, it too often leaves in its wake simply a spinal animal. However, it is worth the trial in the hope that something will be left.

It is to be hoped that a utopia will be arrived at where all maternal syphilis will be diagnosed early and treated thoroughly, so that prenatal syphilis, like other preventable diseases, will be a thing of the past. May that time arrive swiftly.

Council on Physical Therapy

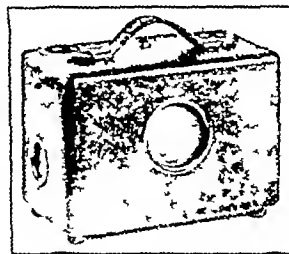
THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORTS
HOWARD A. CARTER, Secretary

AUREX HEARING AIDS ACCEPTABLE

Manufacturer: Aurex Corporation, 2400 Sheffield Avenue, Chicago

Two Aurex Hearing Aids, one energized by conventional electric power and one by battery, are semiportable, weighing about 5 and 7 pounds respectively. The power-operated instrument can be used for small group gatherings. This unit works on either alternating or direct current, 115-120 volts. All controls and metal parts are insulated from the power circuit. Four tubes are employed, one of them being a rectifier. The firm claims that all component parts used have rated capacities greatly in excess of requirements. Current consumption is 30 watts.

Each instrument has two controls. One control regulates the volume from zero to maximum, the other control regulates tone so that within a certain range either high or low tones may be emphasized. It may be equipped for either air or bone conduction. As



Aurex Hearing Aid

many as forty phones may be operated from the single instrument. Distributing fixtures for this purpose are available.

The special "Aurex" double compensating phone head-set, supplied for school children and for certain individuals, is a feature permitting the adjustment of each phone so that a difference in the sensitivity of the two ears may be compensated. This uses fully the remnant of hearing in both ears and usually results in much better hearing.

The battery-energized hearing aid consists of a microphone and amplifier of three tubes. A special condenser microphone is used. This modulates a high frequency oscillating circuit which is amplified and demodulated and the audiofrequency component is then amplified and delivered to the phone. In designing this amplifier, the firm claims, attention has been given to the output of the phones as recorded by sound pressure response curves, and compensations within the amplifier made to give, as closely as possible, a straight line output charac-

16 Adams J. Results of Three Years Treatment of Syphilitic Mothers and Babies. *Lancet* 2: 990 (Nov. 13) 1920.

17 Stokes John H. Modern Clinical Syphilology. Diagnosis Treatment Case Studies ed 2 Philadelphia W. B. Saunders Company 1934 p. 1266.

18 McCord J. R. Prenatal Treatment of Syphilis. Some Results of Antisyphilitic Treatment in a Series of 519 Pregnant Syphilitic Colored Women. *Am. J. Syph.* 16: 78-82 (Jan.) 1932.

19 Smith F. R. Jr. Congenital Syphilis. Results of Treatment in Children. *J. A. M. A.* 105: 409-411 (Aug. 10) 1932.

teristic. There is a tone control for emphasizing the pitch of the instrument to suit the user

This hearing aid employs a self-contained battery, which is said to last from fifty to seventy hours of actual use

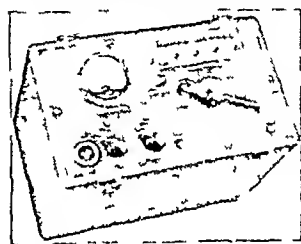
The units were investigated by several specialists appointed by the Council. They reported that these instruments were satisfactory, provided one keeps their limitations in mind. The chief limitation lies in the fact that they are not portable hearing aids that may be worn attached to one's clothing but are suitable for meetings, conferences and other places where one can "plug in" or find a resting place for the semiportable battery unit

In view of the foregoing favorable report, the Council voted to include the Aurex portable hearing aids in its list of accepted devices

MAJESTIC ULTRA SHORT WAVE UNIT ACCEPTABLE

Manufacturer Majestic Surgical Instrument Company, 2608 North Cicero Avenue, Chicago

This Majestic Short Wave Unit is recommended for medical and surgical uses in the office or hospital. It is a portable model, weighing 30 pounds complete with carrying case. This may be fitted into a walnut finished mobile cabinet. The



Majestic Ultra Short Wave Unit

electrosurgical currents for coagulating, desiccating and cutting are of sufficient intensity for office practice. The wavelength is approximately 75 meters.

A two-tube push-pull circuit is employed. The parts used are of standard manufacture. The unit is fused against overload or a short circuit. A millimeter, calibrated for a 5,000 milliamperes scale, is utilized.

The input at full load is approximately 500 watts. The output under the same conditions, as measured by a lamp load and the photoelectric cell, is approximately 175 watts.

The transformer temperature rise and temperature at different levels inside the cabinet are within the limits of safety prescribed by the Council.

The firm submitted evidence on the heating ability of the unit as observed in the living human thigh. Six tests were made with the cuff technic. Two healthy male medical students, weighing 150 and 180 pounds respectively, were the subjects. The temperature observations were made by means of a Leeds and Northrup potentiometer and hypodermic thermocouples introduced into the thigh by a cannula. The thermocouple was calibrated in degrees Fahrenheit against a Bureau of Standards certified thermometer.

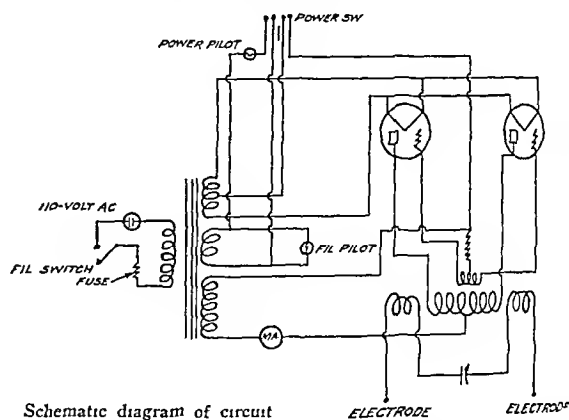
Averages of Six Observations, Cuff Technic

	Deep Muscle	Oral
Initial	99.9	98.6
Final	106.5	98.9

A trocar placed in a hard rubber cannula was inserted at a right angle to the thigh and straight down into the muscle tissue until the instrument was at an approximate depth of 2 inches or until the femur was encountered. The trocar was removed, the rubber cannula being left in situ. Initial temperatures were taken and then each subject was submitted to a twenty minute application of maximum current intensity consonant with skin comfort. The highest temperature attained was recorded as final in each instance. Oral temperatures also were taken.

The technic of application included the use of double cuffs, measuring 24 by 3 inches. These were spaced equidistant from the cannula and 7½ inches apart, center to center. The electrodes needed no extra spacing but a towel was placed between the skin and cuff for purposes of cleanliness. The averages of six observations by means of this technic are given in the accompanying table.

The unit was investigated in a clinic acceptable to the Council. It was reported to be satisfactory in heat production. Burns may occur with this type of machine but are less likely to occur than with the conventional diathermy. These may be avoided by taking ordinary precautions.



Schematic diagram of circuit

In view of the foregoing favorable report on the clinical behavior of the Majestic Short Wave Machine, the Council on Physical Therapy voted to include it in the list of accepted devices.

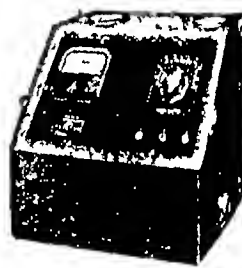
ALOE PORTABLE SHORT WAVE DIATHERM ACCEPTABLE

Manufacturer A S Aloe Company, 1819 Olive Street, St. Louis

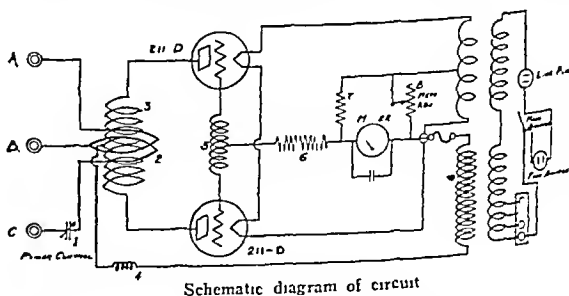
This Aloe Portable Short Wave Diatherm is designed for medical and surgical use. It is essentially the same as the Council accepted Aloe Short Wave Diatherm (THE JOURNAL, Jan 11, 1936, p 122) except for the addition of a surgical outlet. It is equipped with pad and cuff electrodes and surgical attachments. The wavelength is about 15 meters. The shipping weight is approximately 75 pounds.

The circuit consists of a conventional two-tube oscillator push-pull type. The input power required is approximately 540 watts. The transformer temperature rise and that in the cabinet at various levels is within the limits of safety prescribed by the Council.

The investigations of the Council showed that there was very little difference in construction between the new model and the one previously accepted. This unit was operated under actual clinical conditions and was found to render satisfactory



Aloe Portable Short Wave Diatherm



Schematic diagram of circuit

service. Burns may occur with this unit as with other short wave units but may be avoided by taking ordinary precautions. It is stated that they are less likely to occur than with conventional diathermy.

In view of the foregoing report, the Council on Physical Therapy voted to include the Aloe Short Wave Diatherm in its list of accepted devices.

Council on Foods

ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COUNCIL ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION AND WILL BE LISTED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED

FRANKLIN C BING Secretary

PRIDE OF THE FARM TOMATO JUICE

Manufacturer—E Pritchard, Inc, Eagle St, Bridgeton, N J

Description—Canned tomato juice seasoned with salt retaining in high degree the natural mineral and vitamin values

Manufacture—Vine-ripened New Jersey tomatoes are graded by U S government inspectors, washed, hand sorted, spray washed and blanched Juice is mechanically extracted, transported to covered tanks and heated to 88 C in five minutes Salt is added Hot juice is automatically filled into cans, which are then sealed and processed at 100 C for twenty minutes Thirty minutes is required for the entire process Whenever stirring is necessary, cylinders or agitators are operated at low speed to prevent incorporation of air All lines and containers are porcelain lined, nickel or stainless steel

Analysis (submitted by manufacturer)—Moisture 94.1%, total solids 5.9%, ash 1.1%, sodium chloride (NaCl) 0.6%, fat (ether extract) 0.2%, protein (N \times 6.25) 1.0%, crude fiber 0.2%, sucrose nil, reducing sugars as invert sugar 3.1%, carbohydrates other than crude fiber (by difference) 3.0%, acidity as citric acid 0.4%, *pH* value 4.25, tests for known preservatives nil, tests for aniline colors nil

Calories—0.18 per gram, 5 per fluidounce

Vitamins—The product contains 17 mg of cevitamic (ascorbic) acid per hundred cubic centimeters (3.4 International units per cubic centimeter)

Claims of Manufacturer—This tomato juice is a good source of vitamins A and B and an excellent source of vitamin C, for infant feeding and general table use

VALORA BRAND VALENCIA ORANGE JUICE 100% PURE

Manufacturer—Santa Barbara Citrus Juice Company, Inc, Orange, Calif

Description—Canned, pasteurized California Valencia Orange Juice practically equivalent to fresh orange juice in vitamin C content

Manufacture—Selected tree ripened fruit is washed, inspected, automatically cut in halves and reamed by hand The juice is strained, deaerated vacuum filled into cans, vacuum sealed, pasteurized and immediately cooled

Analysis (submitted by manufacturer)—Moisture 85.2%, total solids 14.8%, ash 0.5%, fat (ether extract) 0.1%, protein (N \times 6.25) 1.2%, reducing sugars (as invert) 6.8%, sucrose 3.8%, crude fiber 0.04%, carbohydrates other than crude fiber (by difference) 1.3%, titratable acidity as citric acid 1.2%, *pH* 3.56, vitamin C (titration) 40 mg per 100 cc (840 International units)

Calories—0.6 per gram, 17 per ounce

Vitamins—A rich source of vitamin C

HULBURT'S BRAND CALIFORNIA LEMON JUICE

Manufacturer—Hulburt's Fruit Products, Inc., Los Angeles

Description—Canned lemon juice retaining in high degree the natural vitamin content

Manufacture—A standard grade of tree ripened California lemons, selected for ripeness, acidity and perfection, are automatically washed halved and reamed by hand on juice extracting machines The juice is strained, filled into special lacquered cans flash pasteurized and chilled Air is excluded as much as possible

Analysis (submitted by manufacturer)—Moisture 91.4%, ash 0.22%, fat (ether extract) 0.06%, protein (N \times 6.25) 0.4%,

sucrose 0.4%, reducing sugars (as invert sugar) 1.7%, crude fiber 0.05%, carbohydrates other than crude fiber (by difference) 2.0%, titratable acidity as anhydrous citric acid 5.8%

Calories—0.10 per gram, 3 per fluidounce

Vitamins—1 cc of lemon juice contains 9 International units of vitamin C

WEGNER NEW YORK STATE BRAND FANCY APPLE SAUCE

Manufacturer—Wegner Canning Corporation, Sodus, N Y

Description—Canned apple sauce prepared from peeled and cored apples with added sugar

Manufacture—New York State winter apples are peeled and cored by machine, trimmed of any blemishes or remaining skins, inspected, forced through slicers into cooking chambers containing an atmosphere of steam, and mixed with sugar The cooked apples are pulped, automatically filled into cans which are hermetically sealed, pasteurized and then cooled

Analysis—Moisture 76.5%, total solids 23.5%, ash 0.2%, fat (ether extract) 0.1%, protein (N \times 6.25) 0.2%, crude fiber 0.5%, carbohydrates other than crude fiber (by difference) 2.25%

Calories—0.9 per gram, 26 per ounce

ROBIN "FRESHLIKE" BRAND STRAINED UNSEASONED PRODUCTS (PEAS, CARROTS, BEETS, SPINACH, GREEN BEANS TOMATOES, CELERY, APPLES, PRUNES, APRICOTS, AND VEGETABLES WITH CEREAL AND BEEF BROTH)

Distributor—Scudders-Gale Grocery Company, Quincy, Ill

Packer—The Larsen Company, Green Bay, Wis

Description—Respectively strained peas, spinach, carrots, beets, green beans, celery, tomatoes, prunes, apples, apricots and vegetables with cereal and beef broth, prepared by efficient methods for retention in high degree of the natural mineral and vitamin values No added sugar or salt These products are the same as the respective accepted Larsen's vegetables and fruits (THE JOURNAL, Aug 26, 1933 p 675, Aug 12, 1933, p 525, Aug 19, 1933, p 605 July 8, 1933 p 125 July 29, 1933, p 366, Sept 2, 1933, p 779, July 1, 1933 p 35, July 22, 1933, p 282, Aug 10, 1935, p 437, July 4, 1936, p 38, July 22, 1933, p 283)

KINGCO CHOCOLATE FLAVOR

Manufacturer—Doral Food Products Company, Inc, New York

Description—A powdered chocolate flavored mixture, consisting of sweetened malted milk, pasteurized defatted milk, Dutch cocoa, with added American whole egg powder

Manufacture—The ingredients are mixed, dried and filled into containers

Analysis (submitted by manufacturer)—Moisture 4.2%, total solids 95.8%, ash 3.25%, fat (Mojonnier method) 2.7% protein (N \times 6.25) 11.3%, sucrose 48.0%, lactose + 1 H O 12.8%, maltose + 1 H O 2.9%, crude fiber 0.7%, carbohydrates other than crude fiber (by difference) 77.85%, caffeine 0.10%, theobromine 0.47%, milk protein (N \times 6.25) 7.5% lecithin (P O) 0.019%, lecithin (calculated to whole egg solids) 1.8%, lecithin (calculated to whole egg) 6.8%

Calories—3.80 per gram, 108 per ounce

LESLIE BRAND HAWAIIAN PINEAPPLE JUICE

Distributor—Cressey Dockham and Company, Inc, Salem, Mass

Packer—Hawanan Pineapple Company, San Francisco

Description—Canned unsweetened pineapple juice, the same as Dole Hawaiian Finest Quality Pineapple Juice (Unsweetened) (THE JOURNAL, June 3, 1933 p 1769)

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SATURDAY, AUGUST 21, 1937

PREDISPOSING FACTORS IN THE LATE TOXEMIAS OF PREGNANCY

The search continues unabated for the causative agent of eclampsia, which Zweifel has called "the disease of the theories," and of the toxemic states leading to eclampsia, variously known as preeclamptic toxemia, low reserve kidney, eclampsism or eclamptogenic toxemia. Will a single causative agent ever be found? What part do heredity, diet, climate, race, parity and constitution play in the occurrence of these conditions? Why was the incidence of eclampsia and the toxemic states of pregnancy so greatly diminished in central Europe during the World War? Was it due to the restricted ration, particularly poor in proteins and fats, brought about by the enemies' blockade? Why are the more obese plethoric women and primiparas more susceptible? In how many women with toxemia is there a history of some recent acute process that has not been elicited or, if known, has been disregarded as being too remote to have any possible connection? All these questions may have some bearing on etiology.

The occurrence of eclampsia has undoubtedly been greatly reduced by better antepartum care during the last few decades. Ordinarily eclampsia need not be feared if the patient will cooperate with a competent obstetrician from an early period of her pregnancy. Exceptions will occur, however, and an acute fulminating eclamptic toxemia may at times give little warning. Williams¹ stated that the physician who says that eclampsia need never occur is "either misinformed or careless in the use of words." He cited instances in which eclampsia developed in women who had had normal blood pressures and albumin-free urine the day before. The pathologic conditions leading to the eclamptic explosion were probably in operation but had not made themselves manifest as symptoms.

Peters² recently studied 351 patients with toxemias of pregnancy, excluding the cases of vomiting of early

pregnancy. One hundred and fifty patients had satisfactory records, of these only fifteen had no relevant disturbances preceding their first toxemias. It is safe to assume that at least some of the patients who had inadequate histories had suffered some disease which helped prepare the ground for the toxemia. Forty-two patients with pyelitis or pyelonephrosis were found. Thirty-six other patients, while suffering from pyelitis during pregnancy, developed hypertension or edema, twenty-two showed evidence of renal or vascular disease varying from albuminuria or nephritis to renal calculi, two had preexisting arterial disease manifested in one by hypertension and in the other by chorioretinitis. From the histories alone, from forty-five to forty-seven patients out of 150 had definite renal or vascular disease before the pregnancies in which toxemia first occurred. Approximately 10 per cent of the patients had a history of rheumatic fever or chorea, most of them showing signs of heart disease. Acute respiratory infections preceded the toxemia in sixteen instances. In view of the infectious origin of nephritis and of pyelitis, the possibility that infection plays a significant part in the toxemias of pregnancy should be more thoroughly investigated, although the infectious theory has been discounted during the past few years. In general, the predisposing factors appeared to be renal and vascular disorders and the diseases that cause such disorders.

As to recurrences, at least 41 per cent of the patients developed toxemia in subsequent pregnancies. Eclampsia, as well as the other forms of toxemia, whichever way they may be classified, far from conferring immunity, tend often to recur. Of the total 351 patients, 148 were not traced. One hundred and twenty, or 34 per cent, are either dead or victims of chronic disease, and sixty-nine, or 20 per cent, have had further toxemias. At best, but 46 per cent survive in good health and only fifteen, or 7 per cent, of those traced are free from disease.

The study showed that the usual classification of toxemias of pregnancy based on clinical symptoms may be fallacious and misleading, thus clinical manifestations of eclampsia were observed in patients with pyelitis or pyelonephrosis. "Typical" eclamptic pathologic conditions were disclosed in a hypertensive patient who died of a dissecting aneurysm of the aorta without any clinical symptoms of eclampsia. Often the clinical course of the toxemia is unmistakably that of acute nephritis. Liver damage varying from transitory jaundice to acute yellow atrophy may occur during pregnancy, but it can hardly be the cause of the hypertension and vascular disturbances characterizing toxemias. In this connection Bell,³ in performing necropsies on ten women who died from eclampsia, found a great variety of lesions in the liver but nothing typical of all. Passive congestion, localized infiltration, acute yellow

¹ Williams J. W. *Obstetrics* ed. 6 New York D. Appleton & Co. 1931 p. 644.
² Peters J. P. *J. Biol. & Med.* 9: 311 (March) 1937.

³ Bell J. W. *Am. J. Obst. & Gynec.* 12: 792 (Dec.) 1936.

atrophy, infarction, hemorrhagic necrosis and cellular infiltration of the portal spaces were disclosed, but no common condition

Renal or vascular disease in the nonpregnant state may cause hypertension, convulsions, edema and albuminuria, these symptoms developing gradually, but when pregnancy is superimposed the apparently mild disease changes abruptly to a malignant state. The patient who would survive without the pregnancy may be overcome by the added burden.

The basophilic accumulations noted by certain investigators in the pituitary gland in the toxemias of pregnancy have also been found in other patients of both sexes suffering from hypertension due to a variety of causes. The reaction would seem to be the result rather than the cause of the toxemias.

Herrick and Tillman⁴ also studied the late toxemias from a medical point of view (594 cases) and observed that they fell into two groups, the first and smaller being associated with a latent or manifest primary glomerulonephritis, the second and larger with hypertensive vascular disease. In more than half of those still alive after three years, symptoms and signs of one or the other of these conditions were disclosed. Of the eleven necropsies performed, seven showed the changes characteristic of cardiovascular disease with hypertension, and four of those of chronic glomerulonephritis. The authors felt that the distinction between the mild and severe types of late nonnephritic toxemia were of degree, not of kind, and that therefore the terms "low reserve kidney," "recurrent toxemia" and so on were confusing and should be abolished. The pathologic process in the kidneys was considered to be the result of the general intoxication rather than the cause.

As far as the saving of life is concerned, the present methods of treatment are adequate when properly applied, but the injury to the renal and vascular systems is nearly always made manifest in subsequent pregnancies, which cause further permanent damage. Therefore Peters concludes that pregnancy should be prevented in women with such preexisting disease or in those who have had previous toxemias, and terminated on the appearance of symptoms if pregnancy occurs.

That pregnancy under such circumstances should be avoided at all costs is incontrovertible in view of the evidence presented. There may be some disagreement, however, with the dictum that the pregnancy should be terminated on the first appearance of symptoms. Nevertheless the certainly crippling and perhaps lethal effect of another pregnancy presents a problem that calls for the best thought and closest cooperation of the obstetrician, the internist and the pathologist.

SYNERGIC ANTIGENS

Three years ago Burky¹ of the Wilmer Institute of Ophthalmology at Johns Hopkins University reported that intracutaneous injection of staphylococcus toxin into rabbits led to the development of an active immunity against this toxin, accompanied by an acquired hypersensitivity to the nutrient broth in which the staphylococci were grown. Control injections with broth alone did not lead to demonstrable hypersensitivity. Burky assumed, to account for this concurrent hypersensitivity, that the toxin rendered certain immunologically inert broth proteins actively antigenic. Subsequently he combined staphylococcus toxin with lens proteins, rabbit muscle proteins and pollen extracts, all of which are practically nonantigenic when injected into rabbits. Braun,² for example, was unable to produce precipitins against lens proteins, nor could he sensitize rabbits against lens products. Burky found, however, that lens protein broth inoculated with a toxin-forming strain of staphylococcus aureus became actively antigenic. Rabbits injected with the resulting lens toxin complex develop high precipitin titers against lens protein and become actively hypersensitive to these proteins.

Burky also found that rabbit muscle could be rendered strongly antigenic for rabbits by inoculating muscle broth with staphylococci. Ragweed extract was also changed to an active antigen and rabbits injected with the toxin-pollen complex developed relatively high antipollen precipitins. Dusting with pollen caused typical anaphylactic syndromes in these animals. Control rabbits injected with ragweed pollen alone did not develop precipitins or pollen sensitivity.

Swift and Schultz³ of the Rockefeller Institute have extended these synergic studies to other proteins and to other bacterial toxins. They found, for example, that the synergic effects of staphylotoxin on lens proteins are demonstrable when the toxin and proteins are introduced separately "either into the same tissues, with several hours elapsing between injections, or into different veins." From this they conclude that an intimate association of toxin and protein is unnecessary for the synergic effects, the toxin presumably exerting a catalytic or stimulating action on the antibody-forming cells. A somewhat similar hypothetical "synergic conditioning" of antibody-producing tissues was demonstrable with diphtheria toxin, streptococcus toxin and relatively nontoxic horse serum⁴.

The synergic phenomenon of greatest current interest, however, is the alleged stimulation of specific antibody production as a result of intravenous injections with cevitamic acid. Jusatz,⁵ for example, reports

4 Herrick W W and Tillman A J B. The Toxemia of Pregnancy. Its Relation to Cardiovascular and Renal Disease. Clinical and Necropsy Observations with a Long Follow Up. Arch Int Med 55 643 (April) 1935. The Mild Toxemia of Late Pregnancy. Their Relation to Cardiovascular and Renal Disease. Am J Obst & Gynec 31 832 (May) 1936.

1 Burky E L. J Allergy 5 466 (July) 1934.
2 Braun R. Arch f Augenh 105 122 (Oct) 1931. 106 99 1932.
3 Swift H F and Schultz M P. J Exper Med 63 703 (May) 1936.
4 Swift H F and Schultz M P. J Exper Med 63 725 (May) 1936.
5 Jusatz H J. Ztschr f Immunitatsforsch 88 483 (Aug) 1936.

that cevitic acid injected intravenously into rabbits during the immunizing period increases the specific precipitin titer of the blood serum about tenfold, control rabbits being injected with the same protein (horse serum) but without concurrent cevitic acid therapy. Lemke⁶ found that injections with cevitic acid would apparently desensitize hypersensitive guinea-pigs, presumably as a result of stimulation of an antagonistic specific antiprotein immunity. Jungeblut⁷ reports that injections of small doses of cevitic acid into intracerebrally infected monkeys often causes a therapeutic abortion of the paralytic symptoms. In his hands, larger doses of cevitic acid were therapeutically ineffective.

Three years ago, Cooke⁸ of Cornell University Medical College predicted that in time the Burky phenomenon of synergic antigenicity would be recognized as an epoch-making discovery in the field of theoretical and practical immunology. The evidence available today indicates that he was no doubt justified in this prediction of its ultimate clinical importance.

Current Comment

VITAMIN A RESERVES IN HEALTH AND DISEASE

It is important to know accurately the quantity of vitamin reserves available in the human body and whether these reserves may be depleted by diseases other than the known deficiencies. The quantitative estimation of vitamin A in the tissues can be readily made by a strictly chemical method, using the antimony trichloride reaction.¹ Moore and Ellison have employed this method in the analysis of 1,000 adult human livers and approximately 200 livers of children under 15 years of age. The average values obtained in forty cases of accidental death in subjects between 15 and 59 years of age was 220 international units per gram of moist liver. This contrasts with the vitamin A reserves in normal infants up to 3 months of age, which were found to be low—only 17 units. After the first four months the reserves rose to a much higher level, reaching an average value of 130 units between the ages of 4 months and 14 years. This value is still lower than in the healthy adult but may possibly be explained by the relatively greater size of the child's liver. The wide variations found in normal livers make the evaluation of the vitamin A content of diseased livers difficult. The authors nevertheless have grouped their diseases according to the vitamin A level found in the liver. Those diseases with vitamin A reserves above normal (average 300 units) included thyroid diseases of all types (nine cases) and diabetes. These were in adults. In the children, high reserves were invariably found in tuberculosis, although this disease

in adults did not produce a higher than normal hepatic vitamin A reserve. Consistently low vitamin A concentrations were found in the livers of adults dying of nephritis (75 units), peritonitis (75 units), pneumonia (63 units), kidney and bladder infections (19 units) and other infectious diseases. Similar observations were made in the children's group. Since it is obvious that high vitamin A reserves may be attributed directly to dietary factors, these investigators make no attempt to evaluate the etiologic significance of their data.

INFECTIONS WITH ANAEROBIC STREPTOCOCCI

Investigations of the rôle of anaerobic streptococci in disease are relatively rare. Heretofore, according to McDonald and his co-workers,¹ anaerobic streptococci have been recovered from human tissues mainly in cases of puerperal and pulmonary sepsis. The object of their present investigations was to determine the type of lesion encountered in such infections as well as the biologic and agglutinative properties of the organisms recovered, and to study the pathogenicity of anaerobic streptococci for animals. The cases studied occurred between 1931 and 1936 and consisted of those patients coming to necropsy in whom anaerobic streptococci were recovered either from the blood or from the lesions at the time of death. In the twenty-three cases in which these organisms were recovered, some part of the intestinal tract was involved nine times, the lungs primarily seven times, and the meninges four times, in three cases the lesions occurred in various tissues. Abscess of the lung was the most predominant pulmonary lesion in four cases, gangrenous appendicitis with rupture accounted for five of the intestinal lesions. There were three cases in which carcinoma of the large intestine had perforated and produced an abscess. In one case duodenal ulcer had perforated two and one half months previously and had been surgically closed. The four cases in which anaerobic streptococci were isolated from the meninges represented a type of infection on which little has been written. The foci in all four cases were different and represented chronic infections in the nasopharynx, frontal sinus and middle ear, and an infected wound of the tenth thoracic vertebra. The duration of the major symptoms varied from four days to one and one-half years. Microscopically most of the lesions presented the appearance of a nonspecific granuloma. Anaerobic streptococci were recovered in pure culture in eleven of the twenty-three cases. Often they were isolated both from the blood and from the lesion. These facts suggest that they played a significant part in all the cases in which they were present even when other pathogens also were found. They were mixed with aerobes in seven cases and with anaerobes in seven. The strains of streptococci appeared to be morphologically similar with few exceptions. When strains thus isolated were injected into animals subcutaneously, intramuscularly, intraperitoneally or intravenously, no lesions could be produced. Iridocyclitis and meningitis, on the other hand, developed in rabbit-

⁶ Lemke, Heinz. *Monatsschr. f. Kinderh.* 67: 244 (Nov.) 1936.

⁷ Jungeblut, C. W. *J. Exper. Med.* 65: 127 (Jan.) 1937.

⁸ Cooke, P. A. in discussion on Burky's.

¹ Moore, Thomas. *Biochem. J.* 31: 155 (Jan.) 1937. Ellison, J. B. and Moore, Thomas. *ibid.* p. 163.

¹ McDonald, J. R., Henthorne, J. C. and Thompson, I. L. *Proc. of Anaerobic Streptococci in Human Infections*. *Arch. Path.* 23: 2 (Feb.) 1937.

following direct injection of the anaerobic streptococci. The results of animal inoculations, however, emphasize the fact that such streptococci are virtually nonvirulent for laboratory animals. They are more virulent, it seems, when acting in symbiosis with other organisms. The meninges are more vulnerable even to organisms of low virulence than most other tissues. For that reason it seems probable that, in the four cases of meningitis, anaerobic streptococci alone were responsible for the lesions.

IDENTIFICATION OF FOODS CAUSING DISTRESS

Individuality in the prescription of diets is often necessary because of idiosyncrasies to particular foods. Alvarez,¹ in a recent discussion of this subject, states that the physician will be particularly interested in searching for offending articles of diet when the patient observed suffers occasionally from hives, hay fever or asthma, or when the patient has relatives who suffer with allergic disorders. One must be suspicious of food sensitiveness also when the symptoms are largely those of a sensitive colon. Several methods are available for determining the offending foods. Thus, when the suspected symptoms come in attacks at intervals of weeks or months the cause can often be found by making each time a written record of all the unusual foods not eaten every day but consumed in the twenty-four hours preceding the upset. After three or four attacks the record should be examined to see whether there was any one food that was eaten just before each upset. Subsequently relief should be obtained when the food is omitted and an attack should occur when the food is again eaten. When, however, the distress is present after almost every meal the problem of finding the offending food or foods must be simplified by reducing the number of possibilities. If, on omission of all food for a few days, the distress continues, it is clear that food could have no causal relationship. If, however, the distress ceases promptly, then the patient could try one new food each day, keeping the good ones and rejecting the bad ones, until he has a sufficient but non-distress causing dietary. Even when a patient obtains prompt relief on an elimination diet, it sometimes happens that, after the patient returns to work and the burden of strain, annoyance and worry, some of the symptoms return. In many persons, unfortunately, indigestion, headache and abdominal pain can be produced not only by eating certain foods but also by fatigue, nervousness and worry, or combinations of these. Sometimes, however, after a patient has been at home for a few months it will be discovered that some of the foods which formerly caused trouble can again be eaten in moderation with impunity. For the latter reason, occasional experimentation with forbidden foods should be made and an attempted return to as nearly normal a diet as possible may result. Certainly no one should ever remain for weeks or months on a highly restricted elimination diet, the purpose of the restricted diet is definitely diagnostic and is not applicable for extended treatment.

PHYSICAL RECONSTRUCTION

The benefits of corrective exercises and other measures for improving the health of physically subnormal persons have recently received much study. A report by Capon¹ is based on observations of substandard recruits in the British army. Thirty-three men of deficient physical qualities were enlisted and assembled in the Army School of Training in the fall of 1936. All were townsmen with ages given on enlistment of from 18 to 20 years. All, furthermore, gave the impression of undernourishment and lack of fresh air and exercise, and only one had played games to any extent prior to enlistment. The causes of rejection were under weight six, under chest measurement four, under weight and chest measurement sixteen, under height two, disordered action of the heart one, genu valgum one, hallux rigidus one, hallux valgus one, and scoliosis one. The oral hygiene was good in sixteen, fair in nine and neglected in six, and an average of 1.3 extractions per man was indicated. The diet given these men consisted of the ordinary food supplied to the students of the school, which is of the same quality and quantity as that for the rest of the army, but the cooking was above the average. The exercises were those usual for recruits in the British army but were under the direction of instructors picked because of their special suitability for this work. At the end of the second week a general survey was made to find whether any had reached the required physical standard. Of those previously under weight or chest measurements, ten were already up to the required standards. Furthermore two men, one suffering from hallux rigidus of both feet and one from disordered action of the heart, had become apparently fit for enlistment. At the end of the sixth week it was found that twenty-one men had reached the standard, while six more were just below (only 1 or 2 pounds). The deformities, with the exception of one hallux valgus and one genu valgum, could be said to have disappeared. The average gain in weight had been 6½ pounds, while the greatest individual gain was 12 pounds. The average gain in chest measurement was 1 inch, with the greatest individual gain 2 inches. The results of this experiment, Capon says, are encouraging. Out of thirty-three men, twenty-four were made thoroughly fit in three months. He concludes that young men can be made fit quite easily if the necessary facilities are available. It should be possible, from an army point of view, to give an estimate of those likely to benefit after a period of six weeks' work. Desirable corrections should be taken in hand without delay and applied to the post school age (14 to 18). Most of the postural deformities disappeared or at least improved with strengthening of the muscles. Although the numbers involved in this trial were small, the results do suggest that much may be done even in a short period to counteract the effects of previous poor environment. These observations corroborate the general impression that environment, in the large sense, definitely affects bodily build.

¹ Alvarez, W. C. Ways of Discovering Foods That Are Causing Distress. Proc. Staff Meet. Mayo Clin. 12: 88 (Feb. 10) 1937.

¹ Capon, P. J. L. The Experiment on Substandard Recruits. J. Roy. Army Med. Corps 65: 293 (May) 1937.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES NEW HOSPITALS EDUCATION AND PUBLIC HEALTH)

ARIZONA

Committee on Syphilis—The state superintendent of public health has appointed the following committee on control of venereal diseases suggested by the Arizona State Medical Association: Drs Hilary D Ketcherside, Phoenix chairman, Howard M Purcell, Phoenix, and William G Shultz, Tucson. Two clinics are to be established, one at Phoenix and one at Tucson according to *Southwestern Medicine*. Each will be directed by a part time physician with a technician to carry out laboratory tests.

ARKANSAS

New Officers of State Board—Dr William A Snodgrass, Little Rock, was chosen president of the State Medical Board of the Arkansas Medical Society at its recent meeting. Dr Lorenzo T Evans, Batesville, vice president and Dr Leonce J Kosminsky, Texarkana, secretary. New members of the board are Dr Eugene A Callahan, Carlisle, succeeding Dr William T Lowe, Pine Bluff; Dr Daphney E White, El Dorado, succeeding Dr Albert S Buchanan, Prescott; and Dr DeVeaux L Owens, Harrison, succeeding Dr William H Mock, Prairie Grove.

CALIFORNIA

Personal—Dr Jacob C Geiger, director of public health city and county of San Francisco, was recently chosen president of the Pasteur Society of Central California. Dr Ernest A Wagner, Los Angeles, has accepted an appointment from the Foreign Mission Board of Seventh Day Adventists as medical director of the denominational sanatorium in Canton, China, newspapers report. He will sail from San Francisco September 4. Dr Howard W Bosworth has been appointed resident and physician-in-charge of the Barlow Sanatorium, Los Angeles, following the sudden death of Dr Munford Smith. Dr Hamilton H Anderson, assistant clinical professor of pharmacology at the University of California Medical School, San Francisco, has been appointed to the staff of the Council on Medical Education and Hospitals of the American Medical Association. Dr Anderson, who will assist in the general supervision of hospitals and medical schools, will become a full time member of the staff of the Council, October 1.

CONNECTICUT

Society News—At the annual meeting of the Connecticut State Dental Association in Hartford recently, the speakers included Drs Sigmund S Greenbaum, professor of clinical dermatology and syphilology, University of Pennsylvania Graduate School of Medicine, Philadelphia, on "Oral Manifestations of Systemic Diseases," and Francis P McCarthy, Boston, "A Clinical and Pathological Study of Oral Lesions."

Personal—Dr Stanhope Bayne-Jones, dean and professor of bacteriology, Yale University School of Medicine, New Haven, has been elected a member of the medical advisory board of the Leonard Wood Memorial (American Leprosy Foundation). Dr Margaret Tyler, associate clinical professor of obstetrics and gynecology, Yale University School of Medicine, New Haven, received the honorary degree of doctor of science at the recent centennial celebration of Mount Holyoke College. Dr Ross G Harrison, Sterling professor of biology, Yale University School of Medicine, New Haven, has been elected a foreign honorary member of the Royal Academy of Medicine of Belgium.

Hospital News—Work began on the new Bradley Memorial Hospital July 1, in New Southington. The facilities of the new hospital will be for the most part used for preventive medicine according to the *New England Journal of Medicine*. Part of the basement and the entire first floor of the two story L-shaped building will be used for a clinical public health service. The top floor will be used exclusively for emergency hospitalization and will contain a complete modern operating suite and a hospital outfit for from eight to ten beds. The building will also contain a venereal disease clinic. Funds for the hospital, which will cost about \$115,000, were left by Mrs Julia A Bradley, who died in 1919. The will stipulated that the hospital must be built within twenty-one years.

GEORGIA

Personal—Dr Russell H Oppenheimer, superintendent of Emory University Hospital and dean of Emory University School of Medicine, Atlanta, has been made medical director of the hospital and Mr Robert S Hudgens, assistant superintendent, has been appointed superintendent. Dr Thomas Oscar Vinson, Macon, assistant health officer of Bibb County, has been appointed health officer of Spalding County with headquarters in Griffin. The Athens-Clarke County Board of Health at a meeting July 1 adopted a resolution commending Dr Wedford W Brown, health officer since 1937. Dr Brown was recently chosen president of the Georgia Public Health Association. Dr John P Kennedy, who has been health officer of Atlanta for thirty-six years, has been elected for another three year term. Dr Herbert F Reading, Durham, N C, has been appointed health officer of the Thomas County Health Department, succeeding Dr James R Dykes, resigned.

IDAHO

State Medical Meeting—The annual meeting of the Idaho State Medical Association will be held in Boise August 30-September 3. Five guest speakers from the University of Minnesota Medical School, Minneapolis, and the Mayo Foundation, Rochester, Minn, will conduct the program, each speaking several times and conducting clinics. Following is the list of speakers and their subjects:

Dr William F Braess, Rochester, genito-urinary tuberculosis, hydro-nephrosis, nephrolithiasis and polycystic kidneys, hematuria—cause and significance, infections of the genito-urinary tract, diseases of the prostate.

Dr Harold E Robertson, Rochester, pathology of kidney lesions, pathogenesis and course of tuberculosis, laboratory diagnosis of tumors, pathologic features of cardiovascular disease, pathology of cirrhosis of the liver, illustrations of prostatic lesions.

Dr Frank J Heck, Rochester, present status of vitamin and hormone therapy, clinical management of nephritis, pernicious anemia and secondary anemias, hypertension and coronary disease, management of jaundice.

Dr Francis W Lynch, St Paul, syphilis including general diagnosis, syphilis, resume of treatment, carcinoma of the skin, dermatitis, including eczema, the purulent skin—scabies—impetigo.

Dr William P Sadler, Jr, Minneapolis, sepsis in obstetrics, toxemia in pregnancy, hemorrhage in obstetrics, spurious pregnancy, alleria, tion of pain in labor.

At the annual banquet Tuesday evening August 31 the guest speaker will be Fay Cooper-Cole, PhD, professor and head of the department of anthropology at the University of Chicago, on "An Anthropologist's View of Race."

ILLINOIS

Another Case of Rocky Mountain Spotted Fever—What was said to be the seventh case of Rocky Mountain spotted fever ever reported to the state department of health occurred in an 8 year old boy at Grafton who had been ill since June 25 according to a newspaper account July 26. After blood specimens showed a positive reaction to the Weil-Felix test the child's parents recalled that he had been bitten by a tick several days before he became ill.

Examination for District Health Officers—The state department of health announces that an examination will be held at Springfield for the purpose of selecting health officers for the Champaign-Urbana health district and the East St. Louis district. Applications must be received by September 15. Blanks may be obtained by writing to the director, Illinois Department of Health, Springfield. Acceptable applicants will be informed by mail as to the specific date of the examination. The determination of qualification for the positions will be based on the standards appearing in appendix A, supplement No 126, the Public Health Program, under title VI of the Social Security Act as published by the U S Government Printing Office, Washington, 1937.

Chicago

Infantile Paralysis in Boy Scout Camp—Camp Owassipp, near Muskegon, Mich., where 250 Chicago boy scouts had been spending a two weeks' vacation, was closed August 16, following an outbreak of infantile paralysis which resulted in the death of one boy and the serious illness of two others. The *Chicago Tribune* reported. The boys will return to their homes, which will be placed under quarantine. So far this month there have been four other deaths and thirty-two cases of infantile paralysis in Chicago as compared with three deaths and twenty other cases of the disease during the first fifteen days of August 1936.

Society Approves Campaign on Syphilis—The council of the Chicago Medical Society at a special meeting July 22 voted to support the campaign against syphilis now under way.

in Chicago to the extent of taking blood specimens. As a part of the drive questionnaires have been released to the public to determine the number of persons in favor of or against taking blood tests for syphilis. The questionnaire reads "In strict confidence and at no expense to you would you like to be given by your own physician a blood test for syphilis?" About 650,000 questionnaires had been issued up to August 16 and the returns at that date showed a ratio of 16 to 1 in favor of the tests. While the work is being carried out by the U. S. Public Health Service, WPA and local health authorities, all statistical information pertinent to the survey will be released through the Chicago Medical Society. A recent appropriation by the city council of \$50,000 will be used to condition the old South Division High School, Wabash Avenue and Twenty-Sixth Street, as a laboratory for social hygiene services and the renovation of a building on the west side for similar purposes is under consideration. It is not the intention to establish additional venereal disease clinics but to standardize and utilize existing clinics and encourage private practitioners to take patients in the small income groups at reduced fees by supplying free drugs and laboratory service. Under the Chicago plan of venereal disease control, a new panel system of records has been worked out whereby follow-up assignments may be easily and quickly prepared thereby locating sources of infection and contacts and returning delinquent patients for treatment. Between July 1 and August 13, 674 blood Wassermann and Kahn tests were made under the new Saltiel law, ten of which were positive. During the same period, 709 pus smears for gonorrhea were made, three of which were positive.

KENTUCKY

Dinner to Dr. Abell—The sisters at St. Joseph's Infirmary, Louisville, gave a testimonial dinner June 17 to Dr. Irvin Abell, who has been a member of the staff for many years. Dr. Abell was recently made President-Elect of the American Medical Association.

New Psychiatric Hospital Started—Ground was broken July 31 for a new psychiatric hospital near Danville on the Shakertown Road. The state legislature recently appropriated \$2,000,000 for several projects to modernize state institutions and it is expected that further appropriations will be made and that federal funds will also be obtained. It is expected that the hospital project will eventually cost \$3,000,000. The new institution will replace the present Eastern State Hospital at Lexington; the buildings of which may be used as a diagnostic center, it is reported.

LOUISIANA

Society News—Dr. John G. Menville, New Orleans, addressed the Second District Medical Society in Destrehan, June 17, on infections of the urinary tract.—Drs. Shirley C. Lyons and Willard R. Wirth, New Orleans, addressed the Seventh District Medical Society in Opelousas, June 10, on 'Carbuncles—A New Conservative Method of Treatment' and 'Heart Disease and Pregnancy' respectively. Dr. Charles M. Horton, Franklin, president of the Louisiana State Medical Society, spoke on organization problems and activities.—The Tri-Parish Medical Society for East Carroll, West Carroll and Tensas parishes met in Tallulah, June 1, with Drs. Andros Scott, Hamilton, Monroe, and Thomas P. Sparks, Jr., Newellton, as speakers on "Orthopedic Treatment in Infantile Paralysis" and 'Formation of Kidney Stone' respectively.—Dr. James T. Nix, New Orleans, addressed the Bi-Parish Medical Society (East and West Feliciana parishes), June 2, on cancer.

MAINE

State Medical Election—Dr. Willard H. Bunker Calais, was chosen president-elect of the Maine Medical Association at the annual meeting at Belgrade Lakes, June 20-23, and Dr. Ralph W. Wakefield, Bar Harbor, was installed as president. Miss Rebekah Gardner, Portland, secretary of the association for the last four years, resigned and Dr. Frederick R. Carter, Augusta, was elected to succeed her.

MICHIGAN

Personal—Dr. John Howard Ferguson, associate professor of physiology and pharmacology, University of Alabama School of Medicine, has been appointed assistant professor of pharmacology at the University of Michigan School of Medicine, Ann Arbor.—Dr. Hugo A. Freund has been appointed a member of the Public Welfare Commission of Detroit.

Typhoid Outbreak Traced to Carrier—A temporary carrier of typhoid bacilli was discovered to be the source of an outbreak of typhoid involving fourteen cases in and near Grand

Rapids, Mich., between Dec. 9, 1936, and January 4, according to *Public Health Reports*, July 9. Investigation of nine cases in the city, four cases in adjacent territory and one in a town 21 miles away revealed that all the patients in the city and some of those in the country had eaten cream puffs bought at the same bakery. All the employees of the bakery, about 250 persons, were examined and cultures were made daily on all who were under suspicion. On the seventh day a positive culture was obtained from a person employed in filling the cream puffs with custard and whipped cream. This person was said not to have had the disease.

Care of the Mentally Ill—An integrated program of care for the insane, feeble-minded and epileptic with emphasis on prevention and a program of building expansion have been approved in legislation recently enacted according to newspaper reports. For the latter, \$3,500,000 was voted this sum to cover also an experiment in isolation of sex degenerates. A new governing body created with full power to direct this program will appoint a directing head who must have the same minimum qualifications as superintendents of the mental hospitals. Research to determine the causes and prevention of mental disease will be begun on a small scale and expanded as the new program matures. The law provides that sex degenerates regardless of whether they are legally sane, be confined at the Iowa State Hospital in special quarters until they have ceased to be a menace to society. Such persons are to be transferred from penal institutions to hospital quarters and detained after expiration of their penal sentences. Under the law, pardon or parole for a degenerate would not be possible until he had been certified by alienists as no longer dangerous. A further provision of the law offers automatically public hearings for persons who have been discharged from mental hospitals as cured to determine whether they are legally sane.

MINNESOTA

Rooms Dedicated to Physician—Two rooms and the babies' ward in the new five-story addition to St. Barnabas' Hospital, Minneapolis, were recently dedicated to the late Dr. Knut O. Hoegh for many years chief of the surgical staff of the hospital. The rooms were the gift of Maurice L. Rothschild, president of Maurice L. Rothschild and Company, Chicago, out of gratitude to Dr. Hoegh. The entire addition which increases the hospital's bed capacity to 175 cost \$275,000.

Northern Minnesota Meeting—The annual meeting of the Northern Minnesota Medical Association will be held at Virginia, August 27-28. Among the speakers on the program will be

Dr. Joseph C. Michael, Minneapolis, Insulin Shock Therapy in Dementia Praecox.
Dr. George A. Earl, St. Paul, Comparative Values of Injection and Surgical Treatment of Hernia.
Dr. Harold D. Harlowe, Virginia, Bronchoscopy as an Aid to the General Practitioner.
Dr. Jacob Arnold, Bergen, Rochester, Conditions Causing Intestinal Obstruction and Their Management.
Dr. Berton J. Branton, Willmar, Medicine, a Cooperative Business, a Noncompetitive Profession.
Hon. Niels H. Debel, St. Paul, chairman, state industrial commission, The Physician and the Workman's Compensation Law.

At the annual banquet Friday evening, August 27, the speakers will include Dr. Roscoe G. Leland, director, Bureau of Medical Economics, American Medical Association, Chicago, on 'The Business Side of Medicine'. Dr. Alfred W. Adson, Rochester, president, Minnesota State Medical Association, 'The State Medical Association: A Going Concern'. James A. Merrill, LL.D., president emeritus, State Teachers College, Superior, Wis., 'The Wonderland of Lake Superior' and Dr. Oscar O. Larsen, Detroit Lakes, president of the Northern Minnesota association, who will give his official address. Dr. Frank J. Hirschboeck, Duluth, will preside at the banquet.

NEBRASKA

Society News—Drs. William L. Shearer and Warren Thompson, Omaha, addressed the Madison Six County Medical Society, Pierce, June 22, on 'The Infected Maxillary Sinus from Teeth' and 'Pulmonary Problems' respectively.—Dr. Edmund G. Zimmerer, Lincoln, assistant state epidemiologist, was the speaker at a meeting of the Eighth Council District at Rushville, recently, discussing the campaign against syphilis.—At a meeting of the Cedar, Dakota, Dixon, Thurston and Wayne Counties Medical Society, June 29, the speakers were all from Sioux City, Iowa: Drs. Howard I. Down, on 'Rectal Bleeding', Roy E. Crowder, 'Management of Breech Presentation' and Robert N. Larimer, 'Protamine Insulin'.

NEW JERSEY

State Board Election—Dr Henry B. Diverty, Woodbury, was elected president of the State Board of Medical Examiners at a meeting July 21, and R. M. Colburn, D. O. Newark, treasurer. Dr James J. McGuire, Trenton is secretary.

Physician Beaten When Answering Call—Dr Vincent G. Fay Montclair was beaten and robbed of \$40 July 21 when he answered a telephone call to attend a sick woman at 2 a. m. The Newark *News* reported Dr Fay was said to be in St. Vincent's Hospital with severe head injuries.

NEW YORK

Symposium on Silicosis—The Third Silicosis Symposium at the Trudeau School of Tuberculosis Saranac Lake was held June 21-25. Among the speakers who discussed various phases of the silicosis problem were Drs. Anthony J. Lanza, New York, Royd R. Sayers, U. S. Public Health Service, Washington, D. C., William S. McCann, Rochester, Leroy U. Gardner, Saranac Lake, Eugene P. Pendergrass, Philadelphia, Andrew R. Riddell, Toronto, Ont., Philip Drinker, Ch. E., Boston, Mr. Homer L. Sampson, Saranac Lake, Mr. D. E. Cummings, Saranac Laboratory, and Mr. T. C. Waters, Baltimore.

Personal—Dr Charles D. Shields, Buffalo, has been appointed assistant district health officer for Central New York. —Dr Simon J. Gormley, Albany has been appointed an epidemiologist-in-training with the state department of health. —Dr Raymond G. Wearne, assistant superintendent of the Central Islip State Hospital, has been appointed superintendent of the Wassaia State School for Mental Defectives. He succeeds Dr Harry C. Storrs, recently appointed superintendent of Letchworth Village, Thiells. —Dr Eugene F. McGilgan, director of Gray Oaks Hospital for the tuberculous Yonkers, has been appointed health commissioner of Yonkers to succeed the late Dr Louis V. Waldron. Dr Romeo Roberto succeeded Dr McGilgan at Gray Oaks.

Food Poisoning from Pastry Filling—About fifty persons were ill as a result of eating pastry with a cream filling purchased in the bakery section of a department store in Rochester in April. First a family of five became ill of food poisoning April 25 but the cause was not determined. The next day four members of another family became ill within three hours after eating a pie obtained from the department store. Later in the day the fifth member of this family returned home, partook of the pie and was sick within three hours. The first family on further questioning stated that for dessert a cream filled pie from the same store had been eaten. Sale of all cream filled goods was stopped at the store but no specimen of the filling sold on April 24 could be obtained. Within a few hours however reports of other illnesses came in and specimens were obtained from many households. Laboratory examination showed contamination with staphylococcus. The bakery was said to be of more than average cleanliness and the method of contamination was not determined though it was surmised that the filling may not have been thoroughly cooked.

New York City

Fellowship Awarded—The Mary Putnam Jacoby Fellowship of the Women's Medical Association of the City of New York has been awarded for 1937-1938 to Dr. Vilma Sebasta of the children's clinic at the University of Budapest for study in the United States.

Hospital Director Appointed—Dr Joe R. Clemmons, assistant director of Strong Memorial Hospital, Rochester, has been appointed director of Roosevelt Hospital, a position recently created. Dr. Clemmons is 41 years old and a graduate of the University of Tennessee College of Medicine, Memphis. The appointment is effective September 1.

Bequest for Fellowship at Columbia—A bequest estimated at \$200,000 was left to Columbia University College of Physicians and Surgeons by Mrs. Sara M. Frank, who died August 1 to found a fellowship as a memorial to herself and her husband. The income from the trust is to be used to aid any person or persons the faculty may select who show special aptitude for original work on diseases of the eye according to the New York *Times*.

Hospital News—The Rev. George F. Clover, superintendent of St. Luke's Hospital from 1900 until his recent retirement because of ill health, died July 18 at his summer home in Norfolk, Conn. Dr. Claude W. Munger, former superintendent of Grasslands Hospital, Valhalla, succeeded Mr. Clover as superintendent of St. Luke's last April. —The Brooklyn

Cancer Institute has recently obtained a gram of radium valued at \$30,000. This is the first radium the institute has received, though it was opened last October. The radium was bought by the city from Belgium.

Dr. Gonzales Appointed Medical Examiner—Dr. Thomas A. Gonzales, acting chief medical examiner since the death of Dr. Charles Norris in September 1935, has been appointed permanently to the position, having qualified in a civil service examination. Dr. Gonzales, who is 59 years old, graduated from Bellevue Hospital Medical College in 1898. He served successively as assistant pathologist, pathologist and consulting pathologist at Harlem Hospital from 1904 to 1918 when he was appointed assistant medical examiner. In 1926 he became deputy medical examiner. He is associate professor of forensic medicine at New York University College of Medicine.

NORTH CAROLINA

Faculty Additions at Duke—Dr. Joseph W. Beard, New York, has been appointed assistant professor of surgery at Duke University School of Medicine, Durham, and Dr. Walter L. Thomas, Jr., formerly of Lynchburg, Va., has been appointed assistant professor of obstetrics and gynecology. Dr. Beard graduated from Vanderbilt University School of Medicine, Nashville, Tenn., in 1929 and Dr. Thomas from University of Virginia Department of Medicine, Charlottesville, in 1931.

Society News—At a joint meeting of the Cleveland Rutherford, McDowell and Polk county medical societies in Cleveland Springs, June 24, the speakers were Drs. Robert H. Crawford, Rutherford, on tumors of the mouth, Benjamin Gold, Shelby, on enuresis in children, and William M. Elliott, Forest City, foreign body in the bladder. —At a meeting of the Sixth Council District of the Medical Society of the State of North Carolina in Roxboro, June 23, the speakers included Drs. Hubert A. Royster, Raleigh, on appendicitis, Julian M. Ruffin, Durham, conditions causing bloody diarrhea, and Julian W. Ashby, Raleigh, mental diseases. —The Buncombe County Medical Society recently began publication of a four page bulletin.

Dr. MacNider Appointed Dean—Dr. William de B. MacNider, Kenan research professor of pharmacology at the University of North Carolina School of Medicine, Chapel Hill, has been appointed dean of the school to succeed Dr. Charles S. Mangum. Dr. MacNider graduated from the university medical school in 1903 and has been a member of the faculty since 1905. He has been president of the Medical Society of North Carolina and the American Society for Pharmacology and Experimental Therapeutics and chairman of the Section on Pharmacology and Therapeutics of the American Medical Association. He is a member of the National Board of Medical Examiners and associate editor of the *Journal of Pharmacology and Experimental Therapeutics*.

NORTH DAKOTA

Personal—Dr. John D. Carr has resigned as superintendent of the North Dakota State Hospital for Insane, Jamestown. —Dr. William A. Gerrish, Jamestown, has been appointed a member of the North Dakota State Board of Medical Examiners to succeed Dr. John E. Hetherington who moved from the state to Portland, Ore.

Society News—Dr. Edward M. Ransom, Minot, addressed the Northwest District Medical Society recently at Minot on "Diagnosis of Placenta Praevia." Dr. Irvine McQuarrie, Minneapolis, was a recent speaker on "Convulsive Disorders of Childhood." —A program on syphilis was presented at a recent meeting of the Cass County Medical Society in Fargo by Drs. Arthur C. Fortney, William F. Baillie, William G. Brown, Harvey J. Skarshaug and Frank I. Darrow.

OHIO

Society News—Dr. Earl H. Baxter, Columbus, addressed the Fayette County Medical Society at Washington Court House, July 8, on "The First Two Years of a Child's Life." —Dr. Andrew C. Ivy, Chicago, addressed the Lima and Allen County Academy of Medicine, Lima, June 17, on "Applied Physiology of the Liver." —Drs. Joseph S. Rardin, Alexander P. Hunt and Herbert M. Keil addressed the Hempstead Academy of Medicine, Portsmouth, July 12, on "Fractures." —The Stark County Medical Society held its annual picnic and golf tournament at the Congress Lake Country Club, Canton, June 16. At this meeting the Canton Chamber of Commerce presented to the society a gavel made of wood from the home of President McKinley, once a resident of Canton.

OKLAHOMA

Society News—The semiannual meeting of the Southeastern Oklahoma Medical Association was held in McAlester June 24 with the following speakers: Drs. William L. Shippey, Poteau, on "The More Common Cardiac Conditions: Their Early Recognition and Management"; Forrest P. Baker, Tahmina, "Tuberculosis a Family Disease"; Weldon Keiller Haynie, Durant, "Symptoms, Diagnosis and Treatment of Acute Perforated Gastric Ulcer"; Lyman C. Veazey, Ardmore, "Hypothyroidism"; and Alfred T. Baker, Durant, "Management of Diabetes Mellitus."

State Health Department in New Home—The state department of health recently moved its headquarters in Oklahoma City from the state capitol to a building formerly used as a soldiers' home. The move was made when increased appropriations and federal funds made possible enlarged activities for the health department. There are now eight bureaus and it is anticipated that the department will have about 300 employees when the program is fully launched. Twenty-one counties in the state now have full time health units under the general supervision of Dr. Charles E. Leonard. Dr. Charles M. Pearce is the health commissioner.

PENNSYLVANIA

District Meeting—The annual meeting of the Eleventh Council District of the Medical Society of the State of Pennsylvania was held at Bedford Springs July 28. Scientific papers were presented by Drs. George M. Piersol, Philadelphia, on "Rheumatic Diseases of the Heart"; Edward L. Bortz, Philadelphia, "Pneumonia Control—A Major Responsibility of the General Practitioner"; John P. Griffith, Pittsburgh, "Significance of Abdominal Pain"; and John B. McMurray, Washington, "Acute Infections of the Orbit." Dr. Maxwell J. Lick, Erie, president of the state society, spoke on "The Physician as a Molder of Public Opinion" and Dr. Chauncey L. Palmer, Pittsburgh, chairman of the committee on public health legislation, "Legislative News." Testimonials for fifty or more years of practice were presented to the following physicians:

William J. George, Johnstown	Harvey M. Griffith, Conemaugh
John A. Murray, Patton	Daniel S. Rice, Ebensburg
Henson F. Tomb, Johnstown	John M. C. Reynolds, Washington
John D. Sturgeon, Uniontown	George W. Hatfield, Mount Morris
George B. Woods, Washington	George B. Frantz, Coal Center
Colin R. Weirich, Bridgeville	

SOUTH CAROLINA

State Society President Resigns—Dr. Julius H. Taylor, Columbia, president of the South Carolina Medical Association, has resigned on account of illness. Dr. Leonidas M. Stokes, Walterboro, first vice president, has succeeded him.

UTAH

Health Districts Established—With funds from the federal government through the Social Security Act, three public health districts covering the entire state have recently been established. Dr. Welby W. Bigelow has been appointed to have charge of the northern district with headquarters in Salt Lake City; Dr. Alton A. Jenkins, the southwestern district with headquarters in Cedar City; and Dr. Edward L. Van Aelstyn, the southeastern district with headquarters in Price.

VIRGINIA

Professor Appointed—Dr. George McLean Lawson, recently professor of public health and bacteriology at the University of Louisville (Ky.), School of Medicine, has been appointed professor of preventive medicine and bacteriology at the University of Virginia Department of Medicine, Charlottesville. Dr. Lawson graduated from Yale University School of Medicine, New Haven, Conn., in 1924.

New Board for State Hospitals—Drs. Robert Finley Gayle, Jr., Richmond, and Frank C. Pratt, Fredericksburg, are physicians appointed to a new board created to have supervision over state mental hospitals. Other members of the board are Shirley Carter, Winchester; Morton Goode, Dinwiddie; King E. Harmon, Pulaski; George P. Coleman, Williamsburg; and H. Minor Davis, Lynchburg. Mr. Carter is chairman.

WASHINGTON

Public Health League Election—Dr. Harry E. Rhodeland, Spokane, was elected president of the Public Health League of Washington at the annual meeting during the convention of the Washington State Medical Association in Seattle in July. Vice presidents of the league were elected as follows: Drs. Reuben A. Benson, Bremerton; George W. Cornett, Arkuma; Roscoe W. Smith, Walla Walla; J. Bennett Blair, Vancouver; and William A. Mitchell, Colfax.

WEST VIRGINIA

Health Council Meeting—Dr. Walter E. Vest, Huntington, was elected president of the Public Health Council of West Virginia at a meeting in Fairmont in July. The council set up rules and regulations for tourist camps and trailers. The regulations call for proper drainage, adequate sanitary facilities, sewage and garbage disposal, supervision, safe water supply, and adequate refrigeration for milk and food supplies. Camps meeting all the requirements may display an "Approved" sign.

WISCONSIN

Veteran Practitioner Honored—The council of the State Medical Society of Wisconsin recently elected Dr. Benjamin J. Bill, Genoa City, an honorary member. Dr. Bill was born in 1850 and graduated from Rush Medical College, Chicago, in 1879. He settled soon after his graduation in Genoa City and has been active in the town's affairs as well as in medical fields. He was an organizer of the Walworth County Medical Society and its first president and also helped organize his district medical society and served one year as president. According to the *Wisconsin Medical Journal*, he has been a member of the state society since 1885.

GENERAL

Board Examination Postponed—The first examination in part I to be held by the American Board of Surgery, which was announced for September 20, has been postponed to October 20 according to an announcement by the secretary, Dr. J. Stewart Rodman, Philadelphia.

Changes in Status of Licensure—The Kansas Board of Medical Registration and Examination reports the following action taken at its meeting June 21:

Dr. Clarence J. McKnight, Wichita, license restored.

The board of medical examiners of Oregon recently reported the following action:

Dr. Walter M. Blowers, Portland, license revoked May 10 on a complaint of unprofessional and unlawful conduct as a physician and surgeon.

Society News—Dr. Charles E. Sears, Portland, Ore., was elected president of the Pacific Northwest Medical Association at its meeting in Great Falls, Mont., July 15-17. Because of the meeting of the American Medical Association in San Francisco in 1938, it was decided to hold only a business meeting in 1938 in San Francisco and elect officers at that time. The fifty-fourth annual meeting of the American Clinical and Climatological Association will be held in Baltimore, October 11-13, with headquarters at the Belvedere Hotel. The American Association for the Study of Neoplastic Diseases will hold its annual meeting in Washington, D. C., September 9-11.

Prevalence of Poliomyelitis—Newspapers have reported unusual prevalence of poliomyelitis in several states. Eighty-three active cases were reported from Western Kentucky towns August 6. The state health department of Oklahoma stated August 1 that 160 cases had been reported in that state during July. The outbreak in Arkansas was believed to be abating; the state health officer announced July 29 when 100 active cases were reported, twenty less than two weeks before. There have been eight deaths in Little Rock. Twenty-six cases were reported to the Illinois state department of health during the week preceding August 3. The U. S. Public Health Service reported 324 cases during the two weeks ended July 31.

Vernon Kellogg Dies—Vernon Lyman Kellogg, LL.D., secretary emeritus of the National Research Council, since 1932, died in Hartford, Conn., August 8, aged 69. Mr. Kellogg was born in Kansas and educated at the University of Kansas and later at foreign universities. He taught entomology at the University of Kansas from 1890 to 1894. In the latter year he became professor of entomology at Stanford University, California, where he remained until 1920. During and after the World War, however, he was active in relief work in Belgium, Poland, and Russia. He became the first permanent secretary of the National Research Council in 1919 and resigned in 1931 because of illness. Mr. Kellogg was honored by decorations from many foreign governments and by honorary degrees from several universities. He was author of numerous books on zoology and entomology.

Pharmacopoeia Supplement Released—The first Supplement to the U. S. Pharmacopoeia XI has been published and will become official December 1. The supplement is a book of about 100 pages and may be obtained from the Mack Printing Company, Easton, Pa., from wholesale druggists or other distributors of the Pharmacopoeia for \$1 a copy. All texts revised up to June 1 are included in the book. Each proposed change was investigated and submitted to the Committee of Revision, and the tentative text was then widely distributed to solicit criticisms and suggestions. A hearing was conducted

by members of the executive committee after which members of the executive committee held a conference with the officials of the Food and Drug Administration at Washington and decided on the text which was then submitted in full to the Committee on Revision for discussion and approval. The issuance of a supplement is to make possible prompt revision of tests and assays whenever it is found necessary and even the recognition of added therapeutically important substances if new conditions make such action desirable.

Accidental Deaths Increase—The National Safety Council recently issued its annual compilation of statistics on accidents giving data for 1936. The report shows that 111,000 persons met accidental deaths in 1936, one death every five minutes. There were 1,073,000 persons injured with permanent disability in 400,000 cases. The accident death rate was 86.4 per hundred thousand persons, an increase of 10 per cent over the previous year. Approximately half this increase was attributed to the excessive heat of 1936; the report pointed out about five times the usual average number of deaths being credited to that cause. Fatal traffic accidents increased to a new high point of 37,800 but they were exceeded by home accidents which killed 38,500. Falls killed more persons than any other accidental cause except traffic accidents. 47 per cent of the victims were women. Deaths from occupational accidents reached 18,000 in 1936 as compared with 16,500 in 1935. Fatalities in the classification "public not motor vehicle" rose 11 per cent from 18,000 in 1935 to 20,000 in 1936. Mishaps in this group covered such occurrences as drownings, poisonings and firearms accidents not covered by the other three groups and that did not involve a motor vehicle. Children from 5 to 14 years old showed the best record, a death rate of 34.6 per hundred thousand. Younger children had a rate of 76.3 and rates for other age groups were as follows: from 15 to 24, average 56.7, from 25 to 64, average 81.1 and above 65, average 398.1. A comparison of rates for men and women showed that accidents last year killed 110.2 men in every hundred thousand and only 46.1 women. The number of men killed was greater than the number who died of any disease except heart disease. Arizona had the highest accident rate for all types of accidents, 165.5 deaths per hundred thousand persons and Rhode Island the lowest, 59.3.

Medical Bills in Congress—*Changes in Status*. S 1567 has passed the Senate and has been favorably reported to the House with amendments proposing among other things that helium not needed for government use may be produced by the government and sold under regulations approved by the President, for medical, scientific and commercial use. S 1629 passed the Senate, August 14, without amendment, proposing to regulate traffic in surgical ligatures and sutures. The bill proposes that surgical ligatures and sutures, to be salable in the District of Columbia or in interstate and foreign commerce must be prepared at an establishment holding an unsuspended and unrevoked license issued by the secretary of the treasury and that the container must be plainly marked with the proper name of the article, the name, address and license number of the manufacturer and the date beyond which the contents cannot be expected beyond reasonable doubt to yield their specific results. H R 8202 has passed the House proposing to provide for the reorganization of agencies of the government and to establish the Department of Welfare. The bill provides that the secretary of welfare shall promote public health, safety and sanitation, the protection of the consumer, the cause of education, the relief of unemployment and of the hardship and suffering caused thereby, the relief of the needy and distressed, the assistance and benefits of the aged and the relief and vocational rehabilitation of the physically disabled and in general shall coordinate and promote public health, education and welfare activities. *Bills Introduced*. H R 8214 introduced by Representative Murdock, Arizona, proposes to authorize an appropriation of \$500,000 to erect additional facilities to the existing veterans facility at Tucson, Ariz., to take care of at least 200 general medical patients. H R 8225 introduced by Representative Voorhis, California, proposes to amend the Social Security Act by authorizing an annual appropriation of \$7,000,000 to be allotted to the several states to provide medical care to nonresident needy persons "on the same basis as to resident needy persons." In order to receive an allotment a state must submit plans to the surgeon general of the public health service for the medical care of nonresident needy persons. H R 8237, introduced by Representative Voorhis, California, proposes to provide for the general welfare by establishing a Cooperative Home Board and a system of Cooperative Home Associations. No person may become a member of any such association it is proposed before reaching the age of 62 and no membership may be sold for less than a minimum of

\$2,000. A membership fee will obligate the association to supply the member with housing, food, medical attention and other living necessities for the term of the membership. The United States Public Health Service is to be authorized to supply and supervise the medical service to be made available to members of such associations and to supervise the sanitary facilities of association home units, an appropriation of \$50,000 a year being authorized to enable the public health service to carry out these functions.

CANADA

Canadian Medical Election—Dr Kenneth A. Mackenzie, Halifax, N. S., was chosen president elect of the Canadian Medical Association at the annual meeting in Ottawa, June 21-25, and Dr Theodore H. Leggett, Ottawa, was installed as president. The 1938 meeting will be in Halifax.

Personal—Sir Andrew McPhail, professor of the history of medicine at McGill University Faculty of Medicine, Montreal, since 1906, will retire at the end of the present summer term, according to *Science*.—Dr Chesley F. Blackler, formerly of Montreal, has been appointed health officer of Kingston, Ont.; it is reported.

British Columbia Meeting—The annual meeting of the British Columbia Medical Association will be held in Vancouver, September 13-15, with the following speakers:

Dr Edwin E. Osgood, Portland, Ore., Therapeutic Thinking, Hypertensive Cardiovascular Renal Disease, Recent Advances in Hematology.
Dr Myron O. Henry, Minneapolis, Surgical Treatment of Intracapsular Fractures of the Hip, Fusion of Spine with Bone Chips.
Dr Burgess L. Gordon, Philadelphia, A Study of 3,000 Cases of Obesity.
Dr James D. Adamson, Winnipeg, Money and Medicine, Respiratory Sepsis.
Dr Malcolm R. MacCharles, Winnipeg, Some Problems of Biliary Surgery, Cancer of the Breast.

Drs Theodore H. Leggett, Ottawa, and Thomas C. Routledge, Toronto, president and general secretary respectively of the Canadian Medical Association, will also make addresses.

LATIN AMERICA

Society News—Dr Gonzalo Pedrosa was recently installed as president of the National Society of Surgery in Cuba. Other officers are Drs Eugenio Torroella, vice president and Vicente Banet, secretary.

Institute for Investigation of Tuberculosis—Announcement is made of the foundation of the Brazilian Institute for the Investigation of Tuberculosis in Bahia, recently. The institute plans to include in its activities all phases of the problem of tuberculosis. It proposes to establish a special library and laboratory, to sponsor congresses and lectures to provide treatment for the indigent, to publish reports of research and provide for exchange of information with other countries. Dr Jose Silveira is director of the technical and administrative work of the institute and Dr Oswaldo Gomes is secretary. Dr Edgard Rego dos Santos, director of the Faculty of Medicine of Bahia, is president of an advisory council of twenty-two members representing various fields of medicine.

FOREIGN

British Medical Election—Dr Colin D. Lindsay, honorary senior physician, Prince of Wales's Hospital and physician to the Royal Eye Infirmary, Plymouth, was chosen president of the British Medical Association for the year 1938 at the meeting in Belfast in July. Prof. Robert J. Johnstone, professor of gynecology, Queen's University, Belfast, is president for the coming year.

The Telegraph Aids Campaign Against Tuberculosis—The Swedish Government Telegraph and Telephone Board has a special blank for use on festive occasions for which it charges an extra fee of 50 ore or about 12½ cents, the additional charge going to support the fight against tuberculosis in children and the poor. The blanks are extensively used for such occasions as weddings and anniversaries and the National Swedish Society Against Tuberculosis last year received from the sale of these "telegrams de luxe" an income of almost 500,000 kronor, about \$125,000. It received more than 100,000 kronor or about \$25,000 from the sale of Christmas seals.

School for Aerial Protection in Belgium—The Ministry of the Interior in Belgium has organized a "graduate school" of aerial protection in Brussels for physicians, pharmacists, chemists and engineers according to an announcement from the Permanent Committee of the International Congress of Military Medicine and Pharmacy. The school will take account of experiences in the last war but will be constantly seeking

the most recent advances in chemistry physics physiology and therapeutics the announcement says A central library is now being organized to assemble an international documentation on the subject and it is anticipated that practical research laboratories may be established The program comprises the following features international legislation, general and special chemistry general and special pathology therapeutics procedures of identification and dosage principles of individual and collective protection, and general organization for protection

Government Services

Annual Medicomilitary Training Course

The ninth annual training course for medical department reservists of the army and navy will be held at the Mayo Foundation, Rochester Minn October 3-16 The morning hours will be devoted entirely to professional work in special clinics and study groups Officers may select the course they wish to follow from a wide variety of presentations The afternoon and evening will be devoted to a medicomilitary program under the direction of the surgeon of the seventh corps area and the surgeon of the ninth naval district This training is on an inactive duty status and is without expense to the government Enrolment is open to all army and navy reservists of the medical departments in good standing Applications should be submitted to the surgeon of the seventh corps area, Omaha, or to the surgeon of the ninth naval district Great Lakes Enrolment is limited to 200

Grants-in-Aid for Public Health Work

The Treasury Department Appropriation Act for the fiscal year ending June 30 1938 appropriated \$8,000,000 to assist states and their political subdivisions to establish and maintain adequate public health services, as authorized by the Social Security Act This sum plus balances of approximately \$1,000,000 from previous appropriations not used by the states will be allotted to the several states under regulations recently promulgated by the surgeon general of the Public Health Service These regulations provide that of the total sum available 307 per cent will be allotted to the states in the ratio which the population of each state bears to the population of the United States, 386 per cent on the basis of special health problems, such as for example, high morbidity or mortality from particular causes on a state-wide basis as malaria, hookworm, bubonic plague trachoma and typhus fever and the remainder or 307 per cent on the basis of financial need

To obtain allotments a state must present to the surgeon general of the Public Health Service a comprehensive statement showing the present state health organization programs and budget and a proposed plan for extending and improving the administrative functions of the state department of health and for extending and improving local health services Each state health officer must submit to the surgeon general for his approval, proposed budgets for carrying out each contemplated project showing the sources purposes and amounts of all funds the amounts requested from the Public Health Service for the fiscal year and such other information relating to the proposed projects as the surgeon general may require Each state health officer is furthermore required to certify that state and local expenditures will not be replaced or curtailed through the use of federal funds

Allotments to states will be available for payment when matched by state or local public funds The surgeon general however may in his discretion waive the matching requirement in those states wherein the per capita appropriation for the state department of health exclusive of funds for the maintenance of institutions exceeds the average per capita appropriation of all the states for the same purposes

Payments to the states will be made in quarterly instalments Each state health officer must submit to the surgeon general a quarterly project financial report for each budget in force and a consolidated quarterly report summarizing all budgets The reports must show the amount of public health funds actually expended and the actual expenditure of state and local funds and must contain such other information as the surgeon general may require Each state health officer must furthermore make quarterly reports of activities including (a) a report on the activities of the central administration and service projects (b) a copy of the progress report from each local health project and (c) a consolidated summary report for all projects

Foreign Letters

LONDON

(From Our Regular Correspondent)

July 24, 1937

The Annual Meeting of the British Medical Association

The 105th annual meeting of the British Medical Association was held at Belfast The president, R J Johnstone, delivered an address entitled "Some Thoughts on Medical Education," for which subject his position as professor of gynecology in Queen's University and member of the General Medical Council well fitted him He said that critics generally assumed that teachers at the end of five years should turn out a finished product, but no one expected them to turn out in the same period a finished anatomist, pathologist or surgeon Every one recognized that to form a specialist, years of graduate study and experience were necessary Was the path which the general practitioner must follow to master his art shorter and less steep than that of the specialist? He would say No The specialist must know everything about his subject, the general practitioner must know something about almost every subject Just as the finished surgeon must have responsible experience of surgery, the finished general practitioner must have responsible experience of general practice The undergraduate's horizon was limited by the threatening figures of the board of examiners Only when that grim specter had faded was he free to take a view of the responsibilities he must shoulder throughout the rest of his professional life Professor Johnstone was often asked how if practice was essential to form a good practitioner, could licensing bodies be justified in giving a license to practice to those who had no experience? He could only reply that after many years as an examiner and as an inspector of final examinations he would say that the question Is it safe to the public to allow this candidate to practice? is the dominant one in the mind of every examiner

As the practice of clinical medicine was the most important factor in forming the young practitioner and was to be his chief pursuit, would be reformers of the curriculum demanded still more clinical study in the education of the undergraduate He would be the last to disagree, but one should not be led into the fallacy of thinking that clinical training was the end all of medical education The nurse in her training had better and more prolonged opportunities for clinical observation than the medical student But did this enable her to take on the function of a medical practitioner? She would be the first to say No She lacked the background of anatomy, physiology and pathology which the medical student had gained with much toil and sweat and against which his clinical observations were composed and the picture interpreted It was the main business of medical education to provide an adequate background and to teach how it should be used

GRADUATE TRAINING

Professor Johnstone thought that most graduate courses tried to administer too much in too short a time There were possibilities of graduate training in linking up practitioners with hospitals, as Sir Farquhar Buzzard suggested last year, but there were many administrative problems to be overcome Perhaps in the future all difficulties would be solved by the establishment of a state medical service, but like good democrats we should always oppose it Every fresh instalment of social and public health legislation brought us nearer to the totalitarian ideal When that had arrived we might say goodbye to the general practitioner as we know him

THE GENERAL PRACTITIONER

How did the general practitioner compare with his predecessor of a generation back? His equipment was undoubtedly better He had for the service of his patients a store of knowl-

edge and an acquaintance with technical resources not dreamed of when Professor Johnstone was a student. Attendance in the wards and in the outpatient rooms, still more residence in hospital, long a feature in Irish medical schools and soon to be introduced in the United Kingdom generally, was an education in behavior no less than in clinical medicine.

THE HEMORRHAGIC STATES

At a joint meeting of the sections of medicine, pathology, bacteriology and immunology, Prof. L. J. Witts opened the discussion on the hemorrhagic states. He was increasingly impressed by the frequency and diversity of hereditary hemorrhagic diseases and their resistance to treatment. The study of hereditary diseases in man had been vitiated by premature dogmatism and expectation of a constancy in inheritance which the student of genetics in plants and animals would from the first have thought improbable. Hereditary hemorrhagic diseases in man were not subject to immutable laws in pattern and pedigree. It was wiser to think in terms of affected family groups than of specific diseases and laws of heredity. The local application of coagulant snake venom was the only new treatment of which the value had been confirmed. The venom of Russell's viper (1:10,000 solution) or of the Australian tiger snake (1:5,000 solution) had been chiefly used (Macfarlane and Barnett, 1934; Rosenfeld and Lenke, 1935). Loose clot was washed away from the bleeding point and tampons soaked in the venom solution were applied. With the use of snake venom in hemophilia it was now possible to repair wounds or to carry out small operations, such as dental extraction, which would previously have been fatal.

SULFANILAMIDE IN PUERPERAL HEMOLYTIC STREPTOCOCCUS INFECTIONS

In the section of obstetrics and gynecology, Dr. G. F. Gibberd said that the new aniline derivatives had been employed at Queen Charlotte's Hospital since 1936. In the doses in which they had been given their use appeared to be free from serious danger and had been followed by a great reduction in the mortality of hemolytic streptococcus infections. Analysis of the causes of this improvement showed that it was associated mainly with a decrease in the widespread invasion of the tissues by the hemolytic streptococcus rather than with a greater tendency to resolution of the disease once widespread invasion had occurred. This feature made it necessary to consider whether the improvement was due to the treatment or to a change in the virulence of the streptococcus. It was possible that both factors might be concerned. In nonfatal cases in which the tissues beyond the limits of the birth canal had been invaded by the streptococcus there was some evidence that the new drugs did hasten resolution of the inflammatory process, and this was a good reason for believing that the treatment, rather than a change in the virulence of the streptococcus, was responsible for the improvement.

While he was unwilling to guess how far the new drugs had been responsible for the undoubted improvement, he said that there was every reason to continue to use them until their value had been definitely determined.

THE FLOGGING OF CHILDREN

At the meeting of the Representative Body, an unusual subject was brought forward. A member moved that the judicial flogging of juvenile delinquents was highly undesirable, harmful in its effects and useless as a deterrent from crime and should no longer be statutory. Psychologists were unanimous in condemning it. A board of education inquiry had shown that over 80 per cent of juveniles so treated were recharged within a short time. Finland, Sweden and Norway were the only European countries which allowed judicial flogging. In the debate, opinion was divided. It was said that some children

were of such a character that flogging was the only means of dealing with them and that it was a deterrent not only to them but to others. It was pointed out that a special committee appointed by the government was considering the question and a motion to pass to the next business was carried.

NUTRITIONAL NEEDS IN PREGNANCY

At a joint meeting of the sections of obstetrics and gynecology and the new section of nutrition, Sir Robert McCarrison said that all the essential foodstuffs required in pregnancy were provided by the following in order of precedence: 1. Milk and its products. 2. Whole or lightly milled cereal grains, in particular, a good whole meal bread or standard bread, and oatmeal. 3. Green and leafy vegetables. 4. Root vegetables, particularly potatoes, carrots and onions. 5. Fruit, including the tomato. 6. Pulses. 7. Egg. 8. Meat, including fish, fowl and glandular organs. To these there must be added in this country cod liver oil, not in the large doses commonly prescribed but in the sufficient dose of a teaspoonful daily. As an additional assurance of functional efficiency of blood, muscle and nerve yeast extract was a wise precaution.

Dame Louise McIlroy, gynecologist, said that it was an easy way out of the difficulty for the physician to prescribe gallons of cod liver oil and tablets of mineral salts but that it was an artificial procedure. Fresh herrings, which contained vitamins, were often unobtainable because of the difficulty of transport. What was the diet of the average working class mother today? One had only to look at the shops. Windows were heaped with bread made from milled flour and cans of every conceivable food, meat, vegetables and fruits. These canned foods were appetizing and ready prepared but in spite of assurances to the contrary could never replace fresh foods. How many antepartum clinics concerned themselves with lessons in the preparation of food? It was all very well for laboratory workers to publish lengthy treatises on food values. The whole communal system broke down in the hands of the woman of the house, whose lack of knowledge of cooking and storage was responsible for the destruction of the main vitamin content of the food with which she supplied herself and her family.

PARIS

(From Our Regular Correspondent)

July 24, 1937

The Antinoise Campaign in Paris

Some time ago, a committee was appointed by the Académie de médecine to study means to suppress noise, which has been especially noticeable since the use of the radio has become more widespread in the residence sections. Some progress had been made in a similar campaign a few years ago through prohibiting the use of automobile sirens between the hours of 9 p. m. and 7 a. m.

The committee, headed by Dr. Pouchet, made the following report at the June 22 meeting:

1. The order of the police department, previously issued as to the interdiction of the use of automobile horns, should be changed to include the hours between 10 p. m. and 7 a. m.

2. The noise from all automobile and motorcycle exhausts should be suppressed. A previous (1931) rule has not been strictly enforced, the worst offenders being motorcycle riders and drivers of pleasure cars.

3. Between the hours of 10 p. m. and 10 a. m. the use of all loud radios is prohibited. This will be welcome news if enforced, to all citizens living on narrow streets or in apartments in which sound travels across floors, partitions or inner courts.

4. All chauffeurs should be requested to slow up at street crossings.

The French Gynecologic Congress

The sixth French Gynecologic Congress was held at Toulouse, May 15-18, under the presidency of Professor Meriel of Toulouse, and the subject for special reports and discussion was cancer of the uterus.

The first paper was by Drs Hamant and Chalmot on the diagnosis of cancer of the cervix. Every irregular hemorrhage calls for a vaginal examination. This applies particularly to intermenstrual bleeding of women who have not reached the menopause, the atypical hemorrhages during the latter period and all serosanguinolent discharges. The difficult cases to diagnose are those in which the cervix is hidden behind a fold of vaginal mucous membrane or an atresia. Palpation and use of the ordinary speculum yield little information. It is advisable to dilate or even incise a stenosing fold under anesthesia in order to exclude a cancer by biopsy from a senile metritis in which the cervix lies bathed in pus. The Lahm-Schiller test is of only relative value and is incomplete without a biopsy. Hysteroscopy as a rule is used only for cancers of the body of the uterus, but it may be helpful in certain endocervical cancers. A method termed hysteromucography has been but little employed up to the present. After injection of an opaque medium (colloidal suspension of thorium) into the cervical canal, an x-ray examination is made. The oxide of thorium is seen to be deposited on the surface of the endometrium. Biopsy, in cases of cervical cancer, is not always decisive, many contradictory results having been noted. A positive result can be regarded as confirmatory but a negative one does not exclude the presence of a cancer.

The second paper, on operative treatment of lymph node involvement in cancer of the cervix, was read by Dr Dieulafe. Although the lymph nodes are malignant in only one third of the cases, they should not be considered as negligible factors. Some surgeons advise removing the lymph nodes in every case with the adjacent cellular tissue. Faure of Paris removes only those which are to be felt and seen in the pelvic tissues round the uterus.

The third paper was on cancer of the cervix following subtotal hysterectomy for nonmalignant conditions. Lefebvre and Gouzi, who presented this paper, did not believe that total hysterectomy is indicated in every case of uterine fibroids. The increased risks over the subtotal operation are not compensated by the incidence of the postoperative development of cancer in the cervical stump.

The fourth paper was on recurrences and metastases in cervical cancer, by Dieulafe and Curtillet. The majority of recurrences are observed during the first five years after treatment. The fact that recurrence takes place does not mean a high degree of malignancy in the original tumor but rather inadequate primary treatment. In general, the prognosis has been unfavorable up to the present but the results with teleoroentgen therapy appear promising. Even though complete cure cannot always be expected in recurrent cases, at least life can be prolonged by early diagnosis and energetic treatment.

A paper on the biologic diagnosis of cervical cancer was presented by Prof Max Aron of Strasbourg, whose technique is based on the theory that toxins can be eliminated by the kidney in cancer cases, either from degenerated cells or from other as yet undetermined causes. The urinary extract is employed as an antigen in the presence of the patient's serum, resulting in a flocculation reaction. In 155 serums from cancer cases there were 124 (80 per cent) positive, twenty-two (14 per cent) doubtful and nine (6 per cent) negative results. In 222 noncancer cases used as a control there were six (3 per cent) positive, nine (4 per cent) doubtful and 207 (93 per cent) negative results.

Dr Michon of Lyons spoke on surgical treatment (except during pregnancy). At present only cases in groups 1 and 2

of the Geneva classification are considered operable. In these, the cancer is limited to the cervix without demonstrable parametrial involvement. The mortality varies from 266 to 9 per cent and the end results show 40 per cent of cures.

Influence of BCG Vaccination of Children on Tuberculin Tests

In a paper read at the June 1 meeting of the Académie de médecine the results of the vaccination and revaccination (with the BCG vaccine) of 156 children were reported by Foley and Parrot of the Pasteur Institute of Algiers, in the French colony in northern Africa. The children varied in age from new-born to 15 years, the vaccine being given by mouth or subcutaneously. All those who were vaccinated lived in a community close to the Sahara desert in which tuberculosis is rare, hence the interpretation of the effects of the vaccination on the sensibility of those who have been vaccinated to tuberculin does not risk being influenced by intercurrent tuberculous contamination. Certain of these children had received a single vaccination or a revaccination (subcutaneous) and from three to five buccal vaccinations over a period of from three to six years. The amount given at each vaccination was from 5 to 30 cc of the BCG vaccine, each child receiving up to 0.08 mg subcutaneously and 0.65 Gm by mouth. At least twice a year, during a period of eight years, epidermal and intradermal tuberculin control tests were made.

Of 156 children thus vaccinated and revaccinated several times, either by the subcutaneous or the buccal route, thirty-nine have never had positive epidermal reactions. Among these thirty-nine children, thirty-one have had a positive intradermal reaction. With the use of from 0.1 mg to 0.01 Gm, the proportion of allergic children rose from 117 of 156, or 75 per cent to 148 of 156, or 94.8 per cent. The inadequacy of the epidermal reaction becomes still more apparent when a group of twenty-five children who had been given only a single buccal vaccination is analyzed. There were only 8 per cent positive epidermal as compared to 88 per cent positive intradermal reactions.

The same defects of the epidermal test are evident if it is compared with the intradermal test when a search is made for allergy in nonvaccinated children. In another community, in which tuberculosis is also rare, fifty-nine children were given simultaneously the epidermal and dermal tuberculin tests. The epidermal reaction was positive in all, but the intradermal reaction in only eight of thirty-two with 0.01 Gm and in only four of twenty-seven with 0.02 Gm, a total of twelve or 20.3 per cent of the fifty-nine showing an intradermal reaction. Hence, if only the epidermal test had been employed, the conclusion would have been reached that no tuberculosis existed, whereas in reality as shown by the intradermal reaction there were 20.3 per cent positive. The latter observation appears to render doubtful the value of the two preliminary epidermal tests usually employed to determine the necessity of antituberculosis vaccination of older children.

The authors stated that one is not justified in affirming the absence of prevaccinal or postvaccinal allergy on the basis of negative tuberculin skin reactions, even though repeated, or on the other hand in giving more tuberculosis revaccinations until the epidermal reaction becomes positive. The authors agree with Debre and his co-workers that a number of vaccinated children who have a negative epidermal reaction are in reality allergic. This is shown by the results of the intradermal reaction when sufficiently large doses are used. The same is true for nonvaccinated children. Before concluding that a vaccinated or nonvaccinated child is not allergic, one must employ also the intradermal reaction, with increasing doses of tuberculin up to 0.01 or 0.02 Gm in one of the doses. When two preliminary epidermal tests have been used in order to determine the proper moment for vaccinating older children, one runs the risk of a

false security and an erroneous interpretation of the results of the BCG method of vaccination. The preventive value of the latter can be strictly judged only by prolonged observation of vaccinated children from birth, and after revaccination at regular intervals.

How to Prevent Tularemia from Becoming Endemic

The recent appearance of tularemia in Turkey (Macedonia), Austria and Czechoslovakia renders it important to guard against its introduction into France, as many alive and dead pheasants, partridges and rabbits are imported from those countries in which the disease is prevalent. At the June 22 meeting of the Académie de médecine Dr. Emile Brumpt called attention to the danger. It seems hardly probable that the disease should have been introduced into heretofore immune European centers by emigrants from infected countries, because the interhuman mode of contagion is denied by all investigators. It is possible, however, that these emigrants should have imported tularemia with their ectoparasites or their cattle. Other sources of contagion are, first, the wool or skins of animals, in which the pathogenic bacteria can remain alive for from thirty to forty-five days, and, second, dead animals imported for food purposes. It does not seem likely that migratory birds act as carriers. The one certain fact is that tularemia can be brought into France by various means of transportation. Following the reading of this paper, a committee was appointed to study the question.

VIENNA

(From Our Regular Correspondent)

July 2, 1937

New Legislation on Induced Abortion

The *Oesterreichisches Gesetzblatt* recently published the text of a new statute which has supplanted all previous abortion legislation and the official title of which is 'Statute for the Protection of Germinating Life.' It was the subject of considerable debate in the Bundestag prior to its passage by that body. The Bundestag has taken the place of the former "Parliament" and is the sole channel through which the representatives of the people can express themselves with respect to the proposals of government. The new legislation is based on the old, but its punitive provisions are more rigorous and there is a new feature, the creation of so-called boards of medical verification. Henceforward any physician who is convinced that the life of a pregnant patient is endangered by her condition and can be saved only by induced abortion must submit the facts to one of the new boards. There is one such board to each administrative district. Each board is in fact a committee of three members, including the chief health officer of the district and two specialists, one of whom must be either a gynecologist or a surgeon and the other an internist. If necessary this "collegium" can call on other specialists for expert testimony. It is the duty of the board to ascertain by examination of the case record 'whether all possible means of preserving the germinating life have been exhausted.' The final decision is, however, left to the conscience and sense of responsibility of the physician. The gravid woman is under no obligation to appear before the board for medical examination. The board's recommendations are of two kinds, temporary and final. Under the designation "temporary" would belong a recommendation that the patient be placed under observation in a hospital or recommendations of other hygienic and medical measures designed to avert the danger to life. A "final" opinion might be that the case was not one in which the continuation of pregnancy would entail the certain death of the mother or, conversely, that all possible medical measures for saving both mother and child had been exhausted. The local verification board gives the physician no "orders," nor does it issue any "official instructions," rather it simply functions as a fact

finding body. To the board's report is appended a protocol containing the opinions of individual members. If the patient has not appeared for examination, this fact too is recorded in the protocol. The law expressly forbids that induced miscarriages take place elsewhere than in a hospital unless the patient is in too serious a condition to be moved. In a case of induced abortion or miscarriage, the verification board must be notified within twenty-four hours. If more than one violation of the new law occurs within a private nursing home the place may be closed by the police. The verification boards are in general to be maintained by public funds, but a patient's means can be assessed the costs of the board's activity in his particular case.

These reforms are to be supplemented by other legislation which will be designed to facilitate marriages of members of the "celibate" occupations who were formerly forbidden to marry. New legislation is also contemplated which will grant certain tax exemptions and so on to families having more than two children. This stringent "Statute for Protection of Germinating Life" went into effect just one week after its promulgation, although it is customary for an interval of three months to elapse between the public announcement of new legislation and the date on which it becomes law.

Vienna's World War Memorial to Physicians

A beautiful memorial to the Austrian physicians who fell in the World War has been unveiled in the garden of the General Hospital. Participating in the ceremony were the president of the republic, the members of government and representatives of every medical organization in Austria. The cenotaph consists of a single sarcophagus like block of the finest marble 10 feet long by 3½ feet wide. A relief on the front side represents a scene from the World War. An army surgeon falls victim to an enemy bullet just as he is rendering first aid to a wounded man. It should be mentioned in this connection that, during the war years 1914-1918, 296 physicians of the old monarchy were victims of the conflict and eighty-seven of these men were from the region contained within the frontiers of present day Austria. The dedicatory inscription reads "The Medical Profession of Austria, to Its War Dead."

Growth of Vienna's Hospital Activities

Prof. A. Baumgarten, director of the Vienna Municipal Hospital, submitted to the Vienna Chamber of Physicians a report on the expansion of the city's hospital activities. From 1924 to 1935 the number of patients admitted to public hospitals increased by 20,000, the number admitted to private hospitals by 22,000 and the number of days in hospital by more than 100,000. All these increases took place in spite of the fact that a decrease had been anticipated. This expectation was based on numerous observations: the population of Vienna had declined by some 300,000, a large number of new hospitals were being built in those provincial towns which had been accustomed to send their sick to Vienna for hospitalization, and the influx of foreign patients into Vienna was arbitrarily stopped by political and economic circumstances. Further factors that seemed to augur a decrease in the number of hospital patients were the tremendous drop in the birth rate during the years in question, the marked diminution in the number of tuberculosis patients, the foundation of new homes for the aged, and the feeling prevalent among the working class that one should be absent as little as possible in order not to imperil one's job.

The actual increase in the number of patients is not to be explained by the expansion of medical activities or by a greater need for hospitalization among the population as a whole. But as Dr. Alfred Bass, former head of the municipal health insurance, explained, the enormous increase in the number of sick days in private hospitals during the years in question

resulted from the erstwhile foundation of two new sick insurance organizations, one for federal employees, the other for municipal employees of greater Vienna. These two insurance units also handle family insurance, permit the patient a free choice of both surgeon and internist, and indemnify the patient for his stay in the hospital. Under these circumstances many sick persons will decide more quickly for an operation. This accounts for the great increase in the number of applications for hospital beds and the rise in the actual number of beds. There were available 9,082 beds in 1913, 12,969 by 1924 and 13,902 in 1935. Although the number of private hospital beds increased by 1,100 between 1924 and 1935 the number of public hospital beds declined by around 162. The average proportion of beds in use in the public hospitals remained a constant 88 per cent, the corresponding figure for the private hospitals declined, however, from 97 per cent in 1924 to 83 per cent in 1935.

BERLIN

(From Our Regular Correspondent)

July 12, 1937

Campaign Against Acute Anterior Poliomyelitis

The advent of summer finds the health authorities prepared for a relentless campaign against acute anterior poliomyelitis. The president of the National Bureau of Health has issued a circular letter of instructions to local health officers throughout Germany. The number of cases of acute anterior poliomyelitis amounted in 1936 to 2,256, whereas in 1935 there were 2,080 cases and in 1934 only 1,701. The infection seems to become more prevalent in July, to continue in a precipitous rise till the end of September, and sink again to a lower level only in the last quarter of the year. It therefore becomes urgently necessary that abundant supplies of poliomyelitis-convalescent serum should be readily available in all parts of the country. A national supply of about 80 liters of convalescents' blood should be on hand for the treatment of 2,000 cases. The abstraction of the blood, formerly completely restricted to the hospitals is now, in the interest of saving time and money, permitted in suitable cases to be performed by the proper health officers and accredited physicians outside the hospital. The blood must be forwarded at once to the Behring Werke (a pharmaceutical house that handles serum) in special receptacles provided by that firm. Each donor will receive a so called recognitory fee of one mark for each 10 cc of blood supplied. To prevent the cost of serum from rising too high no other remuneration is permitted. For improving and expediting the serum depot service an official census of former convalescents is to go forward in the various administrative districts. By "convalescents" is meant in this instance all persons more than 6 years of age who, within the last five years, have had certain acute anterior poliomyelitis and who are now in good health. Suitable persons from this group will be asked to serve as donors and in emergencies abstractions of blood may be made compulsory. Negotiations with respect to child donors will be carried on through the parents. The larger hospitals also will cooperate with this program. Finally, the newspapers will carry suitable information with regard to the disease and to the organized distribution of serum.

Action of Vitamin C in Diphtheria

Prof. Dr. K. Kumagai of Osaka, the Japanese clinician, reports in the *Klinische Wochenschrift* on his studies of vitamin C therapy in necrotic diphtheria. The hospital of which he is director admits more than 2,000 diphtheria patients each year; the mortality fluctuates between 13 and 17 per cent. The death rate for necrotic diphtheria is higher. For several years an effort has been made to discover a therapy that would be even more effective than vigorous serotherapeutic measures (administration of from 20,000 to 50,000 units), intravenous

injections of dextrose and injections of epinephrine. Experimental injections of vitamin C have been given since 1936. According to the author, these experiments have met so great a measure of success that they deserve to be regarded as epoch making for the treatment of necrotic diphtheria. From 400 to 600 mg of vitamin C is administered daily. The effects of the medication are speedily manifested: first the fetor characteristic of necrotic diphtheria disappears, then in a few days the appetite returns and the patient feels stronger. A greater amount of urine is voided, albuminuria subsides and the pulse becomes regular. From 50 to 70 per cent of necrotic diphtheria cases formerly ended fatally, but after introduction of the vitamin C therapy the mortality fell to 30 per cent. Supplementary administration of epinephrine is recommended, as it improves the chances of favorable outcome. The earlier the injection is given the more pronounced will be its effect. Injections of serum in small doses will be of maximal therapeutic value if combined with an administration of vitamin C.

Cancer Research

Professor Borst, ordinarius of pathologic anatomy at Munich University, recently lectured before the Berlin Medical Society on the status of cancer research. Animal experimentation continues to be the most important sphere of cancer research activity. The readily practicable homoplastic transplantations of tumor tissue are still of greater experimental significance than grafts of the heteroplastic type. For the latter it is necessary that each implant should be heterogenous, and its behavior within the organism of the host is therefore not to be compared with that of autogenous neoplasms. The results of experimentation with so called irritation cancers, namely, those produced by mechanical or chemical action, must be applied to human cancer only with the greatest reservation.

Carrel's discovery of tissue culture raises high hopes that a solution of the cancer riddle will be found; yet to date Carrel's observations of the direct transition of healthy cells into cancer cells within the culture have not received general verification. The problem of neoplasms is a problem of growth, and that fact cannot be overemphasized. The search for the growth substances is rooted in a knowledge of this axiom. Here too investigation has yielded little; the observations are contradictory and do not bear comparison, in fact they tend rather to confuse than to clarify. The same substance, for example, may act toward cancer in both a pathogenic and an inhibitory way, according to how it is applied. With respect to the interrelation of sex hormone and the pathogenesis of tumors, one fact at least has been established: it is possible by protracted administration to rabbits of estrogen to produce neoplasms which appear quite similar to cancers and which perhaps may be malignant. But thus far it has been impossible in experiments of this type to observe a single instance of carcinomatous metastasis. Lately there has been widespread search for "the cancerogenic substance." This aspect of cancer research was inaugurated by the experimental paintings with tar products (paraffin, tar, dyestuffs) and with the products of metabolic decomposition (indole, skatole and so on). True carcinomas could be produced by scarlet red and sudan. The Japanese scientists have been able to produce cancer of the liver, stomach and urinary bladder as well as sarcomas by means of azo compounds and diazo compounds. They have even been able to demonstrate that the seat of the cancer differed according to the chemical constitution of the cancerogenic substance. English research workers were able to isolate genuine cancerogenic agents such as benzopyrene and dibenzanthracene from the cholesterol series. Numerous other influences—tobacco, various types of rays and so on—can produce cancer. Therefore it may well be asked whether a general factor in cancer is not some form of chronic inflammation, proof of such a hypothesis, however, is not forthcoming.

With regard to a predisposition to cancer it has now been proved that a hereditary predisposition exists, however, the acquired predispositions and the exogenic factors have a larger part in the ordinary human cancer than does heredity. According to a new theory of the pathogenesis of cancer, a cellular mutation from the healthy to the cancerous seems to be effected by exogenic stimuli. This theory may explain much but it can scarcely be regarded as a solution of the cancer problem.

The difficulties that beset an early microscopic diagnosis of cancer are not inconsiderable. The statistical records of the Munich hospital for the past thirty years show that incorrect diagnoses were made of 33 per cent of cancer cases in which the seat of malignancy was the internal organs. No reliable method of early serologic diagnosis has been evolved. Later diagnosis on this basis often depends in part on whether or not the blood and the tissue have undergone primary alterations. The collection of data on cancer, especially international statistics, is fraught with great difficulty. The regional distribution of various forms of cancer complicates the statistical picture. Thus, for example, an exceedingly large number of pulmonary cancer cases are reported from Dresden, whereas Cologne reports a disproportionate incidence of esophageal carcinoma. On the basis of the huge mass of necropsy statistics collected by the National Anticancer Committee of Germany among 22,000 cases of cancer in males more than 20 years of age, 58 per cent were cases of gastric carcinoma.

Stores of Serum for Emergencies

In order that serums, which cannot be kept for any length of time in ordinary pharmacies, may be readily available for emergency use (at night or on Sundays, for example) the larger hospitals of Berlin have set up "emergency stores of serum." The following types of serums are to be kept on hand: anaerobic, botulism, antibacillary, antidiphtheric, gas gangrene, antimeningococcus, antianthrax, peritonitis, erysipelas, antiscarlatinal, antistreptococcus and antitetanic. The serum supplies will be maintained in connection with the hospital dispensaries; serum can be requisitioned only on the order of a physician. The stores of serum are under surveillance at all times and the serums are constantly inspected against any loss of potency due to aging.

BELGIUM

(From Our Regular Correspondent)

June 26, 1937

Reform in the Medical Inspection of Schools

Dr Ledent has just published some data on the present state of medical inspection service in the Belgian schools and on the need of reforms. At present from 40 to 60 per cent of children of elementary school age require medical attention. This presages that in the future 40 per cent of young men will be not fully qualified for military service. Eight per cent of children in the elementary group are three years behind their classes. There are 5 per cent of elementary school children who require special instruction. There is no medical inspection in the kindergarten classes, nor is it generally a part of secondary school routine at the difficult period of puberty, although it has quite recently been established in trade schools. The service at present entails a disbursement of about ten million francs, and the results are far from satisfactory. Flaws are to be observed in every aspect of the service: biopsychologic deficiencies of the children, faulty central administration, faults attributable to the communal councils, deficient collaboration of the teaching personnel, indifferent attitude on the part of parents, lack of altruistic attitude on the part of physicians. Accordingly, a "complete reorganization of medical inspection service in the schools," as every one calls it, has become the favorite object of study of various bodies, among them the Ministry of Education, the Parliament, the Conseil superieur

d'Hygiene and the Conseil superieur d'Education physique et de Sport, the Federation Medicale Belge, and numerous other scientific and pedagogic organizations in convention and out of convention.

From all this deliberation, no tangible program has resulted. The true objectives of a reorganization were set forth at the Congress of School Hygiene which met at Brussels in 1935: (1) surveillance of the sanitary conditions of every school, (2) cautioning of the school population against the menace of contagious diseases, (3) collection of data on the capabilities of the pupils, their growth and physical and mental aptitudes, and (4) instruction of both teachers and pupils in the rudiments of hygiene. Proposals for amelioration of the present situation may be summarized thus: 1 Legislation that would make compulsory a standardized medical inspection in all schools and whereby the central authorities would be empowered to inflict penalties for any omissions or negligence in this regard. This generally approved measure awaits only parliamentary sanction. 2 Appointment of active medical practitioners to school inspection service. This proposal has been so hotly opposed by the medical profession in general and by the Federation Medicale Belge that the ministry seems to have abandoned hope of its enactment. 3 Separate services to deal with the disparate needs of the urban as against the rural areas. It is proposed that in large cities and industrial towns the physicians on school medical service should devote about one half of each working day to this service, meanwhile retaining their general or specialized practices. Such an arrangement has already been adopted by many communities. In the villages the local physician will be assigned to inspection of a school or group of schools. He will receive instructions from a medical officer especially appointed by the Ministry of Inspection to supervise this rural service, namely, surveillance of both public community schools and private schools, approved or susceptible of being approved.

Tuberculosis Among Coal Miners

Messrs Courtois and Leclerc submitted to the Belgian Tuberculosis Society a report on "The Incidence of Tuberculosis Among Belgian Coal Miners." In industries that entail the inhalation of silicious dusts, a certain number of workers present an anatomic-clinical syndrome that goes by the name of "silicosis." Tuberculosis exacts a heavy toll among workers so affected. Certain groups of coal miners present this silicotic syndrome and among these tuberculosis is equally common. It is observed that differences in the incidence of both silicosis and tuberculosis exist between one mining region and another, and even between groups of workers within the same region. An investigation sponsored by various industrial insurance organizations of Belgium (federations de mutualites) elicited the fact that tuberculosis is equally frequent among the coal miners and other workers within the Liege area, although it is much more frequent among the former than among other workers in the districts of Charleroi and Bornage. In the Charleroi area, despite the fact that tuberculosis is rare among the coal miners who do not present the silicotic syndrome it is on the other hand frequent among those who are already suffering from this syndrome. Workers in industries that create silicious dust, although they are frequently tuberculous, tend to manifest the disease at a relatively advanced age. Tuberculous coal miners are, accordingly, regarded as "old" patients. Despite the fact that in other occupations the maximal incidence of tuberculosis lies between the ages of 25 and 30, among coal miners it lies between the ages of 40 and 45. Seldom is tuberculosis contracted by a coal miner before 30 years of age, a time of life at which among other workers the disease makes its greatest ravages. The inhalation of certain dusts (coal dust and limestone dust for example but not silica it would seem) protects the lungs for a considerable time against

the genesis of a tuberculous process. The physiopathology of the reticulo endothelial system provides a plausible explanation of this phenomenon. This report offers further proof of the similarity existing between silicosis as it affects Belgian coal miners and silicosis as described by Anglo-Saxon and German writers. Whether silicosis is a distinct entity or whether it merely represents a syndrome of tuberculous infection, it is obvious that an "occupational" and more precisely a "dust" factor underlie its manifestation and frequency among certain groups of workers.

Brussels Physicians Protest a Judicial Confiscation

An examining magistrate requested certain information of the professor who is head physician of one of the university clinics. The doctor refused the request on the grounds that to furnish the desired information would constitute a violation of the principle of professional secrecy. The judge then caused the case records of the clinic to be forcibly impounded and removed therefrom the history of a patient who had become the subject of a judicial investigation. The Brussels College of Physicians has appealed to the minister of justice for protection from a repetition of such violation of the principles of medical professional secrecy, since the maintenance of these principles is of great social and humanitarian importance. The observations jotted down by doctors to assist them in diagnoses are to be classed as professional secret records, the inviolability of which is nominally upheld by law.

Marriages

HOWARD THOMPSON HOLDEN, Chattanooga, Tenn, to Miss Dorothy Rodes of 'Rose Hill' near Crozet, Va, in June

CHARLES HAMPTON MAUZY JR, Harrisonburg, Va, to Miss Elizabeth Anne Thaxton of Tye River, June 19

C MILTON MEELS, Manhasset, L I New York, to Miss Heloise Sutherland of Westville, N S, July 24

FREDECK RALPH PERSON, Williamsburg, Va, to Miss Dorothy Italea Speese of Roanoke, June 12

WILLIAM O WHETSELL Bowman, S C, to Miss Margaret Elizabeth Daniel of Columbia, in June

JOSEPH WILLIAM WELLS New Orleans, to Miss Sara Alice Simmons of Memphis, Tenn, June 6

ELMER SHERMAN ALLEN JR, Arcola, Ill, to Miss Jane Chloe Jarman of Oklahoma City, June 30

JAMES EUGENE HEMPHILL, Petersburg, Va, to Miss Mary Nancy Ray of Richmond, June 21

CLAYTON ALTON ADAMS JR, Trenton, Fla, to Miss Marie Lang of Brunswick Ga, May 30

ARCHIE LIPE BARRINGER to Miss Mary Evans Foil, both of Mount Pleasant, N C, July 14

WILLIAM MCKENZIE BICKERS to Miss Virginia Fitzpatrick, both of Richmond, Va, June 5

HERBERT BLAKE, Anderson S C, to Miss Mary Clarence Bramlette of Laurens in June

CHIVOUS YULAN WASHBURN, Shelby, N C, to Miss Lillian Logan of Baltimore, May 25

JOHN W DEVINE JR, Lynchburg, Va, to Miss Clara Roberts of Durham, N C, June 30

HARRISON FITZGERALD FLIPPIN, Philadelphia, to Miss Edith Quier of Reading, June 12

RANDOLPH NELSON LONG to Miss Irma Carter Fowlkes, both of Selma, Ala April 15

SQUIRE S BOZORTH Portland Ore, to Miss Florinda Brown Hill at Seattle, May 21

ARTHUR R OLSEN, Astoria, Ore, to Miss Elma Lafferty in Portland, June 18

LEON KAPLAN, New York, to Miss Lillian Subeck of Quincy, Ill, June 14

LOUIS E AUDET to Miss Anna Rhodes, both of Williamsport, Pa, June 20

Deaths

James Ramsay Hunt @ New York University of Pennsylvania Department of Medicine, Philadelphia, 1893, since 1931 professor of neurology at Columbia University College of Physicians and Surgeons and formerly professor of clinical neurology, clinical professor of nervous diseases and associate professor of nervous diseases, director of the neuropsychiatric division of the New York Neurological Institute, consulting neurologist to the Psychiatric Institute, the Babies' Hospital, New York Ear and Ear Infirmary and Lenox Hill Hospital, New York, and the Letchworth Village, Thell's, formerly consulting psychiatrist to Lying-In Hospital New York Hospital and Randall's Island institutions, consulting neuropathologist to the Craig Colony Sonyea member of the Association of American Physicians, American Society for Clinical Investigation and the American Psychiatric Association, member and past president of the American Neurological Association, New York Neurological Society, American Psychopathological Society and the Association for Research in Nervous and Mental Diseases, corresponding member of the Societe de neurologie de Paris, served during the World War, aged 65, died, July 22, at Katonah, N Y

Samuel Andrew Woodward @ Fort Worth, Texas, Memphis (Tenn) Hospital Medical College 1894 fellow of the American College of Surgeons, past president of the Tarrant County Medical Society, member of the state board of health, formerly member of the state board of medical examiners, served during the World War, formerly dean and professor of clinical gynecology, Medical Department of the Texas Christian University, Fort Worth, member of the staff of the Harris Clinic-Hospital, visiting surgeon and gynecologist to St Joseph's Infirmary, All Saints and Baptist hospitals, district surgeon to the Frisco and Missouri Pacific railways, Texas Lines, aged 64 died, May 6, in a local hospital, of pulmonary infarction, following a fracture of the right femur received in a fall

Arthur Laphorn Smith, Virginia Water, Surrey England, Laval University Faculty of Medicine, Quebec, Que 1876, M R C S, England, 1878, professor of clinical gynecology at the Faculty of Medicine of the University of Bishop College at the time that institution was absorbed into the Faculty of Medicine of McGill University in 1906, at different times professor of medical jurisprudence in the University of Bishop College surgeon-in-chief to the Samaritan Hospital for Women, gynecologist to the Montreal Dispensary, surgeon to the Western General Hospital, consulting gynecologist to the Woman's Hospital in 1888 assistant editor and later editor of the *Canada Medical Record* aged 81, died, April 5

Jefferson D Southard @ Fort Smith, Ark, University of Louisville (Ky) Medical Department, 1886, member of the Radiological Society of North America, fellow of the American College of Surgeons, past president and secretary of the Sebastian County Medical Society, for many years president of the city board of health, for many years a member of the board of trustees of the Arkansas Tuberculosis Sanatorium, on the staff of the Sparks Memorial Hospital, aged 76, died, May 9, of melanoma

James Knox Simpson, Jacksonville Fla, University of Pennsylvania School of Medicine, Philadelphia, 1909 member of the Florida Medical Association, Southern Surgical Association and the Southeastern Surgical Congress, fellow of the American College of Surgeons, past president of the Duval County Medical Society, served during the World War, on the staffs of the Duval County Hospital and St Luke's Hospital aged 50, died, May 19, of coronary sclerosis and vascular hypertension

Archibald Henry Barkley @ Lexington, Ky Columbia University College of Physicians and Surgeons, New York, 1896 member of the House of Delegates of the American Medical Association in 1914, fellow of the American College of Surgeons, veteran of the Spanish-American and World wars, consulting surgeon to the Good Samaritan Hospital and surgeon to St Joseph's Hospital aged 64, died, June 1, of angina pectoris

Douglas Brown @ Castle Point, N Y College of Physicians and Surgeons Medical Department of Columbia College, New York, 1894 fellow of the American College of Physicians, served during the World War, on the staff of the Veterans Administration Facility aged 68, died, June 6 of chronic nephritis and myocarditis

John A Weidman @ Dunkirk, N Y, University of Buffalo School of Medicine 1901, for many years a member president and secretary of the school board, fellow of the American Col-

lege of Surgeons, on the staff of the Brooks Memorial Hospital, aged 69, died, May 11, of cellulitis of the left hand and streptococcal septicemia

Stricker Coles * Bryn Mawr, Pa., Jefferson Medical College of Philadelphia, 1892, formerly assistant professor of obstetrics at his alma mater, at one time on the staffs of the Philadelphia Lying-in Hospital, Jefferson Hospital and the Philadelphia Hospital, aged 70, died, June 20, of cerebral hemorrhage

J M Raphael Trudeau, Montreal, Que., Canada, Laval University Medical Faculty, Montreal, 1894, Laval University Faculty of Medicine, Quebec, 1895, associate professor of gynecology at the University of Montreal Faculty of Medicine, on the staff of the Notre Dame Hospital, aged 68, died, May 1

Charles A Currie * Philadelphia, University of Pennsylvania Department of Medicine, Philadelphia, 1880, for many years on the staff of the Germantown Dispensary and Hospital, formerly police surgeon to the Germantown district, aged 81, died, June 1, of arteriosclerosis and myocarditis

John Joseph Cadigan, Boston, Harvard University Medical School, Boston, 1899, head of the Latin department of the Boston Latin School, formerly member of the city board of health, aged 66, died, June 4, in St Elizabeth's Hospital, of carcinoma of the bladder and uremia

Edward Joseph Brett, Rutland Heights, Mass., John A. Creighton Medical College, Omaha, 1895, served during the World War, on the staff of the Veterans Administration Facility, aged 70, died, May 23, in the Holden (Mass.) District Hospital, of carcinoma of the colon

William Francis Smith * Atchison, Kan., Ensworth Medical College, St. Joseph, Mo., 1909, served during the World War, on the staff of the Atchison Hospital, aged 52, died, May 1, in St. Joseph's Hospital, St. Joseph, Mo., of heart disease and arteriosclerosis

Charles W Whaland, Chestertown, Md., University of Pennsylvania Department of Medicine, Philadelphia, 1874, member of the Medical and Surgical Faculty of Maryland, past president and secretary of the Kent County Medical Society, aged 87, died, May 6

Jesse Morton Barfield, Lineville, Ala., Atlanta College of Physicians and Surgeons, 1901, member of the Medical Association of the State of Alabama, served during the World War, aged 57, died, June 4, in the Citizens' Hospital, Talladega, of cerebral hemorrhage

Nathan Billings Colvin, Pontiac, Mich., University of the City of New York Medical Department, 1882, member of the Michigan State Medical Society, past president of the Oakland County Medical Society, aged 80, died, June 1, of chronic pulmonary tuberculosis

Edward Alexander Runyan, Linden, Mich., University of Michigan Department of Medicine and Surgery, Ann Arbor, 1887, member of the Michigan State Medical Society, aged 73, died, May 4, in the Hurley Hospital, Flint, of cerebral hemorrhage

Alexander Clyde Hunter * West Alexandria, Ohio, Miami Medical College, Cincinnati, 1903, past president of the Preble County Medical Society, for many years a member of the local school board, aged 59, died, May 15, of coronary occlusion

Jonathan Mackie Smith * Dunbridge, Ohio, Western University Faculty of Medicine, London, Ont., Canada, 1901, aged 63, died, May 7, in the University Hospital, Ann Arbor, Mich., of complications following an operation for gallbladder disease

Frederic Warren Conley, Van Wert, Ohio, Eclectic Medical College, Cincinnati, 1913, member of the Ohio State Medical Association, served during the World War, on the staff of the Van Wert Hospital, aged 51, died, June 4, of heart disease

Walter E Bartlett, Belle Plaine, Kan., St. Louis College of Physicians and Surgeons, 1893, member of the Kansas Medical Society, past president of the Sumner County Medical Society, aged 67, died, June 7, of coronary occlusion

George Arthur Zieg, Pittsburgh, University of Pittsburgh School of Medicine, 1909, member of the Medical Society of the State of Pennsylvania, on the staff of the Passavant Hospital, aged 52, died, May 8, of chronic nephritis

Ralph Spencer Stryker * Ridgefield, Wash., College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1905, veteran of the Spanish-American and World wars, aged 58, died, May 26

David Blackstone Fields, San Francisco, Tulane University of Louisiana Medical Department, New Orleans, 1893,

served during the World War, formerly health officer of Trinity County, aged 67, died, May 28

Jorgen G Vigen, Los Angeles, University of Minnesota College of Medicine and Surgery, Minneapolis, 1894, aged 77, died, May 1, in Fergus Falls, Minn., of hypertension, arteriosclerosis and cerebral hemorrhage

William Wellford Wilson, Aurora, Ill., University of Maryland School of Medicine, Baltimore, 1921, member of the Illinois State Medical Society, aged 42, was instantly killed May 27, in an automobile accident

Jotham Freathy Black, Painesville, Ohio, Cleveland College of Physicians and Surgeons, Medical Department of Wesleyan University, 1898, aged 66, died, May 30, in a local hospital, of cerebral hemorrhage

Frank Blish Carpenter, New York, University of the City of New York Medical Department, 1881, member of the Medical Society of the State of New York, aged 84, died, June 5, of pulmonary tuberculosis

John Morris Summerill, Penns Grove, N. J., University of Pennsylvania Department of Medicine, Philadelphia, 1885, member of the Medical Society of New Jersey, aged 83, died, May 11, of heart disease

Joseph Martin D'Agostino, Philadelphia, Hahnemann Medical College and Hospital of Philadelphia, 1932, aged 30, died, June 16, in St. Agnes Hospital, of acute gangrenous appendicitis

John Thompson Bowers * Bemidji, Minn., Northwestern University Medical School, Chicago, 1908, on the staff of the Lutheran Hospital, aged 54, died, May 19, of coronary thrombosis

Charles Michael Cunningham, Mayfield, Pa., Hahnemann Medical College and Hospital of Philadelphia, 1932, aged 30, died, June 10, in St. Joseph's Hospital, Carbondale, of pneumonia

Herman Robert White, New Haven, Conn., Yale University School of Medicine, New Haven, 1912, aged 48, died, May 14, in a local hospital, of burns received in an explosion

Alvar Anderson, Chicago, Northwestern University Medical School, Chicago, 1932, on the staff of St. Joseph's Hospital, aged 32, died suddenly, June 23, of barbiturate poisoning

Harry Carson Coe * Oakland, Calif., Stanford University School of Medicine, San Francisco, 1922, served during the World War, aged 46, died, June 11, of pneumonia

James Edwin Watson, Alton, Ill., American Medical College, St. Louis, 1894, member of the Illinois State Medical Society, aged 69, died, May 10, of heart disease

Frederick Leslie Beer, London, Ont., Canada, Western University Faculty of Medicine, London, 1905, aged 68, died, May 2, of coronary thrombosis and hypertension

Frederick William Risser, Strasburg, Ill., St. Louis Medical College, 1886, aged 74, was found dead, May 7, of cerebral hemorrhage and arteriosclerosis

Charles Benjamin Ziegler, Baltimore, Washington University School of Medicine, Baltimore, 1876, aged 81, died, May 5, of carcinoma of the prostate

William W Watkins, Clemson, S. C., University of Maryland School of Medicine, Baltimore, 1883, aged 84, died, May 1, of heart disease

Joseph William Zeh, Chicago, Chicago College of Medicine and Surgery, 1909, aged 64, died, May 12, of a self-inflicted bullet wound

George Eliot Watts, Los Angeles, University of Oregon Medical School, Portland, 1895, aged 62, died, May 20, of heart disease

Frank Edwin Adams, Piqua, Ohio, Cleveland Homeopathic Medical College, 1899, aged 62, died, May 19, of cerebral hemorrhage

James Slamovitz, New York, Eclectic Medical College of the City of New York, 1905, aged 53, died, May 14, of chronic endocarditis

Edwin D Stoddard, Beverly Hills, Calif., Chicago Medical College, 1875, aged 87, died, May 27, of arteriosclerosis

Osmar K Wolf, Marshfield, Ore., Willamette University Medical Department, Salem, 1907, aged 60, died, May 9

Oliver Frank Welch, Westport, Ind., Hospital College of Medicine, Louisville, Ky., 1897, aged 65, died, May 11

J M Carney, Elizabeth, W. Va. (licensed in West Virginia in 1881), aged 85, died in June, of senility

Robert Berlinger, New York, Long Island College Hospital, Brooklyn, 1884, aged 74, died, May 8

Udga, Inc. through the medium of "Fraser's News," prints purported copies of numerous letters claimed to have been received from persons who had taken "Udga Treatment" and

received relief from various ailments. According to the Federal Trade Commission's findings, "the majority of such persons were not capable of diagnosis or of determining whether the treatment brought about cures."

A fulsome puff for Udga Tablets is attributed to Dr. Walter R. George, who, according to "Fraser's News," was at one time health commissioner of Marion County, Indiana. "To quote Dr. George's own statements: 'It has been my privilege to review the Udga Tablet formula. While I but rarely endorse a medicine of any kind, I feel justified in making an exception in this case. I find Udga of pronounced value.'"

Dr. Walter R. George, "for many years Health Director of Indianapolis," was an endorser of the "patent medicine" "Cystex" (Bureau of Investigation, *THE JOURNAL*, June 9, 1934, p. 1959). And Dr. Walter R. George, "former Health Commissioner of Marion County" and also described as "for many years health commissioner of Indianapolis," some years ago was approving the "patent medicine" "Sargon" for indigestion, dizzy spells, headaches, etc. (*THE JOURNAL*, July 26, 1930, p. 285, Jan. 3, 1931, p. 57, and Sept. 30, 1933, p. 1093).

Although Mr. William Fraser boosts the Udga concoction under a thousand different captions, he apparently did not see fit to intervene in behalf of his remedy in the New Jersey action. On Sept. 7, 1935, no claimant having appeared, judgment of condemnation was entered and the twenty boxes, thirty-five bottles and 100 sample packages of Udga Tablets were ordered destroyed by the United States District Court for the District of New Jersey.

MISBRANDED "PATENT MEDICINES"

Abstracts of Notices of Judgment Issued by the Food and Drug Administration of the United States
Department of Agriculture

[EDITORIAL NOTE: The abstracts that follow are given in the briefest possible form: (1) the name of the product, (2) the name of the manufacturer, shipper or consigner, (3) the composition, (4) the type of nostrum, (5) the reason for the charge of misbranding and (6) the date of issuance of the Notice of Judgment—which may be considerably later than the date of the seizure of the product.]

Sengarian Ointment (Formerly Hungarian Ointment)—Aschenbach & Miller Inc., Philadelphia. Composition: Essentially a lead soap containing rosin and camphor. For sciatica, erysipelas, cholera, catarrh, etc. Fraudulent therapeutic claims.—[*N. J.* 24073, November 1935.]

Michael's C P Tablets—C P Co., Frankfort, Ind. Composition: Acetanilid (2.8 grains per tablet), caffeine (0.3 grain per tablet), baking soda and celery seed. For fevers, rheumatism, cramps, etc. Fraudulent therapeutic claims.—[*N. J.* 24080, November 1935.]

Hemo Liver—Hemoliver Products Co., Hoboken, N. J. Composition: Essentially liver extract, a phosphate, sodium glycerophosphate, alcohol and water. For anemia, etc. Fraudulent therapeutic claims.—[*N. J.* 24081, November 1935.]

Dee Em Capsules—Dee Em Laboratories, New York. Composition: Essentially acetphenetidin (11 grains), aspirin (18 grains), phenolphthalein (0.26 grain) and ephedrine sulfate (0.05 grain per capsule). For colds, la grippe, asthma, etc. False and misleading claims.—[*N. J.* 24082, November 1935.]

Sylvester's Genuine Haarlem Oil (Waanning Tilly Bros., Haarlem, Holland)—M. Coward, Brooklyn, N. Y. Composition: Essentially a sulfonated fatty oil and turpentine. For stomach, blood and skin disorders. Fraudulent therapeutic claims.—[*N. J.* 24086, November 1935.]

Inthol—Inthol Co., Inc., New York. Composition: Essentially volatile oils including eucalyptus, pine needle, lavender and turpentine (60 per cent) and about 40 per cent of alcohol. For pneumonia, bronchitis, rheumatism, etc. Fraudulent therapeutic claims.—[*N. J.* 24090, November 1935.]

Red Circle Pills—James F. Stras, LaCrosse, Wis. Composition: Essentially mercury laxative plant drugs, calcium carbonate, an iron compound and a small amount of emetine. For liver, kidney and stomach disorders. Fraudulent therapeutic claims.—[*N. J.* 24091, November 1935.]

Oxy Indian Cough Syrup—O. H. D. Co., Inc. and Lacy R. Oxendine, Wilmington, Del. Composition: A concentrated solution of sugar and water in glycerin containing 1.43 per cent of alcohol and 1.90 minims of chloroform per fluid ounce with menthol and what was indicated as horse hound extract. Fraudulent therapeutic claims.—[*N. J.* 24100, November 1935.]

Correspondence

PLANTAIN HAY FEVER

To the Editor—Following the appearance of our article in *THE JOURNAL*, May 1, page 1500, we received a letter from O. C. Durham questioning the identification of the so-called common plantain used in our experiments. He stated that he had never been able to obtain common plantain pollen either from collectors of pollen or from atmospheric pollen studies; furthermore, that English plantain was the only type that could possibly contaminate the air.

In an effort to clarify this situation and to identify our pollen, labeled common plantain by collectors, we forwarded several slides to him for identification. Microscopic study of these slides revealed our English plantain to be English plantain but our common plantain turned out to be Rugel's plantain (*Plantago rugelii*).

This would tend to confirm Mr. Durham's experience, namely, that common plantain is a poor pollen producer and that practically no common plantain pollen is obtained in atmospheric studies.

The cross reactions and neutralizations noted in our original experiment should be corrected in view of these developments and made to read English and Rugel's plantain instead of English and common plantain. This change does not however in any way affect the practical aspects of this problem as contained in the original paper.

GEORGE I. BLUMSTEIN, M.D.
LOUIS TUFT, M.D.

Philadelphia

THE FILAMENT-NONFILAMENT COUNT IN RHEUMATOID ARTHRITIS

To the Editor—The article by Short, Dienes and Bauer on "Rheumatoid Arthritis: A Comparative Evaluation of the Commonly Employed Diagnostic Tests" (*THE JOURNAL*, June 19) is a timely and much needed study of an important phase of arthritis. Unfortunately, the discussion of the immature polymorphonuclear count, in which the authors appear to use the terms "Schilling count" and "filament nonfilament count" synonymously, may prove confusing to your readers. They group the results of various reports on the young polymorphonuclear counts in arthritis without comment on the differences in technique and significance and state, for example, that in respect to Schilling or filament-nonfilament counts, conclusions are not unanimous, with results ranging from 52 per cent to 68 per cent, 78 per cent and 91 per cent to 100 per cent. A similar lack of clarity in considering these diagnostic polymorphonuclear counts in another recent publication (Cecil, R. L., *The Diagnosis and Treatment of Arthritis*, New York, Oxford University Press, 1937) leads us to point out the differences in these procedures.

The filament-nonfilament count is based on the principle that "if there is any band of nuclear material connecting the parts of a nucleus that nucleus for the purposes of the count cannot be said to be divided" and is therefore a nonfilament cell. Such a classification brings into the immature group of nonfilament cells many polymorphonuclears which in the Schilling count, by virtue of their partial segmentation must be placed in the mature count. Obviously, the normal limit of the nonfilament cell count therefore is higher (16 per cent) than that of the young cell count of Schilling (8 per cent). By elevating the normal level the nonfilament count gives a more flexible and more sensitive criterion for diagnosis involving only two types of cells, the filament and nonfilament. This count is simpler in performance and interpretation. While the same fundamental principle, a diagnostic immature cell count,

is involved, in the Schilling and filament-nonfilament counts, the technique and actual figures of each method are so different as to make synonymous reference to the tests especially confusing and inexact in any authoritative discussion.

A point of interest in the paper by Short, Dienes and Bauer is the abnormal Schilling count in 87 per cent of their patients with rheumatoid arthritis, as compared with positive sedimentation rates in 92.2 per cent of the group. These figures for the Schilling count are the highest reported to our knowledge, excepting one other study (91 per cent) in which the results are vitiated by the failure to separate the types of arthritis, the next highest values reported (Steinberg, 1935) were 78 per cent. We have found the filament-nonfilament count the most sensitive index to infection, positive in 96 per cent of a group of 100 rheumatoid arthritis, as indicated in our final report on the subject in *THE JOURNAL*, April 25, 1936, p. 1448.

OTTO STEIN-BROCKER, M.D.

EDWARD F. HARTUNG, M.D.

New York

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

DIAGNOSIS OF ADDISON'S DISEASE

To the Editor—1. Is there any laboratory or clinical test that is considered pathognomonic for Addison's disease? 2. What is the routine of treatment for an early case of Addison's disease? M.D., Michigan

ANSWER—1. The response of the patient to a salt-poor diet is often a specific diagnostic test in cases of Addison's disease. On abstaining from salt for a few days or a week or two, the patient develops increasing weakness, anorexia, nausea and possibly vomiting, loss of weight, fall in blood pressure, tachycardia and other signs of impending circulatory collapse. Most important, because entirely objective, is the striking decrease in the serum sodium concentration (Loeb, R. F. *Proc Soc Exper Biol & Med* 30:808 [March] 1933). Instead of the normal value of from 135 to 145 milliequivalents per liter (from 310 to 333 mg per hundred cubic centimeters) the serum sodium falls to 125 milliequivalents or less (287 mg or less). The serum chloride is also reduced while the nonprotein and urea nitrogen of the blood rise. These changes are brought about by the inability of the kidney to hold back sodium and water in the absence of an adequate amount of adrenal cortical hormone in the body. Dehydration results. The patient should be observed closely during this test, preferably in a hospital, because of the severe effects of salt restriction in some people. It is not yet known how early in Addison's disease the test becomes positive. Therefore failure of the serum sodium to drop after a salt-poor diet is given does not necessarily rule out the disease. If long standing tuberculosis of the adrenals has caused adrenal insufficiency, x-ray films of the abdomen may show calcification in the adrenal regions but areas of calcification may occur in normally functioning adrenals.

2. The treatment for an early case of Addison's disease is based on the known functions of the adrenals. The patient must be carefully guarded against exposure to cold or heat, infections, emotional shocks, overexertion, anesthesia and surgical procedures except in an emergency. Any hemorrhage may be serious. Epinephrine, insulin, solution of posterior pituitary and other powerful drugs may cause dangerous reactions even in small doses. Any excessive loss of fluid from the body as in diarrhea, sweating or vomiting may precipitate a so-called crisis or shocklike state if not immediately compensated by adequate salt and water intake. As a routine the patient should take from 7 to 12 Gm of sodium chloride daily in capsules in addition to a liberal use of salt in and on food. The daily administration of a few grams of sodium bicarbonate or sodium citrate is favored by some clinicians. If nausea prevents the oral ingestion of salt, the daily dose should be given by rectum or under the skin. The maintenance of body weight and a general feeling of well being indicate an adequate salt intake. The use of a potent adrenal cortex extract is advisable, this is especially true for preoperative and post-

operative therapy and for other emergencies. However, commercial adrenal cortex preparations leave much to be desired at present. Pregnancy should be forbidden. During mild respiratory or other infections, the patient with Addison's disease should be watched as closely as one with severe diabetes and the salt intake kept up at a level of from 15 to 20 Gm daily by any feasible route of administration.

COPPER COMPOUNDS IN TUBERCULOSIS

To the Editor—Will you kindly forward to me a list of references concerning 'Copper Morphuate' and whatever literature you may have on this product in the treatment of pulmonary tuberculosis as well as your own opinion of it? M.D. New York

ANSWER—In 1885 and again in 1894 (Steinheil, G. *Traitément de la tuberculose par les sels de cuivre*, Paris, 1894) claims were made for the specificity of copper in the treatment of tuberculosis. The administration of copper was reported to produce both local and general reactions, such as one observes when tuberculin is used therapeutically. For the most part copper phosphate or acetate was administered. The workers of that time were of the opinion that copper had essentially the same effect in the treatment of tuberculosis as mercury in syphilis.

In 1912 another worker, von Linden (*München med Wchschr* 59:2560, 1912) reported the results of copper on the tubercle bacillus. She showed that, when copper was uniformly distributed in mediums, the clumps of tubercle bacilli later presented a green color. She believed that this indicated that copper was specific for tubercle bacilli since no other micro-organisms included in her studies showed the green color. Moreover, she found that the copper killed tubercle bacilli. In guinea-pig experiments von Linden reported that tuberculosis in animals became more chronic following administration of copper and that some animals did not die of tuberculosis.

Strauss (*Beitr z Klin d Tuberk* 34:107, 1915) reported good results following the administration of copper to persons suffering from lupus. During the next few years, such workers as Mayer (*Beitr z Klin d Tuberk* 32:211, 1914), Kaiser (*Therap Monatsh* 28:748, 1914), Eggers (*Beitr z Klin d Tuberk* 47:373, 1921) and Klopstock (*Ztschr f Tuberk* 41:119, 1924) did considerable work on the effects of copper in the treatment of tuberculosis in both animals and human beings. These workers came to the conclusion that but little benefit to the patient is derived from the use of copper. Moreover, they were unable to obtain any evidence that it is specific for tuberculosis.

DeWitt and Sherman (*J Infect Dis* 15:245, 1914) found that a concentration of 5 per cent copper chloride is necessary to kill tubercle bacilli spread out in a thin layer in twenty-four hours. If clumps are present, even a 25 per cent preparation does not kill the bacilli in this length of time. However, the growth of tubercle bacilli in culture was found to be inhibited by a preparation of copper chloride of 1/100,000.

Corper (*J Infect Dis* 15:518, 1914) made an extensive and painstaking study of the effects of copper on tuberculosis in animals. He used several simple copper salts but he observed no significant effect on the course of the disease. Moreover, at postmortem examination no copper was to be found in the areas of tuberculosis or in the pus removed from the lesions. Corper also used colloidal copper but concluded that in all forms in which copper was administered it had no effect on the disease. Moreover, he found that no matter what form of copper is administered it does not reach the tissues as a salt but as colloidal copper. In this form it was believed impossible for it to enter the tissues that have been necrotized by tuberculosis.

MacDowell (*Am Rev Tuberc* 25:252 [Dec] 1932) has employed colloidal copper morphuate and reports no toxic effects such as may occur when gold compounds are administered. Moreover his results are identical with those obtained following the administration of gold compounds. MacDowell does not consider copper a specific in tuberculosis. He introduces colloidal copper morphuate into the blood stream every two days beginning with 5 cc, up to an optimal dose of 10 cc. MacDowell has also devised a technique for introducing copper morphuate directly into pulmonary cavities.

Although it seems to have been proved conclusively that copper in the concentration in which it can be administered to the tuberculous patient even though it reaches the lesion, does not have a germicidal effect and that it can in no way be regarded as a specific for tuberculosis nevertheless an occasional investigator still becomes enthusiastic about new compounds.

Other references on various phases of copper therapy are as follows: *Am Rev Tuberc* 6:929 [Dec] 1922; *München med Wchschr* Jan 11, 1924; *Lancet* 1:1297 [June 28] 1924; *Rev*

belge d tuberc 17 1 [Jan] 1926, *Rev tuberc* 9 898 [Dec] 1928, *Deutsche med Wchnsch* 15 108 [June 28] 1929, *Brit J Tuberc* 24 134 [July] 1930, *Ztschr f Immunitätsforsch* 78 173 [Jan 30] 1933, *Medicina Mexico* 15 358 (July 25) 1935, *Rev Asoc med Argent* 49 527 (April) 1935, *Rev brasil de tuberc* 5 1 (Nov-Dec) 1935, *Prensa med argent* 21 1312 (July 11), 1350 (July 18) 1934, *Semana med* 1 1749 (June 7) 1934, *Gaz clin* 31 329 (Dec) 1933

Wells and Long (The Chemistry of Tuberculosis, Baltimore, Williams and Wilkins Company, 1932) make the following statement concerning copper therapy "In all probability, as far as copper is concerned, it acts alike in all compounds and preparations, and any different action is due to the other radical of the compound and not to the copper. It may, like so many other drugs, have a hyperemic or inflammation-exciting action on the tubercle which in some cases may react favorably on the tubercles, as does tuberculin. But it is more toxic and not more favorable than the tuberculin and in these cases tuberculin may better be used."

PROMOTING BONE FORMATION

To the Editor—March 9 1936 a 19 year old girl was brought in following an automobile accident suffering from a transverse fracture of the middle third of the left femur with considerable shortening and external rotation of the lower fragment. The leg was placed in extension for several days after which a reduction was made by means of the modified Roger Anderson method. An ambulatory cast was applied. On the third day following the application of the cast the patient was walking about the hospital with the aid of a cane. Check-up roentgenograms showed that the reduction was excellent. The cast was left for eight weeks and subsequent roentgenograms revealed no callus formation of any kind whereupon the cast was allowed to remain four more weeks when further roentgenograms were taken which still showed no evidence of any union or callus. The patient received blood transfusions during this time because of secondary anemia. She received cod liver oil with viosterol and dicalcium phosphate all in large doses. After twelve weeks pins in the cast and bone were removed and a spica cast was applied which remained for six weeks more. There was no callus and an open operation was resorted to in July 1936. A Lane plate was inserted and the ends of the bones at the fracture site were freshened up. At the operation it was noted that there was absolutely no evidence of any union. The patient received the previously mentioned medications gained weight had good color felt well and all laboratory and objective examinations were negative with the exception of a family history her sister having had the same trouble in getting a fracture to heal. The patient was given splenic extract intramuscularly in an attempt to stimulate the growth of bone. Never at any time has there been any infection or any drainage from either the pin wound or the subsequent surgical wound all of which closed cleanly within ten days. The Lane plate was left until Jan 1 1937 when further roentgenograms showed little if any union and absolutely no callus at the site of the fracture. In view of this a bone graft was undertaken. Intra medullary insertion of a splinter of bone taken from the tibia was made at the site of the fracture. At the time of operation which was two weeks ago it was interesting to note that the Lane plate was very firmly attached all six screws holding their thread firmly in the bone. There was union of the bone although this was not noted in the roentgenogram, and the site of the fracture could not be definitely distinguished. But the bone at this place could be cut easily with a scalpel the bone being very soft and fibrous. In view of this fact the bone was not refractured but a trough was chiseled away large enough to allow the tibial transplant to be inserted. The wound was closed and a spica cast applied which has healed cleanly with no drainage fifteen days after the operation. I tried everything I could find in the literature, including ultraviolet radiation in an attempt to stimulate the union and callus formation. I would appreciate any information to aid the deposition of calcium and bone in this case. Please omit name and address.

M D North Dakota

ANSWER—Metallic plates and screws do not stimulate osteogenesis, and it is probable that with their removal on January 1 a more rapid production of callus will take place.

No medication of any kind has been demonstrated to have any effect in promoting bone formation, provided the blood calcium and phosphorus are within normal limits. Pulverized bone and venous blood have been injected at the site of fracture without noteworthy results.

The best form of stimulation is the promotion of function in the fractured bone. The correspondent states that union was present at the time of removal of the Lane plate but that the bone was abnormally soft. A Thomas caliper splint should be applied to the fractured leg, with a high soled shoe on the right foot and the patient should be encouraged to walk with crutches, bearing a portion of the body weight on the ball of the foot. The heel should not bear any weight, so the caliper must be about 1½ inches longer than the left leg. The high sole and heel for the right foot should be 2 inches high. It may be wise to apply wooden or aluminum coaptation splints around the femur, to aid in preventing angulation.

As the fracture becomes more solid, the amount of weight bearing may be increased, the progress being checked by x-ray examinations at intervals of three or four weeks.

BRONCHIAL ASTHMA

To the Editor—A white man aged 33 contracted an infection of the upper respiratory tract which consisted mainly of malaise and a rhinitis. This persisted for two weeks when he was seized with severe pain in the left frontal sinus. At this time the temperature was 99 F. respirations were not labored, the pulse was good the heart was normal the lungs were filled with musical rales and expiration was prolonged. In conservative therapy consisting of ephedrine and local heat the sinusitis has improved. The patient for the past two weeks has complained of a cough particularly at night. He also observes for the first time wheezing on expiration. At one time he received a hypodermic injection of 0.5 cc of 1:1000 epinephrine solution with improvement in the wheeze for twenty minutes. Ephedrine in a dosage of three-eighths grain (0.025 Gm.) three times a day has not improved the condition. Codeine and papaverine one fourth grain (0.016 Gm.) of each (two before bedtime) has not given relief. The patient's father is said to be asthmatic. Do you think this is an early case of asthma? The patient has not had any attack of dyspnea. What should be the future course of therapy? Please omit name.

M D New York

ANSWER—The history and course are definitely suggestive of bronchial asthma. From the information at hand one cannot be sure whether this is a case due to extrinsic (food, inhalant) causes or to bacteria. The latter is more likely in view of the fact that it seemed to follow directly the advent of a respiratory infection and sinusitis. It is also possible, of course, that the asthma is due to allergic causes but was merely precipitated or is aggravated by the bacterial infection. It is, of course, necessary to take care of the infection by conservative means. If it has been ascertained that active infection is no longer present, it may be assured, at least temporarily, that one is dealing with a purely allergic asthma. Cutaneous tests with a comprehensive list of foods and inhalant allergens should be made. If the latter are negative, intracutaneous tests are indicated. If positive reactions are found, one should be guided in the therapy by them. If no reactions are obtained and other observations indicate that the patient may not be allergic, vaccine therapy, preferably autogenous, should be tried.

For palliative treatment the inhalation of a very fine spray of 1:100 solution of epinephrine hydrochloride is usually efficacious in the milder attacks and may be used fairly frequently. The solution must be vaporized in a special atomizer so that no droplets are present. Iodides in 10 grain (0.65 Gm.) doses three times a day usually result in improvement. Inhalation of the fumes of a mixture of burning saltpeter and stramonium will usually give quick relief. It should be remembered, however, that the measures are only temporary and that for more permanent results the cause for the asthma must be sought.

X-RAYS AND RADIUM IN CANCER OF CERVIX

To the Editor—I should greatly appreciate your opinion and that of the consensus of radiologists on the value of roentgen rays following the application of radium in the treatment of carcinoma of the cervix. If advisable how much treatment is usually given and when may a patient discontinue treatments if there is no gross sign of recurrence? The use of radium in early cases is of course, generally accepted but I believe there is some difference of opinion regarding the x-ray therapy follow up.

M D Illinois

ANSWER—The consensus of radiologic opinion concerning treatment for carcinoma of the uterine cervix is that under ordinary circumstances the combined use of radium and roentgen rays yields the best results. When both radium and roentgen rays are used, the opinion of most workers is that the roentgen treatment should be given first, preferably by the method known as fractional irradiation. In the case of carcinoma of the uterus, this requires daily exposure to a comparatively small dose for from thirty-five to fifty days. The aim of the procedure is to inhibit or destroy malignant cells outside the uterus, either in the broad ligaments or in the pelvic lymphatics. An advantage of the method is that, by the time roentgen irradiation has been completed, the primary tumor has already retrogressed to some extent and treatment with radium is facilitated. Another advantage is that when secondary infection is present preliminary roentgen irradiation may diminish this considerably. Some radiologists still use roentgen therapy after the radium treatment, but the weight of opinion favors roentgen treatment before radium, whenever possible.

How much treatment is necessary depends on the circumstances in each case. Even with radium, the present tendency is to use fractional treatment by inserting into the cervical portion of the uterine cavity a small quantity of radium, which is left in place for a considerable number of days. Some use a larger quantity and allow the radium to remain in place for from twelve to fourteen hours at a time two or three times a week for two or three weeks. The total dose varies accordingly to the method of application from 6,000 to 15,000 milligram hours or more, and further treatment is not given unless a relapse until recurrence develops.

PHYSIOLOGY OF SLEEP

To the Editor —1 Please give the evidence that the first few hours of sleep are the most restful of the entire night. 2 If one slept in three two hour periods interrupted by two ninety minute periods of wakefulness would each of the periods of sleep be equal in restfulness to the first? Would such a program be deleterious to health in any way?

M D New York

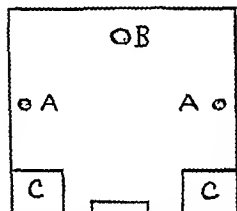
ANSWER—1 There is little reliable information of any kind save as to subjective evidence of certain sleepers. The work in the Munich clinic on sleep and fatigue gives no consistent reports. There are too many variables in individual cases to give any broad generalization, further than saying that the deeper the sleep the greater the probability of restoration in the body.

2 The program outlined seems in contradiction to much that is known of sleep and recovery from fatigue. Certain probably fictitious stories tell how certain notable persons, Napoleon for instance, could sleep for an hour or two at any time and be entirely rested. Sound sleep and restitution are intimately related but are highly individual situations. Some few individuals seem to be able to get along on the most fantastic sleep rituals, but for the average from six to eight hours of uninterrupted sleep seems to work best.

LIGHT AND VISION

To the Editor —I have undertaken to determine whether the lighting in the dormitories is proper and conducive to study and good health. There has been considerable discussion among the students as to the proper amount of light in a room of $14\frac{1}{2}$ by $12\frac{1}{2}$ feet with an $8\frac{1}{2}$ foot ceiling. These rooms are painted in a buff or cream color. Each room is shared by two students. I would sincerely appreciate any statistics or information concerning the candlepower or wattage that should be sufficient in such a room.

RICHARD V RIDDELL Fayette Mo



Lights in dormitory. A A side brackets 6 feet high. B light suspended 4 feet from ceiling with reflector, C C closets.

ANSWER—If the location of desks and windows had been shown in the drawing of the dormitory room, more specific recommendations could have been made for the lighting of the room. However general suggestions concerning the lighting of the room might be as follows.

It is suggested that the wall brackets be discontinued as a method of providing seeing illumination for study purposes. Outlet B might be equipped with an indirect unit

mounted relatively close to the ceiling utilizing a 150 watt Mazda lamp to provide a level of general illumination throughout the room. For study purposes it is recommended that each desk be provided with a suitable lamp equipped with not less than one 100 watt Mazda lamp. Not less than 20 footcandles should be provided on the work area where the studying is done.

SIGNIFICANCE OF WASSERMANN REACTION

To the Editor —Recently at our hospital a middle aged man came to the autopsy table with a rather advanced adenocarcinoma of the stomach. Before death the patient had a four plus Wassermann reaction on several tests. The personal and family history were negative for syphilis. There were no stigmas of syphilis. On the usual postmortem examination there was no evidence of syphilis. Was the repeated four plus serologic reaction caused by the adenocarcinoma? Please omit name.

M D New York

ANSWER—The Wassermann reaction is absolutely diagnostic of syphilis with the exception of yaws. The latter disease is also caused by a spirochete almost if not identical with the spirochete of syphilis. The Wassermann reaction is dependent on a particular antibody found in patients with syphilis and can be demonstrated by suitable lipoidal substances.

It is now believed that a positive Wassermann reaction is evidence of the presence of a syphilitic infection but that a negative reaction does not necessarily exclude the probability of syphilis. The antibody of syphilis is inconstant in a given case from time to time. The reaction becomes positive on about the tenth day of the primary stage and is positive in about 90 per cent in the preeruptive stage and in 100 per cent in the secondary or eruptive stage. In the tertiary and later stages, from 75 to 90 per cent yield a positive Wassermann reaction.

Although a positive Wassermann reaction indicates that a person is syphilitic, it by no means proves that a particular lesion is syphilitic. A syphilitic patient may have a nonsyphilitic peptic ulcer, a carcinoma, active tuberculosis or other disease that afflicts mankind. Syphilis is found in about 8 per cent of

patients, and may be coincidental with other diseases, such as carcinoma. Neoplasms alone do not produce a positive Wassermann reaction.

A routine postmortem examination without careful microscopic examination of the different organs does not exclude syphilis. A histologic diagnosis of syphilis requires the demonstration of *Spirochaeta pallida*. A serologic diagnosis by means of the Wassermann test or certain precipitation methods (the Kahn and others) is much easier to perform.

CHANGES IN SENSATION IN LEG AFTER HEAD INJURY

To the Editor —A man aged 22 a laborer while engaging in helping to build an engine house at a local mine was knocking down some planks and one hit him on the left side of the head and knocked him down. Physical examination revealed a badly lacerated tip of the left ear which was sutured. Lumbar puncture was done but it showed no pathologic change. He was in the hospital for four days during which time he made no complaints. He was then sent home and instructed to remain in bed. He was told to lie flat in bed without a pillow, and not to read or smoke. He complained of dizziness in his right ear but there was no discharge from the ear and this cleared up of itself in a few days. He disregarded the instructions however. Eight days ago when I went to see him at his home he complained of weakness and numbness in his left leg. Thinking that he may have injured this member originally but failed to pay much attention to it I had a roentgenogram of this limb taken but without result. At no time has there been an elevation of temperature or of blood pressure. He complains of tenderness over the site of the lumbar puncture. I might say that the roentgenograms of his head showed no pathologic change. What could cause the distress in his leg? What is the best treatment and what is the prognosis? Please omit name and address.

M D Michigan

ANSWER—There is no objective evidence submitted to indicate any cerebral injury, but this does not rule out the possibility of its occurrence in this case. The weakness and numbness in the left leg might be due to some local injury to the leg itself or lower part of the abdomen and back or to an edema of the right side of the brain in the distribution of the leg area in the precentral and postcentral convolutions. The latter cause is a rare possibility, because there is no evidence submitted suggesting either absolute or presumptive signs of cranio-cerebral injury. The following plan of treatment is suggested: absolute rest in bed in the hospital for ten days, 1 ounce (30 Gm) of magnesium sulfate by mouth on the first and third mornings of the ten day rest period, no visitors, symptomatic treatment for pain, sleep, examination of the rectum, genito-urinary system, lumbosacral spines and left hip. If at the end of this time no objective evidence of any abnormality is found, the man should be considered as having a functional disorder. The prognosis in any instance should be good.

PERFORATION OF SHRAPNELL'S MEMBRANE WITH VERTIGO ON SYRINGING DISCHARGING EAR

To the Editor —A lawyer aged 33 has suffered from a recurrent discharge from the left ear since 1932. The discharge is never profuse but he states that a week is the longest interval that it ceases. Very rarely he has pain in the left mastoid area aching in character and occasionally he feels slightly dizzy. Examination shows a small discharge rather foul smelling coming from a perforation in the upper part of the drum. Cochlear and vestibular function are normal in both ears. Vestibular testing caused marked pallor, sweating and nausea. Vestibular reactions of nystagmus past pointing and vertigo were normal. X-ray examination shows both mastoids to be dense and sclerotic. Otherwise his health is good. I have treated him conservatively for the past three years. However becoming discouraged he has consulted a prominent otologist who states that there is probably bone necrosis in the attic and antrum and he urges immediate mastoidectomy to avoid possible serious complications. Do you think he should undergo surgery? As a lawyer loss of hearing in one ear would be a serious handicap. There are many people who have running ears for years. Do you think there is usually the danger of a serious complication in these cases? At one time he syringed his ear with moderately warm water to remove the accumulated discharge immediately after he became so dizzy that he was confined to bed for twenty four hours. What significance do you place on this incident? I am anxious for your comment as to whether you do or do not recommend surgery.

M D New York

ANSWER—In this case there is probably perforation of Shrapnell's membrane. As a rule, if hearing is still fairly good, that is to say if an unaccentuated whisper with the opposite ear closed is heard more than 2 or 3 meters, one is loath to do a radical mastoid operation. On the other hand, when foul smelling secretion is present and there is headache or vertigo an operation is usually indicated. It is advisable to try conservative measures for a short time at least, namely, very careful irrigation with an attic syringe using warm 50 or 75 per cent alcohol. If after a few weeks the secretion does not diminish or some other untoward symptoms such as headache persist, a carefully performed radical or conservative

radical operation is indicated. If the hearing before the operation is fair, it is not likely that it would be entirely lost. In fact, in many instances there is only a moderate diminution in hearing postoperatively as compared with that before operation. It is quite true that many people have so-called running ears for many years. When there is a large central perforation it usually means that there is some involvement of the eustachian tube and here the operation is not urgently indicated, but when the discharge comes from the region of Shrapnell's membrane, when the perforation is marginal and when the bone is involved, it is not advisable to permit the discharge to continue indefinitely. As previously stated, if any symptoms such as vertigo or headache tend to recur and if the conservative measures fail, after proper preparation, usually including rest for several weeks until vertigo disappears, operation is indicated. If marked vertigo occurs following the use of an even fairly warm solution, it must be either entirely discontinued or only small amounts used without any undue pressure in the act of syringing.

TALIPES EQUINOVARUS

To the Editor—I am treating a case of congenital talipes equinovarus in an infant delivered at seven and a half months by cesarean section because of marginal placenta praevia. The infant is now 2 months old and weighs about 8 pounds (3 625 Gm). The birth weight was 5 pounds (2 265 Gm). Because of the prematurity and the frail condition of the infant treatment of the foot was confined to gentle manipulations followed by adhesive strapping. The manipulations are not apparently painful to the infant and at each treatment have given more and more correction of the deformity. The deformity of course does not stay corrected and is only partially corrected by the adhesive strappings. Manipulations now give almost complete correction and the infant is much stronger. In the use of plaster casts or other treatment what do you suggest? If you suggest casts, please outline the method of application and frequency of removal and duration of the use of casts. Please omit name.

M D Georgia

ANSWER—The baby has had good treatment except for maintenance of the correction, which has not been 100 per cent. The varus deformity should be corrected first and the equinus later, in order to avoid the production of a "rocker foot." A smoothly fitting plaster-of-paris cast made of bandages about 1½ inches wide and 2 feet long, should be applied over a stocking that fits the child. The child's stocking may be turned inside out so that no seams will touch the skin. There should be a small amount of sheet wadding applied and a layer of gauze to smooth it down. Before the cast is applied, the foot must be manipulated (while the outer malleolus is under constant protection, as the epiphysis can be injured by trauma). The cast should be changed every five to fifteen days, depending on the rate of growth of the child.

HYPERTROPHIC ARTHRITIS

To the Editor—One of my professional friends aged 58 has been complaining of pain and disability in the left hip joint for several weeks. The family and previous history are negative. General physical examination is negative. Blood examination including a Wassermann and urinalysis are both negative. X-ray examination shows bone proliferation on the upper lip of both acetabula more marked on the left side. Deposits are also scattered about both sacro-iliac joints. The last lumbar vertebra is displaced forward and downward toward the pelvis. The abdominal aorta is distinctly outlined by deposits throughout its wall. Numerous lymph nodes in both the abdomen and the chest are similarly involved. Treatment of the left hip has consisted of diathermy which has given considerable relief temporarily. In view of the x-ray examination there is more apprehension over the general situation shown than in reference to the hip joint itself. Apparently the problem has to do with general nutrition. Any suggestions you may be able to make with reference to the care of this case will be much appreciated. Please omit name.

M D New York

ANSWER—The diagnosis would seem to be hypertrophic arthritis of both sacro-iliac and lumbosacral joints and hips, with spondylolisthesis or forward slipping of the fifth lumbar vertebra and calcification of the abdominal aorta. It is possible that the condition is a hyperparathyroid syndrome which is producing "rheumatic pains." It will be of interest to have serum calcium and phosphorus determinations and chronaximetric examination.

It is difficult to give advice for this individual patient. A comprehensive study should include a thorough examination for foci, especially the teeth, throat, sinuses, gastro-intestinal, genito-urinary and respiratory tracts. The weight of the patient has not been given and his diet should be based on weight and blood determination, especially uric acid.

No mention has been made of a rectal examination to see whether the prostate and seminal vesicles are normal. Diathermy will probably give no lasting benefit. Smith-Petersen has recently advised acetabuloplasty to relieve this type of pain

in a hip. It is a plastic operation aimed at correcting the mechanical impingement of the head and neck against the acetabulum.

It is suggested that the patient be placed under the care of the best orthopedic surgeon in his locality to determine what measures should be taken.

QUINIDINE ELIMINATION

To the Editor—A woman aged 37 who has two children aged 17 and 10 both delivered by cesarean section with a rheumatic heart disease of long standing developed a rotary oscillation of the eyeball with some nausea and slight vomiting about one and one half years ago. She was seen by a neurologist who made the usual tests and said she had a brain tumor. She then was seen by a brain surgeon who told her she definitely had no brain tumor. Since then she has been much better but still has the oscillations and headaches on occasion. She was seen by an eye, ear, nose and throat specialist who gave her a clean bill of health as far as his specialty was concerned. This was last week. For her heart condition she was given 3 grams (0.2 Gm) of quinidine hydrochloride three times a day and she states that she took 150 tablets when this condition came on. The question is: Could the quinidine have produced this condition and what can be done for the treatment?

M D Massachusetts

ANSWER—Since quinidine is rapidly eliminated, it could not possibly exist in the system or continue to produce an effect for any such length of time. Unfortunately, treatment for this condition is of little avail.

ON THE ACID SIDE

To the Editor—Please explain the origin of the term "acid condition." Tell me its relation if any to pyorrhea, receding gums or skin disease. I hear the expression frequently from the public and it seems to be fostered by the "patent medicine" interests. Now I am acquainted with and urine acid, saliva acidosis, alkalosis and am greatly interested in the "holistic" problems but in no book in my library and I own many of the finest medical books printed can I find any reference to "acid condition." I note that dentists tell patients they have an acid condition and send them to the doctors to be cured. I will appreciate a complete discussion, as I have exhausted my resources in explaining the myth (?) to the public.

PHILIP J. LUKERS M D, Ambler, Pa.

ANSWER—The correspondent is entirely justified in his skeptical attitude toward the use of the term "acid condition." This term could be properly applied only to an uncompensated acidosis, which occurs relatively rarely and in illnesses of considerable severity. The interpretation of various common minor ailments as an "acid condition" is chiefly a result of the exploitation of the public by certain ignorant or unscrupulous promoters of proprietary preparations.

BISMUTH SUBSALICYLATE FOR FLAT WARTS

To the Editor—Please send me information with regard to the present use of bismuth subsalicylate injections for flat warts. If there is any other treatment being used I should be glad to hear about it.

MARGARET V. PIRSCH M D Kenosha Wis.

ANSWER—The treatment of palmar and plantar warts by the intramuscular injection of bismuth subsalicylate was reported by Lurie (*Arch. Dermat. & Syph.* 26:95 [July] 1932). Injections are given at weekly intervals intramuscularly in the upper outer gluteal quadrant. Children from 6 to 10 years of age receive 1 Gm., from 10 to 13 years 1.5 Gm., and older patients 2 Gm. From one to three injections sufficed in most cases. Of forty-nine cases treated, cure was established in thirty-four that were followed up, and no relapses were seen in the latter number one year after treatment. Warts about the nails were more resistant; those about the hands less resistant, and those on the feet responded most rapidly.

The use of superficial electrodesiccation, the cautery, in chloroacetic acid and x-rays are further methods of treatment. Radium may also be employed for single lesions or closely aggregated lesions.

LOW CALORY DIET AND VITAMINS

To the Editor—Have you information as to the amount of vitamins necessary to add to an extremely low calory diet in case of pituitary obesity?

M D Mar

ANSWER—Owing to the general flux in the state of vitamin requirements as well as the acknowledged instability and variability of vitamins, it is practically impossible to establish any standard amount of any vitamin necessary for such a case. Attention might be called to the fact that the caloric value of a diet is considered to be independent of the vitamin content. A high caloric diet such as in the case of typhoid or post duodenal ulcer is blatantly deficient in specific vitamins. An extremely low caloric diet might tend to be low particularly in vitamin D, which can be artificially augmented by the use of cholesterol.

Medical Examinations and Licensure

COMING EXAMINATIONS

STATE AND TERRITORIAL BOARDS

ALABAMA Montgomery June 28 Sec Dr J N Baker 519 Dexter Ave Montgomery

ALASKA Juneau Sept 13 Sec Dr W W Council Box 561 Juneau

ARIZONA Basic Science Tucson Sept 21 Sec Dr Robert L Nugent Science Hall University of Arizona Tucson Medical Phoenix Oct 5 6 Sec Dr J H Patterson 826 Security Bldg Phoenix

ARKANSAS Basic Science Little Rock Nov 1 Sec Mr Louis E Gebauer 701 Main St Little Rock Medical (Regular) Little Rock Dec 21 22 Sec Dr L J Kosminsky Texarkana Medical (Eclectic) Little Rock Dec 21 Sec Dr Clarence H Young 1415 Main St Little Rock

CALIFORNIA Sacramento, Oct 18 21 Sec Dr Charles B Pinkham 420 State Office Building Sacramento

COLORADO Denver, Oct 5 Sec Dr Harvey W Snyder, 831 Republic Bldg Denver

CONNECTICUT Basic Science New Haven Oct 9 Prerequisite to license examination Address State Board of Healing Arts 1895 Yale Station New Haven Medical (Regular) Hartford Nov 9 10 Endorsement Hartford Nov 23 Sec Dr Thomas P Murdock 147 West Main St Meriden

DELAWARE Dover, July 12 14 Sec., Medical Council of Delaware Dr Joseph S McDaniel 229 S State St Dover

DISTRICT OF COLUMBIA Basic Science Washington Dec 27 28 (probable dates) Sec Dr George C Ruhland, 203 District Bldg, Washington

FLORIDA Jacksonville Nov 15 16 Sec Dr William M Rowlett Box 786 Tampa

GEORGIA Atlanta Oct 12 13 Joint Sec State Examining Boards Mr R C Coleman 111 State Capitol Atlanta

IDAHO Boise, Oct 5 Commissioner of Law Enforcement Hon J L Balderston 205 State House Boise

ILLINOIS Chicago Oct 19 21 Superintendent of Registration Department of Registration and Education Mr Homer J Byrd Springfield

IOWA Basic Science Des Moines Oct 12 Sec Dr W L Strunk Decorah

KANSAS Topeka Dec 14 15 Sec Board of Medical Registration and Examination Dr J F Hassig 905 N 7th St Kansas City

KENTUCKY Louisville Dec 7 9 Sec State Board of Health Dr A T McCormack 532 W Main St Louisville

MAINE Portland Nov 9 10 Sec Board of Registration of Medicine, Dr Adam P Leighton 192 State St Portland

MARYLAND Medical (Regular) Baltimore Dec 14 17 Sec Dr John T O Mara 1215 Cathedral St Baltimore Medical (Homeopathic) Baltimore Dec 14 15 Sec Dr John A Evans 612 W 40th St Baltimore

MASSACHUSETTS Boston Nov 8 10 Sec Board of Registration in Medicine Dr Stephen Rushmore 413 F State House Boston

MICHIGAN Lansing Oct 1 15 Sec Board of Registration in Medicine Dr J Earl McIntyre 202 34 Hollister Bldg Lansing

MINNESOTA Basic Science Minneapolis Oct 5 6 Sec Dr J Charney McKinley 126 Millard Hall University of Minnesota Minneapolis Medical Minneapolis Oct 19 21 Sec Dr Julian F Du Bois 350 St Peter St St Paul

MISSISSIPPI Jackson Dec Asst Sec State Board of Health Dr R N Whitfield Jackson

MONTANA Helena Oct 5 6 Sec Dr S A Cooney 205 Power Block Helena

NEW HAMPSHIRE Concord Sept 9 Sec Board of Registration in Medicine Dr Fred E Clow State House Concord

NEW JERSEY Oct 19 20 Sec Dr James J McGuire 28 W State St Trenton

NEW MEXICO Santa Fe Oct 11 12 Sec Dr Le Grand Ward Sena Plaza Santa Fe

NEW YORK Albany Buffalo New York and Syracuse Oct 4 7 Chief Professional Examinations Bureau Mr Herbert J Hamilton 315 Education Bldg Albany

NORTH CAROLINA Raleigh Dec 6 Sec Dr B J Lawrence 503 Professional Bldg Raleigh

OHIO Columbus Dec Sec State Medical Board Dr H M Plattner 21 W Broad St Columbus

OKLAHOMA Oklahoma City Dec 8 Sec Dr James D Osborn Jr Frederick

OREGON Medical Portland Aug 24 26 Sec Dr Joseph F Wood 509 Selling Bldg Portland Basic Science Portland Nov 20 Sec State Board of Higher Education Mr Charles D Byrne University of Oregon Eugene

PENNSYLVANIA Philadelphia Jan Sec Board of Medical Education and Licensure Dr James A Newpher 400 Education Bldg Harrisburg

PUERTO RICO San Juan Sept 7 Sec Dr O Costa Mandry Box 536 San Juan

SOUTH DAKOTA Pierre Jan 18 19 Director of Medical Licensure Dr B A Dyar Pierre

TEXAS Wichita Falls Nov 8 10 Sec Dr T J Crowe 918 19 20 Mercantile Bldg Dallas

VERMONT Burlington Feb 8 Sec Board of Medical Registration Dr W Scott Noy Underhill

VIRGINIA Richmond Dec 8 10 Sec Dr J W Preston 28 1/2 Franklin Road Roanoke

WEST VIRGINIA Charleston Nov 8 10 Sec Public Health Council Dr Arthur E McClue State Capitol Charleston

WISCONSIN Basic Science Madison Sept 25 Sec Prof Robert N Bauer 3414 W Wisconsin Ave Milwaukee Medical Madison Jan 11 14 Sec Dr Henry J Gramling 2203 S Layton Blvd Milwaukee

WYOMING Cheyenne Oct 4 Sec Dr G M Anderson Capitol Bldg Cheyenne

NATIONAL BOARD OF MEDICAL EXAMINERS
SPECIAL BOARDS

Examinations of the National Board of Medical Examiners and Special Boards were published in THE JOURNAL Aug 14 page 528

Idaho April Report

Hon J L Balderston, Commissioner of Law Enforcement, reports the written examination held by the Idaho State Medical Examining Board at Boise, April 6-7, 1937 The examination covered 23 subjects An average of 75 per cent was required to pass Six candidates were examined, all of whom passed Ten physicians were licensed by endorsement The following schools were represented

School	PASSED	Year Grad	Per Cent
College of Medical Evangelists	(1935)	87	
Rush Medical College	(1935)	86	
Harvard University Medical School	(1932)	88	
University Medical College of Kansas City Missouri	(1903)	87	
University of Pennsylvania School of Medicine	(1921)	87	
University of Alberta Faculty of Medicine	(1932)	88	

School	LICENSED BY ENDORSEMENT	Year Grad	Endorsement of
Northwestern University Medical School (1936) California	(1927),	(1936)	Illinois,
Indiana University School of Medicine	(1936)		Indiana
State University of Iowa College of Medicine	(1935)		Iowa
University of Kansas School of Medicine	(1935)		Kansas
University of Minnesota Medical School	(1933)		Louisiana
St Louis University School of Medicine	(1936)		Missouri
Creighton University School of Medicine	(1929)		Nebraska
Columbia Univ Col of Physicians and Surgeons	(1929)		Utah

District of Columbia July Report

Mr J P Foley, acting secretary, Commission on Licensure, reports the written examination held by the District of Columbia Board of Medical Examiners at Washington, July 12-13, 1937 The examination covered 11 subjects and included 60 questions An average of 75 per cent was required to pass Thirty-two candidates were examined all of whom passed Four physicians were licensed by endorsement The following schools were represented

School	PASSED	Year Grad	Per Cent
George Washington University School of Medicine (1935) 81 8 83 2 89 1 (1936) 83 1 83 4 83 7, 84 7 85 4 85 5 86 8 87 87 6 87 7		(1934)	82 4,
Georgetown University School of Medicine (1936) 77 9 79 7 80 6 81 3 81 7 84 9 88 1		(1935)	79,
Howard University College of Medicine (1934) 78 2		(1935)	76 8
University of Illinois College of Medicine (1931)		(1931)	84 3
University of Kansas School of Medicine (1934)		(1934)	82 1
Tulane University of Louisiana School of Medicine (1935)		(1935)	80 8
University of Maryland School of Medicine and College of Physicians and Surgeons (1936)		(1936)	83 5
University of Michigan Medical School (1936)		(1936)	83 3
New York Medical College and Flower Hospital (1936)		(1936)	82 9
University of Pennsylvania School of Medicine (1934)		(1934)	83 1

School	LICENSED BY ENDORSEMENT	Year Grad	Endorsement of
Yale University School of Medicine (1932)	N B M Ex		
Georgetown University School of Medicine (1935)	N B M Ex		
Northwestern University Medical School (1934)	N B M Ex		
University of Virginia Department of Medicine (1932)	N B M Ex		

Eighteen physicians were licensed by reciprocity from February 12 through June 3 The following schools were represented

School	LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
George Washington University School of Medicine (1934)		(1934)	Maryland
Georgetown University School of Medicine (1932)		(1934)	Maryland
Howard University College of Medicine (1930)		(1933)	Maryland
Chicago Hospital College of Medicine (1918)		(1918)	Illinois
State University of Iowa College of Medicine (1925)		(1925)	Kansas
Baltimore Medical College (1911)		(1911)	Maryland
University of Maryland School of Medicine and College of Physicians and Surgeons (1934)		(1934)	Maryland
Boston University School of Medicine (1930)		(1930)	Iowa
St Louis University School of Medicine (1927)		(1927)	Missouri
Columbia University College of Physicians and Surgeons (1899)		(1899)	New York
University of the City of New York Medical Dept (1839)		(1839)	California
Western Reserve University School of Medicine (1931)		(1931)	Ohio
Jefferson Medical College of Philadelphia (1929)		(1933)	Pennn
University of Virginia Department of Medicine (1932)		(1932)	Virginia
Universidad de la Habana Facultad de Medicina y Farmacia (1926)		(1926)	Maryland

Alabama Reciprocity and Endorsement Report

Dr J N Baker, secretary Alabama State Board of Medical Examiners, reports 22 physicians licensed by reciprocity and one physician licensed by endorsement from Jan 7 through July 5, 1937 The following schools were represented

School	LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
Emory University School of Medicine (1934)		(1934)	Georgia
Chicago College of Medicine and Surgery (1916)		(1916)	Mississippi
College of Physicians and Surgeons of Chicago (1904)		(1904)	Indiana
University of Louisville Medical Department (1902)		(1902)	Indiana
University of Louisville School of Medicine (1933)		(1933)	Mississippi

Louisiana State University Medical Center (1935) (1936) Louisiana, (1936) Mississippi	(1936) Louisiana, (1936) New York,
Tulane University of Louisiana School of Medicine (1925) (1935) (1936) Louisiana	(1925) New York,
University of Maryland School of Medicine and College of Physicians and Surgeons (1934) Maryland	(1934) Maryland
Harvard University Medical School (1934) Tennessee	(1934) Tennessee
Duke University School of Medicine (1932) Minnesota	(1932) Minnesota
University of Tennessee College of Medicine (1929) 2	(1929) 2
(1932) (1934) (1936) Tennessee	(1928) Tennessee
Vanderbilt University School of Medicine (1931) Virginia	(1931) Virginia
University of Virginia Department of Medicine	
School	LICENSED BY ENDORSEMENT
University of Georgia Medical Department	(1928) N B M Ex

Book Notices

Human Genetics and Its Social Import. By S. J. Holmes. Professor of Zoology in the University of California. Cloth. Price \$3.50. Pp. 414. With 84 illustrations. New York & London: McGraw-Hill Book Company, Inc. 1936.

The constitution of the individual patient at the moment of the physician's attention is the product of two factors, nature and nurture, or heredity and environment, or, as some one has facetiously expressed it, the devil and circumstance. Some may wish to limit the definition of constitution to the consequences of heredity alone, but heredity acts in an environment to which the individual is both susceptible and responsive. Ancestry determines the substrate but environment continuously influences this historical product of the race and is jointly responsible for its momentary status.

The reader of Professor Holmes's judicial and lucid presentation of the respective fields of influence of these two biologic factors which determine human nature will soon detect the author's profound belief in the potency of heredity and, as he reads, will find the increment of the evidence for this more and more convincing. However, he will also find that at least some of these expressions in human nature of the innate hereditary potentialities are not static but mobile. These contending factors, under the touch of the external factors which constantly impinge on the sensitive flesh of man, are nicely balanced in the chapters on nature and nurture and on heredity and environment. The book contains clear statements of the cellular basis of heredity, criticism of the inadequate evidence of the inheritance of acquired characters, Mendel's law, the evidence for the determination of sex at conception and the balancing of the male and female determinants in the phenomena of intersexuality, the interaction of factors, sex-linked factors, such as hemophilia and optic atrophy, and the kinds, causes of and measurement of variability.

Heredity in man is presented in the discussions of mental defects and diseases, crime and delinquency, and the marginal groups of society who make up the social problem people who enter so largely into the physician's problems of free medical service and are the group in which medical nostrums flourish. A special chapter on choices in mating analyzes the factors that underlie the consequences of such choices, some of which tend to perpetuate human defects such as deafness and susceptibility to tuberculosis. The causes of the widespread declines in the birth rate among occidental peoples and urban populations are analyzed and the dysgenic effects of the differential birth rate, revealed in the fact that the intellectual classes have too few children to maintain their numbers and that the most intellectual women marry infrequently and late in life, while those in social classes with a low intelligence quotient breed like rabbits. Current changes due not only to selective mortality but also to improvements in scientific medicine and to the social extension of medical service as well as to changes in birth rate are modifying the proportions of age classes in the population. These changes are in part at least, responsible for shifts in the incidence of disease of both childhood and old age and thus affect the content of medical services. The dysgenic effects of war and the growth of cities on man are discussed. The biologic consequences of the migrations of peoples on the characteristics of current and future populations are critically examined. Physicians will find the chapter on inbreeding and crossbreeding taken in conjunction with the discussion of the

heredity of human defects and the phenomenon of recessive characters, helpful in cases in which their advice is sought in cousin marriages.

There is much in this judiciously written presentation of human genetics to justify the physician in the practice of making full and adequate records of his patients' medical history. There is even fuller justification for society to reevaluate the significance and importance of the family physician.

Précis de parasitologie. Par E. Brumpt, membre de l'Académie de médecine, professeur à la Faculté de médecine de Paris. In two volumes. Fifth edition. Cloth. Price 200 francs per set. Pp. 1 108* 10*3 113* with 1 085 illustrations. Paris: Masson & Cie. 1936.

No book on human parasitology since the days of Leuckart's pioneer work *Die menschlichen Parasiten und die von ihnen herrührenden Krankheiten* (1863) has so ably supplied medical needs, filled so large a place in this specialized science, gone through so many editions or so completely kept down to date in this rapidly expanding field as has Brumpt's *Précis de parasitologie*, now in its fifth edition, more than twice the size of the fourth (1927). The grounds for this popularity are diverse. The most important among them is the direct application of the author's treatment to medical needs. In all cases in which clinically important parasites are discussed, and knowledge permits, the discussion includes not only morphology, classification and life history but also diagnosis, pathology, treatment, prognosis and prophylaxis. A second reason is the inclusiveness of the work, which covers all known parasitic infections of man except bacterial and virus. It includes spirochetes, protozoans, helminths, arthropods, the rarer parasitic representatives derived from other animal phyla, and the extensive and all too little known field of mycology. A third reason is the breadth of view of the author based on a wide and long experience as professor of parasitology in the Faculty of Medicine of the University of Paris, director of the Institute of Malariology of Paris, secretary general of the Institute of Colonial Medicine of France, and formerly professor of parasitology at São Paulo, Brazil. Extensive travel in the French colonies and elsewhere in the tropics has widened and diversified his contacts with these fertile fields of parasitic infection of man. His own researches in amebic dysentery, trypanosomiasis and malariology and in the field of animal vectors of human infections lends weight and breadth to his treatment of the subjects. Lastly, the book is superbly organized for practical use and is written with fine clarity of style and the unsurpassed lucidity to which the French language is so well adapted. The analytic table of contents fills no less than twenty-nine pages and the index forty-nine. The fifth edition has been entirely rewritten with the addition of 500 pages of text and with 35 new illustrations, of which 168 are original. Among the new discoveries included in this edition are the mode of transmission of certain spirochetes, the detection of the animal reservoirs of several relapsing fevers of man, the vectors and mode of transmission of cutaneous and visceral leishmaniasis, a much wider extension of human trypanosomiasis than had been suspected previously, great advances in mosquito control and malarial prophylaxis through the use of new drugs, the etiologic factors in four diseases of the Rickettsia group, and the receptivity of numerous mammals to yellow fever and the preparation of a vaccine.

No field of human parasitology is more obscure, more confused and less scientifically founded than that of human mycology. One of the chief values of this book is its critical treatment of this subject, to which the last 500 pages with 217 illustrations is devoted. Dr. Maurice Langeron, director of the section of mycology in Brumpt's laboratory, subsidized by the Rockefeller Foundation, is responsible for many of the new illustrations of fungi from cultures in this laboratory. Of great general interest is the author's opening chapter on a general survey of the wide occurrence, biologic and evolutionary significance, unique adaptations and complicated life cycles of parasites in general in the plant and animal worlds. Special interest in the diverse fields included in this monumental work is derived from the author on details of minor significance in many cases of greater import in others, but all will gladly pay homage to the breadth of learning the skill in presentation and the comprehensiveness of treatment found in its pages. Some of the important results of American work in schistosomiasis, trypano-

asis and amebiasis are omitted, an incorrect biologic analysis of stages in the life cycle of the malarial parasites is made, and the inclusion of the spirochetes among animal parasites instead of the bacteria, where they more properly belong, is unjustified. Their inclusion in the book has, however, a biologic justification, since some of them have arthropod intermediate hosts.

Even a casual inspection of the book should convince any medical faculty of the intricacies and scope of human parasitology. Let us hope that it may lead to a suitable provision in curriculums and clinics for broader and more adequate instruction in this subject in the preparation for the practice of medicine.

School Health Problems. By Laurence B. Chenoweth, A.B., M.D., Professor of Hygiene, University of Cincinnati; and Theodore K. Selkirk, A.B., M.D., Instructor in Pediatrics, College of Medicine, University of Cincinnati. With a chapter on School Health Administration. By Richard Arthur Bolt, M.D., Dr.P.H., Director, Cleveland Child Health Association. Cloth, Price \$3.00. Pp. 387 with 112 illustrations. New York: F. S. Crofts & Co. 1937.

Intended for "students in education, teachers in service, and others interested" the book can be heartily commended to those who will take the time to study and digest it. It is a concise and complete storehouse of the necessary facts to acquaint them with "the broad general nature of health problems in schools." The authors have not dwelt so much on detailed technics as on visualization of the problems and developing a sensible, practical approach to them. The book deals with growth, nutrition as a factor influencing growth, malnutrition, physical examinations of school children, control of communicable diseases, seeing and light, acoustics and hearing, special classes for handicapped children, tuberculosis, mental hygiene, physical education and the accident problem, and health administration. Especially helpful are the extensive lists of references, which appear to be well selected and which should make of this book an excellent starting point and introductory volume for a student entering the school health field anew, as well as a serviceable textbook for those who wish to go no further into the subject than these authors lead. Physicians, including most school physicians, will applaud the authors' conclusions as to who should examine the school child. "Since continuous supervision by a personal physician is desirable, more effort should be made in the school health program to have this as an objective. Unless this is done there may be a tendency to rely too much on the school examinations. Such dependence

is not a desirable objective, first because the examination is limited in scope and second because it is a service that will be withdrawn when the child leaves school. Every effort should be made to have children examined by their own physicians in addition to their examinations at school." Yet the authors warn that "it is a matter of practical importance that such an annual survey is performed only for a very small proportion of the child population" for reasons which include inability to afford it, procrastination and the ancient tendency to see a doctor only for pain or sickness. The book has a good glossary and an excellent index. It is worth the studious attention of all those interested in health problems in education.

Estudos cirurgicos. Por Eurico Branco Ribeiro, cirurgiao da beneficencia portugueza e do Sanatorio Santa Catharina. 2ª serie. Fabrikoid. Pp. 245 with illustrations. Brasil: Sociedade Editora Medica Limitada. 1936.

This series of seventeen essays on various surgical subjects is the second of its kind published by Dr. Ribeiro of the Santa Catharina Hospital, São Paulo, Brazil. The series, based on ten cases observed by the author, opens with a study of "nervous caseation" observed in leprosy. In the neuritis of leprosy the peripheral nerves increase in volume, showing separate bead-like enlargements or perhaps necrosis followed by caseation of coagulation. The different cases are classified according to the particular surgical method of treatment used. An essay on the serum treatment of acute appendicitis describes ten cases in which, according to the author, good results were obtained. Three studies are devoted to the consideration of hypertrophy of the pyloric muscle in adults, which the author thinks should be treated as a pathologic entity distinct from the hypertrophic stenosis of infancy. The clinical, radiologic, surgical and

anatomopathologic aspects of the disorder are discussed, based on a critical study of the author's personal cases. A partial gastroduodenectomy is recommended as the treatment of choice, based on the view that the condition is mainly due to nervous disturbances. From his study of cancer of the gallbladder, the author concludes that in all cases of chronic inflammation of the organ, especially that due to lithiasis, in which ordinary clinical treatment fails, cholecystectomy should be resorted to. There is an excellent clinical study of acute edematous pancreatitis. The author believes that the cause in four fifths of the cases is to be found in a calculous gallbladder and that therefore a simple cholecystectomy should be the treatment of choice. In his study of tetanus the author is of the opinion that the treatment should be schematic, namely, treatment of the tetanic focus, general specific treatment and symptomatic treatment. The specific treatment should be the employment of antitoxic serum by the subcutaneous or intramuscular route.

Le principe antipernicieux de l'estomac. Sa recherche dans le sue gastrique par le test du rat blanc. Par le Docteur Paul Andre Rambert de la Faculté de médecine de Paris. Paper. Pp. 107. Paris: Amédee LeGrand. 1937.

This monograph presents a rather complete review of the work on the relation of the stomach to the production of the anti-pernicious anemia substance. The subject matter is discussed under gastric preparations and their therapeutic effect in pernicious anemia, action of gastric juice, action of stomach extracts, the effect of gastric resection, the physiologic anatomy of the stomach and the anti-pernicious anemia principle. Rambert reports his own experiments on the effect of the injection of gastric juice into rats as a test for the presence of anti-pernicious anemia substance. He also confirms the work of Singer, who first described this procedure. The bibliography of 388 articles is well chosen. The material is presented in an easily readable form and should serve as a convenient summary for investigators working in this field.

National Health Series. 20 volumes consisting of the following titles:

Adolescence by Maurice A. Bigelow, Ph.D., D.Sc.
How to Sleep and Rest Better by Donald A. Laird, Ph.D., Sc.D.
Love and Marriage by T. W. Galloway, Ph.D., Litt.D.
Exercise and Health by Jesse Peirce Williams, A.B., M.D.
Food for Health's Sake by Lucy H. Gillett, B.S., M.A.
Hear Better by Hugh Grant Rowell, M.D.
Cancer by Francis Carter Wood, D.Sc., M.D.
Diabetes by James Ralph Scott, M.D.
The Expectant Mother and Her Baby by R. L. DeNormandie, M.D.
Taking Care of Your Heart by T. Stuart Hart, M.D.
The Healthy Child by Henry L. K. Shaw, M.D.
The Common Cold by W. G. Smilie, M.D.
The Common Health by James A. Tobey, Dr.P.H.
What You Should Know About Eyes by F. Park Lewis, M.D.
Tuberculosis by H. E. Kienle-Schmidt, M.D.
Why the Teeth? by Leroy M. S. Miner, D.M.D., M.D.
Your Mind and You by George K. Pratt, M.D.
Staying Young Beyond Your Years by H. W. Haggard, M.D.
The Human Body by Thurman B. Pice, A.M., M.D.
Veneral Diseases by William F. Snow, A.M., M.D.
Cloth. Per volume 35 cents. New York: Funk & Wagnalls Company. 1937.

These titles constitute a reassue in 1937 of the well known series of small health booklets issued by the National Health Council in 1934. A few of the titles have been replaced with new ones and those which have not been replaced have been brought down to date. The new edition instead of being issued in limp fabrikoid, is in cloth of bright colors. These books represent authentic information in compact form at small cost, though the price is now 5 cents per volume more than the price of the first series. The most significant feature of this health series is its distribution. The books are sold from metal display racks, where their brightly colored bindings attract attention. They can be purchased not only in book stores and department stores but in railroad stations, banks, office building lobbies and other places where large numbers of persons pass by. The series is an interesting example of how health information can be retailed cheaply through the channels of ordinary trade and still be authentic. This series represents probably the most significant service to the cause of public health that has been accomplished by the National Health Council.

On the Incidence of Anæsthetic Complications and Their Relation to Basal Narcosis By C J M Dawkins M.A. M.D. B.Chir., Anaesthetist to the Dental Department Middlesex Hospital London Foreword by Joseph Blomfield O.B.E. M.D. Published for the Middlesex Hospital Press Boards Price 3s 6d Pp 56 London John Murray 1936

This is a careful study of anæsthetic complications, with special emphasis on the effect of preliminary narcotic medication on the incidence of pulmonary complications. Three groups of cases are studied, a series of more than 3,000 cases occurring in the years 1921 to 1925, "prior to the introduction of basal narcosis," a series of more than 3,000 cases occurring in the years 1931 to 1935, "when basal narcosis was well established," and a series of more than 1,500 personal cases. While there is interesting and helpful discussion of all kinds of anæsthetic complications, main interest is always on pulmonary complications and the effect thereon of preliminary narcosis. The crux of the whole matter is contained in the accompanying table.

The number of these cases is sufficiently large to make the figures of value, and the variation in results is sufficiently great to indicate clearly an increased incidence of pulmonary complications when basal narcosis is used. Unfortunately it is not made unquestionably clear just what is meant by "basal narcosis only." The context leads one to believe that this does not refer,

Summary of Pulmonary Complications

	Total Cases	Pulmonary Morbidity Cases		Pulmonary Mortality Cases	
		Number	Per Cent	Number	Per Cent
1921-1925	3 229	221	6.84	28	0.86
1931-1935 { Excluding basal narcosis	2 390	151	5.83	20	0.77
{ Basal narcosis only	500	56	11.09	4	0.79
Personal cases	1 542	33	2.14	8	0.52

as the wording would seem to suggest, to a group of cases in which no anesthesia other than basal narcosis was used, but rather to a group of cases in all of which basal narcosis was given and apparently supplementary anesthesia as well. "Basal narcosis" consisted of preliminary medication sufficient to make the patient definitely drowsy and usually contained some pentobarbital sodium. The patients considered for purposes of comparison had some preliminary medication, usually a small dose of morphine and atropine, but not enough to make them drowsy. In thirteen tables of statistics are data concerning these cases presented in such detail and from so many different angles that any one having any doubts about the conclusions arrived at can resolve them by a study of the material.

Report of the Subcommittee on Health and Disability of the Citizens Committee on Public Welfare (State Medical Society of Wisconsin). Submitted to Governor Philip F. La Follette. Paper. Pp 91. Madison 1937.

This report is based on a study of the state institutions infant and maternal mortality, county nurses, state departments dealing with health, legislative reference library, social security, health aids and medical and dental care of the indigent. It is noted that there has been a continuous reduction of mortality, until Wisconsin has one of the most favorable rankings of any state in the Union or of any important nation. Recommendations are divided into two parts—those dealing with administrative changes and those requiring new legislation. The report is a compact survey of public health and institutional resources in Wisconsin and an outline of recommendations that undoubtedly forecast future developments with considerable accuracy.

Dictionnaire des bactéries pathogènes pour l'homme, les animaux et les plantes. Bactériologie humaine. Dr. Paul Hauduroy et Dr. G. Ehringer. Bactériologie animale. Dr. Ach. Urbain et Dr. G. Guillot. Bactériologie végétale. Dr. J. Magrou. Cloth. Price 140 francs. Pp 597. Paris. Masson & Cie 1937.

The authors of this dictionary of bacteria utilize Bergey's Manual of Determinative Bacteriology as the basis for their nomenclature and classification, though declining to approve this effort of the Society of American Bacteriologists to bring order out of chaos. The principles of Bergey's system, they say, could be more logical, the definitions of certain genera are too vague and of others too narrow, and the genera described as

gram negative contain gram positive species. They call for an international codification of bacterial nomenclature such as has been accomplished in botany and zoology. As a move in this direction they reprint the International Rules of Botanical Nomenclature, adopted by the first Congress of Microbiology in 1930. The dictionary includes an alphabetical list of 650 genera and species of microbes. For each species it gives the synonyms, morphology of cultural forms and spores, the cultural requirements, and the biochemical and biologic properties. A tabular presentation of the distinctive characters in a dichotomous system provides a short cut to the identification of species. Full indexes of the genera and species of host plants and of the genera, species and synonyms of bacteria add to the usefulness of the dictionary. The publishers have done well with the typography, and the authors have arranged the great mass of detail with critical skill and simplicity.

Pathologie und Therapie des peripheren Kreislaufes. III. Oeynhauser Arztvereinskurs 16 und 17. Mai 1936. Herausgegeben vom Arztverein zu Bad Oeynhausen. Boards. Price 7 marks. Pp 136 with 4 illustrations. Dresden & Leipzig. Theodor Steinkopff 1936.

This is a collection of lectures by ten German authorities on circulatory disturbances. The subjects discussed are the anatomy and pathogenesis of disturbances of the arterial tension, the physiology of vasodilator substances, a clinical consideration of hypertensive arterial disease, surgical therapy of hypertension, the role of the veins in the regulation of the circulation, the pharmacology of hypertensive disease, the therapy at spasms and baths, the pathology of hypertensive disease and a summary of present-day therapeutic measures. The lectures are carefully prepared and well worth study by those with especial interest in the problems of abnormal arterial tension. No attempt was made to include any discussion of the literature; the lectures apparently represent the personal views of the writers. Although little that is new or particularly constructive was found, the volume is an excellent summary of present-day German thought. Because the lectures were given at Spa Oeynhausen, there is naturally great emphasis on this type of watering place as a means of therapy.

The Intimate Side of a Woman's Life. By Leona W. Chalmers. Foreword by Winfield Scott Pugh, M.D. Illustrated by Frank H. Netter, M.D. Cloth. Price \$1.50. Pp 128 with 21 illustrations. New York. Pioneer Publications, Inc. 1937.

This small book has been written by a layman primarily for the lay reader. Apparently there was some measure of medical guidance of the author, this being indicated by the fact that Dr. Winfield Scott Pugh has written the foreword, and the illustrations are by Dr. Frank H. Netter. Its main theme seems to be that cleanliness is the secret of feminine charm and the highroad to marital happiness. Vaginal douching, types of syringes, positions for douching, and its technique constitute the main subjects of the text. It is around this and constipation that this booklet has been built, anatomic descriptions, discussion of menstrual pain, leukorrhea and certain details of general body hygiene and exercises are included. Vaginal douching is recommended to an extreme and accorded an importance not concurred in by the majority of gynecologists. The last chapter contains a useful list of "don'ts," and on this account, too, the booklet will be found of some value even though less so than suggested by its broad and inclusive title.

Health Protection of Welders. Paper. Pp 27 with 2 illustrations. New York. Industrial Health Section. Metropolitan Life Insurance Company. [n.d.]

This is one of a series of brochures, appearing at irregular intervals, prepared by the Metropolitan Life Insurance Company and covering some aspect of industrial hygiene or industrial medicine. It is peculiarly characteristic of these publications that they appear just when most needed. The present pamphlet describes the various forms of welding and the hazards associated with each. The most important dangers are electrical shock and burns, radiant energy, gases, fumes and dust. It has long been known that welding, and particularly arc welding, has harmful potentialities growing out of ultraviolet and oil-ray exposures. It has been determined recently that even more significant exposures may result from nitrous gases and the carbon monoxide generated in arc welding. This brochure covers in detail

these exposures, together with the dangers associated with the metal and mineral oxides produced in welding operations. It will be of service to individual workers, labor organizations, employers and physicians.

The Concept of Social Medicine as Presented by Physicians and Other Writers in Germany 1779-1932 By Gertrud Kroeger Dr rer pol Introduction by Michael M Davis Paper Pp 40 Chicago Julius Rosenwald Fund 1937

This study summarizes German material that is little known in this country dealing with public health and generally involving the activities of state or local governments. The tendencies of such activities were greatly influenced by wider social developments. The early work of Virchow, Neumann and their group was closely related to the revolution of 1848. When that revolution failed and the rise of nationalism became a dominant characteristic of the period, von Stern and another group focused much of their attention on state activity in fields closely analogous to what is known as public health in this country. When health insurance was established in Germany by Bismarck in 1883, a group headed by Alfred Grotjahn turned its attention to the possibilities of health care through a synthesis of public health insurance and what it designated as "social pathology" and "social therapy" and sought to utilize the conclusions of the social sciences in connection with medical care.

Globe Trotting with a Surgeon By Alexander H Peacock M.D. Cloth Price \$2.50 Pp 276 with photographs by the author Seattle Washington Press of Lowman & Hannford Company 1936

Every traveler feels himself an explorer. It is hard for any of us to realize, however, as we move around the world that with modern types of transportation great numbers of people are now getting about into places which formerly were limited to an exceedingly few. Dr Peacock has seen the world for himself and he has embellished his descriptions with excellent photographs of his own making. As each of us reads in the writings of others descriptions of what we ourselves have seen, our own memories come to light and our enjoyment is multiplied. Any one who has followed the paths traced by Dr Peacock will find that his book will yield them enjoyable hours freighted with memories and reminiscences.

The Diagnostics of Pain. Lectures for Medical Students and Physicians Held at the University of Copenhagen in the Autumn of 1934 By Th B Wernke Paper Pp 116 with 23 illustrations London Oxford University Press Copenhagen Levin & Munksgaard 1936

This little book contains a series of lectures which were given at the University of Copenhagen in the autumn of 1934 for medical students and physicians. No sharp distinction of subjects separates the seven chapters contained in the book. The translation from the Danish leaves much to be desired, since the sentences are frequently long and involved. All forms of pain, the author states may be most conveniently divided into three main groups: (1) direct pains localized to the site of irritation; (2) indirect pains localized at some distance from the site of irritation; and (3) combined pains consisting simultaneously of direct and indirect pains. These lectures are concluded with the information that a larger later work is intended, which will divide all pains occurring in man into eight groups.

Experimental Physiology By George H Bell M.B. B.Sc. M.D. Lecturer in Physiology University of Glasgow Boards Price 4s 6d 1 p 70 with illustrations Glasgow John Smith & Son Ltd 1937

As stated in the preface, this is a laboratory manual especially designed for the particular circumstances at the University of Glasgow, therefore the book offers little attraction for those working under other conditions. Only sixteen laboratory periods are offered, the first six and a part of the seventh are experiments on the frog. Approximately the same amount of time is devoted to experiments on special senses on human subjects. The remainder of the time is devoted to laboratory experiments on circulation and respiration and to observations on human subjects. All the experimental procedures are the conventional ones, such as are found in any laboratory manual. No attention is given to digestion, metabolism, endocrines, kidney, or the lymphatic system.

Pharmacopœia and Guide School of Tropical Medicine and Carmichael Hospital for Tropical Diseases Calcutta Fabrioid Price Rs 2/8 Pp 153 Calcutta School of Tropical Medicine 1936

This is a small handbook of convenient size, neatly bound and similar in content to some of the hospital formularies that are used in this country. It is intended primarily for use of postgraduate students who are unfamiliar with the armamentarium used in the treatment of tropical diseases. It contains the usual formulas for preparations, posologic tables and discussions of the treatment of many conditions, but principally those peculiar to the tropics. Its usefulness outside the tropics is limited more or less to that of a reference volume for the treatment of the occasional case of tropical diseases seen elsewhere. It contains tables of weights and measures, dilutions, strengths of solutions and food values, and blank pages for taking notes.

British Health Resorts Spa Seaside Inland Including Those of Australia Canada Cyprus New Zealand South Africa and the British West Indies. An Appreciation of Their Medical Values and Uses in the Prevention and Cure of Disease Edited for the Association by R Forrescue For M.D. F.R.C.P. F.R.Met.S. Hon Member of the American Climatological and Clinical Society. With a foreword by The Rt Hon Sir Kingsley Wood Minister of Health. Official Handbook of the British Health Resorts Association Paper Price 2s 6d Pp 288 with illustrations London J & A Churchill Ltd 1937

This official handbook of the British Health Resorts Association is intended as a catalogue for those desiring specific information on the climatic conditions of British health resorts. In addition to the resorts in England, Wales and Scotland some spas and resorts in Australia, Canada, New Zealand and other British commonwealths are briefly described.

Experimental and Clinical Studies of the Spine of the Dog By Geoffrey Bernard Brook D.Sc. F.R.C.V.S. Cloth Price \$2 Pp 122 with 50 illustrations Baltimore William Wood & Co 1936

The first part of the book deals with anatomic investigations of the atlanto occipital space in its relation to the puncture of the cisterna magna. It is found that the depth of the cisterna at the foramen magnum is 0.5 cm in large dogs and 0.3 cm in small dogs. The average amount of cerebrospinal fluid obtained was 5 cc. The white cell count increased with repetition of punctures. The second part of the book deals with the effects of an iodized oil containing 0.54 Gm of iodine per cubic centimeter. It is a radiopaque medium which is easily tolerated by the dog and which may be used to show the location of a spinal block. It was observed that after injection in the cisterna magna it took about 110 minutes for it to descend into the subarachnoid culdesac.

The Metabolism of Living Tissues By Eric Holmes M.A. M.D. Fellow and Tutor of Downing College and University Cambridge Cloth Price \$2.25 Pp 235 New York Macmillan Company Cambridge University Press 1937

It is impossible in any short review to give an adequate conception of the rich material in this monograph or of the clear, simple method of presentation. In general, the work deals with the more intricate aspects of the physicochemistry of living tissues. It is a simplified analysis of the significant relations between chemical structure and physiologic action. The chapter headings include such subjects as enzymes, oxidations, liver in relation to protein, fat and carbohydrate, kidney, muscle, nerve, endocrines and vitamins. There is also considerable discussion of the importance of electrolytes. It is a remarkable accomplishment that so much sound, scientific discussion is crammed passed within such small space. Unfortunately there is no bibliography.

Medical Diagnosis. Some Clinical Aspects By S Levy Simpson M.A. M.D. M.R.C.P. Physician to Wilkesden General Hospital. Cloth Price 10s 6d Pp 244 London H K Lewis & Co Ltd 1937

Seven volumes of the General Practice Series had been released and four were in preparation at the time of publication of this volume. All diagnosis is acquired as stated in the preface "at the bedside by careful and minute observation of the living patient. The diagnostic criteria listed are of necessity brief and exceedingly incomplete. Nevertheless the beginning medical student and possibly the practitioner who has unusually limited time at his disposal may find some use for these brief discussions."

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Medical Practice Acts Injunction to Restrain Unlicensed Practice, Violation by Subterfuge—Norman G. Baker, a layman, owned and operated the Baker Hospital at Muscatine, Iowa, for the treatment of cancer and certain other diseases. In *State v. Baker* (Iowa), 235 N. W. 313 (abstr. THE JOURNAL, Jan 9, 1932, p. 168) the Supreme Court of Iowa held that Baker was practicing medicine and enjoined him from "directly or indirectly, either by himself or by his agents, from engaging in the practice of medicine and surgery within the state of Iowa without having a license to so do." The events following the issuance of that injunction are not stated in the instant opinion. Apparently, however, Baker "leased" the hospital or gave possession of it under a contract of sale to certain individuals. The terms and conditions of the lease or contract are not stated. Subsequently, contempt proceedings were instituted in the Supreme Court of Iowa against Baker alleging that he had violated the injunction. The matter was referred to the district court judge in Muscatine, who after an extensive hearing reported to the Supreme Court that in his opinion Baker had violated the injunction by engaging in the practice of medicine since the issuance of the writ. The testimony adduced at the hearing tended to show that Baker and those who operated the Baker Hospital under his direction under the guise of a formal lease or contract of sale were, in fact, all engaged in a common scheme and design to perpetrate a fraud on the court and that the lessees were, in reality, the employees of Baker or the Baker Investment Company, of which he was the manager and, in fact, the real owner. Baker contended that if the medical practice act of Iowa is construed as forbidding the owner of a hospital from employing licensed physicians to practice medicine and attend patients therein, the act would be violative of the fourteenth amendment to the federal constitution. But, said the court, it has uniformly been held that reasonable regulations are permissible under the police power of the state as to occupations affecting public health and welfare.

From a consideration of the entire record, the Supreme Court thought there was no way that the evidence could be reconciled on any reasonable or rational basis except that Baker and his accomplices and confederates in the operation of the Baker Hospital were engaged in perpetrating a stupendous fraud against the court and that the leases and contracts were but a cunning subterfuge. The court refused to shut its eyes to such transparent trickery and said that a court so supine as to overlook such conduct would merit the contempt of all fair-minded men.

Baker was consequently held guilty of contempt of court—*State v. Baker* (Iowa), 270 N. W. 359.

Health Insurance Reasonableness of Demand That Disabled Insured Submit to Tests of Blood and Spinal Fluid—The defendant insurance company promised to pay Henning the plaintiff, certain benefits if he became disabled as a result of accident or of sickness other than a venereal disease. The plaintiff brought suits against the insurance company to recover benefits for disability due to a "paralytic condition." The defendant company brought a cross-action to enjoin the plaintiff from instituting another suit on the policies of insurance held by him and to require him to submit to a physical examination. From a judgment against it in each of these actions, the defendant company appealed to the Court of Appeals of Kentucky.

Each of the insurance policies issued to the plaintiff provided that "the company at all times shall have the right and opportunity to have its own medical examiner examine the person of the insured when and so often as it may reasonably require during the pendency of any claim for weekly indemnity." Section 673 of the Kentucky statutes contained a similar provision but provided further that no action at law or in equity may be maintained in any court of the state for the recovery

of any claim for benefits when an examination of the person of the insured by the insurance company's physician has been either obstructed or refused. The insurance company pointed out that under its policies it was not liable to the plaintiff for the payment of any benefits if his "paralytic condition" was the result of syphilis, a venereal disease, and that a Wassermann test of his blood and an analysis of his spinal fluid were reasonably necessary to ascertain whether or not the plaintiff's condition was the result of syphilis. The company introduced evidence that the plaintiff had submitted to an examination by the insurance company's physicians but had refused to allow them to draw either blood or spinal fluid for the purposes of performing these necessary tests.

The insurance company, said the Court of Appeals, had a right under either the provisions of its policies or of the state statute, or under both, to demand that the plaintiff submit himself to a scientific test of his blood or of his spinal fluid, or of both. Whether the plaintiff's disability resulted from a venereal disease could not be determined otherwise than by the tests proposed. The Court of Appeals therefore held that, if the plaintiff declined to submit to such tests, then the trial court should dismiss his suit in accordance with the state statute. On the other hand, if the plaintiff submitted to such tests and the examining physician determined that his disability was caused by venereal disease, then the case should be tried under the evidence.

Accordingly, the Court of Appeals reversed the judgment of the lower court that denied the insurer's request that the plaintiff submit to a physical examination, but it affirmed the judgment of the lower court that denied the injunctive relief sought by the insurer to prevent the plaintiff from instituting another action on his policies—*American Life & Accident Ins. Co. v. Henning* (Ky.), 97 S. W. 2d 798.

Society Proceedings

COMING MEETINGS

- American Academy of Ophthalmology and Otolaryngology Chicago Oct 10-15 Dr W. P. Wherry 107 South Seventeenth St Omaha Executive Secretary
- American Association of Obstetricians Gynecologists and Abdominal Surgeons Hot Springs Va Sept 20-22 Dr James R. Bloss 413 Eleventh St Huntington W. Va Secretary
- American Association of Railway Surgeons Chicago Sept 20-21 Dr Daniel B. Moss 547 W. Jackson Blvd Chicago Secretary
- American Clinical and Climatological Association Baltimore Oct 11-13 Dr Francis M. Rackemann 263 Beacon St Boston Secretary
- American Congress of Physical Therapy Cincinnati Sept 20-24 Dr Richard Kovacs 1100 Park Ave New York Secretary
- American Hospital Association Atlantic City N. J. Sept 13-18 Dr Bert W. Caldwell 18 East Division St Chicago Executive Secretary
- American Public Health Association New York Oct. 5-8 Dr R. M. Atwater 50 West 50th St New York Executive Secretary
- American Roentgen Ray Society Chicago Sept 13-17 Dr Eugene P. Pendergrass 3400 Spruce St Philadelphia Secretary
- Association of Military Surgeons of the United States Los Angeles Oct 14-16 Dr H. L. Gilchrist Army Medical Museum Washington D. C. Secretary
- Central Association of Obstetricians and Gynecologists Dallas Texas Oct 14-16 Dr Ralph A. Reis 104 South Michigan Blvd Chicago Secretary
- Clinical Orthopaedic Society Chicago Sept 30-Oct 2 Dr H. E. Conwell 215 Medical Arts Bldg Birmingham Ala Secretary
- Colorado State Medical Society Colorado Springs Sept 22-25 Mr Harvey T. Setzman 537 Republic Building Denver Executive Secretary
- Delaware Medical Society of Wilmington Oct 12-13 Dr W. H. C. 917 Washington St Wilmington Secretary
- Idaho State Medical Association Boise Aug 30-Sept 3 Dr Harold W. Stone 105 North Eighth St Boise Secretary
- Indiana State Medical Association French Lick Oct 4-6 Mr T. A. Hendricks 23 East Ohio St Indianapolis Executive Secretary
- Kentucky State Medical Association Richmond Sept 13-16 Dr A. T. McCormack 532 West Main St Louisville Secretary
- Michigan State Medical Society Grand Rapids Sept 27-30 Dr L. Fernald Foster 311 Center Ave Bay City Secretary
- Mississippi Valley Medical Society Quincy Ill Sept 29-Oct 1 Dr Harold Swanberg 510 Maine St Quincy Ill Secretary
- Nevada State Medical Association Ely Sept 24-25 Dr Harold J. Brown 120 N. Virginia St Reno Secretary
- Northern Minnesota Medical Association Virginia Aug 21-23 Dr J. F. Norman Crookston Secretary
- Pennsylvania Medical Society of the State of Philadelphia Oct 4-11 Dr Walter F. Donaldson 500 Penn Avenue Pittsburgh Secretary
- Radiological Society of North America Chicago Sept 13-17 Dr D. S. Childs 607 Medical Arts Building Syracuse N. Y. Secretary
- Utah State Medical Association Salt Lake City Sept 24-26 Dr A. E. McHugh 17 Exchange Place Salt Lake City Secretary
- Vermont State Medical Society St Johnsbury Oct 14-15 Dr A. E. Soule Jr Mary Fletcher Hospital Burlington Secretary
- Virginia Medical Society of Roanoke Oct 12-14 Miss A. V. E. 1200 East Clay St Richmond Secretary
- Wisconsin State Medical Society of Milwaukee Sept 14-17 Mr J. G. Crownhart 119 East Washington Ave Madison Secretary

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers in continental United States and Canada for a period of three days. Periodicals are available from 1926 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them. Titles marked with an asterisk (*) are abstracted below.

American Journal of Surgery, New York

37 1 188 (July) 1937

- *Infections of Spinal Epidural Space. An Aspect of Vertebral Osteomyelitis. J. Browder and R. Meyers. Brooklyn—p. 4.
- Hyperparathyroidism. History, Etiology and Clinical Pathology. J. E. Jacobs and J. D. Bisgard. Omaha—p. 27.
- Acute Appendicitis. Comparative Survey with Remarks on Its Management. H. J. King. Binghamton, N. Y.—p. 40.
- Primary Epithelial Tumors of Renal Pelvis. F. L. Senger and J. J. Bottone. Brooklyn—p. 57.
- Surgical Treatment of Puerperal Sepsis. A. F. Lash. Chicago—p. 68.
- Corkscrew Bolt for Compression Fixation of Femoral Neck Fractures. R. K. Lippmann. New York—p. 79.
- *Ambulatory Treatment for Anal Fissure. D. Weiss. New York—p. 88.
- Technic of Skin Grafting. A. de L. Maynard. New York—p. 92.

Epidural Infections.—Browder and Meyers describe seven cases of spinal epidural infection. Five belong to the group designated as spinal epidural abscess representing the relatively acute process and two belong to the group designated as spinal epidural granuloma, representing the more chronic process. Five patients died and two are living at present. The clinical picture is fairly constant and for the more acute forms at least, constitutes a fairly definite syndrome, consisting of a history of a previous infection, boring pain in the spine, radicular pain and finally involvement of the spinal cord. In the chronic cases there is less definition of the syndrome although the features outlined are often represented if an adequate history is obtainable. A consideration of the pathogenesis of the disease reveals two main modes by which the spinal epidural space may be invaded in the first, by direct extension from an infection adjacent to the vertebral column in the second, by a hematogenous route from a more remotely situated focus of infection. The authors propose reasons for believing that cases of this kind are characterized by a zone of metastatic vertebral osteomyelitis which infection subsequently spreads into the spinal epidural space.

Treatment of Anal Fissure.—Weiss believes that the treatment of anal fissure is feasible by injections of local anesthetics in oil and can be accomplished in the ambulatory patient. Assuming that the fissure is situated at the posterior commissure, the patient is placed either in the lithotomy or in the Sims position. A 1½ inch 22 gage needle is inserted through the normal skin from 0.5 to 1 cm distal to the fissure edge, and 1 mm of a solution (0.5 per cent of nupercaine, 1 per cent of phenol, 10 per cent of benzyl alcohol and 88.5 per cent of sweet almond oil or 0.2 per cent of eucalypti, 3 per cent of ethylammonioacetate 5 per cent of benzyl alcohol and enough sweet almond oil to make 100 per cent) is injected immediately. This will allow the introduction of the left index finger through the anal orifice and thus enable one to feel the needle, guiding it as it is advanced in the subcutaneous tissue to a place just beyond the apex of the fissure, but at no time to penetrate the bed of the fissure or mucous membrane. From 0.5 to 1 cc of the selected solution depending on the size of the lesion is then injected, beginning at the point beneath the fissure apex and continuing as the needle is being drawn out. The needle is then partially withdrawn and with the index finger still in the anus it is redirected being guided into the sphincter muscle first on one side adjoining the fissure where 1 cc is deposited, and then on the other side adjoining the fissure. It may take from one to four or five treatments until complete repair of the fissure is accomplished. The important fact is that after the first treatment the patient has immediate relief, gains confidence, and bowel movements are characterized by the absence of ensuing pain, smarting or soreness. If a sentinel pile is

present, its removal is essential for cure. This may be done after the first injection or at a date in the near future. No additional infiltration of a local anesthetic is required for its ablation. The use of one of the solutions extends the period of anesthesia and eases the spasm of the anal sphincter over a sufficient time to allow healing. Of the thirty patients treated with these formulas, two developed sloughs, three patients seen after six months complained of an occasional itching sensation which was slight and not constant but examination revealed no break in the mucous membrane, and the others have had no recurrences.

Annals of Surgery, Philadelphia

106 1 160 (July) 1937

- *Infections of Dangerous Areas of the Face. Their Pathology and Treatment. U. Maes. New Orleans—p. 1.
- Riedel's Struma and Struma Lymphomatosa (Hashimoto). Comparative Study. J. C. McClintock and A. W. Wright. Albany, N. Y.—p. 11.
- Duodenal Diaphragm. E. G. Krieg. Detroit—p. 33.
- Treatment of Acute Appendicitis. G. H. Bunch and R. Doughty, Columbia, S. C.—p. 42.
- Polycystic Disease of Pancreas (Dysontogenetic Cysts). Report of Case with Partial Pancreatectomy. K. K. Nygaard and W. Walters. Rochester, Minn.—p. 49.
- *Cullen's Sign in Acute Pancreatitis. L. S. Fallis. Detroit—p. 54.
- *Liver Deaths in General Surgery. Two Cases Unassociated with Biliary Tract Operations. J. L. DeCourcy. Cincinnati—p. 58.
- False Acute Abdomen. I. Pseudoperforation of Peptic Ulcer. T. L. Althausen. San Francisco—p. 62.
- Tumors of Renal Pelvis and Ureter. J. R. Caulk. St. Louis—p. 68.
- Pheochromocytoma with Demonstration of Pressor (Adrenalin) Substance in Blood Preoperatively During Hypertensive Crises. E. Beer, F. H. King and M. Prunzmetal. New York—p. 85.
- Shelling Operation in Treatment of Neglected or Irreducible Congenital Dislocated Hip. A. R. Smith. Iowa City—p. 92.
- Toxin of Burns. S. R. Rosenthal. Chicago—p. 111.
- Spinal Anesthesia. Study of Postoperative Course. E. P. Lehman, J. C. Risher. University, Va. and W. E. Bippus. Wheeling, W. Va.—p. 118.

Infections of the Face.—Maes reviews the twenty fatal cases of infections of the 'dangerous area' (the triangle from the angles of the mouth to the bridge of the nose) of the face that were observed in two hospitals during nine and six years, respectively. The area is dangerous for anatomic and physiologic reasons. The reasons include the thinness of the skin, its constant exposure to trauma, its rich vascular supply, which provides a direct pathway from the surface to the interior of the cranium, the predominance in this area of connective tissue, which adapts itself poorly to infection, and the constant motion of the lips, which militates against any localization of infection. More important than any of these anatomic and physiologic reasons is the factor of trauma, which is present in 90 per cent of all cases and is introduced by the patient or his physician or both. The infecting agent is usually the staphylococcus and the spread is by way of the subcutaneous plexus and the angular and ophthalmic veins. The condition begins as a carbuncle or simple boil. When the factor of trauma is introduced, stagnant blood is provided as a rich culture medium for bacteria, the integrity of the protective leukocytic wall is destroyed, the infection spreads rapidly by way of the rich vascular supply, and the steps of the pathologic process include thrombophlebitis, thrombosis of the cavernous sinus, massive blood stream infection, meningitis and metastatic abscesses. The disease begins with a mild local discomfort, followed shortly by extensive swelling, edema and induration of the adjacent tissues. The symptoms and signs after this stage include severe pain, chills, hyperpyrexia, delirium or coma and prompt death. All types of local and intravenous therapy have been advised, but the general opinion now is that conservative measures chiefly absolute rest of the parts, warm compresses and supportive measures, give the best results while surgical incision gives the worst. Ligation of the angular vein is theoretically correct, but of little practical value, and a few successful operations have been reported for drainage of the affected cavernous sinuses.

Cullen's Sign in Acute Pancreatitis.—Fallis believes that the extreme rarity of Cullen's sign suggests an anatomic variation of the structures at the umbilicus. Abnormal apertures in the peritoneum and transverse fascia would allow extravasation of blood from the peritoneal cavity to the subcutaneous tissues. Another explanation is that the blood travels extraperitoneally. This hypothesis is all the more plausible when

it is recalled that the pancreas is essentially an extraperitoneal organ, lying as it does behind the peritoneum and being covered by peritoneum only on its anterior surface. Effusions of blood resulting from disintegration of the gland could conceivably track around in the subperitoneal space between the peritoneum and the transverse fascia and, reaching the midline anteriorly, would be limited by the suspensory ligament of the liver above and the urachus below the umbilicus. Collections of fluid would then tend to gravitate along these structures and pool in the potential subumbilical space, where there is direct contact with the subcutaneous tissues owing to the absence of the transverse fascia in this region. Diffusion of excess fluid into the flank would readily occur from here. The author offers in confirmation of this postulate the observation that in two of his cases there was no blood-stained peritoneal fluid found at operation and yet a positive Cullen sign was present, while in two other cases of acute pancreatitis under consideration at the same time there was found at operation, in both instances, a large amount of blood stained peritoneal fluid but no discoloration around the umbilicus. The theory of extraperitoneal spread is also applicable to cases of ruptured ectopic gestation and may explain the rarity of the sign. On this basis, however, the sign would be positive only in those cases in which the extraperitoneal portion of the tube was involved in the rupture and extravasation took place between the layers of the broad ligament. In a series of thirty-five patients operated on for acute pancreatitis in the author's hospital, a positive diagnosis was made in only five instances and one of these patients had suffered from a previous attack of acute pancreatitis. The diagnostic value of a positive Cullen sign is emphasized by pointing out that of the remaining four cases in which a correct preoperative diagnosis was made three were made on a basis of a positive Cullen sign. A good light is essential for the recognition of the sign.

Liver Deaths.—"Liver deaths," as has been noted occur most frequently in diseases of the biliary tract in which the liver usually shows some pathologic changes at the time of operation. But hepatic damage may be present in other cases due to infection, intestinal intoxication or, DeCourcy thinks, anemia. If it is present, even to a slight degree, any laparotomy may cause physical, chemical infectious, mechanical and toxic traumas (Hejdy) sufficient to produce severe toxemia when liver function is impaired. In the two cases that the author cites the only common factor was a considerable degree of prolonged anemia resulting from preoperative loss of blood. The diminished or poor blood supply to the liver resulting from anemia may be the cause of preoperative damage to the liver cells or of some diminution of the liver function. It has been shown both experimentally and clinically that building up the glycogen reserves of the liver protects it from damage and increases its detoxifying action. Since his experience leads the author to believe that anemia may be a factor in the causation of liver damage, he recommends that dextrose be given preoperatively, as an adjunct to transfusion, to all patients who show any evidence of anemia.

Archives of Pathology, Chicago

23 757 912 (June) 1937

- *Time Factor in Irradiation of Malignant Tumors P J Melnick and A Bachem Chicago—p 757
- Nasopalatine Duct Structures and Peculiar Bony Pattern Observed in Anterior Maxillary Region L W Burket New Haven Conn—p 793
- Anatomic and Bacteriologic Findings in Infections with Specific Types of Pneumococci Including Types I to XXII M Finland J W Brown Boston and J M Rueggesser Cincinnati—p 801
- Epithelial Metaplasia of Thyroid Gland with Especial Reference to Histogenesis of Squamous Cell Carcinoma of Thyroid Gland R H Jaffe Chicago—p 821
- Ameloblastoma Survey of 379 Cases from Literature H B G Robinson Rochester N Y—p 831
- Hodgkin's Disease of Stomach with Fatal Gastric Hemorrhage J Redisa New York—p 844
- Simple Mailing Container for Slides H L Wollenweber Baltimore—p 849
- Technical Methods for Study of Blood Platelets Critical Review with Bibliography L M Tocantins Philadelphia—p 850

Time Factor in Irradiation of Malignant Tumors.—Melnick and Bachem find that following irradiation sensitive tumor cells undergo primary degenerative changes which are of the nature of simple necrosis. Refractory tumor cells

become altered in their chromosomal structure by irradiation; an alteration which results in the development of abnormal forms (giant cells, in the tumors described). These abnormal forms developing as a result of the action of the rays on the nuclei fail to survive. They degenerate in a specific manner (calcification of the nuclei). The effect of small divided doses of radiation is fully cumulative in producing changes in the chromosomes and genes of refractory cells. Because of this full cumulative effect on their nuclei, divided dose methods offer the possibility of destroying a tumor by transforming its cells into abnormal forms, when the lethal massive dose to the tumor is injurious to the host. Protracting the individual divided dose is probably of no value. In the authors' experiments no significant gross or microscopic differences in effects were found between the fractional and the protracted fractional treatments. Fast growing tumors may increase in size to a dangerous extent before the effect of divided doses becomes manifest. For such tumors the saturation technique is a logical choice. An initial moderate massive dose destroys the sensitive cells. Subsequent divided doses destroy the refractory cells by the mechanism of altering their hereditary structure. In the experiments reported, such a saturation method was found to be most efficient.

Arch. of Physical Therapy, X-Ray, Radium, Chicago

18 321 384 (June) 1937

- Skin Reactions I Mechanism of Histamine Iontophoresis from Aqueous Mediums H A Abramson and Armine Alley New York—p 327
- Histamine Iontophoresis in Rheumatic Conditions and Deficiencies of Peripheral Circulation D H Kling Los Angeles and D S H New York—p 333
- Treatment of Rheumatoid Arthritis with Mud E Neuwirth Prague Spa Czechoslovakia—p 338
- Corrective Technic in Colon Therapy J S Hibben Pasadena Calif—p 342
- Röntgen Study of Colon L J Gelber Newark N J—p 345
- Management of Chronic Arthritis of Knee by Intermittent Traction Leatherstrip Brace H Jordan New York—p 348
- Experimental Studies on Specificity of Short Wave Diathermy H F Wolf New York—p 358
- Ultraviolet Radiation of Erysipelas J G Jenkins Temple Texas—p 363
- Ejection of Alpha Particle from Wall of Wilson Cloud Chamber R A Watters, Reno Nev—p 366

Archives of Surgery, Chicago

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- Effect of Anesthesia on Blood Oxygen I Study of Effect of Ether Anesthesia on Oxygen in Arterial and in Venous Blood J L Star B F Steele and C A Lamb Boston—p 1
- Cancer of Duodenum Clinical and Roentgenographic Study of Eight Cases W J Hoffman and G T Pack New York—p 11
- *Care of the Severely Burned with Especial Reference to Skin Grafting E C Padgett Kansas City, Mo—p 64
- Surgical Disease of Gallbladder Clinical and Pathologic Review of the Disease in 133 Patients Operated on at the Mount Sinai Hospital with Follow Up Studies D R Meranze H A Salzman and I Meranze Philadelphia—p 87
- Carcinoma of Suprapapillary Portion of Duodenum H L Stern Boston and M M Lieber Philadelphia—p 99
- *Concealed Hemorrhage into Tissues and Its Relation to Trauma Shock H N Harkins and N W Roome Chicago—p 130
- Iodine Content of Blood in Cholelithic Disease J L DeCourcy, Cincinnati—p 140
- *Headache After Spinal Anesthesia H Koster L P Kasman and L Shapiro Brooklyn—p 148
- Intestinal Obstruction Attempt at Improved Discussion of Its Pathologic Physiology and Treatment Based on Simple Classification and Past Experimental and Clinical Experience J A Doraldsen Little Rock Ark—p 155
- Review of Urologic Surgery A J Scholl Los Angeles F Hertz San Francisco A von Lichtenberg Budapest Hungary A B Hef Seattle R Gutierrez New York G J Thompson J T Priester Rochester Minn and V J O'Connor Chicago—p 162

Severe Burns and Skin Grafting.—Padgett discusses a series of 144 burned persons. In the care of the severely burned, greater emphasis should be focused early on alleviation of the profound systemic disturbance than is placed on the care of the local lesion. The recognition of the depth and the area of complete epithelial destruction is an essential point to be grasped if one is to understand the principles of resurfacing and the basic cause of contractural deformity. Early resurfacing after a large complete loss of skin should be the goal of the surgeon, because of the prevention of contracture with the functional incapacitation that accompanies them. Provided the general condition of the patient is good, success in growing thin skin grafts on a granulating area

is directly proportional to the general cleanliness of the surface. In an anemic person the chance of a good take on a surface of granulation tissue is decreased. In the successful grafting of skin, dependence on simple fundamental principles and methods, in contradistinction to a special type of graft with or without a "far fetched" method of placement or puncturing or dressing, is important. In the correction of cicatricial defects after complete healing has occurred, the decision whether to use a thin graft or a full thickness graft depends on a careful balancing of the characteristics of the two grafts, the main object to be attained in a given region and the relative risk of failure to get a good take. Sometimes the disability entailed in the removal of the graft and the length of the period of postoperative dressing also become factors to be considered. Isodermal grafting is not a practical procedure unless an identical twin is available.

Concealed Hemorrhage and Traumatic Shock—Harkins and Roome point out that in all cases of wounds and trauma there is some swelling. Hemorrhage occurs in some and only edema in others. They present cases that illustrate the importance of quantitative studies of the amount of swelling after trauma. The fluid present in these swellings contains a higher percentage of proteins than ordinary edema fluid and hence its loss may lead to circulatory disturbance. The cases cited are of concealed hemorrhage and extravasation of plasma into tissue space. The resultant swelling is usually greater when measured quantitatively than casual physical examination would have led one to believe. The extensive concealed hemorrhage and plasma extravasation in clinical cases substantiates the experimental observations of others that such local loss of fluid from the circulating blood stream is a factor of importance in the production of secondary surgical or traumatic shock.

Postoperative Headache—The relation of hypertonicity to the development of postoperative headache has never been demonstrated. The experiments with saline solution and water as solvents for procaine hydrochloride have failed to yield any significant information and Koster and his colleagues concede that from the data it cannot be concluded that postoperative headache depends on the hypertonicity or the hypotonicity of the injected solution. No reliable data concerning the effect of varying the pH on the development of postoperative headache are available. After the injection of procaine hydrochloride dissolved in distilled water, headache was not uniformly produced. However, that is not surprising when it is remembered that only 4 cc of the procaine hydrochloride solution is injected into a fluid the minimal amount of which is at least 50 cc and which contains considerable buffer substance. If the one patient who had a headache preoperatively is left out of consideration, there were five patients with postoperative headache among the 100 who were used in the experiments. There was an interval between the experiments on two groups, during which time 135 persons were anesthetized with procaine hydrochloride dissolved in cerebrospinal fluid. Of this number, not a single person had a postoperative headache. Buffer substances are present in cerebrospinal fluid in sufficient quantities to render innocuous ordinary solutions used to develop anesthesia, which might have a pH as low as 5.63.

California and Western Medicine, San Francisco

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- Pneumonias Their Management J G M Bullock New York—p 368
Practice of Pediatrics as a Specialty E B Shaw San Francisco—p 372
Pertinent Comments on Anesthesia H J Smith Oakland—p 375
Surgical Practice Looking Forward J H Shephard San Jose—p 377
Influenza The San Francisco Outbreak of January February 1937 J C Geiger and J P Gray San Francisco—p 379
Black Widow Spider Bite Report of Forty Four Cases H M Ginsburg Fresno—p 381
Cancer of Kidney Present Day Status of Its Treatment and End Results C P Mathe San Francisco—p 385
Bromide Intoxication G C Burns and J L Henderson Compton—p 392
Human Sterilization Today E S Gosney Pasadena—p 396

Black Widow Spider Bite—Ginsburg points out that since the last (1935) report of Frawley and himself there have been treated at the General Hospital of Fresno County forty four

additional cases of black widow spider poisoning. In all, ninety-six cases have been treated. There were no fatalities, and none of the last forty-four patients were even critically ill. A routine treatment is used, which consists of 1 grain (0.065 Gm) of morphine sulfate hypodermically, 20 cc of 10 per cent magnesium sulfate solution given intravenously, to be repeated if necessary, fluids freely, 3 grains (0.2 Gm) of sodium amylal for restlessness, absolute bed rest for twenty-four hours and 10 per cent dextrose intravenously if the patient's condition demands it. The average length of stay in the hospital was 37.3 hours. In the majority of cases, within three to five hours after the use of morphine and magnesium sulfate, the patients had marked relief. When the patients were discharged all symptoms had disappeared except in eight, who had slight tingling and aches in the lower extremities, which persisted from one to seven days. It is believed that the venom or toxin injected by the black widow spider travels very rapidly and that the acuteness of the case depends on the amount and area injected. Acute symptoms set in within one-half to two hours after biting, and the effects appear self limiting. The toxic effect of the bite can be controlled by the foregoing medication.

Illinois Medical Journal, Chicago

71 457 540 (June) 1937

- Endocrine Progress and Its Relation to Essential Hypertension and Diabetes Mellitus J H Hutton Chicago—p 469
Neurogenic Sarcoma Case Report I E Bishkow Chicago—p 472
Crisis in Addison's Disease Simulating Coronary Thrombosis H A Sacks Chicago—p 475
Vitamin F Ointments M L Weinstein and Kathryn Glennon Chicago—p 477
Combined Full Term Extra Uterine and Intra Uterine Pregnancy F Bondurant Cairo—p 480
Cessation of Epileptic Seizures Following Recovery from Prostatitis Report of Two Cases C O Ritch Chicago—p 481
Indications for Gastroscopy Marie Ortmyer Chicago—p 482
Problems of Pneumothorax Therapy J J Mendelsohn Chicago—p 484
Pernicious Anemia Simulating Leukemia Specific Response to Parenteral Liver Extract A Van der Kloot Chicago—p 487
A Pterygium Operation C W Hawley Chicago—p 489
Solitary Cyst of Kidney Discussion and Case Report C E Boylan Chicago—p 490
Treatment of Empyema Complicating Artificial Pneumothorax J R Head Chicago—p 493
Visceral Pain F J Lesemann Chicago—p 495
Some Points in Gynecologic Diagnosis Helpful to the Practitioner O S Krebs St Louis—p 501
Cardiac Review of 1936 N Flaxman Chicago—p 509
True Vaginal Hernia Report of Case J P McGuire and P R McGuire Chicago—p 526
Cryptitis C J Drueck Chicago—p 528
Sudden Death from Natural Causes in Adults E F Hirsch Chicago—p 531

Crisis in Addison's Disease Simulating Coronary Thrombosis—Sacks reports a case of Addison's disease, which clinically and electrocardiographically simulated coronary thrombosis. The total duration of symptoms was one week. There was no increasing period of weakness as the patient was ambulatory to within a few hours of his death. The most significant abnormalities consisted of large T waves, a large Q_2 and elevation of the RT segments in leads 2 and 3. Coronary sclerosis was present at postmortem examination, and most probably these changes were responsible for the abnormalities described. The rapid fall of pressure with a lowered coronary circulation theoretically may account for some of these changes. The contention of animal experimenters that the cortex of the adrenal is vital to life is substantiated, and the failure of the medullary hormone epinephrine to bring about a remission is well demonstrated. The use and availability of cortical products is vital in the treatment of Addison's disease. Pigmentary changes are of great diagnostic importance but may not have time to develop during the crises of this disease. The absence of these changes increased the difficulties of arriving at a proper diagnosis in the author's case. No accurate calculation for potassium content was possible but it is probable that the patient had an increase of potassium salts in his diet for anemia, as foods rich in iron are rich in potassium, and this proved to be the trigger mechanism that precipitated the fulminating picture.

Journal of Biological Chemistry, Baltimore

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- Albumin Globulins and Fibrinogen of Serum and Plasma W R Campbell and Marion I Hanna Toronto—p 15
- Preparation and Purification of Extracts Containing Gonad Stimulating Hormone of Pregnant Mare Serum G F Cartland and J W Nelson Kalamazoo Mich—p 59
- Isolation of Vinyl Ether (Divinyl Oxide) from Human Tissues T J Domanski New York—p 69
- Pimelic Acid as Growth Accessory for Diphtheria Bacillus J H Mueller, Boston—p 121
- Absorbability of Sterols with Particular Reference to Oestresterol W M Sperry New York and W Bergmann New Haven Conn—p 171
- Effect of Acid Hydrolysis on Yield of Androgenic and Estrogenic Activities from Human Urine D H Peterson T F Gallagher and F C Koch Chicago—p 183
- *Creatine and Creatinine Excretion in Infancy Ruth Catherwood and Genevieve Stearns Iowa City—p 201
- Studies on Constitution of Insulin II Further Experiments on Reduced Insulin Preparations A White and K G Stern New Haven Conn—p 215
- Solubility of Aragonite in Salt Solutions Audra A Browman and A B Hastings Chicago—p 241
- Studies on Ketosis XI Relation of Fatty Livers to Fasting Ketonuria in Rat H J Deuel Jr Lois F Hallman and Sheila Murray Los Angeles—p 257
- Effect of Certain Physiologically Important Materials on Kidney Phosphatase J J Pyle J H Fisher and R H Clark Vancouver B C—p 283
- Solubility of Bone Salt M A Logan and H L Taylor, Boston—p 293
- Determination of Fermentable Blood Sugar by Gasometric Measurement of Carbon Dioxide Formed by Action of Yeast R F Holden Jr New York—p 347

Creatine and Creatinine Excretion in Infancy—Catherwood and Stearns summarize the data from approximately 500 studies of creatine and creatinine excretion of infants from birth to 1 year of age. The quantities of both creatine and creatinine excreted increased throughout the entire period. The creatine excretion is far more variable than that of creatinine. It is concluded that the creatinine excretion of infants is dependent almost entirely on the quantity of musculature. Infants fed high protein diets have a somewhat higher percentage of the body weight as muscle than infants fed human milk. No consistent relationship was observed between the quantity of creatine excretion and creatine intake, or between creatine excretion and any phase of nitrogen metabolism. The data have been interpreted as indicating that thyroid activity may be directly or indirectly the principal factor concerned in determining the quantity of creatine excretion of infants. During early infancy, creatine and creatinine excretions neither parallel each other nor show any reciprocal relationship; this is considered evidence that the two substances represent different phases of muscle metabolism not closely interrelated.

Journal of Nervous and Mental Disease, New York

86 1124 (July) 1937

- Effect of Avertin Fluid (Tribrom Ethanol) on Brain Stem Experimental Observations R R White R T Bellows and W P Van Wagenen Rochester N Y—p 1
- *Poliencephalomyelitis Due to Botulism G A Schwarz Philadelphia—p 7
- Analysis of Mitogenetic Blood Radiation in Mental Disorder as Basis for Therapy S Branness Leningrad U S S R—p 24
- Dictaphone as Aid to Psychiatric Case Presentations C P Oberndorf New York—p 37
- Can Reorientation Through Mass Therapy Correct Fallacious Concept of Mental Disease? A W Hackfield Seattle—p 39

Poliencephalomyelitis Due to Botulism—Schwarz gives the trend in the development of knowledge of the pathogenesis of botulism that he gathered from a review of the literature. It appears that the pathologicophysiology and pathologic-anatomic features of botulinus intoxication are somewhat unsettled. Because of this he reports the case history and the neuropathologic study of a case of poliencephalitis following botulism in an effort to add further data and possibly throw some light on the latter phase of the problem. The etiologic factor was not definitely ascertained in the case. The clinical syndrome of botulism was so clear, however, that the diagnosis was made on the signs, symptoms and course of the illness. The neuropathology of this fatal case of botulinus intoxication corresponded well with the changes of the original classic cases, both experimental and human. Definite pathologic changes were found in the anterior horn cells of the spinal cord and in the neurons of the cranial motor nerve nuclei. The histologic

modifications were fairly similar to those described previously by other observers. There were edematous changes that were limited chiefly to the agranular cortical area and to the small and middle sized pyramidal cells of the third lamina. Reduction in the number of small cell elements in the nucleus ruber was observed. Although a careful search was made, no bacterial elements were noted in the vacuoles or in their vicinity. It is the author's opinion that the vacuolization in his case was due to edema. The pathologic changes observed differed from those described in the classic cases in that the cells of the oculomotor nerve nuclei showed only slight modifications. No particular changes were noted in the median nuclei of the oculomotor nerve nuclei, as so many other observers have. There were no gross or microscopic thromboses. The vascular endothelium did not show the changes so frequently attributed to it in this condition by a certain group of observers. Perivascular hemorrhages were infrequent and minor. The neuroglia showed no signs of proliferation. They were, however, often very swollen and edematous. In short, the pathologic changes seemed to be of a general and marked edema without demonstrable damage to the walls of the vascular system. Intracellular and extracellular edema were the main features in the cortex. Although some of the cells in the rest of the nervous system presented perineuronal edema, only a few showed even moderate intracellular edema. The motor nerve cells of most of the cranial nerve nuclei showed chromatolytic changes. Yet this was never noted in the anterior horn cells of the spinal cord. And the motor cells of the spinal cord claimed the distinction of possessing the only fat vacuoles seen in any of the cells of the nervous system. Along with the sensory system, the large motor, Betz cells of the prerolentic cortex were unchanged. The geographic distribution of the pathologic changes in the central nervous system corresponded rather well to that of the clinical features of the illness. The changes in the oculomotor nerve nuclei were rather minor when compared to the severity of the clinical involvement of this nerve. The abducens nerve was involved centrally. It does not seem to the author that the pathologic changes observed in the cells of the central nervous system explain the clinical manifestations of the disease in the case. He feels that there is some other factor operative here that produced the severe neuromuscular phenomena. This is probably the peripheral blocking action of the toxin as described by Schubel, Dickson and others.

Journal of Urology, Baltimore

37 737 866 (June) 1937

- The Morphogeny of Renal Calculus A Randall and P D Melnick Philadelphia—p 737
- *Progress in the Management of Urinary Calculi J D Barney and H W Sulkowitch Boston—p 746
- Technic of Prostate Resection T M Davis, Greenville S C—p 761
- Diagnosis and Treatment of Early Carcinoma of the Prostate R A Ferguson New York—p 774
- True Aneurysm of the Renal Artery R W McKay Charlotte N C—p 783
- Atony of Bladder Report of Case Treated by Presacral Neurectomy T D Moore Memphis Tenn—p 790
- Traumatic Rupture of Both Walls of the Bladder and Rectum G Report J J Ravenel Charleston S C—p 796
- New and Improved Electro Urethrotome J R Robertson Augusta Ga—p 797
- Endometriosis of the Bladder E G Mark Kansas City Mo—p 817
- *Transvesical Alcoholic Injection for Elusive Ulcer of the Bladder Preliminary Report A I Folsom and H A O'Brien Dallas Tex—p 808
- Contraindications and Complications Incident to Transurethral Prostate Resection B W Turner Houston Texas—p 815
- Results of Treatment of the Genito-Urinary Tumors by Roentgen Rays R S Ferguson New York—p 823
- Carcinoma of the Prostate J R Caulk St Louis—p 832
- Cardinal Principles Underlying Gonococcal Infection P S Phillips Philadelphia—p 840
- Perineal and Vaginal Cystectomy with Transplantation of the Uterus E C Shaw Miami Fla—p 850

Progress in Management of Urinary Calculi—Barney and Sulkowitch discuss the management of urinary lithiasis, that is, the removal of a stone in an individual who already has one, and the prevention of recurrence in a patient who has had a stone removed. The subheadings of their discussion include etiology, chemical classification of stones with reference to etiology, classification of conditions leading to phosphate stones, mixed phosphate and other stones, medical aspects of treatment (fluid intake), phosphate stones (hyperparathyroidism).

ism), other phosphate stones (acid regimen), dangers of acid regimen (impaired kidney function), diagnosis, urinary infections and surgical treatment. The intensive and intelligent study of urinary calculi today involves the cooperation of the internist, the clinical chemist and the bacteriologist. It involves a knowledge not only of scientific dietetics but also of endocrinology. The urologist and the radiologist must necessarily depend to a very large and increasing degree on the collaboration of the chemist, the internist and the bacteriologist.

Transvesical Alcoholic Injection for Elusive Ulcer of Bladder—In the treatment of seven cases of Hunner ulcer, Folsom and O'Brien injected absolute alcohol into and about the ulcers. Gas anesthesia was used for all the patients. The injections were made with a long flexible needle through the McCarthy panendoscope. From 2 to 6 cc was injected, 0.2 cc being introduced at each puncture. These were distributed about and directly into the ulcer. After the treatment patients usually spent from sixteen to twenty-four hours in bed and were then able to resume their regular activities. Definite conclusions are not yet warranted, but the authors are impressed by the prompt relief the patients have received and it is their opinion that this immediate relief can be expected in the great majority of cases. The duration of the period of relief is uncertain but with added experience the injections should become more complete, thereby increasing the length of this period. There was no evidence of damage to the wall of the bladder from the alcohol. With care to prevent rupture of the bladder from overdistention, it would seem that the procedure is entirely free from danger.

Laryngoscope, St. Louis

47 221 288 (April) 1937

- Rehabilitation of the Deaf Child M A Goldstein St. Louis—p 221
Hearing and Its Conservation in Schools W E Grady New York—p 224
National Organizations for Service to Hard of Hearing The American Society for the Hard of Hearing Betty C Wright Washington D C—p 226
Service in the New York City School for the Deaf J D Whitman New York—p 229
Organizations for Service to Hard of Hearing New York League for the Hard of Hearing Annetta W Peck New York—p 233
Fundamentals of Lip Reading Including Demonstrations with Audience as Subjects Estelle E Samuelson New York—p 237
Parent and Teacher Training Irene B Young Tenafly N J—p 239
Role of Deaf Prevention Clinic W M Hunt New York—p 241
Therapeutics in Otolaryngology J H Childrey San Francisco—p 245
Pulmonary Metastases Occurring from Aberrant Mixed Salivary Gland Tumors Report of Three Cases and Discussion G W Olson Fresno Calif—p 252
Clinical Experience of Correspondence Study Group with Suprarenal Concentrate in Otolaryngology D C Jarvis Barre Vt—p 263
Relationship of Sinus Diseases to Diseases of the Eye Review of Fifty Two Cases M M Kafka Brooklyn—p 272
Congenital Glottic Stenosis or Web of Larynx O Majzoub Beirut Syria—p 280
Submucous Resection in Relation to Nasal Plastic Surgery M M Wolfe Philadelphia—p 281

47 289 364 (May) 1937

- Diagnosis of Diseases of Neural Mechanism of Hearing by Aid of Sounds Well Above Threshold (Presidential Address) E P Fowler New York—p 289
Bacterial Meningitis I Clinical Picture of Bacterial Meningitis with Particular Reference to Its Changing Phases S J Kopetzky New York—p 301
Id II Pathways of Infection from Paranasal Sinuses R Kramer New York—p 304
Id III Differential Diagnosis of Suppurative Meningitis Caused by Paranasal Sinus Disease with Some Suggested Prophylactic Measures C J Imperatori New York—p 306
Id IV Differential Diagnosis of Extra Otitic Meningitis E D Friedman New York—p 311
Id V The New York Meningitis Committee of the American Otological Society T J Harris New York—p 315
Id VI Summary of Methods Used in Treating Meningitis Secondary to Infections of Ears and Sinuses Josephine B Neal H W Jackson and E Appelbaum New York—p 317
Id VII Pathways of Infection from the Ear M F Jones New York—p 323
Ligation of Internal Jugular Vein in Lateral Sinus Thrombosis J A Novick Washington D C—p 325
Petrous Apex Suppuration Involving Carotid Canal and Causing Horner's Syndrome M C Myerson New York—p 345

Ligation of Internal Jugular Vein in Lateral Sinus Thrombosis—Novick maintains that in a given case of lateral sinus thrombosis established definitely, one should not act hastily. With very few exceptions, this is not an emergency in which one has to rush in and ligate the jugular vein imme-

diately. The patient should be carefully observed and treated medically as long as his condition permits and just as soon as the surgeon feels that more radical measures are essential he should reopen the mastoid wound or do a mastoidectomy if this has not been done, then the sinus should be packed above and below, incised and tested for bleeding from each end. If there is bleeding from both ends and the blood is coming from the sinus itself and not from its tributaries it may be assumed that there is no thrombosis in any part of the sinus or the jugular vein. The sinus should be packed and the mastoid incision dressed. If, however, there is bleeding from below and none from above, there is a thrombus somewhere between the upper plug and the torcular herophili. The thrombus should be looked for and removed, if possible the sinus packed and the mastoid wound dressed. Ligation of the internal jugular vein in this instance will be of no further help, since in this area there are many other pathways by which it is possible for the infection to gain entrance to the systemic circulation. On the other hand, if bleeding is obtained from above which means that a thrombus is in all probability present either in the bulb or in the vein itself, ligation of the internal jugular vein followed by the removal of the clot, is justified and should be done.

Medical Annals of District of Columbia, Washington

6 153 194 (June) 1937

- Use of Protamine Insulin in Treatment of Diabetes Mellitus J W Lindsay E C Rice M A Selinger and K H Mish, Washington—p 153
Gastroscopy F A J Geier Washington—p 161
Indications for Presacral Sympathectomy for Vesical Conditions O H Fulcher Washington—p 167
Beta Hemolytic Streptococcus Infection Treated with Para Aminobenzene Sulfonamide Case P Willson Washington—p 171
Arterial Hypotension J E Bowman Washington—p 175
Conservatism in Gynecologic Surgery E W Titus Washington—p 180

Missouri State Medical Assn Journal, St. Louis

34 219 284 (July) 1937

- Use and Abuse of Intravenous Therapy in Surgery T G Orr Kansas City Kan—p 219
Theoretical and Clinical Aspects of Mongolism A Bleyer St. Louis—p 222
Surgical Treatment of Vesicocoele Rectocoele and Uterine Prolapse C J Hunt Kansas City—p 227
Irrigation of Lungs for Morbid Conditions Arising Therein W F A Schultz St. Louis—p 229

New England Journal of Medicine, Boston

216 1051 1094 (June 17) 1937

- *Liver Function in Hypothyroidism as Determined by the Hippuric Acid Test E C Bartels and H J Perkin Boston—p 1051
The Urinary Tract in Relation to the Diagnosis of Abdominal and Pelvic Lesions G L Hunner Baltimore—p 1061
The Treatment of Discharge from the Nipple R B Davidoff and H F Friedman Boston—p 1072

216 1095 1148 (June 24) 1937

- Comparative Results in Protamine Zinc and Unmodified Insulin Therapy C W Howe and D W J Bell Providence R I—p 1095
Fracture of the Head of the Humerus Treatment and Results J W Sever Boston—p 1100
Medical Education Now and Then S Rushmore Boston—p 1108

Liver Function in Hyperthyroidism—Bartels and Perkin performed estimations of the liver function on sixty-six patients with hyperthyroidism according to the method of Quick. Determinations were made on each patient on the day of admission, on the day prior to operation (from eight to fourteen days were taken for preoperative treatment) and on the sixth or seventh day after operation. Twenty-five of the patients suffered from primary hyperthyroidism, which was treated by one stage operation; twenty-five required a two stage operation and sixteen had an adenomatous goiter with hyperthyroidism which required a one stage operation. The test revealed impairment of liver function in cases of hyperthyroidism frequently enough to be of importance as an observation. If in the serial determinations on the twenty-five cases of primary hyperthyroidism the 28 Gm of hippuric acid is taken as the lower limit of normal for the excretion of hippuric acid, it will be noted that on admission only seven patients had normal values. The average hippuric acid excretion for the group on admission was 2.39 Gm. Following preoperative

treatment an increase in the hippuric acid excretion to 266 Gm occurred. From six to seven days postoperatively, an average decrease took place in six of the eight patients in whom liver function was normal before operation. In nine of the fourteen in whom determinations of liver function were made after preoperative treatment and after operation, there was an average decrease in the excretion of hippuric acid of 0.66 Gm. This downward trend after operation is suggestive of the possible strain of operative procedures on the liver function. In the twenty-five cases of hyperthyroidism in which two-stage operations were performed, the average hippuric acid excretion on admission was 176 Gm. From eight to ten days, and in some instances fourteen days, elapsed during preparation of this group of patients for operation. In none of these cases was there evidence of heart failure which might have caused congestion of the liver and thereby produced an alteration of the test. The average amount of hippuric acid excreted during preoperative preparation was found to increase by from 0.48 to 2.24 Gm. In five of twenty-two cases in which tests were carried out after preoperative treatment a normal excretion was noted. This improvement compares favorably with that demonstrated in the group in which one stage operations were performed during the same period. Postoperatively a slight and almost insignificant decrease in the average determination occurred. When the patients returned for the second-stage operation, 20 per cent excreted a normal quantity of hippuric acid, the average quantity being 2.35 Gm. From six to seven days after the second operation an increase in the average excretion occurred in that the tests were normal in 43 per cent of the cases. The average amount of hippuric acid excreted on admission in the sixteen cases of adenomatous goiter with hyperthyroidism was 2.1 Gm. In three cases excretion was normal. After the usual preoperative care the average quantity of hippuric acid excreted increased only 0.11 Gm. But in two of the thirteen cases tested results were normal at this time. There was only a slight increase in the excretion from the time of admission to dismissal. There appears to be a definite relation between the amount of hippuric acid excreted and the level of the basal metabolic rate. In those cases in which the basal metabolic rate was high, the excretion was decreased proportionately. In the cases in which the metabolic rates were only slightly elevated, the excretion was only slightly reduced. The close correlation that was observed between liver function, as indicated by the excretion of hippuric acid, and the value for blood cholesterol gives justification for placing some confidence in the reliability of the hippuric acid test of liver function.

New York State Journal of Medicine, New York

37 1095 1180 (June 15) 1937

- *Recent Advances in Inhalation Therapy in Treatment of Cardiac and Respiratory Disease. Principles and Methods. A. L. Barach. New York—p. 1095.
Muscular Dystrophy. Report of Family. D. I. Arbuse and D. Sloane, New York—p. 1111.
Acute Inflammation of Gallbladder and Biliary Ducts. J. Douglas. New York—p. 1119.
Traumatic Hernia. J. Davis. New York—p. 1128.
Partial (Bilateral) Adrenalectomy for Malignant Hypertension. L. Friedman and A. A. Eisenberg. New York—p. 1131.
Methemoglobinemia and Prontosin. J. F. Stoness. New York—p. 1139.
Psychiatric Treatment in an Institution. Case of Psychoneurotic Boy. S. Z. Orgel. New York—p. 1141.

Inhalation Therapy in Cardiac and Respiratory Disease—Barach thinks that the purpose of inhalational therapy may be stated in general as the relief of dyspnea, dyspnea being viewed both as a subjective sensation and an objective pathologic process. The primary objective of this type of treatment must be mainly thought of as an attempt to provide an adequate tension of oxygen in the tissues and to remove the carbon dioxide formed in them as the result of oxidation. The objective pathologic process of labored breathing is closely dependent on chemical factors involved in gas exchange. A prompt diminution of both the volume of the pulmonary ventilation and the effort employed in breathing take place in patients with congestive heart failure after inhalation of high oxygen atmospheres. Therefore there is a significant relation between the chemical factors that are operating and the cause of dyspnea. The interpretation of cardiac dyspnea on the basis of disturbed proprioceptive pulmonary reflexes limits itself simply to an

explanation of the sensation and does not aid a therapeutic physiologic recognition of cardiac dyspnea. As the result of the use of helium, at times with oxygen concentrations which are less than those in the atmosphere, the relief of dyspnea has been shown to be due to a decreased effort in providing an accustomed velocity of gas flow through the respiratory tubel system. It would therefore appear that the organism demands for its psychic comfort the preservation of an equilibrium which has to do with the speed of pulmonary ventilation independent of gaseous exchange. The preventive and therapeutic action of positive pressure respiration in acute edema, in man and in animals, illustrates again the importance of mechanical or physical factors in the physiology of respiration. It seems probable that the therapeutic use of positive pressure will be of value not only in the treatment of pulmonary edema but also in certain related conditions characterized by pulmonary congestion, and it seems also altogether likely that nonarterial pulmonary hemorrhage may be controlled in some instances. Inhalational therapy has gone within the past two decades from a more or less uncontrolled haphazard administration of oxygen employed generally as a measure of last resort to a specialty of medicine which has as its purpose the management of functional disturbances in respiration. The future of this branch of medicine depends on the recognition that the pathologic physiology of clinical disorders in breathing should be given the fullest study in the individual case. The practice of relegating oxygen therapy to technicians or to nurses tends to defeat this aim.

Northwest Medicine, Seattle

36 187 224 (June) 1937

- *Clinical Giardiasis. Report of Twenty Seven Cases. C. C. Goss. Seattle—p. 187.
Cardiovascular Disease Due to Syphilis. A. M. Davis. Portland Ore—p. 192.
Asthenia and Some of Its Less Obvious Causes. K. Winslow. Seattle—p. 195.
Controversial Triad of Digestive Field. Gallbladder Disease. Peptic Ulcer. Colitis. T. R. Brown. Baltimore—p. 200.
Factors Affecting Utilization of Food. Adequate Diet Does Not Assure Adequate Nutrition. Leila W. Hunt. Pullman, Wash.—p. 205.
Umbilical Hernia Containing Strangulated Lobe of Liver. A. W. Osten. Seattle—p. 210.
Iodine in Prevention and Treatment of Goiter. W. A. Niehman, Tacoma, Wash.—p. 211.

Clinical Giardiasis—Goss reports twenty seven cases of *Giardia intestinalis* infestation discovered in routine stool examinations on 300 private patients, in most of whom examination of the feces was indicated for some other obvious reason. In none of these cases was an attempt made to recover the parasites by duodenal drainage. Practically all of them were fresh stool examinations made after catharsis, with the patient appearing at the laboratory to void the stools. From one to four stools have been examined usually on one day only. These twenty seven cases were compared with 200 cases taken at random, consisting of the same class of patient, on whom routine stool examinations were done. Duodenal ulcer had an incidence more than three times as great in giardiasis as in the control. Biliary disease had no increased incidence in giardiasis. Biliary like and ulcer-like symptoms were more than three times as common in giardiasis as in the controls. There is a high incidence of fatigue and vitamin B deficiency in giardiasis. *Giardia* does not commonly cause diarrhea in adults.

Oklahoma State Medical Assn Journal, McAlester

30 189 242 (June) 1937

- Incidence of Syphilis Complicating Pregnancy. L. G. Neal. Ponca City—p. 189.
Some Observations on Serologic Diagnosis of Syphilis. C. P. Borduraz. Oklahoma City—p. 194.
Undulant Fever in General Practice. E. H. Shuller. McAlester—p. 197.
*Value of Leukopenic Index in Allergic Diseases. E. R. Denny. Tulsa—p. 202.
Kepler Adler Pregnancy Test Demonstrating Histidine in Urine. C. E. White and T. J. Dunn. Muskogee—p. 208.
Treatment of Gonorrhea in the Male. D. W. Bransham. Oklahoma City—p. 210.

Value of Leukopenic Index in Allergic Diseases—During the last two and a half years, Denny has made more than 4000 studies on individual foods by the digestive leukopenic response method. The mechanism by which leukopenia may develop following the ingestion of a food that acts as an allergen is unknown. He has found the digestive leukopenic

response tests of distinct value in the diagnosis and treatment of patients suffering from food hypersensitivity. Skin testing by the scratch or intradermal methods to the protein extracts of food have limited value. There are some patients in whom the skin is so sensitive that a wheal surrounded by an area of erythema develops at the site of the scratch or intradermal injection of all protein substances to which he is tested, others give no positive skin reactions to any substance tested by the skin method. The determination of the digestive leukocyte response in these groups of patients is a distinctly valuable adjunct in determining the causes of their clinical manifestations.

Public Health Reports, Washington, D C

52 791 818 (June 18) 1937

- Geographic Distributions of Mortality from Tuberculosis Cancer Appendicitis and Typhoid Fever in the White Population of the United States L L Lumsden and C C Dauer—p 791
The Need for Industrial Hygiene Courses in Public Health Curricula J J Bloomfield and R R Sayers—p 799

Southwestern Medicine, Phoenix, Ariz

21 151 186 (May) 1937

- Brief of Endocrine Symptomatology H M C Grow Yuma Ariz—p 151
Etiology and Treatment of Chronic Arthritis A Banister Phoenix Ariz—p 157
Prevention and Correction of Deformities in Chronic Arthritis W P Holbrook and D F Hill Tucson Ariz—p 161
Operative Correction for Contractures of Knees in Atrophic Arthritis J B Littlefield Tucson Ariz—p 163
Acute Laryngotracheobronchitis Case Report M P Spearman and W E Vandevere El Paso Texas—p 165
Tuberculosis and Pregnancy H C James Tucson Ariz—p 168
Indications for Collapsus Therapy in Pulmonary Tuberculosis F R Harper Tucson Ariz—p 170
Serum Treatment of Pneumonia P G Corliss Somerton Ariz—p 172
Trend of Cancer Investigations E P Palmer Phoenix Ariz—p 174

Surgery, Gynecology and Obstetrics, Chicago

65 1144 (July) 1937

- Regional Enteritis A S Jackson Madison Wis—p 1
Advantages of Gradual Decompression Following Complete Common Duct Obstruction I S Ravdin and W D Frazier Philadelphia—p 11
Disruption of Abdominal Wounds Report of Twenty Two Cases F Glenn and S W Moore New York—p 16
Analgesia Anesthesia and the New Born Infant S H Clifford and P C Irving Boston—p 23
Pseudomenstruation in the Human Female C Mazer S L Israel and I Krieger Philadelphia—p 30
Chordoma J Bruce and E Mekie Edinburgh Scotland—p 40
Dermoid Cysts of the Head and Neck G B New and J B Erich Rochester Minn—p 48
Study of Osgood Schlatter Disease J P Cole New York—p 55
Acute Appendicitis with Peritonitis Treatment and Mortality F C Herrick Cleveland—p 68
Hemostasis in Thyroidectomy M Nordland Minneapolis—p 73
Treatment of Acute Cholecystic Disease C A Kunath Iowa City—p 79
Simple and Effective Method for Closure of Biliary Fistulas W W Babcock Philadelphia—p 88
Fractures of Both Bones of Forearm Method of Fixation J D Bisgard Omaha—p 90
Resection of Right Half of Colon J deJ Pemberton and L D Whittaker Rochester Minn—p 92
Treatment of Thrombophlebitis with Acetyl Beta Methylcholine Chloride Iontophoresis H L Murphy Brooklyn—p 100
Modified Sieve Graft Full Thickness Skin Graft for Covering Large Defects L R Dringstedt and H Wilson Chicago—p 104
Muscle-Splitting Extraperitoneal Lumbar Ganglionectomy F L Pearl San Francisco—p 107

Decompression After Common Duct Obstruction—

While obstruction of the common bile duct may in itself produce serious cytologic changes in the liver and physiologic changes in the portal venous circulation it is equally true that the rapid release of the obstruction with the sudden inflow of blood into hepatic vessels whose circulation was in varying degrees impeded may lead to equally serious consequences. The intense hyperemia that takes place when a complete ductal obstruction is suddenly released may cause additional damage to the liver cells and changes in circulation. For some years Ravdin and Frazier have used the following method of decompression after the release of an obstructed common bile duct. As soon as the T tube has been sutured in the common duct and bile begins to flow from it, it is clamped. When the patient returns to the ward the clamp is removed and the tube

is connected to the sterile decompression apparatus. If a cholecystostomy has also been performed, the gallbladder tube is attached to a similar apparatus. The apparatus board is so fastened as to put the lowest hook approximately on a level with the common duct. The distance between the hooks is approximately 5 cm. For the first twelve to eighteen hours after operation the Y tube is hung on the top hook approximately 25 cm above the level of the common duct. The usual result is that only a little bile is forced over into the drainage bottle with respiratory movements. The Y tube is then moved downward, but if, at this level, a large amount of bile is drained externally this can be lessened by raising the tube again. By thus adjusting the level of the apparatus the amount of bile drained externally can be regulated. Enough is obtained daily for analytic studies and the remainder is forced down into the duodenum by controlling the level of the Y tube. Thus, as the postoperative traumatic edema of the ductal wall subsides the level can be lowered, but in order to overcome the sphincter tone a certain amount of pressure must always be maintained by keeping the Y tube on the second or third hook. That the bile is passing into the duodenum can readily be determined by frequent observations of the patient's stools and repeated van den Bergh determinations. The forcing of bile into the duodenum, once the obstruction is relieved which prevents the loss of bile to the exterior, is of great value. It is necessary only that the pressure from the decompression apparatus be sufficient to overcome the tonus of the sphincter mechanism at the lower end of the common bile duct for the bile to flow freely into the duodenum. The loss of fluid and electrolytes when the bile is drained to the exterior is considerable, but of even more importance is the loss of the intestinal functions of the bile. In the method advocated, the bile enters the duodenum by its normal route. Appetite improves rapidly and pancreatic asthenia has not been observed during convalescence.

Disruption of Abdominal Wounds—To establish correct figures for the incidence of evisceration and for certain factors that may affect it, Glenn and Moore made a study of the incisions in 2,927 abdominal operations. Twenty-two cases of evisceration were disclosed—an incidence of 0.75 per cent. Catgut was used in closing 1,608 wounds, silk sutures in 1,144, and silver wire in 175 cases. Mid left rectus and transverse rectus incisions are rightfully used with great reserve, for the incidence of evisceration in both is high. Of the usual incisions in the upper part of the abdomen, the upper left rectus carries the highest percentage of disruptions in this series. Only one McBurney wound disrupted in this case the closure was inadequate and the drains were of such bulk as to prevent the wound from closing. Malignant conditions seriously affect the incidence and results of evisceration. There were six eviscerations in patients operated on for malignant disease they comprised 27 per cent of the total eviscerations. In 582 laparotomies for malignant manifestations there were six eviscerations, but in 2,345 operations for nonmalignant diseases there were sixteen eviscerations. Of the sixteen eviscerations in the nonmalignant cases six followed cholecystectomies, the ten other eviscerations were associated with operations for peptic ulcer, postoperative hernia, ulcerative colitis diverticulosis of the colon, bleeding from the gastro intestinal tract, appendicitis with peritonitis and pancreatitis. Debility has been recognized as a possible cause of evisceration. It was present in eleven of the twenty-two cases. In no instance was jaundice or diabetes associated with the evisceration, although these conditions have been encountered frequently in surgical cases. Evisceration occurred thirteen times in incisions of the upper right rectus twice in the upper left rectus once in a transverse rectus once in a mid left rectus, once in a McBurney, twice in lower left rectus and twice in lower right rectus incisions. The single transverse rectus incision disrupted seven days after operation. Of the twenty-two eviscerations eleven were wounds closed with catgut seven with silk three with through and through silver wire and one with through and through silkworm gut. Disruption occurred from one to sixteen days after operation, the majority on the fifth to the eleventh day after operation. Secondary closures were effected in eighteen of the twenty-two cases with through and through silver wire sutures. None of

these reopened. In two cases the wounds were packed and strapped with adhesive tape and in two the wounds were resutured. Following secondary closure, the patients remained in the hospital from nineteen to twenty-six days. The immediate mortality in this group of cases was 45.45 per cent (ten cases). A follow up of the discharged patients showed that one died eight months later of cirrhosis of the liver and another twenty-two days later as the result of cancer.

Treatment of Thrombophlebitis—Murphy has observed thirty-three cases of thrombophlebitis for more than a year in the treatment of which acetyl-beta-methylcholine alone was used. These patients had had the thrombophlebitis for from one week to twenty years without relief from any previously used treatment. The average age of the patients was 52.6 years. The average number of treatments given was fifteen, with a minimum of four in one case and a maximum of sixty-three in one case. No selection of cases was undertaken. A standard 0.5 per cent solution of acetyl-beta-methylcholine chloride is used. Reinforced asbestos paper saturated with the 0.5 per cent solution of the drug is wrapped around the foot and leg as high as the thigh. A malleable metal plate is placed over the wet asbestos paper and is connected to the positive pole of a galvanic machine. A large, regular, moist electrode is used as a dispersive electrode. This is placed under the back and is connected with the negative pole. The current is turned on slowly and increased to 20 or 30 milliamperes. At the end of the treatment, the current is slowly reduced and turned off. Treatment is given in some cases daily, but generally for from twenty to thirty minutes two or three times a week. Systemic reactions constitute an exact duplicate of the reactions following the subcutaneous or intravenous administration of the same drug but are more certain, more prolonged and more easily controlled. They are rarely noted with iontophoresis except in the mild form. In addition there is a characteristic local reaction directly under the site of the application of the drug. This consists of (1) a feeling of prickling followed by warmth during the treatment, (2) the appearance of goose flesh immediately after the removal of the asbestos paper, (3) a local blush of the skin, (4) sweating of the skin, which may continue for from six to eight hours, and (5) an elevation in surface temperature during treatment, followed by a drop during profuse sweating (with accompanying evaporation) and a rise above the former level in from one-half to five hours. Neither the general nor local effects noted can be produced with the use of saline iontophoresis or by the galvanic current alone. Acetyl-beta-methylcholine chloride solution with the use of the galvanic current must therefore be responsible for the effects. Individuals vary in reactions. Some patients who scarcely react to the first treatment show an increasing reaction to subsequent treatments. Thirty-one patients were definitely improved and were able to get about with ease and without the aid of any supporting bandages. Of 488 treatments given, not one untoward reaction was noticed. Cases in which there was lymphedema cleared up remarkably in a comparatively short time after years of progressive discomfort. Associated varicose ulcers healed readily. The two patients with unsatisfactory results had received too few treatments to give the method a fair trial.

Yale Journal of Biology and Medicine, New Haven

9:509-608 (July) 1937

- Reginald Heber Fitz: The Exponent of Appendicitis. J. E. Loveland, Middletown, Conn.—p. 509.
- Study of Vasomotor Responses Following on Experimental Lesions of Brain Stem. Helen G. Richter, B. S. Brody and A. W. Oughterson, New Haven, Conn.—p. 521.
- Bio-Electric Correlates of Development in Amblystoma. H. S. Burr and C. I. Hovland, New Haven, Conn.—p. 541.
- Basis of Pharmacologic Action of Heavy Water in Mammals. H. G. Barbour, New Haven, Conn.—p. 551.
- Effect of Starvation on Acquired Immunity to Mouse Typhoid. W. M. Hale, New Haven, Conn.—p. 567.
- Vitamin C Requirement of Guinea Pig. A. Giroud, C. P. Leblond and R. Ratsimamanga, New Haven, Conn.—p. 573.
- Carlos Finlay's Contribution to Epidemiology of Yellow Fever. C. C. Dauer and G. M. Carrera, New Orleans—p. 585.
- Mosquito Hypothetically Considered as an Agent in Transmission of Yellow Fever Poison. C. Finlay, Havana, Cuba—p. 589.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Experimental Pathology, London

18:175-264 (June) 1937

- Distribution of Iron in Blood. C. E. Jenkins and M. L. Thomson—p. 175.
- Oxygen Poisoning and Tumor Growth. J. A. Campbell—p. 191.
- Investigation of Alleged Tumor Producing Properties of Lipoid Material Extracted from Rous Sarcoma Desiccates. A. Pollard and C. R. Ames—p. 198.
- *Effect of Guinea Pig Passage on Virus of Rabies. E. W. Hurst—p. 205.
- Encapsulation of Hemolytic Streptococci. Gladys L. Hobby and M. H. Dawson—p. 212.
- *Effects of Road Dust Freed from Tar Products on Incidence of Primary Lung Tumors of Mice. J. A. Campbell—p. 215.
- Serologic Analysis of Protective Substances in Specific Antibacterial Serums Which Control Experimental Infection with Clostridium Edematis Maligni (Vibrio Septique). D. W. Henderson—p. 224.
- Studies in Diphtheria Toxin Production. III. Simple Gelatin Hydrolysate Medium and Some Properties of Toxin Produced Therefrom. A. M. Pappenheimer Jr. and S. J. Johnson—p. 239.
- Combining Properties of Vaccinia Virus with Antibodies Demonstrable in Antivaccinal Serum. M. H. Salaman—p. 245.
- Fowl Pest Susceptibility of Monkeys, Hedgehogs and Other Animals. G. M. Findlay and R. D. Mackenzie—p. 258.

Effect of Guinea-Pig Passage on Virus of Rabies—Hurst finds that in both the rabbit and the guinea pig rabies follows intravenous and intramuscular inoculation much more constantly and readily if the infecting material is guinea pig brain than if it is rabbit brain. This phenomenon is not due to any property inherent in guinea-pig brain itself. The ratio between the minimal cerebral infecting dose and the minimal intravenous infecting dose is much lower with guinea pig virus, by expressing the observations in this form, it is at once made obvious that the number of infective units of guinea pig virus needed to infect by the intravenous route is much smaller than of rabbit virus, and the former can be said truly to be more virulent for peripheral inoculation than the latter. This effect of guinea-pig passage was seen only with viruses that were some passages removed from street virus, when recently isolated, the Moroccan strain apparently behaved in a quite different manner, though the results were highly irregular and difficult to read. No evidence was obtained of local multiplication of guinea-pig (or rabbit) virus at a site of intramuscular inoculation.

Road Dust and Primary Lung Tumors—Campbell has shown previously that dust from tarred roads causes cancer of the skin in mice. Road dust minus tar, as removed by benzene, does not cause cancer, it stimulates the production of tumors of the lung in mice, but not to so great an extent as when the tar is also present. Tumors of the lung are rare in mice before they are 12 months of age. The dust does not cause any obvious inflammatory reaction—apart from the tumors themselves—in the lung or lymph glands. Tar, either by a direct action on the lung itself or indirectly by some action on other tissues, or both, stimulates the production of tumors of the lung in mice and hastens their appearance. Metastases from tumors of the lung in mice are recorded, for the first time in this country so far as the author knows. The majority of the tumors of the lung in the dusted mice are malignant.

British Journal of Ophthalmology, London

21:273-336 (June) 1937

- Effect of Gamma Rays on Cell Division in Developing Rat Retina. Katharine Tansley, F. G. Spear and A. Glucksmann—p. 273.
- *Association of Dendritic Ulcer of Cornea and of Superficial Punctate Keratitis with Herpes Facialis. H. Neame—p. 298.
- Bacteriologic and Experimental Researches on Etiology of Trachoma. A. Cuenod and R. Nataf—p. 309.

Dendritic Ulcer of Cornea and Herpes Facialis—Neame describes three cases which presented (1) facial dermatitis herpetiformis with fever, associated with dendritic ulcers (2) herpes around the mouth and on the eyelid, with a dendritic ulcer and two spots that may be classed as nummular or macular keratitis, and (3) typical superficial punctate keratitis with two small dendritic ulcers near the margin in company with a lesion of herpes facialis on the right side of the chin. It is probably true that herpes simplex is a virus disease. The author claims that the cases described are not merely rare.

coincidences but that they support the contention that many cases of superficial punctate keratitis and its grosser forms—nummular or macular keratitis—and dendritic ulcers of the cornea are the result of infection with a virus capable of producing herpes simplex. If one virus is responsible for such a variety of lesions as herpes simplex corneae, superficial punctate keratitis, nummular (or macular) keratitis, dendritic ulceration, disciform keratitis, some forms of neuropathic keratitis and perhaps also keratitis profunda, it must be capable of varied behavior at different times and in different places. One virus—modified perhaps in different localities or in different years—is capable of producing a variety of lesions of the cornea. Confusion may arise from the use of terms that have a different meaning to different persons. Use of the corneal microscope should help in the avoidance of such discrepancies.

British Journal of Physical Medicine, London

12 23 42 (June) 1937

- Treatment of Pulmonary Abscess with Short Waves S Fiandaca — p 25
Physical Medicine in Some American Hospitals Observations Made on Recent Visit W K Russell — p 27
Ultraviolet Irradiation Clinical Applications A P Cavadias — p 30
Electromedical Apparatus Its Character, Operation and Care L G H Sarsfield — p 34

British Medical Journal, London

1 1145 1188 (June 5) 1937

- Early Diagnosis and Treatment of Heart Failure W Evans — p 1145
*Lupus Vulgaris Treatment by Intradermal Injection of Hydnocarpates J E Wallace — p 1151
Idiopathic Steatorrhea Report of Case Arising in Adult Life A M Nussbrecher and F Morton — p 1152
Cultivation of Mycobacterium Tuberculosis from Human Sputums J F D Shrewsbury and J Barson — p 1154
Advanced Extra Uterine Pregnancy A Patrick — p 1156
Protosil by Intrapleural Route Two Cases of Streptococcal Empyema J L Brown — p 1157

Treatment of Lupus Vulgaris with Hydnocarpates—Wallace used intradermal injection of esters of hydnocarpus oil in the treatment of fifteen patients presenting extensive lupus vulgaris who attended a tuberculosis dispensary. Their previous treatment had consisted of local and general artificial light therapy and occasional "spiking" with acid nitrate of mercury, but the lesions had mostly reached that curiously resistant stage in which the disease appears to be neither advancing nor healing. All other forms of treatment were stopped at the commencement of the new method. The length of treatment has varied in individual cases from six months to three years, although, in the longer cases as the condition improved, injections have frequently been spaced out at fortnightly or even monthly intervals. Progress has undoubtedly been more rapid than that made by artificial light treatment alone, but there is no reason why the injections should not be supplemented by general carbon arc baths, as in some of the cases reported by Burgess. Reactions are definitely less painful than those resulting from the usual caustic applications. The intradermal injection of hydnocarpates appears to offer certain advantages over other routine methods. The total amount of the weekly injection has not exceeded 1 cc of phenyl-ethyl hydnocarpate. Reactions can be diminished by spacing the wheals as far apart as possible, and no area should be injected a second time until all inflammatory changes have subsided.

Indian Medical Gazette, Calcutta

72 265 328 (May) 1937

- Treatment of Opium Habit with Lecithin and Glucose R N Chopra and G S Chopra — p 265
Anemia in Tea Garden Labor Forces L E Napier — p 270
Short Note on Use of Pneumonia Stock Vaccine in Treatment of Pneumonia G Fraser — p 278
Operative Treatment of Vesicovaginal and Vesico-Urethrovaginal Fistulas by Vaginal Route Thirty Three Cases S N Hayes — p 282
*Treatment of Malaria in Children with Atabrine Misonate R K De — p 290
Vitamin A as Determined by Blue Units of Antimony Trichloride Test in Livers of Malnourished Children L Nicholls — p 293
Syncopeal Form of Angina Pectoris (Electrocardiographic Study) J C Gupta — p 295

Treatment of Malaria in Children with Atabrine-Misonate—The difficulty in giving quinine by mouth, because of its bitterness, prompted De to use the two intramuscular injection method of treatment with atabrine in the treatment of fifty children. This treatment controlled the clinical symp-

toms rapidly and the effect on temperature was remarkable. The treatment freed the peripheral blood of malignant tertian infection earlier than benign tertian. It did not destroy crescents nor did it prevent their formation. Posttreatment complications (convulsions in five cases and restlessness with vomiting in one case, but no immediate fatality) were unexpected and caused anxiety. There was no abscess formation and no inflammatory reaction in any case. The dose given (0.1 Gm of injectable atabrine dissolved in 3 cc. of distilled water and injected into the buttock) seemed adequate for the average children of from 6 months to 6 years. Taking all the conditions into consideration it is concluded provisionally that two injections of atabrine can be regarded as an efficient course of treatment in cases of acute malaria and its complications in children. The rapidity with which the temperature of the patients is controlled and the facility of administration of this method of treatment are really distinct advantages. The drawbacks to its employment that must be considered are the toxic after-effects in some cases.

Journal of Laryngology and Otology, London

52 375 462 (June) 1937

- Clinical Observations on Bone Conduction W J McNally T C Erickson R Scott Moncrieff and D L Reeves — p 375
Observations on Semicircular Canals E W Peet — p 431

Journal of Neurology and Psychopathology, London

17 289 384 (April) 1937

- Enquiry into Causes of Mescal Visions C R Marshall — p 289
Heme Bodies (Rosenthal Fibers) Associated with Cavities in Pons and Cerebellum and Acoustic Neuroma Report of Two Cases A F Liber — p 305
The Blood Calcium in Cases of Idiopathic Epilepsy R L H Minchin — p 314
Loneliness and Paranoid Syndrome D N Parfitt — p 318

Journal Obst & Gynaec of Brit Empire, Manchester

44 417 624 (June) 1937

- Anemias of Pregnancy E H Evans — p 417
Incidence of Human Malformations and Significance of Changes in Maternal Environment in Their Causation P Malpas — p 434
Clinical and Sociological Study of Abortion H S Parnmore — p 455
*Acetylcholine in Treatment of Uterine Inertia A C Bell and P Playfair — p 470
Induction of Labor by Rupture or High Puncture of Membranes H J D Smythe and D Joan Thompson — p 490
Cystic Endometrial Hyperplasia in Rhesus Monkey S Zuckerman — p 494
Leukocyte Changes During Labor and Puerperium Anne Gibson — p 500
*Continuous Drip Transfusion in Gynecology and Obstetrics W R Winterton — p 510
Extracervical Opening of Ureter Report of Case W R Winterton — p 517

Acetylcholine in Treatment of Uterine Inertia—During the last two years Bell and Playfair treated twenty-three cases of severe uterine inertia by intramuscular injections of acetylcholine. The present position in the physiology of acetylcholine appears to be that this substance is intimately connected with parasympathetic nerve stimulation. A patient was considered suitable for treatment when labor had lasted at least forty-eight hours, whether with weak pains or with colicky uterine contractions. Only patients in whom pregnancy had been normal and in whom there was no evidence of disproportion were regarded as suitable for treatment. All patients had previously received treatment with sedatives and attempts at stimulation with enemas, and only when such measures proved unsuccessful in advancing dilatation of the cervix was acetylcholine used. The dosage used was purely empirical and therefore the amount varied. The most effective method was found to be four doses of 0.2 Gm of acetylcholine given intramuscularly at intervals of three hours. The full dosage should be given in all cases, even though the inertia appears to have responded to treatment before the fourth dose has been given. The drug had no harmful effect on the maternal blood pressure, the fetal heart rate, the type and frequency of contractions, the dilatation of the cervix, or the general effect on the patient. The maternal mortality was (one) 4.34 per cent and the fetal mortality was (three) 13.04 per cent (two of these fetuses were dead before acetylcholine was given). Most patients showed a slight temporary fall of blood pressure following each injection. The cervix was fully dilated within twenty hours from

the initial dose of acetylcholine in seventeen cases and within thirty hours in four cases. In two cases the time was longer than thirty hours. In no case did the second stage of labor last more than three hours.

Continuous Drip Transfusion in Gynecology and Obstetrics—Winterton employed the continuous drip blood transfusion in twenty patients in the gynecologic and obstetric department of the Middlesex Hospital. These patients between them received 40,020 cc (70 pints) of blood during 433 hours. The material is insufficient for an attempt at statistical conclusions, but the results in individual cases have been so encouraging that their publication appears warranted. The introduction of such amounts by ordinary methods would result in gross increase of the blood volume causing cardiac failure consequent on overloading of the circulation. It was found that, if blood was introduced at a rate so slow that the hemoglobin percentage was raised by not more than 18 per cent in four hours, the blood volume adjusted itself by the extrusion of plasma and large transfusions could be given safely. A rate of 40 drops per minute is equivalent to a pint of blood in four hours, i. e., a rise of 10 per cent of hemoglobin in an adult. This rate should be regarded as the maximal permissible rate of administration to a nonbleeding patient who is to receive several pints of blood. In a patient who is bleeding, the hemoglobin should still be increased by 10 per cent over four hours. This means that such a patient must receive a pint of blood in four hours plus a quantity equivalent to that being lost. These large transfusions necessitate a number of donors for each case. The onus of responsibility is firmly left to the relatives. Of 390 donors in a series reported by Marriott and Kekwick, 333 were found by the relatives. Blood transfusions should be reserved for those preoperative cases which are so urgent that the patients cannot wait several weeks while their blood is restored to normal by hematopoietic remedies. Eight patients were given preoperative drip transfusions. The average initial hemoglobin of the cases was 36 per cent, and the average hemoglobin after drip transfusion was 76 per cent, the average rise of hemoglobin being 40 per cent from 2,270 cc of blood. The operations consisted of four hysterectomies, two laparotomies for inoperable growths, an incomplete miscarriage and a case of menorrhagia in a patient with jaundice which cleared up after transfusion. Six patients received drip transfusions prior to radium treatment. The total amount of blood transfused was 10,480 cc during 135 hours. The average initial hemoglobin of these patients was 47 per cent. The average hemoglobin after drip transfusion was 78 per cent, an average rise of 31 per cent. The improvement in the general condition of all these women was very striking. In the other six patients, drip blood transfusions were used postoperatively in two for hemorrhage, for postradium hemorrhage in two and in one each for antepartum and postpartum anemia.

Journal of Tropical Medicine and Hygiene, London

40 125 136 (June 1) 1937

Observations on Mortality and Morbidity from Schistosomiasis in Egypt
J. A. Scott—p. 125

Lancet, London

1 1319 1384 (June 5) 1937

Treatment of Diabetes: Clinical and Experimental Observations with New Insulins. T. I. Bennett, T. M. Davie, D. Gardner and A. M. Gill—p. 1319

Pericardial Resection for Constrictive Pericarditis: Report of Case Apparently Cured. R. Pilcher—p. 1323

Cysts of Nasopalatine Canal. C. B. Henry—p. 1326

Significance of Anginal Syndrome in Acute Spontaneous Pneumothorax. A. M. Scott—p. 1327

Relationship Between Male Gonads and Adrenal Gland. W. Cramer and E. S. Horning—p. 1330

*Treatment of Streptococcal Infections in Mice with 4, 4'-Diaminodiphenylsulfone. G. A. H. Buttle, Dora Stephenson, S. Smith, T. Dewing and G. E. Foster—p. 1331

*Erysipelas Treated with Prontosil. G. E. Breen and I. Taylor—p. 1334

The Treatment of Streptococcal Infections with 4, 4'-Diaminodiphenylsulfone—Buttle and his co-workers report results which show that 4, 4'-diaminodiphenylsulfone is much more active than sulfanilamide in curing streptococcal infections of mice, and that, while it is more toxic for mice than the latter compound, it is not more toxic for rabbits and monkeys, except that it causes methemoglobinemia more readily in the monkey.

When the diaminodiphenylsulfone is added directly to monkey or human blood in vitro, it appears to be slightly more effective than sulfanilamide. Further, when the drugs are given by mouth to normal monkeys, the maximal bactericidal effects obtained in the blood are of the same order in all cases, although the action of the diaminodiphenylsulfone is more persistent. Therefore it is somewhat difficult to understand why mouse infections are cured by doses of the diaminodiphenylsulfone so much smaller than those required with sulfanilamide. The latter is absorbed and excreted very quickly by the mouse and the concentration in the blood falls to about one tenth of its initial value in seven hours and to one hundredth of this value in thirteen hours; it seems probable, therefore, that there is not a uniformly high bactericidal effect. The experiment with the monkey suggests that the bactericidal effect of the diaminodiphenylsulfone, on the other hand, is maintained. This persistence of the bactericidal effect may account in part for the difference between the drugs, but it seems unlikely that it is the only factor concerned. It is highly improbable that either the diaminodiphenylsulfone or the dimetarsulfone could give rise to *p*-aminobenzenesulfonamide in the body, and their activity is of special interest since it indicates that streptococidal activity is not confined to drugs which contain, or could easily produce, substances containing a sulfonamide group.

Erysipelas Treated with Prontosil—Of their forty-five cases of erysipelas (forty-one of the facial variety), Breen and Taylor used prontosil in one or another form in thirty-five. All patients were in addition painted locally twice daily with a mixture of glycerin and ichthammol. There were two deaths. Of thirty-five patients treated with prontosil from admission, thirty-three had regressed, one had spread and one was stationary forty-eight hours later. There was one subsequent relapse. Of the ten control cases not treated with prontosil, four had regressed, five had spread and one was stationary forty-eight hours later. There were no relapses. Of the five cases which had spread, three were subsequently treated with prontosil, and within forty-eight hours they had also regressed. The average temperature of the prontosil cases fell to normal or below in forty-eight hours, whereas the average of the other cases remained above normal. As regards the pulse, the advantage lies with the no prontosil group, but as they were clinically milder cases, this was reflected in the lower temperature and pulse rate on admission. The drug was administered by mouth in all but two patients, two tablets of sulfanilamide of 5 grains (0.3 Gm.) each were given three times daily to adults, smaller doses proportionately to body weight being given to children. The single relapse in the prontosil group occurred on the tenth day, but this yielded so promptly to a resumption of treatment that the patient was discharged a week later. The average length of stay in the hospital in the prontosil cases was 18.4 days, which compares favorably with the figure of 23.8 days in the other series.

1 1385 1444 (June 12) 1937

*Simple Nonsphincteric Spasm of the Esophagus. J. E. G. McGibbon and J. H. Mather—p. 1385

Urinary Suppression Following Blood Transfusion. S. L. Baker—p. 1390

Transplantation of the Cornea from Preserved Cadavers. Eyes. V. P. Filatov—p. 1395

Effect of Calcium and Vitamins A and D on Incidence of Pregnancy Toxemia. G. W. Theobald—p. 1397

Simple Nonsphincteric Spasm of the Esophagus—McGibbon and Mather believe that, anatomically, spasm that develops at either the upper or the lower (sphincteric) extremity of the esophagus can be regarded as distinct from that arising in the intervening (nonsphincteric) part, although their pathologic condition probably is similar. Simple nonsphincteric spasm may affect one or more segments of the esophagus in its entire extent or a varying portion of its length. Localized spasm and diffuse spasm (tetanic [total and partial], irregular and functional diverticula) have been encountered. Each type may vary considerably in the same and in different patients and occasionally the various types may occur in the same patient. As a rule all types of spasm are transient—there is only a tendency to spastic contraction of the esophageal muscles, and when this does occur it is of short duration. Simple nonsphincteric spasm of the esophagus is a neurogenic manifestation.

festation. It might be caused by an abnormal increase of stimuli traveling by way of the vagi, by a decrease or cessation of impulses by way of the sympathetic, or by an imbalance of the two sets of impulses. The spasm is not commonly diagnosed, as probably in many cases the condition is of short duration and its symptoms are evanescent. Many theories on the cause of simple nonsphincteric spasm have been advanced, some of which are congenital inferiority of the sympathetic nervous system, nervous instability, disorders of deglutition, organic disease of the central or peripheral nervous system, and reflex stimulation from lesions of the thoracic and abdominal viscera. Simple nonsphincteric spasm may give rise to no symptoms whatever and then again it may be discovered accidentally. More commonly intermittent dysphagia and pain on swallowing are the main features, and the pain varies in character from a dull substernal ache to severe shooting paroxysms, which occasionally occur spontaneously and awaken the patient at night. These symptoms may be accompanied by a feeling of anxiety and sometimes by palpitation and dyspnea. During the acute phase swallowed material is regurgitated and regurgitation is the predominant symptom of spasm in children. The routine roentgen examination of the esophagus is made with the patient standing in the left posterior oblique position so that a clear space can be seen between the cardiac and aortic shadows anteriorly and the shadow of the vertebral column posteriorly. The head is turned slightly toward the left shoulder and the chin raised to obtain a clear view of the pharynx. The patient is given a spoonful of opaque food of the consistency of thick cream, and the passage of the opaque bolus is then watched through the pharynx and esophagus into the stomach. If no abnormality is detected, the patient is questioned as to the exact character of the food which gives rise to dysphagia and the consistency of the opaque food is altered or crumbs of toasted bread are added and the examination is repeated. Roentgenograms are taken immediately after the screen examination and also with the patient standing in the right posterior oblique and anterior positions as an abnormality may be demonstrated more clearly in either of the latter positions. When spasm is demonstrated, it is advisable to repeat the examination later in the day on the following day, and perhaps at a later date. If simple nonsphincteric spasm does not resolve spontaneously, all the possible causative factors must be sought for in each patient and if found the appropriate psychologic, therapeutic or surgical corrective measures adopted.

Medical Journal of Australia, Sydney

1 647 690 (May 1) 1937

*Presence of Leptospirosis of Mild Type (Seven Day Fever) in Queensland. G. E. B. Clayton and E. H. Derrick with a foreword by R. Cilento—p. 647

Leptospirosis in Queensland. Serologic Investigation Leading to Discovery of Distinct Serologic Groups of Leptospirae Causing Leptospirosis as it Occurs in Northern Queensland with Some Other Related Observations. G. F. Lumley—p. 654
Deficiency Anemias. J. A. McLean—p. 664

1 691 732 (May 8) 1937

Medical Gynecology. F. A. Maguire—p. 691

Treatment of Chronic Peptic Ulcer Prior to Surgical Intervention. H. C. Rutherford Darling—p. 697

Physical Education. C. H. Hembrow—p. 705

1 773 810 (May 22) 1937

Fractures in Region of Elbow Joint. E. F. West—p. 773

Hereditary Multiple Telangiectasia with Record of Affected Australian Family. G. A. D. McArthur—p. 780

Recurrent Abdominal Pain in Childhood. L. Male—p. 782

Pelvic Injuries Due to Childbirth. Prophylactic Treatment and Some Surgical Points in Their Repair. F. B. Craig—p. 785

Causes of Blindness in Queensland. E. O. Marks—p. 789

Leptospirosis of a Mild Type in Queensland.—Clayton and Derrick describe a case of seven day fever in a patient living near Pomona, South Queensland. The diagnosis of the case was based clinically on the similarity of the patient's symptoms to those of the seven day fever of the East, and pathologically on the isolation of a leptospira from the patient's blood. This leptospira proved to be different from a strain isolated in North Queensland. It was distinguished by its lower virulence and the absence of cross agglutination. There exist therefore in Queensland at least two distinct kinds of leptospiral disease—the milder seven day fever, and the more

severe kind with frequent jaundice and occasional deaths first described two years ago by Morrissey. Preliminary work suggests that the Pomona leptospira is related to the Rachmat and Baermann leptospiras of Sumatra. This would appear to be the first proved case of seven-day fever in Australia, although the presence of this mild type of leptospirosis has previously been suspected. While only one case has been proved by laboratory tests, there is clinical evidence that a number of cases have occurred from year to year in the same locality which therefore presents an endemic center of seven day fever.

South African Medical Journal, Cape Town

11 363 394 (May 22) 1937

Alkalosis in Treatment of Peptic Ulcer. Report of Case in Coma. A. L. Agranat—p. 365

Medical Training in the U. S. S. R. E. H. Cluver—p. 369

Tubercle, London

1S 385 432 (June) 1937

Recent Advances in Pulmonary Radiography with Especial Reference to Tomography. International Discussion. H. Roche—p. 385

Mitral Stenosis and Pulmonary Tuberculosis. S. R. Gloyne and Cecilia Shiskin—p. 394

Value of Patch Test in Gold Therapy. H. Schwatt and A. Rest—p. 400

Chinese Medical Journal, Peiping

51 581 772 (May) 1937

*Clinical Study of Rheumatic Fever. F. C. Chang and F. R. Dieuaide—p. 581

Eosinophilic or Eosinophilic Myelogenous Leukemia. C. E. Forkner, C. T. Teng, Y. C. Chu and W. Cochran—p. 609

Simplified Concept of Origin and Development of Cells of Blood and Blood Forming Organs. C. E. Forkner—p. 619

Clinical Study of Rheumatic Fever.—Chang and Dieuaide present a clinical study of 141 cases of rheumatic fever and chorea. The incidence of rheumatic fever and chorea among the medical admissions was 0.57 per cent. The sex incidence seems to vary with age. The ratio, male to female, was 1:1.36. The earliest attack was recorded for a Chinese patient less than 3 years of age, and the youngest foreigner was in the hospital at the age of 3½. The largest and second largest five year groups were those of from 15 to 19 and 10 to 14 years of age, which comprise 42 per cent of the total. The onsets before the age of 30 constitute 82 per cent of the whole. The distribution of attacks in the patients was greatest in January. The onset of the disease is often vague and probably is frequently quite unnoticed. Infections of the upper part of the respiratory tract preceded attacks of rheumatic fever in sixty-three cases. The principal clinical phenomena shown by this group of patients were that 92 per cent of the series had polyarthritides, 64 per cent cardiac disease, 97 per cent fever and 83 per cent leukocytosis. Information about the course of rheumatic fever is limited. Nevertheless, some of the records are of considerable interest from this point of view, since thirty-two patients have been seen for more than a year and twelve of these for more than five years. The average number of days symptoms were present is 33.4, but the most frequent number is twenty-four. The average number of days in the hospital is 36.4, while the most frequent is again twenty-four. Of all admissions twenty-five lasted more than two months. Of the twelve cases of chorea included in the series the ratio of cases of chorea to others of rheumatic fever is low, 1:11. The material included an inadequate sample of the ages from 6 to 12 years. Rheumatic fever, aside from chorea, was diagnosable in all but two of these cases. In two patients before they had chorea, in seven during chorea and in one instance after chorea. Four patients had joint pains. The heart was clearly affected in six cases, and possibly so in three others during chorea, another patient subsequently developed severe cardiac disease.

Journal of Oriental Med., Dairen, S. Manchuria

26 63 86 (May) 1937. Partial Index

Some Observation on Atrophicism. K. Y. Yu—p. 63

Experimental Study on Arteriosclerosis. I. Han Jin Nan—p. 72

Dissection of Sex by Hair and Corneous Tissue by Chemical Test. A. Sekiya—p. 73

Acute Nephritic Anuria After an Operation for Appendicitis. R. Sumikawa—p. 76

Pleurisy. I. Statistic Observation. Y. Jono and T. Iketani—p. 78

Primary Liver Cancer in a Child. T. Ohta and I. Nishituchi—p. 84

Paris Medical, Paris

1 521 506 (June 12) 1937

- Acid and Alkaline Diets and Experimental Modification of Organism
—A. M. Bonanno—p. 521
- Cranio-Encephalic Traumatism and Pulmonary Edema G. Benassi
—p. 525
- Striopallidal Syndrome in Chronic Intoxication with Sulfide of Carbon
P. G. Quarelli—p. 533
- *Treatment of Hypertrophy of Prostate with Large Doses of Estrogen
I. Wugmeister—p. 535

Treatment of Hypertrophy of Prostate with Estrogen—Wugmeister maintains that hypertrophy of the prostate is due to a hypervirilization of the organism, which takes place during the presenile age because of a deficiency in estrogen. When the anterior hypophysis is no longer inhibited by the estrogen it produces an excess of its gonadotropic hormones, which in turn stimulate the genital glands. The glandular tissue which responds most to this stimulation is that of the periurethral glands and, if the excessive production persists for long periods, hypertrophy of the prostate results. The author admits that this hypothesis is in complete contradiction to that of several other investigators, who maintain that the hypertrophy of the prostate results from a deficiency in testis hormone and a predominance of the estrus-producing hormone. He points out that if the latter theory corresponded with the facts the injection of large doses of estrogen would result in an aggravation of the symptoms of hypertrophy of the prostate. This, however, is not so. On the contrary, large doses of estrogen effect an amelioration of the condition. The author resorted to the administration of large doses of estrogen in twenty-three cases of hypertrophy of the prostate. In sixteen of these cases the improvement was marked: there was a diminution in the nocturnal pollakiuria (one or two nocturnal micturitions instead of the former four or six), an improvement in the difficulties at micturition and a reduction in the residual urine. In four other cases the residual urine remained unchanged but the subjective symptoms were considerably improved. The three remaining patients were not improved. Regarding the method of the treatment, the author says that it must be continued for at least twelve weeks and that at least 100,000 international units of estrogen must be injected per week. At first the weekly dose may even be 200,000 units, but as improvement becomes noticeable the weekly dose can be diminished to 10,000 units.

Presse Médicale, Paris

45 889 912 (June 16) 1937

- *Complete Results of Specific Anatoxin Therapy of Staphylococcal Disorders G. Ramon A. Bocage A. Bouvin P. Mercier R. Richou and M. DeFrance—p. 889
- *Diagnosis of Diphtheria in Vaccinated Persons T. Reh—p. 892
- Veil of Compensation in Elastic Thoracoplasty A. Bernou and E. Stephan—p. 893
- *Roentgenotherapy of Gonorrheal Arthritis Nguyen Dinh Hoang—p. 895

Specific Toxoid Therapy of Staphylococcal Disorders

—Ramon and his collaborators review the status of the specific toxoid therapy of staphylococcal infections. They find that in the cutaneous staphylococcal infections the results obtained by means of staphylococcal toxoid are satisfactory and that in the future the toxoid therapy of osteomyelitis and of staphylococcal septicemia promises even better results. In tropical regions, where staphylococcal infections are especially severe, the toxoid therapy is likewise the method of choice. To be sure, the authors admit that in other countries, such as England and the United States, the results with staphylococcus toxoid have been disappointing, but they think that this is due to insufficient dosage.

Diagnosis of Diphtheria in Vaccinated Persons—Reh shows that in persons who have been vaccinated against diphtheria it is necessary to consider the following possibilities: banal disorders in the presence of the pseudodiphtheria bacillus, disorders in immunized persons, and true diphtheric disturbances developing in persons who have been insufficiently immunized. The etiologic and immunologic differentiation of these cases is important for the treatment or the prophylactic measures. The microscopic examination is usually sufficient for the bacteriologic diagnosis of diphtheria in the nonvaccinated, in whom the diagnosis had usually been suspected on

the basis of the clinical aspects. However, the problem is more difficult in vaccinated persons, in whom the symptoms usually are not typical, or in bacillus carriers, in whom the symptomatology is nil. The author mentions the following stages as essential in order to arrive at the diagnosis of diphtheria in vaccinated persons: a bacteriologic stage revealing under the microscope the presence of diphtheriform bacilli, an experimental stage demonstrating by inoculation into guinea pigs the pathogenicity of the causal bacilli, and an immunologic stage, which establishes by the Schick test or the skin test the receptivity of the subject. One cannot speak of diphtheria in a vaccinated person without having tested the reaction of the guinea-pig to the bacillus and the reaction of the patient to the Schick test or the skin test.

Roentgenotherapy of Gonorrheal Arthritis—Reports in the literature and his observations of nine cases convinced Nguyen-Dinh-Hoang that roentgen therapy constitutes an efficacious treatment of gonorrheal arthritis. In discussing the technique of this treatment, he says that the majority of authors employ moderately penetrating rays, which are produced by from 120 to 150 kilovolts, filtered by from 5 to 10 mm of aluminum or by 0.5 mm of copper plus 2 mm of aluminum. The intensity varies between 2.5 and 3 milliamperes. The focal distance is from 25 to 30 cm. The number of fields depends on the region. As a rule the fields should be larger than the diseased articulation. The dosage varies according to whether the case is chronic or acute. In the chronic cases the author gives from four to five irradiations of from 150 to 200 roentgens per field, which makes a total dose of from 600 to 1,000 roentgens per field. He returns to the initial dose of 100 roentgens every time he fears a painful reaction. From one to three irradiations are given each week. If the improvement is not satisfactory, a second series is applied after an interval of one month. In acute cases with severe inflammation and pain smaller doses are given, the first dose is usually from 30 to 40 roentgens and the later doses up to 100 roentgens. Five or six applications are generally adequate. If in exceptional cases the first irradiation is followed by an increase in pain and tumefaction, it is not necessary to become alarmed, on the contrary, this reaction indicates favorable ultimate results. The results of the roentgen therapy are favorable. The treatment not only counteracts the pains and the tumefaction but permits early mobilization. The prospects of cure are the better, the earlier the treatment is begun. Even in the forms of arthritis with purulent discharges in which arthrotomy is necessary roentgenotherapy seems advisable, particularly for the control of the pains.

45 913 928 (June 19) 1937

- *Chronic Atrophic Nephritis in Childhood with Arrest of Growth, Bony Deformities (Renal Dwarfism) and Connected Syndromes R. Debre, J. Marie and Marie Louise Jammet—p. 913
- Meningeal Cysticercosis T. Alajouanine, R. Thurel and T. Horret—p. 918
- Lingual Goiter and Hypothyroidism P. Sainton, G. Ardon and P. Frankfurt—p. 921
- Invasion of Loops in Mouth of Gastro Enterostomy R. A. Gutierrez and P. Jobin—p. 923
- Role of Myocardial Abscess in Pathogenesis of Suppurating Pericarditis G. F. Nikolaew—p. 926

Chronic Atrophic Nephritis of Childhood—Debre and his associates direct attention to a rather curious disease entity which has been described under such terms as renal dwarfism, renal infantilism, renal rickets or chronic atrophic nephritis of childhood with arrest of growth and osseous deformities. They discuss particularly those aspects of the chronic atrophic nephritis of childhood which appeared to them especially noteworthy in their observations in nine cases of this type. After discussing the statural dwarfism, the normal intelligence and the fact that the development of the secondary sexual characters fails to take place at the time of puberty, they report their observations on the phosphorus and calcium metabolism. The phosphorus and calcium metabolism of these children with renal rickets differs from that of children with common rickets. Renal rickets is characterized by a hyperphosphatemia and a hypocalcemia but in spite of the existing hypocalcemia tetany is extremely rare in renal rickets. This has been ascribed to acidosis in renal rickets, which prevents the tetany by transforming the largest portion of the calcium in the ionized form. Regarding the first manifestation of the renal trouble, it is

stated that the majority of authors agree on the period between the sixth and the tenth year of life. Careful observation discloses, however, that some symptoms, such as polydipsia and polyuria, are apparent much earlier. Further, the authors discuss the symptoms of chronic nephritis, particularly in urine and blood. They also call attention to the pallor and to the jaundiced color of these children. On the other hand, the absence of certain symptoms is noteworthy. The cardiovascular reaction is generally reduced to a minimum, there is neither arterial hypertension nor disorders of cardiac decompensation nor vascular changes in the fundus of the eye. In discussing the pathologic anatomy of this disorder, the authors give their attention chiefly to the renal lesions. They differentiate six forms of this renal disorder and give a summary report of the characteristics of each group.

Arch Ital di Dermat, Sif e Vener, Bologna

13 229 336 (April) 1937

Congenital Ichthyosiform Erythrodermia Case V Montesano — p 229

Keloids and Pathologic Scars Clinical Study G M Antonoli — p 247

*Cutaneous Symptoms of Monocytic Leukemia Case G Sannicandro — p 263

Adenopathies in Chronic Dermatitis A Midana — p 278

Justa Articular Nodes Clinical Study C Pisacane — p 308

Cutaneous Symptoms of Monocytic Leukemia—Sannicandro reports a case of monocytic leukemia in a man, aged 37. The patient showed cutaneous nodules, macular infiltration and subcutaneous hemorrhages all over the body, but more abundantly at the thorax, as well as hepatosplenomegaly and enlargement of the superficial lymph nodes. The hemogram was that of leukemia with great increase of monocytes. The cutaneous infiltrates were characterized by a predominance of monocytes. Repeated examinations of both recently formed and old developed cutaneous lesions failed to show hyperplasia of the reticulo-endothelial system and local formation of monocytes. The author reviews the literature on the subject and discusses the several histogenic theories of the disease. He concludes that the origin of monocytic leukemia may be reticulo-endothelial or myeloid (hemocytoblastic). In the last case the cutaneous infiltration is of metastatic origin. According to the author, it is advisable to designate the disease as monocytic leukemia with cutaneous symptoms rather than as reticulo-endotheliosis.

Giornale Medico dell'Alto Adige, Bolzano

9 225 280 (May) 1937

Congenital Hypertrophy of Limbs Clinical Study A Pozzan — p 225

*Behavior of Blood Platelets After Operations F Mazzini — p 247

Eczema: Present Status of Knowledge E Cortella — p 256

Situs Viscerum Inversus Cases M Martinelli — p 259

The Blood Platelets After Operations—Mazzini followed the behavior of the blood platelets after operation in a group of forty-five patients suffering from various surgical diseases. Immediately after the operation a transient thrombocytopenia appears, which is obvious in patients operated on under general ether anesthesia and slight in those operated on under local or spinal anesthesia. The author believes that general ether anesthesia induces certain general and local modifications which are not induced by local or spinal anesthesia and which result in modifications of the blood platelets.

Revista da Assoc Paulista de Medicina, São Paulo

10 51 124 (Feb) 1937

Treatment of Chronic Toxic Infections of Neuro-Axis by Means of Autohemotherapy in Association with Induced Aseptic Meningitis: Application in Case of Amyotrophic Lateral Sclerosis E De Aguiar Whitaker — p 80

*Modified Prefunicular Technique for Operation of External Oblique Inguinal Hernia O De Souza Nazareth — p 91

Technic for Operation of Inguinal Hernia—De Souza Nazareth's technic of prefunicular operation of external, oblique inguinal hernia is as follows. The incisions of the skin and of the aponeurosis of the large oblique muscle are the incisions generally used for inguinal herniorrhaphy, and the transverse fascial is exposed and incised over the seat of the hernia together with the common fibrous layer over the inguinal cord. The peritoneum is maintained under slight traction all through the following steps of the operation. The hernial sac is isolated

above its neck and removed as high as possible, the ligation being made above the neck of the hernial sac. Removing the hernial sac at a high point and maintaining a slight constant traction during the operation are of importance in preventing recurrences. The stump of the hernial sac is then pushed deep into the inguinal orifice and anchored in subperitoneal tissue under the fascia (Barker maneuver) by means of the ends of its ligature. Removal of the hernial sac leaves a space in the deep inguinal orifice. The space is reduced by two sutures, only the necessary opening being left for passage of the inguinal cord. The transverse fascia is doubled like a pleat placed over the inguinal cord and fixed to the crural arch by means of chromic catgut. The inguinal cord is thus protected by a double fibrous layer of the transverse fascia. The upper border of the abdominal muscles is sutured with No 2 or 3 chromic catgut in one plane to the crural arch. The lower border of the external oblique muscle is then sutured over the previous plane and the skin is closed. By the technic the abdomino-inguinal wall is firmly reconstructed and there are no recurrences of the hernia.

Klinische Wochenschrift, Berlin

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Hematic and Organic Changes Caused by Parenteral Administration of

Autoserum Heinlein and Muschallik — p 873

Immunobiology of Tuberculous Caseation of Pus and of Cancer L

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Investigations on New Micromethod for Determination of Blood Sugar

E Vincke — p 882

*Malaria and Reticulocytes B Malamos — p 885

Mechanism of Insulin Action L Pollak — p 887

*Pathogenesis of So Called Spontaneous Ruptures of Spleen and Remarks on Symptomatology E Ask Upmark — p 897

Malaria Plasmodia and the Reticulocytes—Malamos shows that there are contradictory statements in the literature regarding the penetration of the malaria plasmodia into the reticulocytes. Eaton and Jakobsthal maintain that the largest number of malaria parasites are found in the reticulocytes. The author made studies on the blood specimens of malaria-infected monkeys and human subjects. Tabular records of the results of these tests indicate that only a small portion of the plasmodia are found in the reticulocytes. The percentage of the cells with vital granulation, which contained plasmodia corresponded approximately to their percentage in relation to the other erythrocytes. A special affinity of the malaria plasmodia for the reticulocytes could not be detected. The author further investigated Hingst's assertion that Schüffner's stippling is of a reticular nature. Hingst had based this assertion on the observation of a transition between the blue-stained reticular stippling to the red-stained Schüffner stippling. In careful studies on Schüffner's stippling, Malamos never observed a transition between this and the reticular stippling. He found that Schüffner's stippling has a distinct and regular red coloration whereas the reticular staining shows a more irregular bluish color. However, he was unable to determine the true nature of Schüffner's stippling.

So Called Spontaneous Ruptures of Spleen—Ask-Upmark points out that so called spontaneous rupture of the spleen has given rise to many discussions. It has been generally conceded that spontaneous ruptures do occur in certain pathologic changes of the spleen such as exist in malaria, typhoid, leukemic splenomegaly and splenic congestions. The possibility of a traumatic, so-called two-stage rupture has likewise been generally recognized. However, the opinions are divided about the spontaneous rupture of an intact spleen. In reviewing the records of spleen ruptures that came up for observation in Swedish hospitals the author obtained information about the symptomatology of splenic ruptures and about the occurrence of spontaneous ruptures. He found that the so-called spontaneous splenic ruptures in some cases can be traced to a traumatic etiology (two stage ruptures) and in other cases to pathologic changes within the organ. In addition to this there is the possibility of spontaneous rupture of a spleen that from the morphologic point of view is essentially normal. The author suggests that in these cases a circulatory disturbance of functional origin may be the cause, which leads to hemorrhage and then to rupture. In discussing the symptomatology of rupture of the spleen, the author says that the general con-

dition presents the aspects of a progressive internal hemorrhage. The local symptoms frequently show certain peculiarities. Pains that radiate toward the left axilla point to the spleen, but these pains may also radiate toward the right side, they may be elicitable by pressure on the splenic region and may be influenced by the posture. The abdominal pains that occur in rupture of the spleen often have a periodic character. Occasionally pains and sensitivity are found in McBurney's region.

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- Hyperthyroidism and Thyrotropic Hormone of Hypophysis A Loeser —p 913
Comparison Between Cystamin and Autogenous Blood Pressure Reducing Substances H Robbers —p 917
*Treatment of Funicular Spinal Disease by Means of Vitamins R Pfaffenberg and H Mielke —p 919
Icterus and Number of Erythrocytes J Schernhardt —p 920
*Prospects of Therapeutic Use of Alpha Rays in Acute Gonorrhea H Nagell and W Noethling —p 921
Vagotonic Action of Vitamin B₁ on Normal Heart of Dog Action of Vitamin on Central Nervous System R Tislowitz and I Pines —p 923

Vitamin Treatment of Funicular Spinal Disease—Pfaffenberg and Mielke direct attention to the successful treatment of neuritides of various types and of funicular spinal disorders by means of vitamins of the B group. After reviewing the literature they describe their own favorable experiences with B₁ preparations in the treatment of funicular spinal disorders. They found that the motor disorders are most favorably influenced. Regarding the advisability of the oral or parenteral B₁ therapy they say that either might be effective in some cases but that there are others in which oral yeast medication will fail and only the injection of the vitamin preparation will produce the desired results.

Therapeutic Use of Alpha Rays in Acute Gonorrhea—Nagell and Noethling say that the knowledge of the superior efficacy of the alpha rays compared to the beta and gamma rays is almost as old as the knowledge of radioactivity itself. Moreover, investigators have called attention to the especially great sensitivity of gonococci to the bactericidal effect of alpha radiation. Others proved that a combination of thorium solutions with silver salt solutions had a greater bactericidal effect than either of the solutions alone. To be sure, the exact quantitative evaluation of the physiologic action of the alpha radiation involves many difficulties. The authors discuss some of the problems that remain to be solved and point out that as yet it cannot be definitely stated whether the bactericidal effects of the alpha rays can be utilized in practice. Investigations toward this aim are being continued, but it remains to be determined how the adjoining tissues will react and whether technical difficulties will be encountered in the exact and safe application of the necessary density of rays. Regarding the harmfulness for the adjoining tissues, the prospects are not as hopeless as in the bactericidal action of roentgen and gamma rays. They are not poorer than they are for chemicals and there is a possibility that they are better. Moreover, the quantities or concentrations of alpha ray emitting radioactive substance, which can be computed from the results on the bactericidal action, are within the limits of technical possibility.

Medizinische Klinik, Berlin

33 821 852 (June 18) 1937 Partial Index

- Venous Blood Stream K Stolte —p 821
Experiences in Treatment of Diphtheria V Niederwieser —p 823
*Masked Meningococcic Sepsis Kummerling —p 826
*Cause of Complications After Short Wave Treatment P Liebesny —p 830
Pathologic Aspects of Relationship Between Plastic Surgeon and Patient E Wodak —p 833

Masked Meningococcic Sepsis—Kummerling describes the clinical history of a woman, aged 45, who was hospitalized with the suspected diagnosis of paratyphoid. However, careful clinical examination and observation excluded typhoid, paratyphoids, dysentery, Brucella abortus infection and military tuberculosis. The patient's symptoms changed constantly. The fever was intermittent and every increase in temperature was accompanied by a skin eruption, which likewise changed in appearance and localization. The general condition was comparatively favorable but the patient complained of severe head-

aches whenever the fever increased. Foci of infection could not be found and repeated blood cultures remained sterile, until finally one revealed diplococci, which exhibited the behavior of meningococci and agglutinated with a meningococcus serum. Following the definite identification of the cocci the patient was given 20 cc of meningococcus serum by intravenous injection and the same quantity by intramuscular injection. On the following day the temperature subsided and the exanthematous crops ceased. Two days after the first serum injection the patient was given another intramuscular injection of 40 cc and was finally discharged as cured. This case was reported in detail because this symptomatology readily causes erroneous diagnoses. Particularly in children, it may be confused with the so-called internal measles. Meningococci should be searched for, especially since early serotherapy is of greater importance in young persons, who are less resistant to meningococci than adults.

Cause of Complications After Short Wave Treatment—Liebesny points out that he and his collaborators observed in 1931 and 1932 that, when short waves were used which produced considerable thermic effects, vascular damage was likely to result. It was observed also that the use of longer waves results in more severe vascular changes than does the use of shorter waves, for the reason that the longer waves produce greater thermic effects. In this paper the author tries to determine whether complications that appear after short wave therapy can be brought in causal connection with the rays when an excessive dosage can be definitely excluded. He shows that in two cases of his own observation and in three cases from the literature an excessive dosage with harmful thermic effects is out of the question and that therefore a causal connection between the short waves and the symptoms mentioned cannot be assumed. He admits that, if harmful effects develop in rare cases after the use of small doses, it might be suggested that in some persons the tissues have a hypersensitivity to short waves. In order to solve this question, further investigations will be necessary, for observations thus far do not justify such an assumption. Moreover, the author suggests that the complications may be due to the peculiarity and the localization of the condition treated, that is, they develop in spite of the short wave therapy rather than because of it.

Medizinische Welt, Berlin

11 847 880 (June 19) 1937 Partial Index

- Sternal Puncture and Attempts at Its Quantitative Evaluation S Graf —p 847
Lymphogranulomatosis and Trauma K Müller —p 852
Maximal Vaccine Fever Therapy in Gonorrheal Complications P Mulzer —p 854
Sequels of Ascending Gonorrhea in Women W Schaefer —p 856
*Peripheral Radial Paralysis After Burns G Bahls —p 857

Radial Paralysis After Burns—Bahls reports the history of a man, aged 32, who sustained burns on the left forearm. The patient himself applied linseed oil and then continued his work for the next two days. However, increasing pain induced him to consult a physician, who treated the burns with ointment. During treatment the patient observed that he could not stretch the fingers of the left hand. This condition persisted after the burns had completely healed and the patient was subjected to a neurologic examination, which disclosed paralysis and atrophy of the extensor carpi ulnaris and of the extensor digitorum communis and weakness of the extensor carpi radialis. A review of the literature failed to disclose a similar case, but in a report by Bettmann the author found neuritis mentioned as a complication of burns. To be sure severe electrical burns have been known to result in radial paralysis, but these burns were much more severe than the ones in the case described. After showing that traumatic and thermic factors could not have produced the paralysis, the author points out that the onset of the paralysis with pains suggests that factors producing a neuritis might be involved in this case. After analyzing the possible causes the action of biologic toxins is regarded as the most probable one, the more so since the case somewhat resembles the plexus paralysis that may result from the injection of tetanus serum or other therapeutic serums. Moreover, investigations by Robertson and others have revealed that in burned tissues a toxin is formed which has two com-

ponents, a neurotoxic one and a necrotoxic one. This toxin, although autogenous, acts like a foreign protein and the author suggests that such a toxin was responsible for the paralysis in the case reported.

Wiener klinische Wochenschrift, Vienna

50 956 986 (June 25) 1937 Partial Index

- Estimation of Status of Nutrition in Children W Kornfeld and E Nobel —p 959
*Congenital or Spontaneous Arteriovenous Connections and Their Surgical Significance S Rosenak —p 962
*Clinical Characteristics of Hepatorenal Syndrome A Pytel —p 965
*Sugar Consumption and Diabetes Mellitus B Süsskind —p 968
Cramp Neurosis in New Light A Gross —p 970

Spontaneous Arteriovenous Connections—Rosenak asserts that the arteriovenous malformations are comparatively frequent. In reviewing the literature he found that up to now 400 cases have been reported. The majority of cases involved the central nervous system and 106 cases involved the extremities. It is interesting that forty of these cases have been described in the last six years. This proves that such disorders are not as rare as is generally assumed. The author himself observed two cases within the last year. He describes the clinical aspects and the surgical treatment of these two cases. He shows that the diagnostic methods have been improved in recent years by three new methods: (1) comparative calorimetry, (2) determination of the oxygen content of the venous blood and (3) visualization by means of arteriography. The aim of the treatment should be the interruption of the pathologic arteriovenous connection. This can be accomplished by the injection of thrombosing substances, by the mechanical production of thrombosis, by surgical division of the arteriovenous connections or by the ligation of the vascular trunks supplying the region of the arteriovenous connection. Although these methods may not always produce complete cure, they usually cause long-lasting remissions and prevent crippling operations.

Hepatorenal Syndrome—Pytel says that in recent years a number of clinicians and pathologists have called attention to disorders in which a secondary renal impairment developed after primary disease or traumatic impairment of the liver or to primary renal lesions that led to hepatic complications. The simultaneity of the reaction of liver and kidney to a pathogenic agent indicates a functional relationship of these organs, and the term hepatorenal syndrome has been applied to the disorders in which both organs are involved. The author classifies under the heading of hepatorenal syndrome a large number of disorders, such as the renal changes in cases of hepatic cirrhosis, the renal symptoms in the acute hepatitides that accompany intoxications, the renal changes in acute and chronic diseases of the liver and of the bile passages with and without icterus, the hepatorenal syndrome after acute traumas of the liver, after surgical intervention on the liver and biliary tract and after operation on other abdominal organs, the hepatorenal syndrome in hepatic tumor metastases, the hepatorenal changes in eclampsia, and the hepatic and renal changes in hyperthyroidism in hypertension and so on. The pathologic changes in liver and kidney may be produced by metabolic disturbances or by toxic bacterial or medicinal factors. The author gives his attention chiefly to two forms of the hepatorenal syndrome: (1) that after operations on the liver and biliary passages and (2) that which develops in chronic diseases of the liver and bile passages. He says that the first type usually develops between the fifth and eighth days of the postoperative period. It appears mostly in persons who for years have had calculous or noncalculous cholecystitis. The syndrome usually begins with a rapid increase in temperature, tachycardia and meteorism. Shortly after, a progressive oliguria sets in and the urine contains tube casts and blood. The azotemia increases, whereas the urea content of the urine decreases. The patients are nauseated and vomit and some have hemorrhages from the mucous membranes, so that the vomit and stool may have an admixture of blood. Later extensive edemas develop, the oliguria progresses to anuria, and the patient becomes comatose and dies. After reviewing the literature on such cases, the author cites nine that were observed at his clinic. In discussing the hepatorenal syndrome in chronic diseases of the

liver and biliary passages, he points out that this form of chronic hepatonephritides has not been sufficiently investigated as yet. It has not been definitely determined whether the two organs become simultaneously or successively involved. He analyzes forty-six cases observed at his clinic and differentiates various groups and subgroups of the hepatorenal syndrome.

Sugar Consumption and Diabetes Mellitus—Süsskind cites statistical data which indicate that diabetes mellitus is constantly increasing. He shows that this increase is due to a higher fat content of the diets. The opinion that a diet with a carbohydrate or sugar content is likely to produce diabetes is erroneous. It is important for the prophylaxis and cure of diabetes mellitus that fat consumption be restricted and that it be replaced by carbohydrates. From 40 to 50 Gm of fat in the daily diet is far in excess of the requirements.

Wiener medizinische Wochenschrift, Vienna

87 689 712 (June 26) 1937 Partial Index

- Position of Practitioner in Modern Treatment of Fractures C Ewald —p 689
*Rare Form of Pulmonary Collapse in Pneumothorax Abdulkadir Lutfi —p 693
Noteworthy Case of Moller-Barlow's Disease S Wolff —p 697

Rare Form of Pulmonary Collapse in Pneumothorax—Abdulkadir-Lutfi reports the clinical history of a youth, aged 18, who was subjected to pneumothorax therapy on account of a tuberculous infiltration and small cavity on the left pulmonary apex. After the first injection of air, the patient felt a slight pain in the left side of the thorax, which persisted during the following night and day and then disappeared. After the second air filling, roentgenoscopy revealed that the region of the left upper lobe was completely filled with air and that the upper lobe lay over the partly collapsed lower lobe. The outlines of the forward tilted upper lobe were quite clear, the apex was below, the base above. In order to determine whether the upper lobe would return to its right position, the fourth refilling of the pneumothorax was followed by an x-ray examination in Trendelenburg's position (head down, pelvis up). In this examination the return of the upper lobe to its normal position could be observed, but as soon as the patient stood up again the upper lobe tipped again over the lower lobe. During inspiration and expiration the apex is lifted upward like a tongue. After attempting an explanation of this unusual form of collapse the author takes up the possible harmfulness. He suggests that the torsion of the lobe could be harmful for the veins and bronchi and might eventually lead to stagnation of the sputum. The patient, however, showed no harmful effects. His temperature decreased and his weight and general condition improved during this peculiar form of pneumothorax.

Vestnik Khirurgii, Leningrad

50 1263 (Nos 133 134) 1937 Partial Index

- Formation of Nerve Complexes V N Shevchenko —p 27
*Mechanism of Action of Transfused Blood in Surgical Diseases E P Gesse —p 36
Mechanism of Death from Electric Current I P Petrov —p 47
Radical Operation of Prolapse of Brain with Two Abscesses V M Mysh —p 89
*Obstruction of Biliary Tracts P G Chasovnikov —p 124
*Etiology and Pathogenesis of Acute Pancreatic Necrosis P D Solovov —p 143

Action of Transfused Blood in Surgical Diseases—The effect of transfused blood in hemorrhage, according to Gesse, is one of substitution. Nerve centers and cardiac ganglia are relieved from a state of anoxemia and the vascular bed is filled with fluid. At the same time there is noted a hemostatic and stimulating effect. Transfused blood stimulates the heart and the vascular tone more effectively than any pharmacological substance. An important phenomenon in transfusion is the mobilization of reserve depots of blood. In this connection the author prefers to speak not of the amount of blood lost but of the state of circulatory decompensation. The most important test of decompensation is blood pressure determination. Correction of decompensation or of pathologic distribution of the blood takes place in blood transfusions performed for traumatic or postoperative shock. At the same time anoxemia and acidosis of the cells of the entire organism

is removed. The effect of transfusion in cholemia is one of detoxication of the plasma, brought about by the suprarenal and vasoconstrictor-like qualities of the blood. At the same time, calcium and vitamins are introduced in large amounts. The effect in burns is that of combating the shock in the first instance. In the second stage, in which the erythrocytes are destroyed, the substituting and the stimulating effects are present. The detoxicating action diminishes the intoxication due to the broken down albuminous products. The effect of blood transfusion in ileus is that of detoxication and the correction of dehydration. In poisoning the principal effect of blood transfusion is one of detoxication. The concentration of the poison may be diluted to one tenth and in the combination of bloodletting and transfusion to one fifth. The effect is not limited by the dilution of the poison but also extends to its removal from the erythrocytes.

Obstruction of the Bile Tract—Chasovnikov analyzes his material of 237 cases of acute and chronic obstructions of the bile passages. Gallstones accounted for thirty-five cases, in 170 the obstruction was due to stones in association with inflammatory manifestations of the bile tracts and of the pancreas, in eleven cases cholangitis, hepatitis and pancreatitis without stones were the cause of obstruction, in seven cases it was due to stricture of the duct, in ten to malignant tumors, and in four to parasites. Obstruction of the bile passages leads to stasis of the entire biliary tree, to jaundice and, when combined with infection, to inflammatory processes in the bile passages, in the intrahepatic bile ducts and in the pancreas. This causes lowering of the functional capacity of the liver. The prognosis in obstruction due to malignant neoplasms or as the result of congenital atresia or aplasia of the bile tract is bad, even after operative intervention. The prognosis is better in obstruction due to gallstones, parasites or inflammatory processes in the ducts and in the pancreas. The prognosis here depends mainly on the degree and the duration of the obstruction and stasis, as well as on the virulence of the infection and the degree to which the liver, heart, kidneys and the organism in general are involved. The earlier the operative intervention, the better the prognosis. Patients with obstruction of the bile passages should be considered dangerous, requiring a special preparation for the operative intervention. This consists of repeated infusions of a 5 per cent solution of dextrose with insulin, repeated blood transfusions and, in the case of acholic patients, administration of bile into the gastro-intestinal tract. A method of choice in obstruction of the deep bile passages is choledochotomy, with removal of the stones or parasites and primary suture. Drainage of the hepatic or common bile ducts is indicated in the presence of suppurative cholangitis or considerable alteration of its walls. Choledochoduodenostomy is indicated in the presence of an obstruction in the lower portion of the choledochus which cannot be removed, of intrahepatic bile stones and of chronic pancreatitis of long duration. Repeated blood transfusions are indicated in post-operative so-called cholemic bleeding, and in the presence of acholia the introduction of bile into the gastro-intestinal tract is of value. Infusions of dextrose with insulin are likewise valuable. Postoperative mortality in the fresh, uncomplicated cases of obstruction varies from 15 to 5 and even 10 per cent. In the older cases, complicated by a grave infection of the deep bile passages or by malignant neoplasms, the mortality rate is between 15 and 50 per cent. Permanent restoration to health after operative treatment of obstruction of the deep bile passages oscillates between 56.6 and 74.9 per cent. Improvement is noted in from 15.9 to 31 per cent, while failure or aggravation is noted in from 9.7 to 12.2 per cent. Failures of operative intervention are due principally to neglect of the disease and more rarely to errors in the operative technique.

Etiology of Acute Pancreatic Necrosis—According to Solovov, the majority of modern contemporary clinicians regard acute pancreatic necrosis as a disorder secondary to or accompanying cholelithiasis. Vague terms, such as constitutional predisposition or a special reactive faculty of the organism, are invoked to explain the sudden development of pancreatic necrosis in the presence of the most varied types of operative trauma or disease. A consideration of the great frequency of cholelithiasis on the one hand and the great rarity of pan-

creatic necrosis on the other suggests that they do not exist in causative relationship to one another. In 1,278 operations for acute pancreatic necrosis collected by Schmieden, stored in the common duct were found in 19.4 per cent of the cases and in the ampulla of Vater in 6.3 per cent. The mechanical theory of the penetration of the pancreatic duct by the bile as well as the neuromuscular theory with a consequent spasm of the blood vessels, and the necrosis of the pancreas under the influence of the hepatic colic, do not explain the etiology and the pathology of the condition in many cases. The animal experiments have been characterized by crudity and pronounced trauma, so that they only slightly resemble the conditions in man and cannot serve as an analogy. The consideration of the theory of allergens in general and of the pathologic-morphologic picture of pancreatic necrosis convinced the author that the latter is a hyperergic inflammation in an organism previously sensitized by some allergen. What is characteristic in this condition, if it is of allergic nature, is the lack of correspondence between the rapidity and the gravity of the process in the pancreas and the relative insignificance of the provoking cause. This, however, is characteristic of the hyperergic reaction on the part of an organism previously sensitized.

Nederlandsch Tijdschrift voor Geneeskunde, Haarlem

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*Epidemic of *Leptospira Canicola* Infection in Human Subjects and Dogs C. J. Roos, B. Walch, Sorgdrager and W. A. P. Schuffner—p. 3324

Studies on Pathogenesis of Drowning and Its Treatment C. J. Vugt—p. 3336

*Purpura Haemorrhagica After Use of Sedormid P. H. Kramer—p. 3345

Thrombopenia with Purpura (Werlhof's Disease) After Use of Sedormid P. Van Andel and J. Groen—p. 3348

Epidemic of *Leptospira Canicola*—Roos and his associates report a case of infection with *Leptospira canicola*, which, like an earlier one, was first regarded as a meningitis. However, on the basis of serologic and bacteriologic examinations the disorder was diagnosed as Weil's disease caused by *Leptospira canicola*. The source of infection was probably a young Samoyed dog, which belonged to a litter in which all except one were infected with *Leptospira canicola*. Serologic tests on the members of other families who had one of the litter of Samoyeds disclosed that two other persons had passed through a *Leptospira canicola* infection under a different diagnosis. Moreover, the infection was transmitted to a fox terrier which had come in contact with the litter of Samoyeds. It was determined that the infection spread from the male to the female Samoyed and then to the young ones, the young dogs in turn transmitting it to three persons. The strain of *Leptospira canicola* was obtained from cultures of the urines of one patient and three dogs. It proved more virulent for guinea pigs than had been the case in earlier observations. None of the dogs (none in all) which had the infection were severely ill and none of them died. This seems to indicate that the *Leptospira canicola* infection takes a comparatively mild course in dogs.

Hemorrhagic Purpura After Use of Soporific—Kramer relates the clinical history of a man who was subject to insomnia and who for two or three years had resorted to the use of the soporific sedormid (allyl isopropyl acetyl-carbamide). At first he had used it only occasionally, but later he had used it almost every night. When the patient came under observation he had the symptoms of hemorrhagic purpura. The disorder improved in response to calcium, vitamin C and a diet which provided liberal amounts of fruits and fruit juices. However, after renewed ingestion of sedormid tablets there was a relapse. This definitely established the soporific as the cause of the hemorrhagic purpura. This causal connection seemed the more likely to the author in view of the fact that he recalled another case of hemorrhagic purpura with thrombopenia in which the same soporific had been used. Moreover, a review of the literature disclosed that several similar cases had been reported. He admits that cases of thrombopenic purpura have been observed also after the use of other medications (iodine preparations, arsenic compounds, quinine, antipyrine, insulin serum injections and so on), but he gained the impression that after sedormid such cases were more frequent.

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GRADUATE EDUCATION AND TRAINING OF RADIOLOGISTS

B R KIRKLIN, MD
ROCHESTER, MINN

With the relatively recent recognition of radiology as a special branch of medicine and the establishment of an authoritative body to ascertain and attest the competence of radiologic specialists, the education of future radiologists has assumed major importance. To present day radiologists the problem is momentous, because on the quality of training they give will depend the ability of their successors to meet responsibilities to future patients, to medicine in general and to radiology itself.

Pioneer radiologists had to learn slowly by trial and error, by experience that often was bitter. Their pupils, who constitute a large majority of the radiologists practicing today, learned almost exclusively by apprenticeship, and that usually short. For several years more or less systematic courses of graduate instruction have existed at various institutions, but these courses are rather diverse and their relative merits and adequacy have not yet been fully determined. Indeed, until three years ago when the American Board of Radiology prescribed certain fundamental requirements in the education of radiologists there was no uniform base on which courses could be constructed. Thus the whole problem is still so new and has so many angles that much thoughtful consideration will be necessary to solve it satisfactorily and completely.

In brief, the American Board of Radiology requires that the student shall be a graduate from a medical school recognized by the Council on Medical Education and Hospitals of the American Medical Association, and after 1940 it will be required that he shall have completed an internship of not less than one year in a hospital approved by the Council. His special training in radiology shall comprise not less than three years of study in an institution recognized by the board and the Council and shall include (a) intensive graduate training in pathologic anatomy, radiophysics and radiobiology, (b) active experience of not less than twenty-four months in the radiologic department of the institution, and (c) examination in the basic sciences and clinical aspects of radiology.

It is to be noted well that the board has not attempted to plan a detailed course but has established broad minimum requirements, which, it is to be hoped, will not be taken as standard but will be exceeded, as far as possible. Criteria to be observed in selecting students, the apportionment of the three years of instruction and the subjects to be taught are stated only in general

terms, and methods of teaching are not prescribed. Within the wide latitude thus granted, institutions may plan courses and vary details at will. Concerning some of these details, I am quite willing to offer my views, with the understanding that they will be regarded merely as the opinions of one teacher and with the hope that they will stimulate wise thought and action.

Among all factors involved, it seems to me that the most important is the selection of students for training. Of the many applicants now on the waiting lists of most institutions, only those who seem really to be promising should be accepted. Those who have reached rather mature age, who have failed in other medical fields, who are attracted by the stipend commonly allowed, who appear to regard radiology as an easy road to riches or who plan to cut their training short should be rejected incontinently. On the positive side I consider it essential that the student be young, industrious and keenly interested in radiology and have a natural aptitude for the work. Youth is necessary, for only at that period, as a rule, has the student sufficient alertness and plasticity of mind to acquire thorough knowledge of any specialty. Qualities that I regard as indicative of a natural aptitude for radiology include keenness of observation, marked ability in analysis, a well restrained imagination and a highly judicial temperament. Conservatism in judgment is absolutely requisite for reliable radiologic diagnosis. Shadows are illusive, and the imaginative, impetuous, incautious radiologic diagnostician can do a vast deal of harm. The qualities mentioned cannot be determined from application blanks, certificates and letters of recommendation, however voluminous, and no candidate should be accepted without a personal interview sufficiently thorough to reveal the principal elements of his innate personal equation. Despite all precaution unsuitable candidates will occasionally be accepted, and when the fact is discovered they should be taken off the roll. I lay stress on care in admitting graduate students because it is a practical and effective way of raising radiologic standards and is in line with the increasingly stringent requirements for enrolment in medical schools.

As to apportionment and sequence of the course, there is room for differences of opinion. I feel, however, that not less than six months should be devoted to study of pathologic anatomy, three to technique, twelve to diagnostic interpretation, nine to therapy and six to be applied by the student at will to any branch in which he is deeply interested or feels that he is deficient. This order of periods is desirable but often cannot be followed if the course is arranged on the quarter system.

A thorough knowledge of pathologic anatomy is an indispensable foundation for efficient radiologic diagnosis and treatment, and this part of the course should be given early. It should include study of the gross and microscopic pathology of specimens obtained at opera-

From the Section on Roentgenology, the Mayo Clinic.
Read before the Section on Radiology at the Eighty-Eighth Annual
Session of the American Medical Association, Atlantic City, N. J., June
10, 1937.

tion or necropsy, comparison of anatomic with radiologic changes, radiography of cadavers and specimens, observation of the effects of irradiation on tissues, and research into some special radiopathologic problem.

In my experience, students are likely to show less spontaneous interest in technic than in other aspects of the work, but they should be required to spend at least three months in studying and applying the various technical procedures necessary for diagnosis and treatment. During this time they should also receive special instruction in radiophysics and radiobiology, either from lectures or from reading selected textbooks. The twelve months devoted to radiologic diagnosis should be applied to attentive observation in this field, to comparison of radiologic diagnoses with conditions found at operation or necropsy, and, whenever possible, to active participation in special procedures such as salpingography, ventriculography, intravenous urography, and operations controlled by radioscopy. Training in radiotherapy, including both roentgen and radium therapy, should consist of practical instruction in measuring dosage and selecting appropriate technics, together with as much supervised experience as can safely be granted to the student. The final six months of the course, the elective period during which the student is free to give further attention to any feature of the work that he may select, will usually be appreciated and well employed by him. Periodic examinations, as required by the Board of Radiology, are desirable to determine whether the student should continue his training or not. Any student who shows an aptitude for research should be encouraged to make original investigations. Such research often is a suitable basis for the thesis required for an advanced degree. In some institutions a student who has shown marked ability and has finished his course is appointed first assistant for a year or more. Those who receive the appointment with its more direct responsibility usually profit greatly from the experience that it affords.

As to methods of instruction, I am tenacious in the belief that the student should get his knowledge from experience by active participation in the work rather than from didactic teaching, especially that of the formal type. The informal seminar, at which a series of roentgenograms or cases representing various phases of a single disease are discussed and opportunity for comment or questions is given, is highly instructive and pleasing to students and should be repeated as often as circumstances will allow. Formal lectures on radiology or allied subjects cannot be dispensed with entirely, but, in the main, the student will profit more greatly from reading standard textbooks and current radiologic literature. To this end the radiologic department should have a special library that is readily accessible during working hours. The informal oral instruction that every student receives from his preceptors every day is perhaps the most impressive and most appreciated didactic feature of his course, because of its objective associations and the chance that it offers for clarifying uncertain points. It is absolutely essential that the student be required to use his reason as well as his memory, to think of the morbid anatomy rather than mere names of diseases, and to arrive at logical conclusions rather than opinions derived from superficial comparisons. But I feel that all didactic methods should be secondary and supplementary to active, closely supervised participation in the work, for the most thorough and most practical knowledge is that which has been tested by personal experience.

Whatever the detailed program of special training may be, the student should not fail to maintain and enlarge his knowledge of other fields of medicine. When he goes out to practice radiology he must not be open to the charge of narrowness so often leveled at all specialists. He should be deeply impressed with the fact that he is to become a consultant in virtually all branches of medicine, not a supertechnician subject to the orders of his colleagues. To meet his responsibility as a consulting physician he must know the diagnostic significance of symptoms, signs and laboratory tests and the efficacy of nonradiologic methods of treatment, as applied to all diseases with which he will deal. Consequently, he should attend meetings of the institutional staff and special lectures by leaders in medicine, note the results of medical or other treatment, and familiarize himself with the principles, applications and effects of various surgical procedures. By this extension of interest he will become far more capable both as radiologist and as counselor.

It may seem that the course I have sketched roughly is too idealistic in certain respects and impracticable to fulfil. But its chief elements are already embodied in courses now offered by some institutions, including my own, and at every school there is room for improvement. At all events, the education of graduate students should have high aims, whether completely attainable or not, and the radiologists of the world can leave no greater or more enduring monument to themselves than pupils whose ability will far surpass that of their teachers and who will add shining achievements to the glory of radiology.

EXPERIENCES IN TEACHING RADIOLOGY TO UNDERGRADUATE STUDENTS

EUGENE P. PENDERGRASS, M.D.

PHILADELPHIA

The teaching of radiology at the University of Pennsylvania School of Medicine could readily be entitled "Physical Diagnosis," "Anatomy," "Physiology" or any of the major specialties in which radiologic methods are employed in teaching. We feel that one of the chief functions of the medical school is training the student to become a good doctor and not a specialist. We have therefore emphasized radiologic methods of teaching wherever they will assist in giving the student a better understanding of his problem.

FIRST YEAR

Anatomy—The class is divided into groups of eight students. Each of these groups receives three fluoroscopic demonstrations, a single demonstration lasting from thirty to forty-five minutes.

The first of these fluoroscopic examinations deals chiefly with the movements of the thorax and diaphragm, associated with respiration, and the heart and great vessels. As the students are the subjects and each one is looked at, a considerable range of variation is available.

At the second fluoroscopic demonstration, the digestive tract is observed. One student takes a barium sulfate meal before going to bed and serves to show the different features about the large intestine. A second student is instructed to come in without breakfast and

is given successively a capsule containing barium sulfate, a barium cookie and a barium meal. The students thus have an opportunity to watch the slow passage of the capsule down the esophagus, noticing those points at which normally there is slight encroachment of outside structures on the lumen of the esophagus and concomitant hesitation of the capsule, likewise, the slow movement of the semisolid cookie down the esophagus, and, finally, the rapid passage of the liquid barium along the esophagus, with its more moderate progress into the stomach. This part of the demonstration is done with the subject in the erect and oblique positions. At each stage, however, the stomach is observed, with the subject in the dorsoventral position. This affords an opportunity to see the shape of the virtually empty stomach and, eventually, of the filled stomach as well. Further, the peristaltic movements of the stomach are watched, also the appearance and behavior of the duodenal cap and the movements of the opaque meal in the jejunum. Following such observations, made by the vertical fluoroscope, the student patient is examined in the horizontal position, both supine and prone, and variations in the shape and position of the stomach and changes in activity are demonstrated.

During the third fluoroscopic period, attention is directed to the various articulations and movements of the joints.

In connection with these fluoroscopic demonstrations, suitable roentgenograms are placed in the dissecting room, so that the students may study, at their leisure, the structures which they have seen by the aid of the fluoroscope. All this work in anatomy is done by Dr. Eliot R. Clark or by members of his staff. We supply whatever roentgenograms Dr. Clark wishes.

SECOND YEAR

Physiology—Dr. Henry C. Bazett and his staff use radiology in teaching students by the demonstration of stomach and intestinal movements in animals. More recently, studies are being made on students themselves, with the observations extended over the morning period of six consecutive days.

Pathology—Dr. Edward B. Krumhaar states he uses radiology in the teaching of pathology, but not so much as he would like to do if there were more time at his disposal. He feels that, in teaching any subject, the important thing is "proportion." Radiology, in this connection, is taught by Dr. Philip J. Hodes, of the Department of Radiology. He tells the students what radiology contributes in the diagnosis of the various pathologic lesions, with demonstration of illustrative films. These correlated expositions are presented before the class sections receiving instruction in gross morbid pathology.

THIRD YEAR

Applied Anatomy—This subject is taught by Dr. Oscar V. Batson. Every one is familiar with Dr. Batson's enthusiasm about the necessity of using radiologic methods in the teaching of anatomy. There is constant reference to roentgenograms in the work on the chest, with emphasis on the differences between the anatomy of the dissecting laboratory and the anatomy of the living thorax. In considering the heart, Dr. Batson has had the good fortune to show the students Dr. George Levene's movie film of cardiac movements in health and disease. Roentgenograms are used also for studying the distribution and rearrangement of various struc-

tures, which may be so investigated because of their x-ray opacity or their ability to be injected with a radiopaque medium. Dr. Batson is interested eventually in developing more demonstration material, converting the three dimensional anatomy into shadow anatomy and then into roentgenograms.

Didactic Lectures—The entire third year class is given an elementary course in radiology, consisting of sixteen hours. Holmes and Ruggles' "Roentgen Interpretation" is used as a textbook. X-ray tubes and fluoroscopic screens are shown to the students and brief explanations given concerning their operation and control. No effort is made to go into the physics of the x-rays, on the assumption that the student has had training in this subject during his premedical days. Dangers in connection with radiology and methods of protection are stressed. A short discussion of the medico-legal aspect of radiology is presented. Further than this, an attempt is made to teach the students to value both the potentialities and the limitations of the roentgen examination, as well as those conditions in which its use is essential. Emphasis is placed on the correlation of clinical and roentgen observations rather than presenting a tremendous number of slides of various pathologic conditions. For instance, the student is shown films, or slides, of the chest of a patient who has no pathologic process in the heart or lungs. The films are arranged to demonstrate the effect of posture on the domes of the diaphragm and the cardiac silhouette, and how, in turn, these structures may modify the physical observations, such as percussion and auscultation. After this the student is shown roentgenograms of a pleural effusion. Films exposed with the patient in various postures are presented to demonstrate how position affects the shadow cast by the pleural effusion. Such a presentation serves to focus the student's attention on physical diagnosis rather than on roentgen diagnosis. The entire field of diagnosis is covered in this manner.

During this course of lectures, five students are selected each week to occupy the front row seats and, in order to emphasize certain points, questions are asked. To stimulate further interest on the student's part, questions and discussion are encouraged, and often at the end of the hour, or perhaps later by postal card, different problems are brought up. Such inquiries are answered at the beginning of the next lecture hour.

In addition to the foregoing, a few lectures are given on roentgen and radium therapy. Here again the fundamental principles of the effects of irradiation on various tissues are stressed, rather than an outline being given of technic of therapy in the different conditions in which its use is indicated. I believe that such an approach as this, in presenting the subject of radiology, is rational and, possibly, an obligation.

The third year students at Pennsylvania do not have ward work but are assigned as student physicians to the outpatient department. There is usually so much clinical detail, however, that little time is available for the instructors to show the students the roentgenograms made on their patients. Occasionally a student, interested in an unusual patient, will come to the radiologic department for demonstration and explanation of the roentgen observations by some one in the department.

At the end of the year a final examination is given on the course. The questions asked are general and of a type with which the general practitioner should be conversant.

FOURTH YEAR

During the fourth year the students become clinical clerks in the hospital wards. Each student receives at least forty hours of instruction. The general approach to the radiologic teaching is a correlation of the clinical and the roentgenologic observations on patients seen by these students in the wards of the hospital. The teaching is divided into the following groups: medical, pediatric, general surgery, urology and neurosurgery.

Those students in the medical section attend a radiologic and clinical conference once a week. An hour is devoted to the presentation of the case history, the physical and roentgen observations and a discussion of diagnostic possibilities or therapeutic approach. The discussion is led by the radiologist, chiefly in the form of questions, which are considered by the various ward chiefs in medicine. In addition, the medical staff holds a seminar with the students for two hours each week. This may be attended by the radiologist whenever cases are presented which need radiologic explanation. Various members of the medical staff hold a "sun parlor" conference once a week too, at which films of interesting cases are presented to students as a part of the clinical record.

A radiologic-pediatric conference is attended by the chief of the department of pediatrics, interns and students. This group meets once a week for one hour. All cases that have undergone a roentgen examination are reviewed clinically and the films presented. Since the majority of the cases comprise an examination of the chest, the student has an excellent opportunity to check his physical observations with regard to the nature and size of the lesion which may be present. This session is sometimes devoted to a brief discussion of pathologic changes in long bones in relation to the roentgen examination. Occasionally a student or an intern may present a brief review of some subject, such as obstruction in the respiratory passages, in conjunction with current cases showing this type of lesion.

Radiologic aids in surgical diagnosis and treatment are presented at a weekly one hour conference attended by surgical staff members, students and a member of the radiologic staff. This has been divided into general surgery, urology and neurosurgery. In the former group, students are required to present a brief abstract of the clinical history and physical examination concerning current cases in the wards of the hospital. The films are presented and the cases discussed clinically by some member of the staff. It has been our purpose during this session to present all current patients who have had a roentgenologic examination, whether the result of the examination has been positive or negative. Such a procedure helps the student by indicating when a radiologic examination can be of assistance, and also the type of examination to be considered. Frequently two or more cases may be available which are more or less similar clinically. At such times the greater part of the hour is devoted to a discussion of one general subject, such as lung abscess, intestinal obstruction or gallbladder disease. In order to illustrate salient points, particularly with regard to surgical diagnosis, other films in our teaching records are presented. In general, controversial details are avoided, that the student may not be confused.

The roentgen diagnosis of urologic conditions has been presented in a more didactic way, on account of (1) the special nature of the examination, (2) the unfamiliarity of the average student with observations

by intravenous or retrograde pyelography and (3) the lack of a proper selection of current cases. We have therefore attempted to present in one or two hours the normal appearances and variations that may occur. This is followed by diagnostic points concerned with urinary calculi, tumors, stone, and anomalies. Very little time is offered for open discussion, but questions by the students are encouraged during the conference.

In neurosurgical diagnoses we have used much the same procedure as in urologic teaching. Because of the unfamiliarity of the student with roentgen examinations of the skull, it has been necessary to review roentgen anatomy and point out the landmarks that most frequently aid in diagnosis. We present indications and contraindications for encephalography and ventriculography, the normal encephalogram, followed by illustrative cases to show cortical changes, such as atrophy or arachnitis, scars or tumors, the normal ventriculogram, followed by films of patients which show characteristic deformities associated with the more frequent mass lesions in the frontal, parietal, temporal or occipital areas.

A member of the radiologic staff is present at the neurosurgical conference, one hour each week. Selected cases are presented to the students and the films of these cases discussed by the radiologist as a part of the clinical evidence.

This year we have extended our teaching of the students on the surgical trimester to include ward rounds, one hour each week, pathologic conferences, two hours every fifth week, and elective tumor conferences, one hour each week. As each section in surgery changes every five weeks, the students in these sections have four hours of ward rounds, two hours of pathologic conferences and an elective five hours of tumor conferences.

Ward Rounds—During the first hour, the students are brought into the Department of Radiology and shown various equipment used in radiation therapy. As each piece of apparatus is demonstrated, the students are shown how it is actually used. It is our feeling that each student should be familiar with some of the more important terms that are employed in radiation therapy, in order that he may know their meaning when reading current literature or when consulting with a radiologist.

The discussions during each of the remaining three ward round periods depends largely on the patients in the hospital who are receiving irradiation for infection or a malignant condition. Regardless of the type of malignancy under consideration, the approach to the problem and its discussion are approximately the same. But little time is spent on the usual diagnostic appearances in a late carcinoma. Most of our energies are directed to the signs indicative of the early lesions. Naturally, this involves discussion of procedures such as biopsy, Wassermann tests, and roentgen therapy as a therapeutic test. After the diagnosis is made, the treatment of the tumor in question is discussed. We do not immediately state that this or that is the treatment of choice. On the other hand, we try to promote discussion of all possible methods for treatment of tumors, arguing pro and con, until finally the students themselves reach what they think is the method of choice. In this connection the students are shown irradiation reactions and effects, and the methods employed in their care.

In actual practice, the procedure we follow is this

1 The history and physical examination of the patient are given by the clinical clerk

2 We then choose a student not familiar with the case to discuss the differential diagnosis. If his discussion is not complete, we designate the role of consulting physician to another student, whose job it is to agree or perhaps to bring up another possibility. If the diagnosis is still unrecognized, each member of the group expresses an opinion

3 Another student then acts as the family physician, telling how he would finally prove his diagnosis. If he is not entirely satisfied, he chooses another member of the group as a consultant. If the discussion of these students is incomplete, the entire group is again asked for opinions

4 After the diagnosis has been decided, another student acts as the family physician and is asked to treat the patient. If this student's therapeutic methods are not inclusive enough, we again assign the role of consultant to another student, who may act as the radiologist and, when necessary, we add still a third, who may act as the surgeon. With this plan we approach the problem in a practical manner

Pathologic Conferences—Sometimes there is nothing of tumor interest in these sessions. On other occasions the department of radiology is asked to explain why a certain type of treatment was carried out for a specific tumor removed at autopsy. At such times the rationale and arguments for the type of therapy used in the case are fully discussed

Tumor Conferences (elective)—During the first portion of these conferences, patients with unusual tumors are shown. During these demonstrations the type of pathologic process and therapeutic measures are discussed. At other times the end result of a therapeutic procedure is demonstrated in order to illustrate what can be expected in the treatment of certain malignant conditions. The last half of the hour is turned over to a member of one of the specialties, such as a gynecologist or an otolaryngologist, who discusses the most recent advances in a particular type of malignant growth which he, as a specialist, has been called on to treat or about which he has been invited to act as a consultant

Some of the fourth year students do not receive all their training in the University Hospital but are assigned to other hospitals for their clinical clerkships. Dr. M. Lowry Allen at the Episcopal Hospital, Dr. Paul Bishop at the Pennsylvania Hospital and Dr. Herman Ostrum at the Philadelphia General Hospital give clinico-radiologic conferences on diagnosis similar to that described with slight modifications arranged according to the teaching schedule of these various hospitals. The only major difference in the teaching is that there is less effort made to develop the therapeutic aspect of radiology

At the end of each trimester, an examination is given. This usually consists of two questions, based on the subjects considered in the conferences. In addition, one question is given in the final written examination

CONCLUSION

I should like to state, very humbly, that I know but little concerning the teaching of radiology. We are constantly changing our approach to this problem after

careful consideration of its many phases with our medical and surgical friends. If we fail in our efforts, we have only ourselves to criticize, as our association with the entire staff, in the preclinical and clinical years, has been most cordial and stimulating

3400 Spruce Street

UNDERGRADUATE TEACHING OF RADIOLOGY IN THE MEDICAL SCHOOLS OF THE UNITED STATES

A SURVEY

CLAUDE MOORE, M.D.

WASHINGTON, D. C.

Since radiology is the newest major branch of the practice of medicine, there is considerable difference of opinion among the entire medical profession as to its value in the diagnosis and treatment of disease. The medical schools of the United States also place different degrees of importance on this specialty. To determine the status of the teaching of radiology, a survey was made by review of all the catalogues of all the medical schools in the United States giving a full four year course and rated as grade A by the Council on Medical Education and Hospitals of the American Medical Association. Since the medical schools could not all be visited, this had to be done entirely by the last available catalogue published by each medical school. The information secured from these catalogues was checked with the information furnished by the last Educational Number of *THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION*¹ and the latest list of the Diplomates of the American Board of Radiology.²

There are sixty-eight class A medical schools giving at least a full four year course and an M.D. degree. Some of them have no connection with universities and some of them have but limited or no connection with large hospitals.

An attempt was made to determine both the quality and the quantity of teaching that was offered as well as the importance of this specialty in each school. Forty of the medical schools had a separate radiologic department organized under a separate head and equal in rank with the other departments in the school. One medical school makes no effort to give any instruction whatever in any branch of radiology. Its latest catalogue merely states, in a paragraph under medicine, "324 Radiology and Radiotherapy (Elective), one hour a week. The staff." The catalogue makes no mention of any staff in radiology. The other twenty-seven medical schools mention or list the teaching of radiology as a division or a part of some other department. Another school has only one statement to make with regard to radiology. This is under the department of surgery and says "This course embraces the principles of operative surgery, x-ray and anesthesia." The instructor of this course is listed as Associate Professor of Surgery (Roentgen). By far the majority of these twenty-seven classifications are under medicine or surgery, but some of them are mentioned under pathology,

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¹ Medical Education in the United States and Canada. J. A. M. A. 107: 661-715 (Aug. 29) 1936.

² Diplomates of the American Board of Radiology. Am. J. Roentgenol. 31: 116-123 (Jan.) 1937.

therapeutics, dermatology and anatomy, the reason for this apparently being that professors in these subjects teach their specialty in connection with radiology or that they are radiologists to affiliated hospitals. The variety of information given in the catalogue is even greater than would be suspected. Some devote a page or more to describing the course in radiology, while other catalogues have only a sentence or two.

The size and the rank of the staffs in radiology are even more variable than the amount of space describing radiology in the catalogues. Thirty-six medical schools give the rank of full professor to one or more mem-

TABLE 1—*Extent of Instruction in Radiology Listed in Medical School Catalogues*

68 class A medical schools in the United States give a four year under graduate medical course
40 schools have a separate radiologic department
27 schools list radiology under some other division
1 school does not list any radiologic course of instruction or mention any radiologic faculty
36 schools give one or more members of the radiologic faculty the rank of a full professor
2 list the highest rank as instructor in radiology

bers of the faculty in their departments of radiology. In two schools the title of Instructor in Radiology is the highest rank given to the member of the faculty teaching this subject. The other thirty-four schools list the faculty members under all the various classifications common to university rank below that of full professor. Several schools, even among those giving the rank of full professor, add in parenthesis following the title the words "radiology or roentgenology." It is impossible to tell whether this faculty member does teaching other than in radiology or whether the title of "professor of radiology" is not of sufficient dignity or value to be listed as such. The size of the staffs of the radiologic departments of the different medical schools vary all the way from one to ten members. Several schools, particularly those giving instruction in all four years of the medical course, have large, well organized staffs, with different members teaching special subjects in this field. In some of the large university medical schools the department of physics and experimental biology is closely affiliated with the radiologic staff. A few schools seem to allow the teaching of radiology by sufferance. One large university medical school with exceptional hospital affiliations has eleven instructors of surgery and eleven instructors in medicine of professorial rank and only one associate professor of roentgenology. Another medical school, already mentioned, has eighteen members of the surgical and medical staff ranking as professors, and the sole member of the radiologic staff is listed as instructor in roentgenology. The one medical school mentioned as not giving any course has no mention whatever of any radiologic staff or even of an instructor teaching radiology. As would be suspected, the larger faculties are in the medical schools of the largest universities connected with prominent hospitals. The ability of the faculty can be judged only by the professional connections of its members. The only information available was the latest list of the diplomates of the American Board of Radiology.² In six of the medical schools no member of the faculty was a diplomate of this board. Either they had not applied to the board, their acceptance had been postponed, or they had been turned down as ineligible or inefficient.

According to the American Board of Radiology, twelve medical schools do not have staffs sufficiently well trained to use radium in the treatment of disease. This is said because the radiologic faculties of these medical schools are listed by the board as proficient only in roentgenology. In checking the faculty roster of all the medical schools it is interesting to note the number of higher ranking members who are not diplomates of the American Board of Radiology. Many of their junior associates have satisfied the board that they are proficient in radiology. One radiologic department of a medical school in a large city, with four professors and four associates or instructors, had no member of the faculty who was a diplomate of the American Board of Radiology. In some other schools it is only the junior members of the radiologic staff that are diplomates of this board. These young men appreciate the value of this membership in the future upbuilding of radiology in the United States.

It is almost impossible to judge, with any degree of accuracy from the catalogues, the amount of radiologic instruction given medical students by the medical schools. Seven medical schools teach radiology in all four undergraduate years. Five more schools have courses in three different years. The other medical schools are about equally divided in number as to instruction in one or two years. Five medical schools make the course in radiology entirely elective. All others say they require some definite amount of instruction. The number of hours is very indefinitely stated or is so mixed up with other courses that no fair idea of the amount of instruction could be determined. The general average of all schools would probably be between twenty and fifty hours for all courses, both didactic and clinical. Several medical schools offer opportunities for senior students to be clinical clerks in the radiologic departments or affiliated hospitals, while another school offers an elective course for seniors to become proficient in roentgenologic technic.

All sixty-eight medical schools were checked with the latest roster of hospitals giving a residency in radiology.

TABLE 2—*Qualifications of Instructors in Radiology and Affiliation with Hospitals*

6 schools have no member of the faculty who is a diplomate of the American Board of Radiology
12 schools have no member of their faculty who is fully qualified to teach radium
7 schools teach radiology in four undergraduate years
5 additional schools teach radiology in three of the four undergraduate years
32 schools are not affiliated with hospitals giving a residency in radiology credited by the Council on Medical Education and Hospitals of the A. M. A.
36 schools do have these hospital connections

accepted by the Council on Medical Education and Hospitals.² Thirty-two medical schools have no connections with these hospitals, leaving thirty-six that are affiliated. It was felt that, when a medical school has connections with a hospital radiologic department giving a residency in radiology, both the quality and the quantity of instruction available to students would be superior to those schools having no such connection. Usually the chiefs of the radiologic department of these hospitals are men of national or international reputation and they are sufficiently interested in the future development of radiology to see that the student become as well acquainted as possible with this specialty.

It is hoped that this discussion and information, secured only through the catalogues prepared by the medical schools, will encourage the Council on Medical Education and Hospitals to make and publish a direct survey on the undergraduate teaching of radiology

1801 Eye Street NW

ABSTRACT OF DISCUSSION

ON PAPERS OF DRs KIRKJIN, PENDERGRASS AND MOORE

DR MERRILL C. SOSMAN, Boston There are two separate problems in this symposium which should be discussed. Let us take up undergraduate teaching first. Every one realizes that any subject can be taught from a dozen different points of view. Anatomy, for example, can be taught from the point of view of morphology, of biology, of physiology or function, or from a purely roentgenologic point of view. Similarly, all of medicine can be taught, and taught well from widely divergent points of view. For example the approach may be through etiology, through pathology, through therapeutic channels or, again, through roentgenology. In undergraduate teaching, however, it is important to teach not radiology but anatomy or pathology from the radiologic point of view, an attempt being made to give the student the necessary information from another and different aspect and thus help him to correlate and consolidate his knowledge. In graduate teaching, an attempt should be made to impart to students not just the facts of radiology, considering it as a trade or as a laboratory procedure but rather from the clinical point of view, and teach its limitations as well as its specific and positive values. In this way the teacher should attempt to turn out roentgenologic clinicians who, with experience, may become really consultants rather than the all too prevalent reader-of films type. Two points in the graduate teaching of radiology, which I consider the most important of all, may be emphasized. 1 For the student of radiology, the most important thing is to choose, if he can, the man under whom he takes his work and who gives him the attitude of mind and the mental stimulus which is so much more important than the acquisition of facts. The man is the important thing, not the place or the course of work, however complete and attractive it may seem. 2 For the teacher of radiology, the one thing of utmost importance is not the detail and the order of the work to be given or the type and amount of instruction, but rather the careful selection of the candidate. I feel that the choice of the proper man to be trained far outweighs the thoroughness of his training, provided the opportunity to acquire knowledge is available and the candidate has the character to profit by the acceptance of responsibility in the department to which he is assigned.

DR J. H. J. UPHAM, Columbus, Ohio Dr Moore presents rather a chaotic condition of affairs in his survey. This is largely a reflection of the general situation of medical colleges with regard to the teaching of specialties all along the line. The rapid growth of medical knowledge in general and the special fields in particular has led to demands on the present college curriculum that are difficult to meet. There is danger of overcrowding, if that has not already occurred. As a dean of a medical college, I am continually under pressure from this or that specialty for more teaching time. Not infrequently a dominating personality in some college will bring about a greater emphasis on his specialty. There is great necessity for a general understanding and evaluation of the needs of the prospective practitioner in considering the places in the curriculum of all the specialties. There is scarcely a field of medicine in which radiology does not enter in some degree so that it must have an important place in undergraduate instruction. The teaching of this subject therefore embraces two concepts: first, as it affects the prospective practitioner and second as it looks toward a prospective specialist. In my opinion the latter enters into undergraduate instruction only as do the other specialties. That is a teaching of basic principles with the idea that should the student expect to enter this or that specialty he will have to take extensive postgraduate instruction. I believe, therefore, that the teaching of technic should be little more than brief basic instruction of a very general character, so that the principles may be gained with a knowledge of the dangers of

attempting to practice them without thorough postgraduate training that most of the instruction be along the lines of the value of radiology in the various fields of medicine and the need of proper interpretation of films. That the teachers of this subject should be thoroughly qualified goes without saying, and their titles should be commensurate with the importance of the subject. Such instructors would be able to recognize those students who are particularly qualified or have a flair to practice radiology and, by electives, prepare them for later development. The outline of instruction in the University of Pennsylvania given by Dr Pendergrass follows my own ideals very closely. I feel however, throughout that the emphasis should be on the illustration of the definite uses of radiology in medicine, the need often of radiologic consultation, and that the impression should not be given too easily that on the basis of even this quite thorough instruction the graduate is prepared without further training always to read films properly and certainly without extensive further training that he is prepared to practice radiology. Dr Kirklin's paper suggests a high plane of postgraduate training and one that appears excellent.

DR FRED J. HODGES, Ann Arbor, Mich. As a teacher it has been encouraging to me to learn that the difficulties encountered in our institution are closely paralleled by the experiences of others. Dr Moore has drawn attention to the striking lack of uniformity among medical schools in the matter of presenting the subject of radiology to undergraduate students. At the University of Michigan the faculty of medicine has recently begun revision of its curriculum to correct generalized overloading due to the addition of new subject matter over a considerable period of years. We find that decisions regarding the proper allocation of teaching time are difficult to reach not only in radiology but in all divisions of medicine. The teaching plan for undergraduate students outlined by Dr Pendergrass corresponds closely to ours. We too attempt to place primary emphasis on the purely medical rather than the technical aspects of radiology. The required hours of instruction are nearly identical. I am in complete agreement with all the previous speakers regarding the scope and the ultimate aim of graduate teaching in this subject. Dr Kirklin's plan is excellent both in theory and in practice. Ideals of graduate training in radiology as expressed by Dr Holmes are exceedingly important if our subject is to deserve high ranking in the field of medical education. The necessity for accommodating student instruction to the time consuming activities of a busy clinical practice is a real problem, to be solved only by careful budgeting of time and the maintenance of a sufficiently large staff.

DR THOMAS A. GROOVER, Washington, D. C. I wish the authors would state in closing the discussion whether the present-day facilities for postgraduate study are adequate. A good deal has been said about the radiologist choosing a student, but something can be said, on the other hand, about the student choosing his instructor.

DR ROSS GOLDEN, New York. I agree with Dr Sosman that the choosing of the man is of prime importance. I went on record two or three years ago to the effect that I believe a man should be given a point of view in radiology before he spends his year in the fundamental medical sciences. We have tried that now for two years at the Presbyterian Hospital in New York. The first man who went through began his service October 1 and spent ten months in the diagnostic department and then went into the department of pathology, where he took part in the teaching, and then in the department of surgical pathology and then had his course in physics. Then he came back and went in the radiotherapy division. The second man who came through spent six months in the diagnostic division and then four months in the radiotherapy division. This spring when plans for the third man to take the three year service came up for discussion, the question was raised as to whether he should have some radiotherapy before he went into the year of fundamental sciences. On consultation with the two previous men, he decided that he would like to have some radiotherapy first. The first man felt that he would have understood the pathology of radiotherapy better had he understood the technic, and the second man felt that he was helped very definitely by having had some practical experience in radiotherapy. Based on my own reaction I feel that a point of view would be of definite help in enabling the men to get the most out of the

year in the fundamental sciences I know that there are well informed people who think that this is of minor importance, but it has seemed to work out well as we have tried it in the past two years

DR CHARLES L. MARTIN, Dallas, Texas I believe with Dr Pendergrass that every effort should be made to develop undergraduate medical students into good doctors This can be accomplished in many instances by combining some of the subjects now taught separately At the Baylor University Medical School the prescribed course in radiology deals only with diagnosis, while radiation therapy is included in a required course on tumors The active staff of the Baylor Tumor Clinic holds one exercise each week for the senior class The pathology, diagnosis, treatment and prognosis of tumors are discussed and actual patients are shown before, during and after treatment The director arranges the clinics in advance, so that each one deals with a different type of pathology, and since fourteen men take part in the presentation, they represent a consensus of opinion The radiation therapist has a very important role in this type of teaching and I feel that our students know a great deal about the proper care of patients with malignant growths by the end of the year In my opinion this is much more important than the elaboration of the physical data so often included in a course in radiation therapy for undergraduates

DR EDWARD L. JENKINSON, Chicago I believe that the selection of the student, the candidate, especially in graduate work, is most important I think a good man will be a good man in practically any well regulated department When the men that I have had come before the board, I think it is easy to tell how well they are going to do by what they have done during their training period in the department So I think the selection of the candidate is most important During the formation of the curriculum, for instance, the orthopedist who on certain days has his lectures on bone conditions could take, say, forty-five minutes of the hour in teaching or giving to the student the orthopedist's side of the question, and the last fifteen minutes could be taken by the radiologist, who could give the student the important x-ray appearances of the disease under discussion I think the same plan could be used in gastro-intestinal medicine It certainly could be worked in in heart conditions and practically all the medical subjects I believe in this way one could bring the students in closer contact with radiology as it applies to medicine

DR CLAUDE MOORE, Washington, D. C. It is unfortunate that more men of lesser prominence have not discussed this symposium While attending this meeting I have had the opportunity to discuss the undergraduate teaching of radiology with a number of radiologists from smaller cities and towns who have come in contact with recent medical graduates who were not associated with larger hospitals and clinics in their undergraduate work I have been surprised to find the amount of ignorance these radiologists report among these young physicians One radiologist told me this morning that last week he talked with a young physician who had been out of medical school for two years and did not know that duodenal ulcers could be found by means of the roentgen ray It is surprising the lack of knowledge of radiology among graduates of the more isolated medical schools not connected with large clinical facilities It seems that this is not the fault of the radiologists of the country but is the fault of the administrators of the medical schools This statement is confirmed and illustrated by the amount of time given by radiologists to medical schools, receiving in return, in many cases, a low university rank, and working in competition with a half dozen full professors in other branches of no greater importance than radiology These radiologists are willing to give their time and interest to promote their specialty, with little or no personal reward

DR B. R. KIRKLIN, Rochester, Minn. Dr Groover asked the question whether or not the facilities for training a sufficient number of radiologists are adequate The other essayists have left that question unanswered, so I will attempt to answer it to the best of my ability by saying that I do not think the facilities are adequate at the present time We hope, however, that it will be only a matter of a short time until this deficiency is overcome It has been pointed out that it is necessary to provide for a fairly large replacement to supply the normal

demand for radiologists, not taking into consideration the increased demand by clinicians for radiologic service. I would also state that the American Board of Radiology is now attempting to classify and to list those institutions or individuals who have what we consider to be adequate facilities for giving the type of radiologic training that should be given Dr Sosman is chairman of that committee, and I am sure he will shortly have a satisfactory report

TEACHING UROLOGY TO MEDICAL STUDENTS

ROGER W. BARNES, M.D.

LOS ANGELES

The recognition of urogenital disease and its proper management are dependent to a large extent on the general practitioner, and the mental equipment he uses is, in turn, dependent to some extent on his training in medical school This is especially true with the recent graduate, and the more practical and vivid his undergraduate teaching has been made, the more mental equipment he will have to cope with the daily problems of his practice

A review of the bulletins of twenty-two representative medical schools reveals a wide variation in the assignment of time to the teaching of urogenital dis

TABLE 1—Assignment of Hours to Teaching Urogenital Diseases in Twenty-Two Medical Schools

	Schools	
	Number	Percentage
No urology listed	1	4.5
Elective only	2	9.0
No didactic course listed	5	22.5
From 8 to 20 hours of didactic instruction	7	31.5
More than 20 hours of didactic instruction	10	45.0
No clinical course listed	6	27.0
Clinical required hours not given	4	18.0
From 10 to 20 hours of clinical teaching	3	13.5
More than 20 hours of clinical teaching	7	31.5

eases This ranged from a minimum of no time allotted for this course to a maximum of 110 hours Table 1 gives a summary of this review

In view of the present trend toward more clinical teaching and less didactic instruction, it is surprising to note that eight, or 36 per cent, of these schools list no clinical course in urology Of those schools listing clinical hours, the minimum is sixteen and the maximum fifty-nine, with an average of thirty-one Five schools, or 22.5 per cent, listed no didactic course Of the schools listing didactic hours, the minimum is eight and the maximum fifty-seven, with an average of twenty-three Three schools listed no required course in urology, and of those requiring a course the minimum total hours is sixteen and the maximum 110 with an average of forty-eight

Since medical students are taught to be general practitioners, it would seem that the number of hours for each specialty taught in the medical course should be in the same proportion to the total as that specialty is to the total of the practice of the general practitioner In order to determine this, a questionnaire was sent to 120 physicians in general practice A compilation of seventy-eight that were returned showed that an average of 8 per cent of their practice was urogenital in nature

From the Department of Surgery (Urology) College of Medical Evangelists
Read before the Section on Urology at the Eighty Eighth A. M. A. Session of the American Medical Association Atlantic City, N. J., June 11, 1937

The minimum was one-third per cent and the maximum 50 per cent. As there are approximately 2,500 total hours in the clinical division of the medical course, 200 hours, or 8 per cent, would be devoted to the teaching of urogenital diseases if this proportion were carried out. These figures are of course only a rough estimate at best, but they do show that the time devoted to the teaching of this subject is not too much in proportion to the entire course.

There has been a growing tendency to shorten the courses in the specialties and in some instances to have them taught by general men rather than specialists. It is impossible to cover more than a small part of the subject of urology when teaching medical students, but it is a mistake to shorten this course to such an extent that the essentials necessary to equip the general practitioner properly are inadequate. Even though teaching the more complicated urologic procedures is not attempted, still the urologist is the most suitable person to teach this specialty. As Boyd¹ has stated, the general practitioner does not have sufficient interest in the specialty and has had neither the training nor the experience necessary to present to the student properly the essentials of the management of urogenital diseases. A few urologists have sufficient pedagogic background or the natural ability to lecture so that the students can grasp and retain what is taught. Most instructors are not so endowed, however, and it is necessary to resort to other methods of teaching. The best solution to the problem is by case teaching, i. e., by having the student care for the patient himself, take the history, make the examination and prescribe and give the treatment. He must of course be supervised at each step and told of the mistakes he makes and of the way to avoid them.

Even in the largest clinics it is not always possible to have patients available with whom to demonstrate each disease as it is taught to the student. This is especially true in the smaller clinics, and for this reason it is necessary to supplement the case study and patient demonstration by other means of visual instruction. Lantern slides, motion pictures, drawings and models can be utilized in such a way that they can be made a very valuable adjunct to teaching and in fact are in many ways superior to the patient himself as a teaching aid. For example, a carcinoma of the penis or even a genital ulcer might not be available during the time a

The necessity for a careful history and physical examination is axiomatic, and these, together with the more simple diagnostic procedures, laboratory tests and routine treatments, should be emphasized. Palpating and massaging prostates, passing catheters and sounds, treating gonorrhea and giving bladder irrigations are the things the student will do when he becomes a general practitioner, and these are the things he should be taught while in training. In every school there will be found students who think it is a waste of their time to repeat these and who believe they have mastered them.

TABLE 3—Urogenital Diseases in General Practice

Returned Questionnaires Tabulated	Proportion of Practice Urogenital in Nature		
	Minimum	Maximum	Average
	78	50%	8%

after seeing them done or after doing them only once or twice. The instructor should endeavor to change this attitude by impressing the value to the student himself of thoroughly mastering these routine procedures and to show him that when he is out in practice these are the things he will want to know more than anything else. To teach cystoscopy and surgical technic to the medical student in the short time allotted for the course in urology is almost impossible, and these procedures should be reserved for graduate teaching.

947 West Eighth Street

ABSTRACT OF DISCUSSION

DR. GEORGE F. CAHILL, New York. The review of the assignment of time to the teaching of urologic diseases in our medical schools undertaken by Dr. Barnes is most timely. Urology apparently does not occupy sufficient time in most schools to supply the needs of students for its proper understanding. Most urologists agree that the teaching of the more complicated urologic procedure is not to be attempted within an undergraduate curriculum but properly belongs to graduate teaching, and that only the essentials for a proper understanding of the main pathologic, diagnostic and therapeutic procedures can be covered in the time that at present is allowed in the medical schools. It is, however, possible to present in the basic courses in the early years didactic lectures or teaching linking these departments with the specialties. These urologic lectures or demonstrations in embryology and anatomy and pathology should be given by the urologist. He best can give the point of view which is later to be developed as essential for the understanding and proper appreciation of the specialty. Modern teaching in medicine has slowly evolved clinical case teaching. Such teaching has evolved the clinical clerkship. Most medical schools have clinical clerkships in the four major courses: medicine, surgery, obstetrics with gynecology and pediatrics. Such clerkships should include urology. We feel that the student can secure a proper understanding of what the specialty covers only by a concentration of his time within the specialty, if possible for the whole day, with instruction by the residents and the necessary didactic or illustrated case teaching, even though the entire teaching time covers only two weeks. The complicated urologic procedures developed during the last twenty years have gone far beyond the attempt to teach complete familiarity with these to the undergraduate and belong properly in postgraduate work. Dr. Barnes is to be complimented for giving us this graphic, basic idea of how to examine a patient urologically, and I am pleased to see a combination of teaching with demonstration as evinced by the sound movies.

DR. NELSE F. OCKERBLAD, Kansas City, Mo. The author's presentation of this subject is excellent and timely, and the motion picture was excellent. No one knows how much work it takes to make such a picture unless one has tried it. The teaching problem is the same everywhere. Teachers are largely

TABLE 2—Number of Hours Scheduled for Course in Urogenital Diseases in Twenty-Two Medical Schools

Clinical Hours			Didactic Hours			Total Hours		
Min	Max	Aver	Min	Max	Aver	Min	Max	Aver
16	59	31	8	57	23	16	110	48

group of students is taking the clinical work in urology, but if these conditions are shown in a slide, or preferably in a motion picture in color, the student will make a mental picture which will be much more lasting than if a word description were given. A carcinoma of the prostate may not be available, but if the student can feel a model of this condition and take as long as he wishes without the fear of causing pain or inconvenience to the patient, he will receive a much deeper and more lasting impression than if he were given a word description of how such a prostate felt or were allowed a hasty feel of such a prostate in a patient.

¹ Boyd M. L. Teaching Urology to Medical Students. J. A. Am. N. Col. G. 278 (Sept.) 1931.

born, not made. The best reference books on urology are too expensive and too extensive. I have tried to get around this with a mimeographed manual or outline. The exhibit of Dr Barnes dealing with the prostate is extremely ingenious and ought to be helpful to the medical student who has just broken into a new world when he first comes to the dispensary.

DR. R M LE COMTE, Washington, D C. Dr Barnes has shown how little time is given to teaching this rather complex subject. Judging from my own experience his figures particularly regarding clinical instruction, exaggerate rather than understate the actual time put in on the subject. It is important to remember that only a few of the undergraduates will ever practice urology intensively and that we should limit our efforts to giving them sufficient knowledge and skill to make rather safe general practitioners who are able to recognize genito-urinary diseases clinically and to establish a diagnosis and carry out treatment which requires a procedure that is not very complex and technical. If we try to do more than this we are very apt to cloud the issue rather than clear it. At Georgetown University the students work both in the dispensary of the University Hospital and in other hospitals, and also in the wards, giving as much time as practicable, but just as both Dr Ockerblad and Dr Barnes have said, the material is often either not available in sufficient amount or not the proper type at the proper time. In addition, we give thirty hours' didactic teaching each year. We stress the symptoms and the medical treatment. In considering the various organs, diseases are arranged in a systematic way according to the etiology and pathology. We believe that if this is understood the symptoms, diagnosis and treatment will be more readily comprehensible and more impressed on the mind. This is done mostly by quiz work, sections of the book are assigned for study and the students are then quizzed on the material. We find we have to vary the method not only with the different classes but in some instances with the different sections of each class. We have no way of measuring our results very accurately. In some instances we feel rather proud, notably when a recent intern was able to make a diagnosis of perinephric abscess which puzzled members of the medical and surgical staff both of our own hospital and of others. We were rather chagrined, however, when, day before yesterday, a man came in with acute gonorrhea and I found one of my students who had graduated less than five years ago had been treating his total acute posterior urethritis by autohemotherapy for three weeks.

DR N G ALCOCK, Iowa City. I believe that this is the first paper dealing with the subject of teaching urology that I have heard presented in this section in fourteen years. It is a timely and important subject to come before the group. It is not so much a question as to how much time in hours is to be given to the teaching of urology as it is a question of how economically those hours can be used. In filling teaching posts in medical schools I am of the opinion that efficiency in the use of the students' time is not always a determining factor in the selection of the teacher and I am quite sure that the teachers are frequently and quite commonly selected on the basis of how many papers they have written and on how well they are known to the profession and of what advertising value they may be to the particular school with which they are affiliated. The demonstration by Dr Barnes gave a good illustration of economy in time in teaching. His moving picture took, I think, about seven minutes. There was nothing particularly new in the subject matter he presented and the physicians in the audience probably learned nothing from it, but to the student who has no background for evaluation of signs and symptoms and information it would be very enlightening. The ordinary student in watching the moving picture of the urethra through which he was passing a catheter would learn more in the three minutes it was on the screen than he would in three hours of didactic teaching. That is the thing which counts. In our medical education discussions we are talking a great deal about the number of hours to be devoted to a subject and what will be taught, but very little, if anything is said as to how it shall be taught. There are two primary qualifications that any good teacher should possess. He should be able to transmit information, to analyze the subject matter and to select only those things which are vital for the student

to know and then to drive those things home. If he will analyze his material and pick out those important points, 50 per cent of his students should pass his course with a grade of at least B. Good teachers are the ones who give many high grades and fail very few students. The other qualification that the good teacher should have, and this is the great one, is the ability to stimulate the student. It is the divine spark in the teacher that will light up the fire in the student. It is something that is born in one and that one can never acquire. If a teacher does not have it he will never be a great teacher. If he does have it, it does not make much difference how he teaches, he will be a great teacher.

DR ROGER W BARNES, Los Angeles. I wish to thank the discussants. I agree with them that we should spend more time in this section on methods of teaching urology to both undergraduate and graduate students.

A SPECIFIC FEBRILE REACTION TO SULFANILAMIDE

DRUG FEVER

P O HAGEMAN, MD
AND
FRANCIS G BLAKE, MD
NEW HAVEN, CONN

During a study of a series of cases treated with sulfanilamide at the New Haven Hospital,¹ a characteristic febrile reaction, which will be described in this paper, was encountered in a fair proportion of the cases. The term drug fever will be used to denote this complication of sulfanilamide therapy. Long and

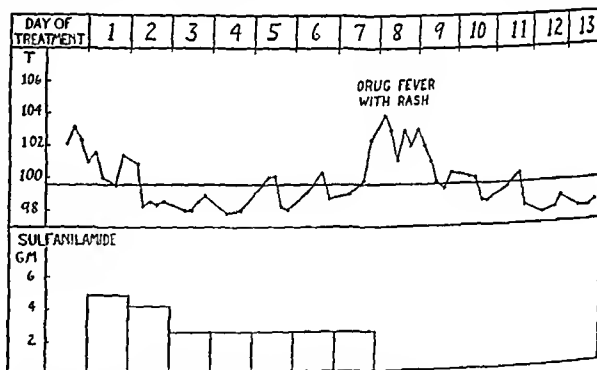


Fig 1 (case 5)—Erysipelas and mastoiditis showing drug fever with a rash

Bliss² have mentioned the occurrence of fever following prolonged administration of sulfanilamide, as well as fever which appears promptly after large single doses of "Prontosil".³ Massell⁴ reported four cases of drug rash in a series of fourteen patients treated with sulfanilamide, but no data pertaining to time relationships and presence or absence of accompanying fever were included.

In a series of 134 cases of various infectious conditions treated with sulfanilamide, the reaction to be described was encountered in twenty-one cases (summarized in the accompanying table), an incidence of

From the Department of Internal Medicine Yale University School of Medicine and the clinical services of the New Haven Hospital. This study was made possible by a grant from the Clinical Research and Teaching Fund Yale University School of Medicine.

¹ Hageman P O and Blake F G to be published.

² Long P H and Bliss Eleanor A. Para Amino-Benzene Sulfonamide and Its Derivatives. J A M A 108 32 (Jan 2) 1937. Arch Surg 34 351 (Feb) 1937.

³ Disodium salt of 4 sulfamidophenyl 2 azo 7 acetyl amino 1 hydroxy naphthalene.

⁴ Massell B F. New England J Med 216 487 (March 19) 1937.

15.6 per cent. Characteristics that distinguish this complication are fever occurring at a definite interval after the institution of sulfanilamide therapy with or without an accompanying morbilliform rash. In the majority of instances the reaction appeared between the seventh and tenth days of sulfanilamide therapy but in a few instances it came on as early as the fourth or as late as the thirteenth day. The onset of the febrile response

varied considerably as evidenced by variations in febrile response from normal to 106 F. As is shown in the table, the average duration of fever was from two to four days, with a definite prolongation in cases in which the drug was continued through the first few days of the reaction.

It will be noted that in four instances the reaction appeared from one to five days after the drug was dis-

Cases of Drug Fever Due to Sulfanilamide

Case No	Age and Sex	Diagnosis	Dosage of Sulfanilamide* Prior to Reaction				Drug Fever				Drug Discontinued			Comments
			Per Day			Total	Day of Treatment Reaction Appeared	Height of Fever	Duration in Days	Rash	Days Before Reaction	Day of Reaction	Days After Reaction	
			Gm	Interval	Days	Gm								
1	10 ♂	Acute purulent otitis media beta hemolytic streptococci	0.9 0.6	q 6 h q 6 h	4 6	21.9	10	10	101.2	2	Morbilliform	1st		
2	16 ♀	Pharyngitis beta hemolytic streptococci cervical adenitis	1.2 0.6	q 6 h q 6 h	6 4	31.2	10	10	100.5	2	Morbilliform	1st		
3	8 ♂	Mastoiditis beta hemolytic streptococci sinusitis tonsillitis	0.9 0.6	q 6 h q 6 h	6 3	27	9	9	99.6	2	Morbilliform	1st		
4	7 ♂	Tonsillitis beta hemolytic streptococci cervical adenitis	0.9 0.6	q 6 h q 6 h	6 4	28.8	10	10	101.2	2	Morbilliform	1st		
5	70 ♂	Erysipelas mastoiditis	1.2 0.6	q 1 d q 1 d	2 3	20.7	7	7	104.0	3	Morbilliform hemorrhagic	1st		
6	22 ♀	Bronchiectasis beta hemolytic streptococci	1.2	q 6 h	9	37.2	9	5	102.0	3	Morbilliform urticarial	1st		
7	61 ♂	Erysipelas nephrosclerosis	1.2 0.6	q 6 h q 6 h	4 5	19.2	9	8	103.0	4	Morbilliform	2		
8	53 ♀	Erysipelas acute purulent otitis media	1.2 0.6	q 6 h q 6 h	6 2	25.2	8	9	102.2	3	Morbilliform	1		
9	5 ♀	Pharyngitis beta hemolytic streptococci cervical adenitis	0.6	q 6 h	5	9.6	5	10	100.6	2	Morbilliform	0	Reaction occurred at home	
10	24 ♂	Pharyngitis beta hemolytic streptococci	1.2 0.6	q 6 h q 6 h	3 7	30	10	10	102.4	3		1st		
11	49 ♂	Abscess of scalp beta hemolytic streptococci	1.2 1.2 0.9	q 6 h q 6 h q 6 h	3 4 6	36.4	13	13	104.6	7		6+		
12	61 ♀	Erysipelas	1.5 0.9 0.6	q 6 h q 6 h q 6 h	2 2 3	26.3	7	7	102.0	3		1st	Cerebral hemorrhage 8 days after sulfanilamide was discontinued died	
13	15 ♀	Pansinusitis beta hemolytic streptococci	1.2 0.6	q 6 h q 6 h	3 4	20.2	7	7	100.5	5		2d	Toxic psychosis with drug fever	
14	31 ♀	Sinusitis beta hemolytic streptococci pharyngitis	1.0 0.9 0.6	q 6 h q 6 h q 6 h	3 2 2	26.1	7	7	101.8	3		2		
15	14 ♂	Adenitis axillary beta hemolytic streptococci diabetes mellitus terminal ileitis	0.0	q 6 h	6	18	6	7	101.5	2		1		
16	0 ♂	Scarlet fever	0.0	q 6 h	4	14.4	4	4	103.0	7		7th	Drug fever merged with fever of infection	
17	13 ♀	Measles beta hemolytic streptococci mastoiditis	0.9	q 6 h	4	12.6	4	4	104.4	9		4th	Drug fever merged with fever of meningitis	
18	34 ♀	Meningococcus meningitis	2.8† 0.3 1.2	q d b i d q 6 h	1 2 7	33.4	8	8	103.4	4		1st		
19	35 ♂	Meningococcus meningitis	2.8† 0.24† 0.24†	q d t i d q d	1 1 3	24.9	7	7	103	4		3d		
20	18 ♀	Acute gonorrheal salpingitis	1.2 0.9	q 6 h q 6 h	3 3	20.1	6	6	100.4	0		2d		
21	54 ♀	Erysipelas of leg ? cholecystitis	1.0 0.9	q 6 h q 6 h	3 4	23	7	7	106	4		1st	Hepatitis with drug fever	

* Discrepancies between per day and total columns depend on the time of day the dosage of sulfanilamide was begun, changed or discontinued. Sulfanilamide was given orally unless otherwise stated.
† Sulfanilamide was given subcutaneously.
‡ Sulfanilamide was given intrathecally.

was quite abrupt in many instances. Malaise, nausea, itching and tinnitus were the only subjective symptoms noted accompanying drug fever.

A rash accompanied the febrile reaction in nine cases. It was usually a maculopapular erythema, but definite hemorrhagic lesions as well as urticaria-like wheals were noted. The individual lesions varied in size from 0.3 to 4 cm. In the majority of instances the rash involved the face, trunk and extremities, usually being most marked over the buttocks, knees and back, where it tended to become confluent. Itching was present in the majority of instances. The severity of the reaction

continued. In two cases fever subsided in spite of continued administration of the drug. It is also of interest that in the majority of the remaining cases the dosage of sulfanilamide had already been reduced when the reaction made its appearance. Hepatitis with jaundice and stupor was present with the febrile response in one instance.

Laboratory data obtained during drug fever was variable. Leukocyte counts varied from 7,000 to 48,000, and the percentage of polymorphonuclear neutrophils varied from 63 to 95. Eosinophils were present in one half of the cases and ranged from 1 to 6 per cent.

Attempts to demonstrate the presence of precipitins for sulfanilamide in the blood serum during and following the reaction have failed, as have attempts to demonstrate sensitivity by patch and intradermal tests. Passive sensitization tests in human beings and guinea-pigs have also yielded negative results. Attempts to produce anaphylaxis and skin hypersensitivity in guinea-pigs have likewise failed.

REPORT OF CASES

To illustrate this specific reaction to sulfanilamide in detail, the following case histories are presented.

CASE 5 (fig 1)—Facial erysipelas, acute mastoiditis. A white man, aged 70, was admitted because of a spreading red lesion of the face of three days' duration. One month previously he had a cold, following which the left ear began to drain. Examination revealed a typical erysipelatosus lesion, discharging ear and tenderness over the left mastoid region. Culture of the ear showed beta-hemolytic streptococci. X-ray examination of the mastoid showed acute mastoiditis.

Treatment.—Sulfanilamide 12 Gm by mouth four times a day was given for two days, then 0.6 Gm by mouth four times a day for five days, a total of 207 Gm of sulfanilamide in seven days.

Result.—Erysipelas and mastoiditis subsided.

Reaction to Drug.—Cyanosis appeared during the first few days of treatment. On the seventh day the temperature rose

nation revealed dullness, increased voice and breath sounds and moist râles at the left base. X-ray examination of the chest after the injection of iodized poppy-seed oil showed bronchiectasis of the left lower lobe. Cultures of the sputum and bronchoscopic drainage revealed a predominance of beta-hemolytic streptococci. As the patient was to have a lobectomy, sulfanilamide was administered in an effort to rid the lung of beta-hemolytic streptococci.

Treatment.—Sulfanilamide 12 Gm by mouth every six hours was given for nine days, a total of 372 Gm in nine days.

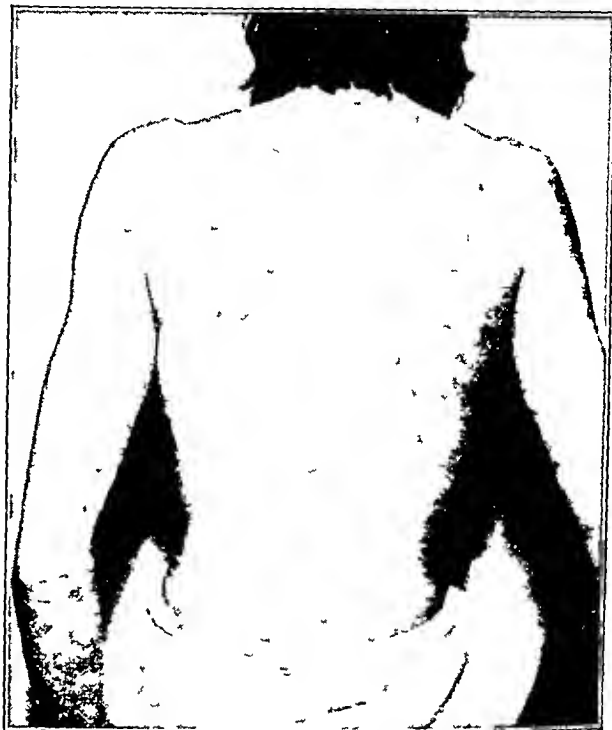


Fig 3 (case 6)—Drug fever with a rash

Result.—Beta-hemolytic streptococci disappeared from bronchoscopic cultures on the eighth day of treatment.

Reaction to Drug.—Cyanosis developed during the first two days of drug administration. On the eighth day of treatment, fever followed by a generalized rash appeared, morbilliform to urticarial in type (figs 3 and 4). In addition, pruritus, anorexia and slight nausea were noted. Rash and symptoms subsided in three days.

CASE 13 (fig 5)—Acute streptococcal pansinusitis. A white girl, aged 15, was admitted because of swelling of the left eye and a nasal discharge. Three weeks before, the patient had had a "cold" and five days before developed frontal headache and profuse nasal discharge. Swelling of the left eye developed two days before admission. Examination revealed tenderness over the left frontal sinus. The left eye was swollen, especially at the inner canthus. There was a profuse purulent discharge from both nares. Culture of the nose showed predominance of beta-hemolytic streptococci. X-ray examination showed pansinusitis.

Treatment Prior to Reaction.—Nasal suction was applied daily. Sulfanilamide 12 Gm by mouth every six hours was given for three days, then 0.6 Gm by mouth every six hours for four days, a total of 25.2 Gm in seven days.

Result.—Sinusitis and swelling of the eye subsided completely.

Reaction to Drug.—Cyanosis promptly appeared after sulfanilamide was started. After a slight rise in temperature on the sixth day of treatment, the temperature suddenly rose to 105.5 F on the seventh day. No rash appeared. At first the fever was thought to represent a spread of infection, perhaps cavernous sinus thrombosis, brain abscess or meningitis, and sulfanilamide was increased to 1.2 Gm. every six hours for one day. Blood cultures were repeatedly negative. Culture of the nose at the time was negative for beta-hemolytic streptococci.



Fig 2 (case 5)—Morbilliform rash with definite hemorrhagic lesions

sharply and a diffuse morbilliform rash appeared. The rash became hemorrhagic on the eighth day, and pruritus was marked (fig 2). The only other systemic reaction noted was malaise. Rash and fever subsided in three days.

CASE 6—Chronic bronchiectasis. A white woman, aged 22, was admitted because of a cough of twelve years' duration. Subsequent to measles and whooping cough at 10 years of age, the patient began to raise foul, purulent sputum. Head colds accompanied by postnasal discharge had been frequent. Hemoptysis was noted on one occasion five years before. Exami-

High fever persisted and no localizing signs developed. A definite toxic psychosis accompanied the high fever. Sulfanilamide was discontinued on the third day of the reaction and the fever subsided gradually during the next two days. Recovery was uneventful.

CASE 17—*Streptococci meningitis and mastoiditis* A white girl, aged 13 years, entered the hospital because of an acute exacerbation of a chronic otitis media. Seven days before admission she had had a cold and five days later severe pain developed in the left ear. Chills, fever, nausea, vomiting, headache and stiff neck developed on the day of admission. Examination revealed stiff neck and bilateral Kernig signs. Marked nystagmus was present on looking to the right. The left ear drum was perforated and a discharge was noted in the canal. There was no mastoid tenderness. A culture of the discharge from the ear showed beta-hemolytic streptococci. The spinal fluid was cloudy and contained 850 cells (97 per cent polymorphonuclears). Smear and culture of the spinal fluid were negative for organisms. Mastoidectomy was done at once and culture of the mastoid cells contained beta-hemolytic streptococci. On the second postoperative day the temperature rose sharply. The spinal fluid contained beta-hemolytic streptococci on the third postoperative day.

Treatment Prior to Reaction—Sulfanilamide 0.9 Gm by mouth every six hours (starting on the second postoperative day) was given for four days, a total of 12.6 Gm in four days.

Result—Mastoiditis and meningitis subsided.

Reaction to Drug—Cyanosis appeared promptly after the drug was started. On the fourth day of treatment the fever began to rise, before the fever of the disease had subsided.

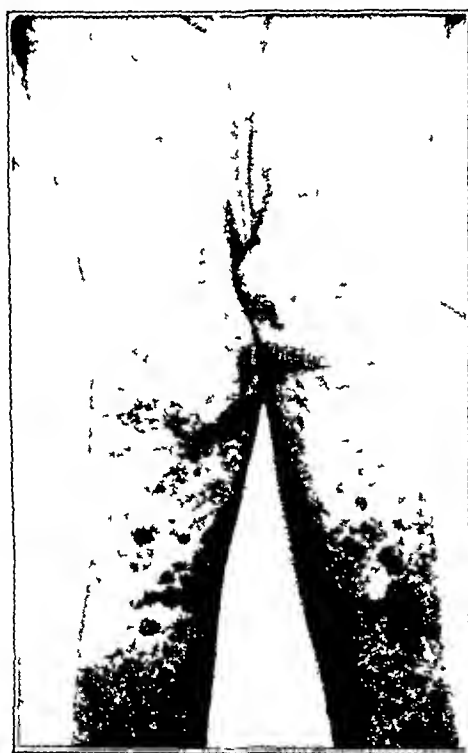


Fig. 4 (case 6)—Morbilliform rash with urticaria like wheals

Thinking that this represented a spread of the infection, we increased the dosage of sulfanilamide on the sixth day of treatment to 12 Gm every six hours. However, at this time meningeal signs had decreased and blood and spinal fluid cultures proved to be sterile. Nausea and malaise were the only subjective complaints during the reaction. Fever subsided after the drug was discontinued on the seventh day of treatment. Recovery thereafter was rapid and complete.

CASE 20—*Acute gonococcal salpingitis* A white woman, aged 18 years, was admitted complaining of pain in both lower

quadrants, dysuria and a vaginal discharge of two days' duration. The husband was known to have gonorrheal urethritis. Examination revealed tenderness in both lower quadrants, a profuse vaginal discharge, tenderness in both fornices, and a questionable mass in the right adnexal region. Smears from the urethra and cervix showed numerous gram-negative intracellular diplococci.

Treatment Prior to Reaction—For three days 12 Gm of sulfanilamide by mouth every six hours was given, then for three days, 0.9 Gm every six hours, a total of 23.1 Gm in six days.

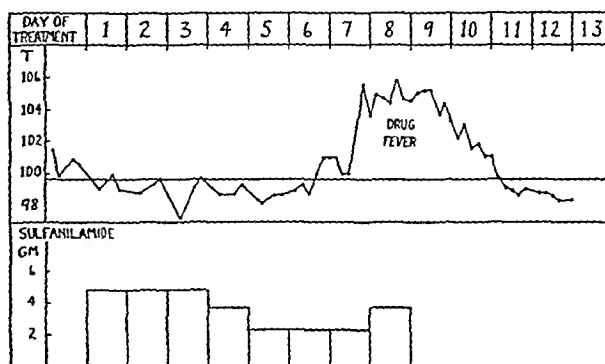


Fig. 5 (case 13)—Pansinusitis with drug fever

Result—The discharge ceased, pelvic examination became negative and a smear from the cervix showed "occasional gram-negative cocci" at the time of the discharge of the patient from the hospital.

Reaction to Drug—Low grade fever and cyanosis were present during the second and sixth days of treatment. On the sixth day the temperature rose to 101.8 F and on the seventh day it reached 104.8 F. The drug was discontinued at this point and the temperature fell during the next two days. Malaise and tinnitus were quite marked during the febrile period. Recovery was uneventful.

CASE 21—*Erysipelas of leg ? Cholecystitis* A white woman, aged 53, was admitted with a story of chills, fever and a spreading red lesion on the left leg of five days' duration. Intermittent pain in the right upper quadrant had been present for years. The alcoholic intake had been excessive for the past four or five years. The patient was obese and there were varicosities and a typical erysipelatosus lesion of the leg. Some tenderness was noted in the right upper quadrant. Nonprotein nitrogen was 43 mg per hundred cubic centimeters.

Treatment—Sulfanilamide 1.5 Gm by mouth every six hours was given for three days, then 0.9 Gm every six hours for four days, a total of 33 Gm in seven days.

Result—The erysipelas cleared fairly promptly.

Reaction to Drug—Cyanosis was rather extreme, spectroscopic examination of the blood revealed evidence of methemoglobinemia, which by oxygen capacity studies was found to represent 16 per cent of the total hemoglobin. On the seventh day of treatment there was a sharp rise in temperature associated with jaundice and enlarged tender liver but no rash. The icteric index was found to be 40 and the nonprotein nitrogen had risen to 63. The bromsulphalein test revealed 40 per cent retention of the dye at thirty minutes. After the drug was discontinued the fever subsided over a period of three days. The jaundice gradually subsided. Eleven days after sulfanilamide had been discontinued the liver function had improved somewhat, there being a retention of 30 per cent of the bromsulphalein at thirty minutes. The icteric index was 30 and nonprotein nitrogen 29 at this time. The patient left the hospital against advice but seemed to be making an uneventful recovery at the time.

COMMENT

The reactions to sulfanilamide observed in this group of twenty-one cases seem to have definite characteristics that fall quite naturally into a single group. The similarity between drug fever and serum sickness is

rather striking. The time interval, the fever and the rash are characteristics common to the two. Generalized adenopathy and arthritis have not been observed in this series. The fact that the reaction occurs after the drug has been decreased in dosage or even discontinued suggests that it is not the immediate concentration of sulfanilamide in the body at the time of the reaction which is responsible for drug fever but rather that sulfanilamide itself or in a combined or changed form is antigenic. Thus far attempts to throw light on the mechanism of the reaction have failed.

As far as is known, drug fever has produced no permanent injury in this group of cases. Its occurrence, however, creates distinct diagnostic difficulties, especially in the absence of a rash and in cases in which the fever of the disease merges with drug fever.

TREATMENT OF LEFT VENTRICULAR FAILURE

FRED M. SMITH, M.D.
IOWA CITY

That failure of the left ventricle may occur before failure of the right ventricle, resulting in pulmonary congestion with perhaps little or no engorgement of the peripheral veins, explains the basic factors in the production of paroxysmal dyspnea commonly referred to as cardiac asthma. The conception of left ventricular failure is not new, for, as pointed out by White,¹ Weiss and Robb² and Harrison,³ it was clearly described by Hope in 1833. Unfortunately, however, it has been overlooked or disregarded for the most part by the recent generations of our profession until the past few years.

In the cardiac disability resulting from hypertension, arteriosclerosis of the coronary arteries, syphilitic aortitis and disease of the aortic valve, the dominant effect is on the left ventricle. This may finally terminate in insufficiency of the left ventricle before there is corresponding reduction in the functional capacity of the right ventricle, resulting in pulmonary congestion and thus a reduction in the vital capacity. Shortness of breath on exertion is often the first symptom and may be the only subjective manifestation for months. In some instances angina pectoris is the first expression of the cardiac disability and in others there is a history of severe and lasting anginal pain indicative of coronary thrombosis. Later, with further suppression of the function of the left ventricle without corresponding effect on the right ventricle and with the resulting increase in pulmonary congestion and the consequent reduction in the vital capacity, paroxysmal dyspnea may occur. Occasionally the occurrence of paroxysmal dyspnea is the first intimation of cardiac disease and under these circumstances is usually the immediate result of coronary thrombosis. Ordinarily, however, the conditions predisposing to paroxysmal dyspnea develop gradually. The attacks are precipitated by factors that increase the demands on the heart. They

may appear during the day following exertion or excitement, but later, in the course of the cardiac disability, they usually occur at night, awakening the subject from sleep.

Harrison and his co-workers,⁴ in the study of this subject, point out that various factors such as cough, abdominal distention, nightmares or dreams, and the desire to urinate, may precipitate nocturnal attacks and state that coughing, incident to the pulmonary congestion, and perhaps the associated bronchitis, is the most common and effective exciting agent. They have demonstrated that coughing produces a marked increase in the respiratory rate and conclude that this accelerates the return of the venous blood to the right side of the heart, which in turn aggravates the pulmonary congestion and thereby promotes the possibilities for continuation of the coughing. Thus a vicious cycle is perhaps instituted, which, unless interrupted, may progress to pulmonary edema and terminate in death. Of the various other factors that may contribute to the onset and progression of the paroxysmal dyspnea, apprehension deserves particular emphasis. After a few attacks, especially of the severe form, apprehension plays a significant rôle in precipitating subsequent attacks and no doubt is an important factor in producing the elevation of blood pressure. It is well to bear in mind that an abrupt increase in the already existing pulmonary congestion is primarily responsible for the paroxysmal dyspnea, regardless of the nature of the exciting agent.

Structural alterations of the heart are usually apparent from the increase in the size, particularly involving the left ventricle, the presence of gallop rhythm and possibly systolic apical murmur. Occasionally the gallop rhythm is the most conspicuous manifestation. There is often the history or presence of hypertension and it is frequently possible to demonstrate pulsus alternans. The intensity of the pulmonic second sound is commonly accentuated, more especially during attacks of paroxysmal dyspnea, because of the increased tension of the pulmonary circulation. The electrocardiogram often shows significant alteration of the character observed in disease of the coronary arteries. Pulmonary congestion is a prominent feature, generally evident from physical examination but more apparent from a roentgenogram. The reduction in the vital capacity reflects the extent of the pulmonary congestion and serves as a valuable guide in following the results from treatment.

During attacks of paroxysmal dyspnea the labored breathing, the apprehension and the pulmonary congestion, with perhaps edema, as evidenced by moist, sibilant and musical râles, dominate the picture. The cardiac rate is invariably accelerated and the blood pressure generally elevated above the usual level. Other changes, such as the gallop rhythm and the accentuation of the pulmonic second sound, are commonly prominent. In the more severe attacks the cyanosis, perhaps more often the ashen gray color, the profuse cold perspiration and pulmonary edema are conspicuous features.

In the consideration of the treatment it is important to bear in mind the following aspects of the condition:

1. An inadequate coronary circulation is commonly a prominent factor in the production of the cardiac disability.
2. Insufficiency of the left ventricle results in pulmonary congestion.

Read before the Section on Practice of Medicine at the Eighty Eighth Annual Session of the American Medical Association, Atlantic City, June 9, 1937.

¹ White, P. D. Weakness and Failure of the Left Ventricle Without Failure of the Right Ventricle. *Clinical Recognition* J. A. M. A. 100:1993 (June 24) 1933.

² Weiss, Soma and Robb, G. P. Cardiac Asthma (Paroxysmal Cardiac Dyspnea) and the Syndrome of Left Ventricular Failure. J. A. M. A. 100:1841 (June 10) 1933.

³ Harrison, T. R. Failure of the Circulation. Baltimore: Williams & Wilkins Company, 1935. p. 6.

⁴ Harrison, T. R., Calhoun, J. A. and Harrison, W. C. Congestive Heart Failure. XI. Observations Concerning the Mechanism of Cardiac Asthma. *Arch. Int. Med.* 53:911 (June) 1934.

3 With the progression of the cardiac disability and the maintenance of a disproportion between the efficiency of the left and right ventricles, a stage is finally reached which permits the occurrence of paroxysmal dyspnea.

4 The attacks are precipitated by factors that impose excess demands on the left ventricle. The onset in the more severe form often intensifies the exciting agent and initiates other factors which promote the pulmonary congestion, and thus a vicious cycle may be produced.

TREATMENT OF PAROXYSMAL DYSPNEA

The nocturnal attacks are usually aborted by the patient's assuming the upright position. The more severe form, however, is a major cardiac emergency and demands prompt and energetic treatment. Morphine sulfate 15 mg (one-fourth grain) is the most effective remedy and should be administered immediately and repeated if necessary. The effectiveness of this drug is due, no doubt, to the wide range of action involving both the function of the left ventricle and the pulmonary congestion. In the first place it curtails the demands on the left ventricle by eliminating anxiety and restlessness and the effect of these on the blood pressure. Moreover, morphine depresses the respiratory center, suppresses coughing and by these, and perhaps other means, reduces the tendency toward the progression of the pulmonary congestion.

The intravenous administration of theophylline with ethylenediamine 0.48 Gm in from 50 to 100 cc of 50 per cent dextrose solution is also very effective in preventing and abolishing attacks. This should be administered slowly. Improvement is usually apparent shortly after the injection is instituted, as evidenced by the influence on respiration and the relaxing effect on the patient. The results are attributed to the favorable action on the coronary circulation and the resulting increased efficiency of the left ventricle. Recently Greene, Paul and Feller⁵ of the University of Iowa have demonstrated that theophylline with ethylenediamine produces a marked reduction in the venous and intrathecal pressure. They have also verified the observation that it will frequently eliminate the bronchial obstruction of bronchial asthma and that it has similar action in paroxysmal dyspnea. The hypertonic dextrose solution is believed to enhance the effect of theophylline with ethylenediamine on both the heart and the pulmonary congestion.

In my practice, digitalis in the form of digifoline from 2 to 6 cc is often added to the theophylline with ethylenediamine and dextrose solution in order to produce the maximum effect on the left ventricle. The intramuscular or intravenous administration of ouabain 0.5 mg ($\frac{1}{12}$ grain) or amorphous strophanthin 1 mg ($\frac{1}{16}$ grain) is often recommended because of the prompt and powerful action. These drugs are dangerous if given in larger doses or if digitalis has been used.

Venesection is a valuable measure, particularly in the plethoric type of individual. The rapid withdrawal of 500 cc of blood from the veins of the arm at once reduces the venous return to the right side of the heart and thereby decreases the pulmonary congestion. It also diminishes the load on the left ventricle through the reduction in the blood pressure and the viscosity of the blood.

Similar effects with regard to the pulmonary congestion may be obtained by the procedure referred to as

venostasis, recommended by Danzer,⁶ Weiss and Robb⁷ and Harrison.⁸ The principle of the procedure is based on the reduction of the venous return to the right side of the heart through trapping the blood in the four extremities. This may be accomplished by the application of the cuff of a clinical sphygmomanometer as high up as possible on each of the extremities and the inflation of these to the pressure of from 60 to 80 mm of mercury. With the subsidence of the attack the pressure may be gradually released from one extremity at a time.

If the attack continues after one or more of these measures have been employed, the administration of oxygen should be instituted by nasal catheter if a tent or oxygen chamber is not available. In fact one should never rely on one remedy but combine as many as the circumstances justify.

Other drugs, such as glyceryl trinitrate, atropine and epinephrine, have been recommended in the treatment of paroxysmal dyspnea. With excessive elevation of blood pressure the use of glyceryl trinitrate is indicated because of its effect on arterial tension and action on the coronary circulation. It is doubtful however, that atropine has any significant value, and the administration of epinephrine is not advisable in disease of the coronary arteries.

The subsequent treatment consists of

1 Bed rest for from four to six weeks with complete relaxation and adequate sleep.

2 Simple diet with plenty of carbohydrates.

3 Regulation of the bowels by simple measures such as the administration of liquid petrolatum.

4 The administration of theophylline with ethylenediamine from 0.1 to 0.2 Gm ($\frac{1}{2}$ to 3 grains) from three to four times a day, digitalis (powdered leaf) 0.1 Gm ($\frac{1}{16}$ grains) three times a day for from five to six days and thereafter once a day, and the use of a mercurial diuretic if necessary to eliminate the pulmonary congestion.

5 Later the elimination or the control as far as possible of factors promoting the cardiac disability and finally the careful extension of the physical activities.

Time does not permit the discussion of each of these aspects of the treatment. Certain of them, however, deserve mention. The first concerns the prevention of the return of the nocturnal paroxysmal dyspnea. Adequate sleep is essential to the restoration of the cardiac function and is best obtained by the use of morphine. This medication is seldom required for more than a few nights. Thereafter simple sedatives, particularly when supplemented by theophylline with ethylenediamine, will produce the desired sleep and prevent the recurrence of paroxysmal dyspnea. The theophylline with ethylenediamine is more effective when given intravenously shortly before bedtime and, in my practice, is usually administered in 50 per cent dextrose solution. This method of use is reserved for the more advanced forms of cardiac disability and is ordinarily discontinued after a few days. The oral administration of theophylline with ethylenediamine is generally employed and continued indefinitely. The results from the prolonged use of the theobromine and theophylline preparation have been reported by Gilbert and Kerr⁹ and by me in collaboration with Rathe and Paul.⁸ Digitalis is necessary with auricular fibrillation.

6 Danzer, C. S. Pathogenesis and Treatment of Dyspnea in Light of Recent Experiments. *Ann. Int. Med.* 2: 239 (Sept.) 1928.

7 Gilbert, N. C. and Kerr, J. A. Clinical Results in the Treatment of Angina Pectoris with Purine Base Diuretics. *J. A. M. A.* 92: 201 (June 19) 1929.

8 Smith, F. M., Rathe, H. W. and Paul, W. D. Theophylline in the Treatment of Disease of the Coronary Arteries. *Arch. Int. Med.* 56: 1250 (Dec.) 1935.

5 Greene, J. A., Paul, W. D. and Feller, A. E. The Action of Theophylline-Ethylenediamine on Venous and Intrathecal Pressures and on Bronchial Obstruction to be published.

and the intermittent use in small 0.1 Gm ($1\frac{1}{2}$ grain) doses daily is believed to be advisable with normal cardiac mechanism.

Finally the duration of rest and the subsequent extension of the physical activities deserve particular emphasis. The restoration of the heart to the maximum efficiency is obviously the primary objective. In view of the extent of the disability of the left ventricle this is not possible except by a long period of rest followed by the rehabilitation of the heart through the gradual and careful supervised extension of the physical activities. This aspect of the treatment is frequently slighted and no doubt is commonly responsible for the early return of symptoms. The patient should not be permitted to be up and about until long after the pulmonary congestion has disappeared. The subject, however, may have been free from nocturnal paroxysmal dyspnea for weeks and still have extensive pulmonary congestion. The determination of the vital capacity at weekly intervals provides a valuable means of following this feature of the recovery. If there is any question concerning the condition of the lungs, however, a roentgenogram should be taken. In the more advanced cases the use of salyrgan, perhaps preceded by the administration of ammonium chloride, may be necessary to eliminate the pulmonary congestion. The following case is cited because of the rather typical course and the difficulty encountered in controlling the pulmonary congestion.

G. F., aged 71, was first examined by me in December 1934. He had noticed shortness of breath for from three to four years and experienced the first attack of paroxysmal dyspnea in October 1933. In the spring of 1934, while returning from Florida, he was compelled to restrict his activities on two occasions because of asthmatic-like attacks. He had been awakened from sleep because of dyspnea for three or four nights prior to the examination. He weighed 200 pounds (91 Kg.), whereas the weight had formerly been 220 pounds (100 Kg.) for several years. The heart was quite large, the tones were poorly differentiated and there was an occasional premature beat. The systolic pressure was 190 and the diastolic 120 mm of mercury. Scattered rales were heard over the bases of the lungs. The electrocardiogram showed slurring of the QRS complexes, left axis deviation and negative T deflection in lead I. He was advised to take more rest and to avoid shortness of breath, and was prescribed theophylline with ethylenediamine 0.2 Gm (3 grains) three times a day and digitalis (powdered leaf) 0.1 Gm ($1\frac{1}{2}$ grains) once daily. The subsequent course was quite satisfactory until the appearance of the hot weather in July 1936, when the nocturnal dyspnea returned. In September, while away from home, he had very severe attacks. His wife mentioned in particular the ashen gray color and the profuse cold perspiration. With a period of rest he again improved, but following an upper respiratory infection in December 1936 he began to have frequent attacks of nocturnal dyspnea.

When admitted to the University Hospital in February 1937 he was very much worn out from the loss of sleep and weighed 180 pounds (82 Kg.). Slight exertion produced dyspnea, yet there was no significant distention of the jugular veins. The cardiac rate was moderately accelerated. There was a pronounced gallop rhythm, pulsus alternans and extensive congestion of the lungs. The systolic pressure was 170 and the diastolic 90 mm of mercury. The vital capacity was 1.5 liters. The treatment was as previously outlined. After five weeks of bed rest with sound sleep during the night and freedom from respiratory distress there was still extensive congestion of the lungs. This was eliminated by the use of salyrgan and ammonium chloride. Despite the continuation of the bed rest the pulmonary congestion returned in three or four weeks and was again eliminated by the mercurial diuretic administration in the form of suppositories. This patient is now up in a chair for a few hours each day, states that he feels fine, and presents a vastly improved general appearance, but it is obviously unwise to permit extension of his activities until the pulmonary congestion is controlled.

SUMMARY

Left ventricular failure characterized by the occurrence of paroxysmal dyspnea is a common form of cardiac disability. The treatment is concerned with the control of the paroxysmal dyspnea and the subsequent restoration of the cardiac function to the maximum efficiency. Ordinarily the attacks are readily abolished by the measures generally employed in the treatment of cardiac failure. The more severe form, however, is a major cardiac emergency and demands prompt and energetic treatment.

ABSTRACT OF DISCUSSION

DR. N. C. GILBERT, Chicago: Dr. Smith's paper concerns the treatment of an emergency frequently encountered and is of immediate and practical value. I would like to emphasize a point or two in which I am especially interested. The most important point which Dr. Smith brought out is the use of theophylline ethylenediamine in the treatment of the acute attack. I do not think that the fullest possible use is made of this and related preparations or that their value is fully appreciated. In many types of animal experiments, theobromine and theophylline have been shown to increase the coronary flow, and this has been substantiated by the clinical experiences of many observers over a long period. Dr. Smith has said that an inadequate coronary circulation is an important factor in the production of the cardiac disability, which is the basis of these attacks, and that the attacks themselves are precipitated by factors which impose an excess load on the heart. It would seem logical, then, to do as Dr. Smith has done and make use of a therapeutic agent to increase the coronary flow to the heart and to the left ventricle, and to combine this with the hypertonic dextrose solution to add further in overcoming the pulmonary edema which is part of the picture. I wonder how much of the cardiac disability following hypertension or resulting from coronary sclerosis, syphilis or old rheumatic carditis could be delayed or mitigated, if not prevented, by the early and continuous use of theobromine or theophylline preparations by mouth over a long period. I am sure that Dr. Smith will agree with me that they would be of definite value. Dr. Smith has shown the effect of theophylline in increasing the blood flow to the area of heart muscle deprived of its normal blood supply. Dr. Fenn and I believe, from our clinical experience that we have reason to assume a permanent improvement in the blood supply to the heart muscle induced by the long coronary dilatation and a consequent increase in anastomoses. Dr. Smith has spoken of the continuous use of theophylline by mouth in patients with left ventricular failure and paroxysmal dyspnea. This is of special value for the double purpose of improving coronary flow and of helping to eliminate any residual edema. It is of great importance that the lungs be edema free. We have reason to think that the presence of the edema predisposes to the acute attack. If edema does persist, we should make use of one of the acid base salts and a mercurial diuretic, as has been stated by the essayist. Digitalis may or may not be of value and it should be used in chosen cases with judgment and discrimination, and not in a routine manner. The use of glyceryl trimurate in cases associated with hypertension I consider of great value both for its effect on the coronary flow and for its effect on decreasing blood pressure. Morphine is, of course, almost a necessity. Between the attacks I consider the milder barbiturates of great value in quieting the apprehension which is undoubtedly a large factor in the attack. I also think venesection is overlooked and not used as much as it should be.

DR. R. D. BOCK, Corning, Ohio: I should like to ask a question. Morphine is emphasized, but I find patients who can't take morphine. How about codeine? That is what I have been using. It seems to work all right. Is there any objection to it?

DR. FRED M. SMITH, Iowa City: It is true that occasionally a patient is intolerant to morphine. Under such circumstances I usually use some other preparation. Codeine may serve the purpose.

LOBELINE SULFATE

ITS PHARMACOLOGY AND USE IN THE TREATMENT
OF THE TOBACCO HABIT

IRVING S. WRIGHT, M.D.

AND

DAVID LITTAUER, M.D.

NEW YORK

It is now generally accepted that the use of tobacco is definitely contraindicated in many conditions in which the circulation is impaired.¹ It often becomes necessary, therefore, for physicians to insist that patients suffering from such impairment stop the use of tobacco completely in any form and for the rest of their lives. We have advised termination of the tobacco habit in more than 100 cases during the past two years. If the physician is emphatic enough, pointing out clearly the dangers of continuing, the task can be accomplished in many instances without the strain anticipated by the patient. A certain percentage always remain, however, to whom sudden or even gradual deprivation of tobacco is a hardship. For this group substitutions such as gum chewing have been recommended from time to time but have been found generally unsatisfactory.

Recently Dorsey² presented an encouraging report on the use of lobeline sulfate as an aid to the breaking of the tobacco habit. The drug was recommended to be given orally in capsules, each containing 0.008 Gm (one-eighth grain), one capsule being taken every time a desire for a smoke was experienced. After a period of a few days, according to Dorsey's report, the desire for tobacco disappeared and the lobeline sulfate was gradually discontinued, leaving the patient with increased appetite and sense of well being and without the craving for "a smoke." A few unpleasant side actions such as nausea, anorexia and metallic taste were noted, but it was stated that these were only temporary and outweighed by the benefits.

Because a drug which would enable the confirmed smoker to give up this habit without hardship would be of obvious importance, and because lobeline resembles nicotine so closely in many of its pharmacologic properties, we undertook to determine whether or not it possessed any of those very actions which interdict nicotine for patients suffering from disease of the peripheral circulation and whether it could safely be widely used to help "cure" the tobacco habit.

PHARMACOLOGY

Lobeline³ is the principal alkaloid of *Lobelia inflata*, popularly known as Indian tobacco because it was believed to have been used by the aborigines in place of tobacco, although the Lloyds⁴ question seriously whether the Indians ever made use of the plant in the manner of a tobacco. Other alkaloids of the *Lobelia*

plant include lobelanine, lobelamine and lobelidine, with similar but weaker properties. The principal effects of the drug are considered as due to its action on the respiratory and vomiting functions and on the autonomic ganglions.

Edmunds⁵ believes emesis to be the main action of the drug in warm blooded animals, holding most symptoms secondary to the vomiting, which is medullary in origin. *Lobelia* was, in fact, the most important member of the class of "emetics" used by Sir Samuel Thomson and his followers in the early nineteenth century.⁴

In small doses lobeline has been held to be a powerful respiratory stimulant, lowering the threshold to carbon dioxide. In experimental animals large doses of it or its salt produce muscular twitchings, convulsions and even death from paralysis of the respiratory center.⁶ Because of its effect on the respiration the drug has been widely recommended in cases of narcotic poisoning, coal gas asphyxia and infectious diseases such as pneumonia,⁷ in respiratory failure during both general and spinal anesthesia⁸ and in asphyxia neonatorum.⁹ A considerable body of evidence has accumulated, however, discouraging the use of lobeline salts in respiratory failure. Curtis and Wright¹⁰ have found that the doses necessary to produce breathing have widespread effects on other systems, such as the heart, which may be dangerous. Others¹¹ have demonstrated that the drug is most effective when respiratory depression is slight or does not exist at all, while in profound depression the respiratory stimulus is often negligible. Camp,¹² after experimental studies on dogs, concluded that the drug was not a specific stimulant of the respiratory center and that all the other effects which it produces are due to the nicotine-like action on the autonomic ganglions. Following the work of Norris and Weiss,¹³ carbon dioxide has been widely used in place of lobeline to combat anesthesia asphyxia.

The direct and indirect effects on the general circulation have been carefully studied by several groups of observers.¹⁴ Lobeline causes sinus arrhythmia, partial bundle branch block and ventricular extrasystoles. After an initial pressor effect with rapid rise in the blood pressure there is a prolonged and dangerous fall below original levels, due probably to paralysis of the ganglions along the course of the vasomotor fibers and to direct poisonous action on the heart muscle. The drop in blood pressure is especially pronounced in deeply anesthetized animals.

5 Edmunds C W. On the Action of Lobelin. *Am J Physiol* 11: 79, 1904.

6 Wieland Hermann and Mayer Rudolf. *Pharmakologische Untersuchungen am Atemzentrum*. II. *Arch f exper Path u Pharmacol* 92: 195, 1922. Edmunds⁵.

7 Wieland H, Eckstein A and Rominger E. *Pharmakologische und klinische Beobachtungen über die Wirkung des kristallisierten Lobelins auf das Atemzentrum*. *Ztschr f Kinderh* 28: 218 (March) 1921.

8 Hellwig A. *Lobelin bei Atemlähmung in der Narkose*. *Zentralbl f Chir* 48: 731 (May 28) 1921.

9 von Mikulicz-Radecki F. *Intrakardiale Adrenalininjektion und subkutane Lobelininjektion zur Bekämpfung der Asphyxia pallida des Neugeborenen*. *Zentralbl f Gynak* 46: 1574 (Sept 30) 1922.

10 Curtis F R and Wright Samson. *Observations on the Action of Lobeline*. *Lancet* 2: 1255 (Dec 18) 1926.

11 King M J, Hosmer H R and Dresbach M. *Physiological Reactions Induced by Alpha Lobelin. I. Intravenous Injections During Anesthesia and Certain Other Forms of Depression*. *J Pharmacol & Exper Therap* 32: 241 (Feb.) 1928. Norris and Weiss¹³.

12 Camp W J R. *Alpha Lobelin. A Pharmacological Study*. *J Pharmacol & Exper Therap* 31: 393 (Sept.) 1927.

13 Norris V H and Weiss Soma. *Pharmacological and Therapeutic Properties of Alpha Lobelin. Comparison of Its Action on the Respiratory Center with that of Other Respiratory Stimulants*. *J Pharmacol & Exper Therap* 31: 43 (May) 1927.

14 Hochrein M and Meier R. *Über die Kreislaufwirkung des Lobelins*. *Arch f exper Path u Pharmacol* 146: 288, 1929. Whitehead R W and Elliott D C. *Electrocardiographic Studies of the Action of Alpha Lobelin and Epinephrine on the Mammalian Heart*. *J Pharmacol & Exper Therap* 31: 145 (June) 1927. Wieland Eckstein and Rominger. *King Hosmer and Dresbach*¹¹.

From the Vascular Clinic of the Department of Medicine, New York Post Graduate Medical School and Hospital, Columbia University.

1 Maddock W G and Collier F A. *Peripheral Vasoconstriction by Tobacco Demonstrated by Skin Temperature Changes*. *Proc Soc. Exper Biol & Med* 29: 487 (Jan.) 1932. Barker N W. *Vasoconstrictor Effects of Tobacco Smoking*. *Proc Staff Meet Mayo Clin* 8: 284 (May 10) 1933. Wright I S. *The Clinical Value of Human Capillary Studies in Fever, Mental Deficiency, Nephritis, Vascular Disease, Clubbed Fingers, Arthritis, Tobacco Smoking and Argyria*. *J A M A* 101: 439 (Aug 5) 1933. Wright I S and Moffat Dean. *The Effects of Tobacco on the Peripheral Vascular System*. *ibid* 103: 318 (Aug 4) 1934. Maddock W G and Collier F A. *Peripheral Vasoconstriction by Tobacco and Its Relation to Thrombo-Angitis Obliterans*. *Ann Surg* 98: 70 (July) 1933.

2 Dorcy J L. *Control of the Tobacco Habit*. *Ann Int Med* 10: 628 (Nov.) 1936.

3 Lobeline when not qualified by hydrochloride or sulfate is used in the broad sense like morphine.

4 Lloyd J U and Lloyd C G. *Drugs and Medicine of North America* 2: 65, 1886.

Lobeline was available in amorphous form only until Hermann Wieland¹⁵ in 1915 extracted a fairly pure crystalline compound, and Heinrich Wieland¹⁶ later determined the formula of the pure alkaloid. Two commercial preparations sold in this country as lobeline sulfate are lobeline sulfate-Merck, which, according to our information, is a mixture of the sulfates of alpha, beta and gamma lobeline, in unknown proportions, and lobeline sulfate-Mallinckrodt, which, according to our information, is a mixture of the sulfates of the total alkaloids of *Lobelia*. In other words, it may contain small amounts of alkaloids from *Lobelia* other than alpha, beta and gamma lobeline.

A crystalline hydrochloride of alpha lobeline has been sold under the trade name of Alpha-Lobelin. The Council on Pharmacy and Chemistry has refused to accept alpha-lobelin for inclusion in New and Non-official Remedies.¹⁷ "Lobeline sulfate" is not official in the U. S. Pharmacopeia or National Formulary and is not described in New and Nonofficial Remedies. It was believed that the crystalline hydrochloride, alpha-lobelin, possessed the respiratory stimulating action without the emetic action.¹⁸ However, others¹³ believe that the pharmacologic properties of the crystalline hydrochloride in animals and in men are essentially similar to those of the amorphous mixture of alkaloids or extracts of *Lobelia inflata* and that emesis does occur.

An evaluation of various lobeline preparations has been presented by Nisisita.¹⁹ He states that in rabbits a fresh solution of crystalline lobeline had the greatest toxicity and the strongest effect on the respiration. Lobelanine in relatively small doses produced convulsions. The emetic action was strongest with lobeline sulfate, it was felt that a decomposition product might accentuate or even produce this effect.

In recent years it has been found that injection of lobeline salts may be followed by a rise in the blood sugar.²⁰ The same effect may follow injection or even inhalation of nicotine²¹ and has been advanced as part of the explanation of loss of appetite and sense of satisfaction from smoking. This has been explained as secondary to its action on the adrenal medulla, which increases the rate of secretion of epinephrine,²² with resultant conversion of glycogen into dextrose.

METHODS OF INVESTIGATION

Lobeline was used in the form of sulfate, prepared in capsules of 0.008 Gm (one-eighth grain), as recommended by Dorsey, with an inert base of magnesium

oxide or starch. The preparations of Merck and Mallinckrodt were used in about an equal number of tests. The results obtained with these preparations were similar in different persons and at different times in the same person.

The subjects were divided into two groups, the first receiving the drug on varying schedules of dosage and noting symptoms therefrom, and the second receiving one or two doses during a test period while skin temperatures, blood sugars and capillaries of the skin were recorded or observed. Whenever possible, similar observations were made on the subjects of the second group following smoking of standard brand cigarettes. Control subjects were used in both groups.

Observations on Subjects Taking Lobeline Sulfate on Varying Schedules of Dosage—This group consisted of five subjects who did not smoke and twenty-eight who were confirmed smokers of cigarettes, pipes, cigars or combinations of the three. The subgroup of non-smokers contained three healthy normal adults and two sufferers from heart disease or peripheral vascular disease. The subgroup of smokers contained four normal persons and twenty-four victims of circulatory disease. In addition, four subjects representing healthy and diseased, smoker and nonsmoker, were used as controls. In the entire group there were twenty-eight men and five women.

Each subject was given a supply of capsules and put on a varying schedule of dosage. The smokers, whether normal persons or victims of cardiovascular disease, were instructed to take one capsule of the drug with a small amount of water whenever the urge to light a cigaret, cigar or pipe was experienced and to record symptoms if any developed. A limit of eighteen capsules in any one day was set for them, in accordance with Dorsey's observations that more than that number was never necessary. The nonsmokers were instructed to take one capsule of the lobeline sulfate three or four times daily and to record symptoms.

The four controls were given capsules containing only magnesium oxide.

The analysis of the observations in this experiment is considerably simplified because we noted no significant difference in the reactions of the so-called normal subjects and those suffering from circulatory disease, none between the two sexes and none between smokers and nonsmokers, except in the change in the desire for tobacco in members of the former group. In the group of those who smoked and who had been instructed to take a capsule of lobeline sulfate every time the urge for tobacco was experienced, a definite loss of this urge was experienced in almost every case after ingestion of even one capsule. The desire would return in a less acute form from half an hour to several hours thereafter and could again be easily satisfied, usually for several hours, by ingestion of a second capsule. Except for this observation on the loss of desire for tobacco, the results were uniform for the entire group, varying only in degree from subject to subject.

The symptoms produced by the oral use of this drug were predominantly gastro-intestinal. After one capsule they ranged from a few gaseous eructations, coming on within fifteen minutes after ingestion and persisting for from one to three hours, to severe "heartburn," boring epigastric pain, faintness, nausea and vomiting, appearing within from ten to twenty minutes after ingestion and lasting for from a few minutes to four hours. Metallic taste and salivation were common. One patient who took two capsules at once in error

15 Wieland Hermann. Pharmakologische Untersuchungen am Atemzentrum. I. Arch. f. exper. Path. u. Pharmacol. 79: 95, 1915.

16 Wieland Heinrich. Ueber die Alkaloids der Lobelin Pflanze. I. Ber. Deutsch. chem. Gesellsch. 54: 1184, 1921.

17 Alpha Lobeline. New and Nonofficial Remedies. J. A. M. A. 89: 693 (Aug. 27), 1927. Alpha Lobelin. Not Acceptable. Reports of the Council. Ibid. 100: 1933 (June 17), 1933.

18 Wilson R. A. and Torrey M. A. Effects of Alpha Lobelin on Respiration. Experimental Study. Am. J. Surg. 23: 426 (March), 1934. Crimi Giovanni. Coratteri differenziali tra azione dell'estratto totale di lobelia inflata e azione della lobelina pura. Boll. soc. ital. biol. sper. 8: 122, 1933. Wieland Eckstein and Rominger.

19 Nisisita Masami. Studien über das atemerregende mittel Lobelin. I. Beurteilung verschiedener Lobelinpräparate und Vergleich mit Lobelanin und den Gesamtalkaloiden der Lobelia inflata. Okayama Igakai Zasshi. 39: 1985, 1927.

20 Bertram. Zur Pharmakologie des Lobelins. Klin. Wchnschr. 7: 197 (Jan. 22), 1928. Hara S. and Tsuchiya M. Effect of Lobelin on Blood Gases and Blood Sugar. Jap. J. Med. Sci. IV (Pharmacology) 8: 124 (Sept.), 1933. Inaba E. Action of Lobelin on Rate of Epinephrine Output and Blood Sugar Content of Dogs. Tohoku J. Exper. Med. 27: 348 (Oct. 31), 1935. Housay B. A. and Molinelli E. A. Effect of Nicotin Cytosin Lobelin Conium Piperidin and Quaternary Ammonias on Adrenal Secretion. Am. J. Physiol. 76: 551 (May), 1926. Norris and Weiss.

21 Inaba T. and Oikawa K. Indispensability of the Suprarenal Glands in Causing Nicotine Hyperglycemia in Rabbits. Tohoku J. Exper. Med. 16: 169, 1930. Haggard H. W. and Greenberg L. A. The Effects of Cigarette Smoking on the Blood Sugar. Science. 79: 165 (Feb. 16), 1934. Housay and Molinelli.

22 Tornade A. and Cbabrol M. Sur l'adrenalino-secretion que declenche l'injection intraveineuse de nicotine. Compt. rend. Soc. de biol. 94: 1002 (April 23), 1926.

vomited repeatedly during the following six hours. Other symptoms reported were lethargy, inability to concentrate, and a sensation of fullness in the head. Symptoms were less pronounced when the drug was taken on a full stomach. A characteristic of the reports was that the symptoms referable to the gastro-intestinal system would undergo recrudescence anywhere from fifteen to sixty minutes after they had subsided.

Despite the instructions to those who smoked not to hesitate to take as many capsules, up to eighteen daily,

The following three histories are quoted as typical of the series. A research engineer who took one capsule daily for ten days reported that he lost all desire for "a smoke" but that after the first day he did not eat well, could not concentrate as well as he could with nicotine and felt generally miserable. The junior author (D. L.) of this report, a confirmed smoker of pipes and cigarettes, took four capsules on one day and three on the next. There was mild epigastric pain following the first dose, slight discomfort following the

TABLE 1—*The Effects of the Ingestion of 0.008 Gm of Lobeline Sulfate*

Case	Subject	Sex	Age	Diagnosis	Tobacco Habit Daily	Maximum Change in Skin Temperature	Maximum Change in Blood Sugar Level	Capillaries	Symptoms
1	F. T.	♂	67	Arteriosclerosis with incipient gangrene	10-20 cigarettes daily	No change	-18 mg %	No change	Eruetations
2	D. L.	♂	30	Normal	4 pipes 2-10 cigarettes	No change	+ 5 mg %	No change	Boring epigastric pain nausea belching saliva thin metallic taste anorexia
3	W. S.	♂	50	Thrombo angitis obliterans	2-3 cigarettes	-2 C	No change	No change	Epigastric pain belching dizziness salivation
4	J. S.	♂	54	Arteriosclerosis	10-20 cigarettes	-4 C	+ 64 mg %	No change	Epigastric burning nausea, eruettations
5	E. H.	♂	48	Thrombo angitis obliterans	10-30 cigarettes	No change	No change	No change	Salivation
6	E. M.	♀	29	Normal	Stopped smoking	No change	No change	No change	Metallic taste eruettations
7	I. S.	♂	50	Arteriosclerosis diabetes mellitus diabetic gangrene	Nonsmoker	-1 C	-22 mg %	No change	Epigastric discomfort eruettations anorexia
8	E. Mac	♀	26	Normal	Nonsmoker	-4 C	No change	No change	Eruettations
9	A. K.	♂	33	Thrombo angitis obliterans	Stopped smoking	Readings interrupted Initial tendency to fall	+ 50 mg %	No change	Nausea salivation epigastric pains as if kicked in stomach
10	W. M.	♂	33	Thrombo angitis obliterans	Stopped smoking	No change	No change	No change	Eruettations nausea light headedness slight epigastric pain
11	E. S.	♂	27	Thrombo angitis obliterans	Stopped smoking	-2 C	No change	No change	Eruettations nausea mild epigastric cramps headache
12	A. L.	♂	41	Thrombo angitis obliterans	Stopped smoking	Readings interrupted	No change	No change	Severe epigastric pain nausea

TABLE 2—*The Effects of the Inhalation of Smoke from One Standard Brand Cigaret*

Case	Subject	Sex	Age	Diagnosis	Tobacco Habit Daily	Maximum Change in Skin Temperature	Maximum Change in Blood Sugar Level	Capillaries	Symptoms
1	F. T.	♂	67	Arteriosclerosis with incipient gangrene	10-20 cigarettes daily	-2 C	+ 15 mg %	Flow slower	Slight nausea
2	D. L.	♂	30	Healthy normal	4 pipes 2-10 cigarettes	-4 C	No change	Flow slower	Slight headache
3	W. S.	♂	50	Thrombo angitis obliterans	2-3 cigarettes	No change	+ 5 mg %	No change	Dizziness tingling in toes
4	J. S.	♂	54	Arteriosclerosis	10-20 cigarettes	-4 C	+ 76 mg %	No change	Nausea headache palpitation
5	E. H.	♂	48	Thrombo angitis obliterans	10-30 cigarettes	+ 3 C	+ 8 mg %	No change	Perspiration dizziness pallor

as their desire for tobacco indicated, and to those who did not smoke to take three or four capsules daily, not a single subject would willingly take more than three capsules a day for longer than three days. A number of patients did not wish to take a second capsule following their experience with the first. It is true that among those who smoked the desire for tobacco was lost on this dosage, but it was equally true that in the entire group, whether smokers or not, whether normal or suffering from cardiovascular disease, whether men or women, the appetite for food was also markedly diminished, and other extremely unpleasant side actions were experienced so long as the effects of the drug were pronounced enough to inhibit the desire for smoking.

second and none thereafter. A few minutes after each dose, definite salivation and a metallic taste in the mouth were observed. On the evening of the first day there was moderate desire for tobacco, easily requited by ingestion of the fourth capsule for that day. On the second day no such desire was in evidence. He ate little lunch on the second day and less dinner. He was unduly lethargic on the evening of the second day. Three days after cessation of the experiment he took one capsule as part of the investigation to be described and ten minutes after ingestion experienced severe boring epigastric pain which persisted for about twenty minutes, subsided gradually, recurred in milder form ten minutes later and lasted for almost an hour there-

after A patient who took a daily dose of 0.008 Gm (one-eighth grain) of lobeline sulfate three times daily for three days reported "an unpleasant, unsettled feeling in the stomach, flat taste in the mouth, and considerable belching."

The control group experienced no symptoms whatever.

Observations on the Temperature of the Skin, the Capillaries and the Level of the Blood Sugar in Patients Given Lobeline Sulfate and Smoking Tobacco Under Test Conditions—In this group were seven subjects who did not smoke and five who smoked cigarettes alone or cigars or pipes in addition, in varying amounts. Of the nonsmokers, two were healthy normal persons and five suffered from peripheral vascular disease. Of the smokers, one was a healthy normal person and four were victims of heart disease or peripheral vascular disease. Two additional subjects were used as controls. In the entire group were ten men and two women. Their ages ranged from 29 to 67.

Each subject was given one capsule of 0.008 Gm of lobeline sulfate orally, and observations on skin temperatures, capillaries and blood sugars were made, fol-

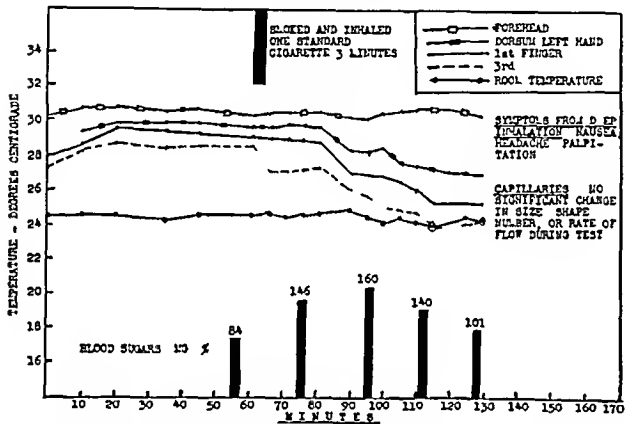


Chart 1—Skin temperature study March 29 1937. J. S., a man aged 54, Jewish, had generalized arteriosclerosis, recent coronary occlusion and peripheral sclerosis with intermittent claudication. The hands were exposed at room temperature for one-half hour before readings were made. Blood for sugar determinations was taken from the right antecubital vein. Capillary studies were made on the fingers of the right hand. The patient had a breakfast of prunes and coffee three hours before the first blood specimen was taken. He smoked one cigarette two hours before readings were begun.

lowing the methods to be described. The two controls were given capsules containing magnesium oxide. The results are summarized in table 1.

The observations were repeated, in the case of the five smokers, with inhalation of the smoke of one standard brand cigarette in place of lobeline sulfate (table 2). As both hands of the subject were occupied during the test, the cigarette was held by an observer while the subject took deep breaths and inhaled at a moderate rate. As the effects of tobacco smoking on normal control individuals have already been established by ourselves and by others,² we did not include them in this phase of the experiment.

Recording of Skin Temperatures—The subjects were seated in a draftless room the temperature of which ranged between 22 and 24 C (71.6 and 75.2 F). They were adequately clothed. The left hand was placed on a table covered with several thicknesses of paper toweling. Readings were taken by a Leeds and Northrup potentiometer with iron, copper, platinum, chromel and alumel thermocouple junction from the first, third

and fifth fingers just proximal to the nail fold, from the dorsum of the hand, and from the nuchal forehead. The subjects sat quietly in the room for at least half an hour or as long as necessary to establish a stabilized temperature level. At first the skin temperatures were recorded every ten minutes, after stabilization had occurred and during the test they were recorded every five minutes.

Observation of the Skin Capillaries—The nail folds of the fingers of the right hand were cleaned with benzene and alcohol. The nail fold of one finger was observed through the capillary microscope for changes in number, in size and shape of the stream and in rate of flow. Capillaries were observed several times before and at ten minute intervals after the test was begun.

Determination of the Blood Sugar Levels—The blood was drawn from the antecubital vein of the right arm. Whenever possible a tourniquet was not used, light pressure being applied to the upper arm instead to obviate changes in the capillary picture in the fingers of this extremity, from this procedure. Analysis of blood was by the technique of Folin and Wu.

Specimens were taken a few minutes before lobeline sulfate was ingested or a cigarette was smoked and again twenty, forty and sixty minutes after ingestion or commencement of inhalation. The observations were so timed that the initial blood specimen was drawn at least three hours after a light breakfast, except in case 7 (I. S., a diabetic patient, on whom observations were made on a fasting stomach).

RESULTS IN SUBJECTS RECEIVING LOBELINE SULFATE ORALLY

As in the first part of the study, following the ingestion of lobeline (in the form of its sulfate) the symptoms were predominantly gastro-intestinal and ranged from a few gaseous eructations, which appeared a few minutes after ingestion, to severe boring epigastric pain, which necessitated termination of the portion of the experiment concerned with skin temperature readings in two cases. Other reactions were dizziness and drowsiness. No change in respiration was observed except in the presence of severe pain or nausea.

Of the ten studies in which skin temperature readings were possible, in two the temperature of the nail folds fell at least 2 degrees C (3.6 degrees F), in two more it fell at least 4 degrees C (7.2 degrees F), in six there was no appreciable change. Depression of temperatures was coincident with the onset of gastro-intestinal symptoms in each case in which it occurred, but the severity of the symptoms had no relation to the extent of the drop.

In two of the ten cases in which blood sugar levels were determined there was a definite rise in the blood sugar of 55 and 64 mg per hundred cubic centimeters respectively within one-half hour, and then a fall to normal by the end of an hour. In two cases the blood sugar fell 18 and 22 mg. Five cases showed no change, in a sixth case there was a rise of 5 mg per hundred cubic centimeters, not considered significant. The two patients exhibiting the hyperglycemia also experienced severe gastro-intestinal symptoms, one also showed a drop of skin temperature, and in the other, after an initial slight fall, readings had to be discontinued because the patient jumped up and began to massage his abdomen vigorously with the hand from which temperatures were being taken.

In no subject were significant differences in the number, size and shape of stream or rate of flow of

the capillaries observed before and after ingestion of the drug. In none were there changes in respiration, with the exceptions noted.

RESULTS IN SUBJECTS INHALING SMOKE OF STANDARD CIGARETS

The five smokers in the group receiving lobeline sulfate were the nucleus of this observation.

Symptoms from deep inhalation included nausea, palpitation, slight headache, dizziness, tingling in the toes and, in one case, clammy perspiration.

In three of the five cases the temperature of the nail folds of the fingers fell 2 degrees C or more, commencing during the period of smoking and remaining at the lower level for at least one hour thereafter. In one case no change was observed. The fifth subject, who broke into a sweat during deep inhalation (he was accustomed to superficial puffs only) exhibited a rise in finger temperature of 3 degrees C (5.4 degrees F). The temperature of the dorsum of the hand did not change appreciably in any subject, and, except in the subject who perspired, the forehead temperatures did not change at all.

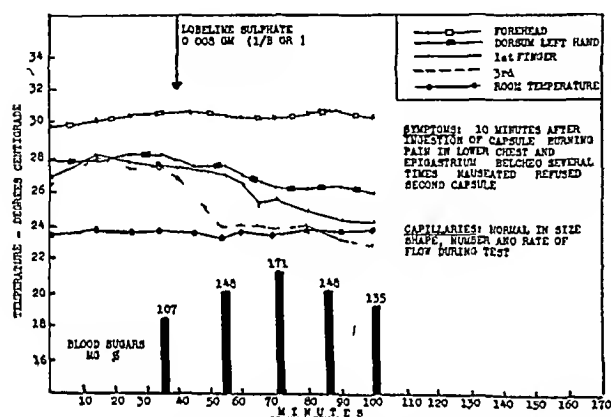


Chart 2—Skin temperature study April 1 1937 on same patient as in chart 1. The hands were exposed at room temperature one hour before test readings were made. The blood for the sugar determination was again taken from the right antecubital vein and the capillary studies were made on the fingers of the right hand. The patient had breakfast three hours before the initial blood sugar reading was made. He smoked his last cigaret one hour and a half before the readings were begun.

Blood sugars in two of the five cases showed definite elevations of 15 and 76 mg per hundred cubic centimeters within one-half hour, and a fall to original levels by the end of one hour, in two cases there were rises of 5 and 8 mg, considered too slight to be significant, in the fifth case the level of blood sugar was unchanged during the period of observation. The rise of 8 mg occurred in the subject who reacted to smoking with dizziness, perspiration and a rise in finger temperature.

Two subjects whose skin temperatures fell likewise exhibited definite slowing of the rate of flow in the capillary stream in the nail folds. No changes in the number of the capillary loops or in the size and shape of the stream were observed. The accompanying two charts show almost identical curves of skin temperatures in the fingers and blood sugar levels in one subject who participated in both parts of the experiment. Such definite results were by no means the rule, we merely point out the parallelism that can occur following inhalation of cigaret smoke and ingestion of lobeline. The patient was a stable individual desirous of giving up smoking, thoroughly cooperative and interested in the experiment, and we believe that emotional factors were at a minimum.

COMMENT

Recent studies have established the fact that the use of tobacco is definitely contraindicated in the presence of certain pathologic processes, for example, diseases producing impairment of the peripheral circulation, and gastric and duodenal ulcers. The problem of forcing complete abstinence from tobacco on certain patients has become a major one in medical practice. Any means of overcoming a long standing tobacco habit with a minimum of inconvenience to the patient would be an important addition to the therapeutic armamentarium. And yet the usefulness of any "cure" is curtailed if it is too disagreeable.

We therefore investigated the possibilities of lobeline sulfate as a substitution medication. Our experiences lead us to conclude that the effects of ingestion of the drug are too unpleasant to warrant its use for this purpose in the doses recommended. Not only does it produce gastro-intestinal symptoms that run the gamut, from a few eructations to severe nausea, epigastric distress, and even vomiting, but it also causes loss of appetite, states best described by patients as an "unsettled feeling," and in some cases diminished ability to carry on the daily routine. Patients will not willingly take a drug which causes them to suffer epigastric distress or to vomit at unpredicted times. They prefer to stop smoking through effort of will. The crystalline, pure salts appear to be as guilty as the amorphous drug with respect to action on the gastro-intestinal system.

The results of the second part of the experiment, although not conclusive in such a small series, indicate nevertheless a trend toward nicotine-like action with regard to the circulation of blood through the small vessels of the extremities. After ingestion of the drug some cases showed, like nicotine, a definite drop in skin temperatures, none showed an upward tendency. This effect of a small dose of the drug by mouth is in accord with the experimental work of Camp¹² on animals. He states:

If the superior cervical ganglion of a rabbit is painted with alpha-lobelin, a definite constriction of the ear vessels is seen. Following this there is a dilatation. Stimulation of the pre-ganglionic fibers and the ganglion itself produces no effect, while stimulation of the postganglionic fiber produces a constriction. This is absolute evidence that the ganglion is no longer able to transmit impulses. I conclude, then, that as with nicotine the change in the caliber of the blood vessels and hence the change in blood pressure is for the most part due to the stimulation of the ganglion cells to the blood vessels, the rise from activation of the constrictors, and the fall from activation of the dilators, and vagus action on the heart.

Any drug that causes a vasoconstriction, even though it is temporary and even though the drug is used for only a limited period, is contraindicated in diseases of the circulation due to spasm or occlusion of blood vessels.

The effect of lobeline sulfate on the blood sugar level was not constant in this series in which the drug was given by mouth, although marked rises were noted in two cases. Following inhalation of tobacco smoke there was either a rise or no change in the blood sugar level.

No demonstrable change in the rate of respiration was noted in those who took varying amounts for a period of days or in those who took single doses of 0.008 Gm under close observation, except in those subjects who experienced nausea or pronounced epigastric pain. Blood pressures of several members of the former group also showed no change.

In this clinical study we confined our observations to the effects of the oral administration of the drug to

human beings, because of the purpose for which the drug was recommended. In such circumstances, actions are admittedly variable and not sharply defined. Careful experimental work on animals, in which parenteral routes of administration were used, have been noted throughout this paper. King, Hosmer and Dresbach¹¹ cite the case of a healthy human subject given 0.21 mg per kilogram of alpha-lobelin²³ intravenously. Within thirty seconds he had inspired deeply several times, groaned, become pale, rolled his eyes and experienced knifelike precordial pain and dizziness. There was no nausea or vomiting. Hyperglycemia occurred. Norris and Weiss, giving twenty-one men doses of from 10 to 20 mg of alpha-lobeline subcutaneously or intramuscularly, found no appreciable stimulation of respiration but many of the unpleasant gastro-intestinal side actions which we noted following oral administration.

The question of dosage of lobeline sulfate is important. It is possible that a smaller amount of the drug might achieve the desired effect without the unpleasant side actions. We have tried a few subjects with 0.004 Gm (one-sixteenth grain) capsules, to be taken when the urge for a smoke manifested itself. Thus far we have found one in four who states that his cigaret smoking has fallen off almost completely, his appetite has improved and generally he feels better. The other three do not report similar success, one suffered from mild nausea which did prevent smoking, one had a vague unsettled feeling with no effect on his desire to smoke, and the third noted no results of any sort whatever.

The drug by its undesirable effects appears self-limiting as to dosage. In view of its established toxicity, however, a note of warning should be sounded against the use of the large doses mentioned by Dorsey,² especially in those patients with cardiac disease or peptic ulcers, who together constitute a large portion of the patients for whom heavy smoking is inadvisable.

Finally, the problem of the permanent status of the patient with respect to his former habit arises when he has gone so far along the road to complete abstinence from tobacco that he no longer requires substitution medication. Typical is the experience of the patient suffering from thrombo-angitis obliterans, whom we have followed for three years. From a peak of heavy smoking he has brought himself down to a level of two or three cigarets daily, and there he has remained. He eagerly agreed to become one of the subjects for investigation. He took one capsule a day for three days, during which period he had no desire to smoke, but at the same time his appetite fell off in such alarming proportions that he discontinued the drug after the third day. On the fourth day there was still no urge to smoke, but on the fifth day it became manifest, and he succumbed and lit a cigaret. If he had continued to take the lobeline sulfate the nicotine-like effect would still have been present in his system and the object of abstinence from tobacco defeated. In the last analysis no substitution drug or product which will tide a patient over the period of transition from smoker to nonsmoker will prevent him from resuming the pleasant habit when it is stopped. Only the combination of clear and emphatic explanation on the part of the physician, and determined cooperation on the part of the patient, will accomplish this desired end.

²³ King, Hosmer and Dresbach¹¹ and Norris and Weiss¹² worked with the proprietary preparation alpha lobelin. It was partly on the basis of the work of Norris and Weiss¹² that alpha lobelin was declared not acceptable for New and Nonofficial Remedies (J. A. M. A. 100 1933 [June 17] 1933).

CONCLUSIONS

1 Lobeline sulfate in doses of 0.008 Gm (one-eighth grain) orally is not suitable for general use as a "cure" for the tobacco habit. The symptoms are predominantly gastro-intestinal, variable from patient to patient, and in general too drastic in most individuals.

2 Lobeline sulfate produces a nicotine-like effect on the peripheral circulation. In certain individuals a vasoconstriction with a drop in surface temperature occurs. This is not as constant, when the mentioned dosage and route of administration are used, as the effect obtained by smoking a cigaret.

3 Lobeline (administered in the form of lobeline sulfate), like nicotine, produces an elevation in blood sugar in certain individuals.

4 Further study with smaller doses may increase its usefulness for the purpose, but its widespread use should not be encouraged until such studies have been completed.

115 East Sixty-First Street

Clinical Notes, Suggestions and New Instruments

MENINGO-ENCEPHALITIS AND RUBELLA

CHARLES F. READ, M.D., ELGIN, ILL.

The occasional occurrence of meningo-encephalitis in connection with many of the acute exanthems is well established. Few cases, however, have been reported in connection with rubella. German measles has the reputation of being an innocuous disease, in fact, so harmless that the public often makes its own diagnosis and does not even consult a physician. In view of this situation, it seems proper to call attention again to the fact that encephalitis occurs in connection with this disease and to report an additional case.

In 1929 Brock related a case in which severe occipital headaches developed in a woman, aged 23, three days after the appearance of a rash, with rigidity of the neck, divergent strabismus and Babinski reflex on the right side. This case is included in the tabulation of Merritt and Koskoff.¹ These authors, however, do not cite the case, with autopsy, reported by Briggs.² A white boy, aged 10 years, after apparent recovery on the third day, was permitted to play in the snow. Immediately following this exposure paraphasia, lateral nystagmus, slight papillary edema, paresis of the right arm, and Babinski, Gordon and Oppenheim reflexes of the right leg developed, and then a convulsion, after which the left leg also showed pathologic reflexes. "Alternating spastic and flaccid paralysis" of both lower extremities then occurred and the temperature rose to 107 F (pneumonia). The spinal fluid was clear, the cells numbered 51 and were practically all lymphocytes and sugar was 65 mg. Death occurred within twelve hours of the onset of symptoms.

The postmortem examination in this case is perhaps the only one on record with any report of the pathologic changes of the brain, and in this respect it is somewhat incomplete. The gross manifestations were bronchopneumonia and petechial hemorrhages of the white substance of the brain. Microscopically there was "definite perivascular infiltration of lymphocytes and polymorphonuclear leukocytes at many points. In certain areas the small vessels were also surrounded by collections of red blood cells."

The same author mentions personal knowledge of at least three other encephalitic sequelae in the same epidemic, aside from the two cases reported at some length and here recorded.

Merritt and Koskoff's article deals with four cases seen in a Massachusetts epidemic early in 1935, describes these in detail and presents tabulations of the neurologic signs and symptoms.

Read before the Chicago Neurological Society, Feb. 18, 1937.

¹ Merritt H. H. and Koskoff J. D. Am. J. M. Sc. 191 679 696 (May) 1936.

² Briggs J. F. J. Pediat. 7 609 (Nov.) 1935.

in seven other cases gathered from the literature, omitting, however, the aforementioned case of Briggs as well as a few others.

The patients (eighteen as tabulated by me, including my own) ranged in age from 3 to 33 years, with a slight preponderance of males (ten). The onset occurred from two to seven days after the appearance of the rash. Headache was rather common (eight cases), convulsions were frequent (nine), rigidity of the neck was less frequent (five). Mental confusion, or stupor, was often present (thirteen). Nystagmus, diplopia, strabismus or conjugate deviation occurred in seven cases. Paresis or paralysis was mentioned specifically in only four cases. Babinski's toe sign was noted in ten and cerebellar signs in but two. The febrile reaction apparently was not considered important enough to report in the majority of cases but ranged up to 104 F.

Examination of the spinal fluid showed but one patient with a measured increase of pressure (400 mm of water). The cell count varied from 5 to 400. The protein was increased in six of the seven cases examined. The sugar of the spinal fluid when determined was never beyond normal range. In five cases (Merritt and Koskoff's¹ and Goudron's²) the colloidal gold reaction was moderately increased in the middle range in four. One was entirely negative.

REPORT OF CASE

E. K., a white man⁴ aged 26 was seen Feb 18, 1936, during an epidemic of rubella which involved many adults. At the time of examination the diagnosis of encephalitis had already been made, the problem merely being that of prognosis and treatment. The patient had complained on February 8 of aching, with no symptoms of ordinary measles. He stated that on the 12th a moderate rosy colored eruption developed on his chest, which lasted only about a day. The next day he went to work as usual, but two and a half days later he came home (driving 3 miles) with thickened speech, loss of equilibrium and dizziness. He rapidly became worse. A few hours later projectile vomiting, without much nausea, developed and he was then seen for the first time by his family physician and sent to a hospital.

When I examined him on the 18th he was evidently very ill, with some twitching of the fingers and thickened rambling speech, though he answered a few questions slowly and to the point. Although he complained of diplopia, there was no noticeable strabismus but a lateral nystagmus. The pupils reacted to light and in accommodation, and the fundi were normal. There was rigidity of the neck, but the Kernig and abnormal reflexes were absent. The knee jerks were exaggerated. Paralysis did not exist as far as could be ascertained in his semistuporous state. The condition of the patient was not conducive to adequate testing for cerebellar involvement.

Spinal puncture on the third day of the acute illness returned clear fluid; pressure was apparently increased but not measured; cells numbered 4, globulin was negative, sugar was 88 mg and the Wassermann reaction was negative.

There were 4100000 red cells, 8650 white cells, with polymorphonuclear leukocytes 74 per cent, lymphocytes 20 per cent and large lymphocytes 6 per cent. After the withdrawal of 10 cc of spinal fluid the patient appeared to improve and another puncture was done on the 19th for further removal of fluid. Treatment consisted of sedatives with dextrose by proctoclysis and intravenously. Nursing notes of February 16 showed almost continuous twitching of the fingers and of the arms and shoulders at times complaints of dizziness (although confined to bed) and vomiting. Vomiting continued on the 17th with hiccups. The patient was continent, voided and moved the bowels. Hiccups were again noted on the 18th as well as vomiting but the patient was reported to be better. Headache persisted for several days (possibly post puncture?) but he rapidly improved and on the 21st sat up, with the help of a backrest, to eat.

On the eighth day after the onset, headache was still present and he felt 'tired'. On the 25th he was still dizzy and had headache but was sent home on the 26th, the tenth day after the onset of encephalitic symptoms. He remained a few days in bed, rapidly convalesced and was at work within a month of the onset, though he said that he fatigued easily for a year afterward.

The temperature never rose above 99.2 F. the pulse was slow (between 40 and 60) until convalescence was well established, respiration was not affected. Paralysis did not develop. Vomiting, dizziness and loss of equilibrium together with lateral nystagmus and diplopia, were outstanding features. Headache appeared only after the spinal puncture.

The patient has remained well up to the present time aside from an operation for acute appendicitis. Concerning his illness he later said: 'My mind was clear but worked slowly. I knew what was going on about me except at one time when I thought I was in some great laboratory. I had to concentrate on any movement and then after I had worked awfully hard to move the hand and arm an inch or two it would fly up high past where I wanted it to go (cerebellar ataxia?). My tongue felt 2 inches thick but I could get the right words if I had time enough.'

CONCLUSIONS

Another case of encephalitis associated with rubella is added to the limited literature on this subject. Six cases are added to Merritt and Koskoff's list of May 1936 bringing the total in the literature up to eighteen.⁵ There were two deaths, a percentage of 11.1. One of these was probably attributable to pneumonia. Although the percentage of patients with rubella in whom encephalitis develops is not large, the possibility of this complication should be kept in mind especially in view of the frequency of German measles and the apparently innocuous character of the disease.

Elgin State Hospital

IMPROVED METHOD OF USE OF LATEX

JOSEPH K. NARAT, M.D., CHICAGO
Attending Surgeon, St. Elizabeth Hospital

In the last few years latex has been recommended repeatedly as a substitute for collodion in dermatology. Straus¹ recommended its use in surgical conditions particularly for the protection of skin edges around an enterostomy. The disadvantage of the natural rubber latex is the occasional occurrence of fermentation. It occurred to me that a synthetic latex might overcome this difficulty.

Du Prene' latex² is made by emulsifying chloroprene in water and allowing it to polymerize under carefully controlled conditions. The resulting product resembles vulcanized natural rubber latex but contains neither bacteria, sugars nor proteins, therefore there is no danger of instability due to fermentation.

Difficulties were encountered in obtaining a uniform film of "Du Prene" latex on the skin. Therefore an attempt was made to mix normal rubber latex with an alkaline 'Du Prene' latex. It was found that unless special precautions are taken coagulation immediately occurs. Stabilized alkaline 'Du Prene' and natural rubber latices may be made in accordance with the accompanying formulas.

Stabilized 'Du Prene' Latex

Du Prene latex (45% Du Prene)	Cc
29% aqueous ammonia	100
15% Aquarex D solution	2

The Aquarex D solution should be mixed with the ammonia before it is added to the latex.

Stabilized Normal Rubber Latex

Normal latex (about 37% solids)	Cc
15% Aquarex D solution	100
	12

If this stabilized rubber latex is poured slowly into the stabilized "Du Prene" latex with careful stirring no coagulation or flocculation will occur. A mixture of 25 cc of the stabilized rubber latex with 100 cc of stabilized alkaline 'Du Prene' latex is recommended. Films deposited from mixtures

⁵ Cases not included in Merritt and Koskoff's review include Epstein and Loup, *Rev. med. de la Suisse Rom.* 50: 161 (March 10) 1930.

¹ Straus, F. H., *Prevention of Skin Digestion in High Intestinal Fistulas*, J. A. M. A. 105: 1345 (Oct. 26) 1935.

² The product was supplied by E. I. DuPont de Nemours & Co. Inc. Made by dissolving 15 Gm. of Aquarex D in 85 cc of water. The product is manufactured by E. I. DuPont de Nemours & Co. Inc.

of the two types of latex are softer and more flexible at room temperature than are those formed by the natural latex alone.

This improved latex is a cheap and efficient substitute for the collodion, over which it has the advantage of being very flexible and more adherent to the skin. No fermentation occurs in the suggested mixture. The product is especially recommended for the protection of the skin in the vicinity of artificial orifices, such as gastrostomy, enterostomy, cystostomy and ureteral fistula.

1200 North Ashland Avenue

Council on Pharmacy and Chemistry

REPORT OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT
PAUL NICHOLAS LEECH, Secretary

THE PRESENT STATUS OF VINETHENE

The Council published a preliminary report on Vinyl Ether—Merck in 1934,¹ deferring consideration of this anesthetic agent until additional evidence had accumulated and until the firm marketed the product. The Council has recognized the firm's right to the name Vinethene. It was, therefore, necessary to consider the evidence which has accumulated since 1934 (when the preliminary report was published) in order to determine the acceptability of the product itself, its indications and contraindications as well as its limitations and safety.

EXPERIMENTAL OBSERVATIONS

Pharmacology—Bourne,² who studied the drug experimentally and clinically, noted that it is not useful in experimental animals. Nevertheless it is extremely important that due consideration be given to the experimental observations that have been reported. The variations in its effects on human beings and animals may be due to an actual difference in susceptibility, but the present evidence does not warrant granting this surmise.

Vinethene, which is essentially divinyl ether, $\text{CH}=\text{CH}-\text{O}-\text{CH}=\text{CH}_2$, differs from ether, U.S.P. (diethyl ether, $\text{CH}_3-\text{CH}_2-\text{O}-\text{CH}_2-\text{CH}_3$) in that it is a more toxic agent although there is a corresponding decrease in the concentration necessary for anesthesia, which may be an advantage if it is properly employed. Goldschmidt³ noted that the absolute difference between the anesthetic and lethal concentrations in the blood was about the same in dogs for the two ethers, but he also noted a ratio of 1 to 7 for concentration necessary for anesthesia in human beings, whereas in animals the ratio had been calculated to be about 1 to 4 (vinethene to ether). He considered the lethal concentration to be about one-half that for ether in animals. According to these figures, vinethene would be twice as safe as ether for animals, but this has not been borne out by subsequent evidence.

Recently Molitor⁴ of Merck & Co. has made a rather extensive study of the toxic effects of Vinethene. The toxicity was studied according to the method of Fuehner.⁵ Molitor also checked the studies of von Brandis.⁶ He administered Vinethene to 5,000 white mice and gave ether to 300 control animals. He considered the toxicity of the two ethers similar and confirmed

the observations of von Brandis in noting that 360 of 445 mice which recovered from the anesthesia died later—mostly during the succeeding fifteen hours. Neither Molitor nor von Brandis was able to determine the cause of death in these cases, but Molitor believed that anoxemia and respiratory complications could be excluded because a control series using premedication with atropine and carbon dioxide absorption technic gave essentially the same results. He expressed the opinion that the late deaths might be due to a racial hypersensitivity, since rats exposed to the same procedure did not succumb in this manner. He concluded that the lethal dose (dose producing 50 per cent mortality) of ethyl ether is 180 millimols per liter of air, of chloroform 0.32 millimol per liter of air, and of Vinethene 2.11 millimols per liter of air.

Effects on the Liver—Goldschmidt and his co-workers³ reported liver necrosis in dogs after several hours of Vinethene anesthesia and later studied the relation of anesthesia to liver damage. They reviewed the work of Leake, Knoefel and Guedel⁸ and studied liver damage following chloroform, Vinethene and ether administered by means of a Gwathmey three chamber volatilizer with the addition of a reservoir between the volatilizing chambers and the mask in dogs on a normal and high carbohydrate diet. They used sodium amytal anesthesia to indicate that the anesthetic state itself was not responsible for these changes but that they were due to the inhalation of volatile anesthetic agents. They found that necrotizing effects of chloroform and Vinethene on the liver cells of the dog are largely prevented by administering the anesthetic with oxygen. High carbohydrate diet was as effective as oxygen in protecting the dogs against chloroform and more effective in protecting them against Vinethene.

Other Experimental Observations—Bourne and Raginsky^{2c} noted that dogs which developed cyanosis during anesthesia developed liver necrosis but that otherwise there was no effect even on livers previously damaged by chloroform. Essex⁹ reported uniformly rapid induction in rabbits and marked variation of induction in dogs. Goldschmidt³ noted running movements in dogs in which it was difficult to maintain anesthesia, and Waters¹⁰ reported these running movements so marked that he thought he was dealing with a different drug and discontinued his experiments. Later he repeated his experiments and noted the same phenomena even when the anesthetic was pushed. Molitor⁴ found that the rapidity of induction in mice was dependent on the temperature although rapidity of recovery was not.

Irritation and Possible Contaminants—Although Vinethene is said to be less irritating than ether, Goldschmidt³ noted a considerable amount of mucus in dogs (and human beings). It developed after Vinethene had been administered for a short time and even in cases in which atropine sulfate had been given. Leake¹¹ thought that the mucus was due to minute traces of impurities such as formaldehyde or formic acid, which are extremely irritating in very small amounts not detectable chemically. On the other hand, Molitor⁴ found decomposed Vinethene no more toxic than the pure agent in mice.

Since the publication of these reports, the A. M. A. Chemical Laboratory has found the product as marketed (Vinyl ether with 0.01 per cent of phenyl α -naphthylamine and 3.5 per cent absolute alcohol) satisfactory from a chemical standpoint.

Ravdin and his associates¹² point out that they do not know the lethal concentration of the anesthetic in man but that it probably does not exceed that of the dog, which is 68 mg per hundred cubic centimeters of blood.

1 Preliminary Report of the Council on Vinyl Ether J. A. M. A. 102:44 (Jan. 6) 1934.

2 (a) Bourne, Wesley. Divinyl Oxide Anesthesia in Obstetrics. Lancet 1:566 (March 17) 1934. (b) Bourne, Wesley and Spang, D. W. Some Aspects of Vinyl Ether (Vinethene) Anesth. & Analg. (Jan. Feb.) 1934. (c) Bourne, Wesley and Raginsky, B. B. Vinyl Ether (Vinethene) Anesthesia in Dogs. Brit. J. Anesth. 12:62 (Jan.) 1935. (d) Bourne, Wesley. Vinyl Ether. Obstetric Anesthesia for General Practice J. A. M. A. 105:2047 (Dec. 21) 1935. (e) Bourne, Wesley, McDowell, J. F. and Whyte, J. C. Further Studies in Vinyl Ether (Vinethene) Obstetrical Anesthesia. Mixtures with Ethyl Ether. Effect on Coagulation Time of Blood. Anesth. & Analg. 16:46 (Jan. Feb.) 1937.

3 Goldschmidt, Samuel, Ravdin, I. S., Lucke, Baldwin, Muller, G. P., Johnston, C. G. and Ruigh, W. L. Divinyl Ether. Experimental and Clinical Studies J. A. M. A. 102:21 (Jan. 6) 1934.

4 Molitor, Hans. Some Pharmacological and Toxicological Properties of Vinyl Ether J. Pharmacol. & Exper. Therap. 57:274 (July) 1936.

5 Fuehner, H. Biochem. Ztschr. 115:235 1921.

6 von Brandis, H. J. Vergleichende Untersuchungen über die Toxizität des Vinethens. Schmerz Narkose Anaesthetie S. 84 (Oct.) 1935.

7 Goldschmidt, S., Ravdin, I. S. and Lucke, Baldwin. Anesthesia and Liver Damage. I. The Protective Action of Oxygen Against the Necrotizing Effect of Certain Anesthetics on the Liver J. Pharmacol. & Exper. Therap. 59:1 (Jan.) 1937.

8 Leake, C. D., Knoefel, P. K. and Guedel, A. F. Anesthetic Action of Divinyl Oxide in Animals J. Pharmacol. & Exper. Therap. 47:5 (Jan.) 1933.

9 Essex, H. E. in discussion on Goldschmidt, Ravdin, Lucke, Muller, Johnston and Ruigh.

10 Waters, R. H. in discussion on Goldschmidt, Ravdin, Lucke, Muller, Johnston and Ruigh.

11 Leake, C. D. in discussion on Goldschmidt, Ravdin, Lucke, Muller, Johnston and Ruigh.

12 Ravdin, I. S., Elia, on E. L., Coates, G. M., Holloway, T. B., Ferguson, L. K., Gill, A. B. and Cook, T. J. Divinyl Ether—A Report of Its Further Use as a General Anesthetic J. A. M. A. 108:1163 (April 3) 1937.

CLINICAL EXPERIENCES

Period of Anesthesia and Liver Damage—Consideration has already been given to the experimental evidence of liver damage resulting from this anesthetic and the clinical experiences follow

Shipway¹³ used Vinethene in combination with Tribromethanol in Amylene Hydrate and claimed that the combination had no evident (?) effect on the liver. He concluded, however, that "until further clinical experience has been gained, vinyl ether should not be used for periods longer than one hour and one half in view of the slight possibility of damage to the liver." This raises the general question of possible liver damage due to prolonged use of this anesthetic. Authors of most of the recent articles have all recommended its use for shorter anesthetizations. Of interest in this connection is the report of Ravdin and his associates¹². Forty-one of his patients received the anesthetic more than once apparently without deleterious effect. Twenty-three patients were anesthetized twice, ten three times, four four times and four more than four times.

Two deaths following the prolonged clinical use of Vinethene were noted by Goldschmidt,³ Bourne^{2d} reviewed these and added one from his own series. He felt that the liver changes present were not typical of liver necrosis resulting from anesthesia and therefore should not be attributed positively to the anesthetic. It must be noted that these patients received Vinethene for periods exceeding one and one-half hours, and that two of them were apparently poor anesthetic risks.

The consensus is that the optimum periods of anesthetization with Vinethene is not in excess of a half hour. Ravdin and his co-workers¹² point out the importance of volatilizing the anesthetic admixed with oxygen if it is to be used for periods exceeding one-half hour. This clinical recommendation confirms their experimental observations. The question of the method of administration also enters here. For the short anesthesia the open drop method is preferred and was used in 84 per cent of Ravdin's 2,675 cases, while the longer anesthetics require proper volatilization of the agent with oxygen as a precaution against liver damage. This is apparently easiest to maintain by the closed method.

Many authors have indicated the period of anesthesia, and it is interesting to note that some of the most favorable results have been reported with relatively short anesthetics. Ravdin's¹² series consisted of procedures that were practically all completed in less than thirty minutes. Connolly and Baker¹⁴ reported its use in dentistry for periods of from two to sixteen minutes and Goldman,¹⁵ also using it in dentistry, felt that it was satisfactory for this type of case.

Comparison with Ethyl Ether—Waters¹⁰ expressed the opinion that the induction and recovery occurring with new agents such as Vinethene should be compared with those occurring with nitrous oxide rather than with ethyl ether as has been done in this case. This would seem to be especially true with an agent intended for short procedures. Subsequently it was found by Ravdin and his co-workers¹² to be more rapid than nitrous oxide in induction and recovery. Molitor⁴ found rapidity of induction as compared with that of ether dependent on temperature but most clinical reports¹⁶ have noted rather consistent rapid induction as an advantage. It has been pointed out that rapid induction is related to the potency of this agent and can be safely accomplished only if the anesthetist is sufficiently familiar with the agent to appreciate the sudden depth of anesthesia which brings about this rapid induction. Over-concentration must be avoided and, since the usual eye signs are not reliable, rapid induction necessitates expert attention to the respiration if overconcentration is to be prevented. Ravdin recommends that the anesthetist exert caution lest he exceed the concentration in the blood necessary for surgical anesthesia. 18 mg per hundred cubic centimeters for general cases and 11 mg per hundred cubic centimeters for minor ones.

It may be granted that the action of Vinethene is characterized by rapid recovery, which does not involve any such potential danger as does the rapid induction. It has been reported by practically all the authors both experimentally and clinically.¹⁷ Molitor⁴ found that temperature of the product had no effect on rapidity of recovery experimentally.

Ravdin¹² pointed out that the period of excitement was considerably less than with ether. Dorfelf¹⁶ mentioned the infrequency of postanesthetic vomiting and Ravdin¹² claims that the incidence of untoward complications was low.

Field of Usefulness—Originally intended as a general anesthetic with the advantages of ether and ethylene, Vinethene has been principally recommended for use in certain limited fields, as pointed out by Tucker¹⁸.

Beach¹⁹ reported 2,632 cases including neurosurgical, ophthalmologic, otolaryngologic and gynecologic as well as cases in general and orthopedic surgery, dental surgery and obstetrics. He considers it acceptable in short cases in minor surgery only as a supplemental agent to nitrous oxide and ethylene where increased relaxation is desired in major surgery as an induction agent, in dental surgery and for short simple cases in the home or office, of the ambulatory type, and in cases where a gas machine is not available.

Connolly and Baker¹⁴ used it principally in dental surgery. The extensive series reported by Ravdin and his co-workers¹² were two fifths general and neurosurgical, two fifths otolaryngologic and one fifth dental, ophthalmologic and orthopedic. They recommended it for the extraction of teeth, reduction of fractures, manipulation of joints and a large number of surgical procedures which do not require prolonged anesthesia but which may require any degree of relaxation. Shipway¹³ at one time claimed that complete abdominal relaxation was not always obtained. Other workers, including Goldschmidt³ however, noted satisfactory relaxation. Goldman¹⁵ used it principally in dental surgery. Goldman employed a special apparatus which he designed for the administration of Vinethene. Connolly and Baker suggested that it be used as a substitute for nitrous oxide when the latter is not available.

Tucker¹⁸ noted that it was preferable to ethyl chloride or chloroform and recommended its use for short painful procedures, for short operations and occasionally to reinforce other anesthetic agents. Batzner¹⁶ concluded that for a wide variety of operative procedures of short duration Vinethene is a most useful anesthetic substance.

Obstetrics—Bourne^{2a} reported the use of Vinethene in 152 obstetric cases and later in an additional 500 cases.^{2d} He has always preferred the closed method of administration, but it must be remembered that many of his procedures exceed the half-hour period during which the open drop method appears to be preferable and, according to Bourne^{2e} and others¹⁴ relatively safe. The closed method has the advantage of conservation of the material. He^{2d} has determined the effects on the liver by the bromsulphalein test. He^{2e} has found that it does not depress muscle tonus in the intestine and uterus. He^{2e} declares that it has no effect on the coagulation time. He believes there is minimal danger to both mother and child with degrees of anesthesia which are adequate and sufficient for obstetric procedures. He^{2d} at first claimed that it was impossible to produce analgesia with Vinethene. Later he^{2e} used a mixture of 25 parts of Vinethene and 75 parts of ether for producing a satisfactory obstetric anesthesia. Tucker¹⁸ on the other hand does not believe that Vinethene should displace nitrous oxide in the long second stage labor case.

Other Observations—Ruth²⁰ reported one case in a series of ten in which evanosis and convulsions occurred. Anesthesia was completed with ethyl ether without mishap. Cyanosis was not observed and respiration did not cease in any of Goldman's¹⁵ short cases. None of his patients vomited or complained of nausea. Ravdin¹² did not encounter any com-

13 Shipway Sir F E. Vinethene Brit M J 1 70 (Jan 12) 1935

14 Connolly J and Baker R E. Vinethene Anesthesia U S Nav M Bull 34 499 (Oct) 1936

15 Goldman Victor. Vinyl Ether—A New Method of Administration Brit M J 2 122 (July 18) 1936

16 Batzner W. Munchen med Wchn chr G2 933 (June 7) 1935 Dorfelf E W. Deutsche med Wchn chr G1 955 (July 14) 1935

Molitor⁴ Ravdin Elia on Coates Holloway Ferguson Gill and Cook¹² Goldman¹⁵

17 Molitor⁴ Ravdin Elia on Coates Holloway Ferguson Gill and Cook¹² Goldman¹⁵ Dorfelf¹⁶

18 Tucker Eldon B. Observation on the Use of the Newer Anesthetics Vinethene and Cyclopropane Anesth & Analg 16 55 (Jan Feb) 1937

19 Beach Edward W. Further Experiences in the Scope and Utility of Vinethene Anesthesia in 2,630 Cases Current Researches in Anesth & Analg 15 214 (Sept & Oct) 1936

20 Ruth H S. in discussion on Goldschmidt Ravdin Lucke Muller Johnston and Ruigh³

plications in his procedures—mostly of thirty minutes or less. Molitor⁴ and others have pointed out the importance of an adequate supply of oxygen. This, of course, refers especially to the closed technic used for periods longer than thirty minutes.

It has been claimed that the excess of mucus which occurs with Vinethene did not increase the evidence of pulmonary complications and that it ceases at the end of anesthesia, when it is vomited. The mucus as well as the vomited material might easily be inspired, resulting in pulmonary complications and therefore this factor may become more important when and if the anesthetic is used for longer periods.

It has been claimed that the safety of this agent is dependent on the ability and experience of the anesthetist¹⁸ and even that it should be used by the "physician-anesthetist" and not by the layman or general practitioner.

Age—Oehlcker²¹ found its use advantageous in small children, while Beach¹⁹ suggested its use in these patients with an ether follow on. The age range was 15 months to 75 years in Ravdin's¹² series of cases, while Goldman¹³ used it in those from 7 weeks to 65 years of age.

CONCLUSIONS

Although Ravdin¹² has pointed out that Vinethene falls short of an ideal substance possessing the pharmacologic and chemical characteristics of ether and ethylene, and although the present evidence does not indicate its use to replace ether or other agents in procedures exceeding one-half hour, it appears to be a useful anesthetic for short periods when given by an anesthetist familiar with the agent. The eye signs are not useful and the depth of anesthesia must be determined by the rate, depth, regularity and character of respiration. Cyanosis should not develop, if it does, oxygen should be administered and the procedure completed under other anesthetic agents. Rapid induction is an advantage of this agent provided over-concentration and excessive anesthesia are avoided. Rapid recovery is also an advantage.

For the present it is not recommended that the drug be used for periods exceeding one-half hour, and those employing it for any period should familiarize themselves with the nature of the compound.

As with any anesthetic agent, proper consideration should be given to age, cardiovascular disease, kidney disease, and especially pathologic conditions of the liver.

The Council voted to accept Vinethene-Merck for a period of one year for use as an anesthetic in short procedures and to publish this report at the time of acceptance.

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEECH, Secretary

VINETHENE—Vinethenum—Vinyl Ether For Anesthesia—Merck— $\text{CH}_2\text{CHOCH}_2\text{CH}_3$ with the addition of 3.5 per cent absolute alcohol and 0.01 per cent of phenyl- α -naphthylamine.

Caution—Vinethene is inflammable and deteriorates on exposure. It is not to be used for anesthesia if the original container has been opened longer than twenty-four hours.

Actions and Uses—Vinethene is an inhalation anesthetic to be used for short anesthetics. It differs from ether, U. S. P., in the rapidity of its action. This property necessitates special caution in its administration. It is easy to pass from the level of surgical anesthesia to dangerous overdosage, therefore the importance of constant, close observation of the patient cannot be overemphasized. Properly watched this rapid action is of advantage in short anesthetics, as is the prompt recovery which follows administration of the drug.

The anesthetist should familiarize himself thoroughly with the properties of Vinethene before employing it. Of major importance is the fact that the eye signs usually depended on in anesthesia are entirely unreliable. The most important single signs to follow in determining the extent of the anesthesia are

the rate, depth, regularity and smoothness of respiration. If the anesthesia is administered in the proper way there should be no cyanosis and the development of such a condition is an indication for the employment of oxygen followed by the use of other anesthetic agents. Although there is usually an increased flow of saliva during maintenance, even when atropine is administered, postoperative complications have not been frequently encountered. Nausea and vomiting occur in about 5 per cent of cases.

Vinethene is intended primarily for use in minor surgical operations of short duration, and in dentistry. It has also been proposed as an induction anesthetic. It has been rather extensively used during labor and during postpartum obstetric procedures. It has, however, one major disadvantage when used in this branch of medicine—its rapid action has practically precluded its use for obtaining obstetric analgesia.

Under no circumstances should the anesthetic be pushed and if proper relaxation and anesthesia are not obtained with low concentrations other agents should be employed. In case of overdosage respiration is likely to be inhibited and anoxemia and cyanosis to develop. Under such circumstances the anesthetic must be discontinued and measures taken to stimulate the respiratory center and respiration. The explosive and fire hazards of Vinethene are just about equal to those of ether, U. S. P.

As with any other anesthetic agent, age, cardiovascular disease, renal insufficiency or hepatic damage, particularly the latter, must be given due consideration as contraindications. It may be administered by the open drop, semiofen drop or closed machine method. It would seem at the present time that the open drop method is preferable, for the short anesthetics.

Manufactured by Merck & Co. Inc. New York. U. S. patents 2,021,872 (Nov. 19, 1935, expires 1952), 2,044,800 (June 23, 1936, expires 1953), 2,044,801 (June 23, 1936, expires 1953). U. S. trademark 297370.

Vinethene occurs as a clear, colorless liquid with a slight purple fluorescence possessing a characteristic odor. It is miscible with methyl alcohol. Vinethene boils at 28.31°C.

Agitate 5 cc of vinethene in a small chilled glass stoppered cylinder with 2 cc of water previously boiled. The aqueous layer should not affect blue or red litmus paper.

Concentrate 10 cc of vinethene to about 1 cc, pour on clean odorless filter paper; no foreign odor becomes perceptible as the last portions disappear from the paper and the paper remains odorless.

Add 1 cc of cold vinethene to 0.5 cc of a cold solution of 1 Gm of silver nitrate dissolved in equal parts of 10 cc stronger ammonia water and 10 cc of water and 0.5 cc of a solution of 1 Gm of sodium hydroxide dissolved in 10 cc of water, cool in ice, shake for ten seconds, stopper with rubber stopper previously boiled with sodium hydroxide and allow to stand for thirty minutes; no deeper coloration should develop in thirty minutes than in a control prepared by using 1 cc of benzene previously washed with a 10 per cent solution of sodium hydroxide and 1 cc of an aqueous solution of 4 cc of $\frac{1}{4}$ mol of cobaltic chloride and $\frac{1}{4}$ mol of ferric chloride and 8 cc of $\frac{1}{4}$ mol of copper sulfate in 100 cc of water.

To 5 cc of vinethene add 1 cc of an alkaline solution of phenol prepared by dissolving 0.1 Gm of phenol in 20 per cent sodium hydroxide solution and diluting 1 volume with 24 volumes of water, stopper with a rubber stopper previously washed with sodium hydroxide and shake vigorously for three minutes; no darker color should develop than in a control using benzene and similar quantities of the reagent.

Evaporate 10 cc at room temperature dry at 50°C; the residue should not exceed 0.002 Gm.

PHYSIOLOGICAL SOLUTION OF SODIUM CHLORIDE—U. S. P. (See New and Nonofficial Remedies, 1937, p. 342)

The following dosage forms have been accepted:

Physiological Solution of Sodium Chloride 500 cc Bottle Prepared by the Abbott Laboratories, North Chicago, Ill.
Physiological Solution of Sodium Chloride 1000 cc Bottle Prepared by the Abbott Laboratories, North Chicago, Ill.

DEXTROSE (See New and Nonofficial Remedies, 1937, p. 155)

The following dosage forms have been accepted:
The Abbott Laboratories, North Chicago, Ill.

Dextrose 5% in Distilled Water. Each 100 cc contains dextrose U. S. P. 5.50 Gm. Supplied in bottles containing 500 and 1000 cc.
Dextrose 10% in Distilled Water. Each 100 cc contains dextrose U. S. P. 11 Gm. Supplied in bottles containing 500 and 1000 cc.
Dextrose 5% in Physiological Solution of Sodium Chloride. Each 100 cc contains dextrose U. S. P. 5.50 Gm and sodium chloride 0.85 Gm. Supplied in bottles containing 500 and 1000 cc.
Dextrose 10% in Physiological Solution of Sodium Chloride. Each 100 cc contains dextrose U. S. P. 11 Gm and sodium chloride 0.85 Gm. Supplied in bottles containing 500 and 1000 cc.
Dextrose 5% in Ringer's Solution. Each 100 cc contains dextrose U. S. P. 5.50 Gm, sodium chloride 0.7 Gm, potassium chloride 0.03 Gm and calcium chloride 0.025 Gm. Supplied in bottles containing 500 and 1000 cc.
Dextrose 5% in Lactate Ringer's Solution. Each 100 cc contains dextrose U. S. P. 5.50 Gm, lactic acid (as sodium lactate) 0.24 Gm, sodium chloride 0.69 Gm, potassium chloride 0.04 Gm and calcium chloride 0.02 Gm. Supplied in bottles containing 500 and 1000 cc.

²¹ Oehlcker, F. *München med. Wchnschr.* S2 933 (June 7) 1935.

MEDICAL EDUCATION IN THE UNITED STATES AND CANADA

THIRTY-SEVENTH ANNUAL PRESENTATION OF EDUCATIONAL DATA BY THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS OF THE AMERICAN MEDICAL ASSOCIATION

The report presented herewith for the academic year 1936-1937 includes either statistical data or editorial comment regarding the medical schools approved¹ by the Council on Medical Education and Hospitals during this period. Also included are revised lists of hospitals approved by the Council for internships and residencies in specialties. The first revision of the lists of schools for physical therapy and clinical laboratory technicians which conform to the standards adopted by the American Medical Association likewise appears in this issue.

Figures are presented covering seventy-seven medical schools in the United States and ten in Canada, 712 hospitals approved for internships, 439 hospitals offering approved residencies in specialties, fourteen schools for physical therapy technicians and 125 schools for clinical laboratory technicians.

These data are based on official reports from the institutions listed. Acknowledgment is tendered the officers of the bodies mentioned and others for their ready cooperation in supplying the facts included in this presentation as well as for other material furnished throughout the year, enabling the Council to maintain its medical student and hospital registers efficiently.

PRELIMINARY EDUCATION

The minimum standard of preliminary education for approved schools of medicine since 1918 has been not less than two full academic years, including English, theoretical and practical courses in physics and biology and in general and organic chemistry, completed in institutions approved by accrediting associations acceptable to the Council. There are six such agencies, namely:

Association of American Universities
North Central Association of Colleges and Secondary Schools
Middle States Association of Colleges and Secondary Schools
New England Association of Colleges and Secondary Schools
Southern Association of Colleges and Secondary Schools
Northwest Association of Secondary and Higher Schools

The Council has published annually since 1915 a list of colleges of arts and sciences approved by these agencies as a guide to medical schools in the selection of students and also to assist the prospective medical student in choosing a college for his preliminary training. The compilation for the year 1936-1937 includes 764 colleges approved by the several bodies as follows:

Association of American Universities	282
North Central	275
Southern	230
Middle States	128
Northwest	63
New England	47

Of those recognized by the Association of American Universities, all but twenty-one are approved also by their district agency. In the various groups this dual approval of 261 institutions is distributed as indicated below:

North Central	102
Middle States	60
Southern	51
New England	29
Northwest	17

These five regional associations of colleges referred to cover among them the entire United States with the

exception of the far Southwest. Institutions in this territory can secure only the approval of the national group—the Association of American Universities.

Medical schools are privileged to accept applicants who have fulfilled the requirement in institutions not approved by the agencies mentioned, provided the applicant gives evidence of superior ability. Officials in selecting from the large number of applicants, however, give preference to those whose preparation has been received in institutions that are known to conform to

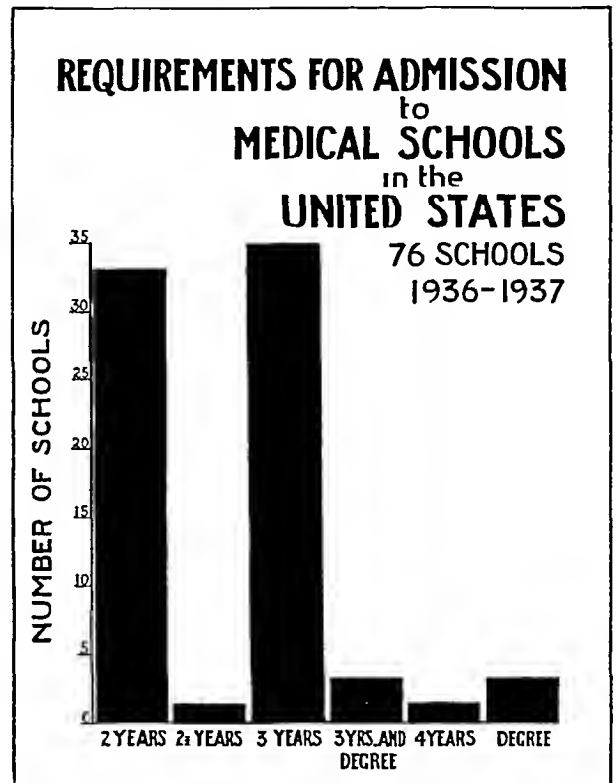


Chart 1

accepted standards. Of students from other institutions they exact, both qualitatively and quantitatively, a higher performance.

For the session 1937-1938, fifty medical schools in the United States have adopted preliminary requirements in excess of the minimum, i. e., five require a degree, thirty-nine require three years, one requires four years, four schools will admit students with three years of college work if the baccalaureate degree is conferred in absentia at the end of the first year in medicine, and one school has a requirement equivalent to two and one-half years. Twenty-seven schools exact the two year requirement. The general tendency toward a requirement of three or more years of college work seems to be due to two factors, first, a desire for more thorough grounding in all the branches of chemistry and, second, a desire for a greater familiarity with non-science sub-

(Continued on page 664)

¹ Including two schools whose approval has been withdrawn and two schools placed on probation. See footnotes to table 1, page 661.

TABLE 1—Statistics of Recognized Medical Schools in the United States and Canada

Marginal No	Name and Location of School	1937-1938 Preliminary Requirement By Years	Length of Course, Years	Students by Classes Session 1930-1937					Graduates Since July 1 1936	Session 1937-1938		Applications for Admission to the 1st Year Received Until Will Be Re- ceived	Executive Officer	Marginal No
				1st Year	2d Year	3d Year	4th Year	5th Year or Inter- Year		Begins 1937	Ends 1938			
1	ALABAMA University of Alabama School of Medicine University (Tuscaloosa)	3	2	50	37				87	Sept 8	May 24		Stuart Graves M D Dean	1
2	ARKANSAS University of Arkansas School of Medicine Little Rock	2	4	87	78	71	62		298	Sept 29	June 7	Sept	Frank Vinsonbaler M D, Dean	2
3	CALIFORNIA University of California Medical School Berkeley San Francisco	3	2	62	59	64	62	501	247	Aug 23	May 21	April	Langley Porter M D Dean	3
4	College of Medical Evangelists, Loma Linda Los Angeles	2	5	102	97	110	112	731	491	Sept 1	June 12	May	E H Risley M D, Dean Loma Linda W F	4
5	University of Southern California School of Medicine Los Angeles	3	5	54	43	44	44	461	187	Sept 20	June 4	May	Macpherson M D, Associate Dean Los Angeles	5
6	Stanford University School of Medicine San Francisco	3	5	60	56	59	63	331	233	Sept 28	June 15	March	Paul S McKibben Ph D Dean	6
7	University of Colorado School of Medicine Denver	3	4	59	43	51	49	207	48	Sept 27	June 13	April	Loren Roscoe Chandler M D Dean	7
8	CONNECTICUT Yale University School of Medicine New Haven	3	4	50	53	42	43	133	47	Sept 27	June 15	March	Stanhope Bayne Jones M D Dean	8
9	DISTRICT OF COLUMBIA Georgetown University School of Medicine Washington	3	4	96	78	108	124	407	117	Sept 20	May 28	March	David V McCauley S I Ph D Dean	9
10	George Washington University School of Medicine Washington	2	4	67	69	63	69	233	59	Sept 22	June 8	March	Earl B McKinley M D Dean	10
11	Howard University College of Medicine Washington	2	4	42	35	24	34	135	35	Sept 27	June 10	Sept	Numa P G Adams M D Dean	11
12	GEORGIA More University School of Medicine Atlanta	3	4	63	42	60	55	220	55	Sept 23	June 6	June	Russell H Oppenheimer M D Dean	12
13	University of Georgia School of Medicine Augusta	3	4	42	36	34	32	143	33	Sept 27	June 13	June	G Lombard Kelly M D Dean	13
14	ILLINOIS Loyola University School of Medicine Chicago	2	5	132	114	113	121	1061	480	Sept 27	June 11	April	Louis D Moorhead M D, Dean	14
15	Northwestern University Medical School Chicago	3	5	125	122	122	160	1481	632	Sept 28	June 11	March	Irving S Cutter M D Dean	15
16	University of Chicago Rush Medical College	3	4					1371	324	Oct 4	June 10	March	W H Tallaferro Ph D Dean	16
17	University of Chicago, The School of Medicine of the Division of the Biological Sciences	3	4					351	294	Oct 4	June 10	March	B C H Harvey M D Dean of Students	17
18	University of Illinois College of Medicine, Chicago	3	5	164	168	163	151	1521	616	Sept 27	June 10	March	David J Davis, M D Dean	18
19	INDIANA Indiana University School of Medicine Bloomington Indianapolis	3	4	115	116	89	105	425	97	Sept 10	June 13	August	Burton D Myers M D Dean Bloomington	19
20	IOWA State University of Iowa College of Medicine Iowa City	2	4	111	106	85	80	382	80	Sept 27	June 6	July	Willis D Gatch M D Dean Indianapolis	20
21	KANSAS University of Kansas School of Medicine Lawrence Kansas City	2	4	79	76	67	69	290	69	Sept 16	June 6	June	H R Wahl M D Dean	21
22	KENTUCKY University of Louisville School of Medicine Louisville	2	4	83	73	91	89	341	89	Sept 11	June 4	April	John Walker Moore M D Dean	22
23	LOUISIANA Louisiana State University Medical Center New Orleans	3	5	101	80	63	62	431	43	Sept 13	May 28	April	Arthur Vidrine M D Dean	23
24	Louisiana University of Louisiana School of Medicine New Orleans	2	4	135	93	118	115	466	113	Sept 24	June 8	April	Charles O Bass M D Dean	24
25	MARYLAND Johns Hopkins University School of Medicine Baltimore	Degree	4	65	70	74	65	274	63	Oct 5	June 14	June	Alan M Chesney M D Dean	25
26	University of Maryland School of Medicine and College of Physicians and Surgeons Baltimore	Degree	4	95	82	101	115	393	114	Sept 21	June 4	Sept	J M H Rowland M D Dean	26
27	MASSACHUSETTS Boston University School of Medicine Boston	3	4	67	47	44	57	215	56	Sept 23	June 13	March	Alexander S Beggs M D Dean	27
28	Harvard University Medical School Boston	2	4	125	124	137	140	523	139	Sept 27	June 23	March	Charles Sidney Burwell M D Dean	28
29	Tufts College Medical School Boston	Degree	4	103	111	115	119	451	117	Sept 22	June 13	March	A Warren Stearns M D Dean	29
30	MICHIGAN University of Michigan Medical School Ann Arbor	3	4	149	110	114	95	463	95	Sept 27	June 18	March	A C Furstenberg M D Dean	30
31	MINNESOTA Wayne University College of Medicine Detroit	3	5	60	59	70	78	341	279	Sept 23	June 18	May	Raymond B Allen M D, Dean	31
32	MISSISSIPPI University of Minnesota Medical School Minneapolis	2	5	130	123	133	101	1551	492	Sept 27	June 11	April	Harold S Diehl M D, Dean	32
33	MISSISSIPPI University of Mississippi School of Medicine University	3	2	20				20		Sept 14	May 30	June	B S Guyton M D, Dean	33
34	MISSOURI University of Missouri School of Medicine Columbia	3	2	39	36			75		Sept 13	June 7	June	Dudley S Cooley M D Dean	34
35	St. Louis University School of Medicine St. Louis	2	4	129	119	107	129	434	122	Sept 20	June 1	Sept	Alphonse M Schwitalin S J Ph D Dean	35
36	Washington University School of Medicine St. Louis	4	4	81	74	83	91	347	94	Sept 23	June 7	Sept	Philip A Shaffer Ph D Dean	36
37	NEBRASKA Creighton University School of Medicine Omaha	2	4	73	59	71	59	261	59	Sept 21	June 2	June	Bryan M Riley M D Dean	37
38	NEBRASKA University of Nebraska College of Medicine Omaha	3	4	94	73	77	87	336	87	Sept 20	June 6	June	C W M Poyser M D Dean	38
39	NEW HAMPSHIRE Dartmouth Medical School Hanover	3	2	20	42			42		Sept 22	June 17	Feb	John P Bowler M D Dean	39

40	Albany Medical College Albany	NEW YORK	Degree	4	31	23	21	22	100	21	Sept 27	June 13	June	R S Cunningham M D Dean	46
41	Long Island College of Medicine Brooklyn		Degree	4	94	66	91	83	364	81	Sept 27	June 11	June	Jean A Curran M D Dean	41
42	University of Buffalo School of Medicine Buffalo		Degree	4	72	67	63	59	361	81	Sept 27	June 11	June	Edward W Koch M D Dean	42
43	Cornell University Medical College of Medicine New York		3&D Degree	4	79	75	70	72	298	71	Sept 27	June 15	June	William S Ladd M D Dean	43
44	Columbia University College of Physicians and Surgeons New York		Degree	4	115	101	01	93	208	94	Sept 26	June 1	Nov	William O Rappleye M D Dean	44
45	New York University College of Medicine New York		Degree	4	75	63	59	86	238	89	Sept 26	June 7	June	Claude A Burrett M D Dean	45
46	New York University College of Medicine Rochester		3&D Degree	4	133	116	117	143	139	139	Sept 10	June 8	Jan	Currier McEwen M D Assistant Dean	46
47	University of Rochester School of Medicine Rochester		Degree	4	48	43	43	35	160	35	Sept 20	June 16	March	George Hoyt Whipple M D Dean	47
48	Syracuse University College of Medicine Syracuse		Degree	4	48	49	30	40	173	40	Sept 23	June 8	April	H G Weiskotten M D Dean	48
49	University of North Carolina School of Medicine Chapel Hill	NORTH CAROLINA	Degree	3	35	33			63		Sept 16	June 7	Sept	William deB MacNider M D Dean	49
50	Duke University School of Medicine Durham		Degree	2	4	70	61	50	331	243	Sept 30	June 6	June	Wilbur C Davidson M D Dean	50
51	Wake Forest College School of Medical Sciences Wake Forest		Degree	2	23	21			49		Sept 14	May 31	June	C C Carpenter M D Dean	51
52	University of North Dakota School of Medicine Grand Forks	NORTH DAKOTA	Degree	3	2	27	20		53		Sept 20	June 7	June	H E French M D Dean	52
53	University of Cincinnati College of Medicine Cincinnati	OHIO	Degree	3	5	78	74	72	691	69	Sept 17	June 3	April	Alfred Friedlander M D Dean	53
54	Western Reserve University School of Medicine Cleveland		3&D Degree	4	74	59	66	61	200	61	Sept 23	June 15	Sept	Torald Solimann M D Dean	54
55	Ohio State University College of Medicine Columbus		Degree	4	82	84	90	98	352	94	Sept 23	June 13	Sept	J H J Upham M D Dean	55
56	University of Oklahoma School of Medicine Oklahoma City	OKLAHOMA	Degree	2	4	69	55	60	239	59	Sept 20	June 6	August	Robert U Patterson M D Dean	56
57	University of Oregon Medical School Portland	OREGON	Degree	3	4	60	53	62	240	53	Oct 4	June 4	July	Richard B Dillehunt M D Dean	57
58	Hahnemann Medical College and Hospital of Philadelphia	PENNSYLVANIA	Degree	4	150	142	131	121	544	121	Sept 27	June 9	Sept	William A Pearson Ph D Dean	58
59	Jefferson Medical College of Philadelphia		Degree	4	129	116	135	138	138	138	Sept 20	June 3	Sept	Ross V Patterson M D Dean	59
60	University of Pennsylvania School of Medicine Philadelphia		Degree	4	100	110	119	118	441	110	Sept 22	June 16	Sept	William N Parkinson M D Dean	60
61	University of Pennsylvania School of Medicine Philadelphia		Degree	4	119	105	141	134	469	134	Sept 27	June 8	March	William Fepp r M D Dean	61
62	University of Pennsylvania School of Medicine Philadelphia		Degree	4	32	21	30	24	16	23	Sept 22	June 8	Sept	Marthin Tracy M D Dean	62
63	University of Pittsburgh School of Medicine Pittsburgh	PENNSYLVANIA	Degree	4	53	52	60	64	229	62	Sept 20	June 8	May	R R Hugbun M D Dean	63
64	Medical College of the State of South Carolina Charleston	SOUTH CAROLINA	Degree	3	4	42	42	43	174	45	Sept 23	June 2	July	Robert Wilson M D Dean	64
65	University of South Dakota School of Medicine Vermillion	SOUTH DAKOTA	Degree	2	2	22	21		43		Sept 10	June 6	July	Joseph C Ohlmacher M D Dean	65
66	University of Tennessee College of Medicine Memphis	TENNESSEE	Degree	2	4	119	91	110	423	102	Sept 9	June 11	Sept	O W Hyman Ph D Dean	66
67	Memphis Medical College Nashville		Degree	2	4	78	46	41	35	200	Oct 1	May 19	Sept	John J Mullooney M D President	67
68	Vanderbilt University School of Medicine Nashville		3&D Degree	4	2	45	49	51	197	51	Sept 20	June 8	Sept	Walter S Leathers M D Dean	68
69	Baylor University College of Medicine Dallas	TEXAS	Degree	2	4	103	82	78	338	78	Oct 1	June 6	June	W H Housend M D Dean	69
70	University of Texas School of Medicine Galveston		Degree	2	4	110	97	82	367	78	Oct 1	May 31	June	W S Carter M D Dean	70
71	University of Utah School of Medicine Salt Lake City	UTAH	Degree	3	2	30	29		59		Sept 27	June 3	Feb	L L Daines M D Dean	71
72	University of Vermont College of Medicine Burlington	VERMONT	Degree	2	4	30	39	39	164	50	Sept 17	June 13	June	James N Jenne M D Dean	72
73	University of Virginia Department of Medicine Charlottesville	VIRGINIA	Degree	2	4	68	59	59	247	61	Sept 16	June 13	June	J Carroll Filppin M D Dean	73
74	Medical College of Virginia Richmond		Degree	3	4	80	67	80	307	82	Sept 7	June 7	June	Lee E Sutton Jr M D Dean	74
75	West Virginia University School of Medicine Morgantown	WEST VIRGINIA	Degree	3	2	21	20		41		Sept 14	June 7	Sept	Edward J Van Liere M D Dean	75
76	University of Wisconsin Medical School Madison	WISCONSIN	Degree	3	4	98	99	53	300	48	Sept 22	June 20	March	William S Middleton M D Dean	76
77	Marquette University School of Medicine Milwaukee		Degree	2	5	94	84	69	61	64	Sept 24	June 10	March	Eben J Carey M D Dean	77
78	University of Alberta Faculty of Medicine Edmonton	CANADA	Degree	1	0	24	40	39	318	32	Sept 24	April 20	Sept	Allan O Rankin M D Dean	78
79	University of Manitoba Faculty of Medicine Winnipeg		Degree	2	5	63	40	50	40	214	Sept 17	May 18	April	A T Mathers M D Dean	79
80	McGill University Faculty of Medicine Kingston		Degree	2	5	66	42	44	32	118	Sept 14	May 17	June	H G Grant M D Dean	80
81	Queen's University Faculty of Medicine Kingston		Degree	1	0	44	40	44	294	47	Sept 20	May 24	August	Frederick Etherington M D Dean	81
82	University of Western Ontario Medical School London		Degree	1	0	33	41	33	3	221	Sept 20	May 14	Sept	F J H Campbell M D Dean	82
83	University of Toronto Faculty of Medicine Toronto		Degree	1	0	142	139	143	119	834	Sept 28	May 31	Sept	W F Galie M D Dean	83
84	McGill University Faculty of Medicine Montreal		Degree	3	5	169	77	94	91	112	Sept 1	May 31	March	A Grant Fleming M D Dean	84
85	University of Montreal Faculty of Medicine Montreal		Degree	1	5	62	50	29	46	541	Sept 10	June 10	August	Telephore Pariseau M D Dean	85
86	Laval University Faculty of Medicine Quebec		Degree	2	5	77	60	45	271	40	Sept 21	May 31	Sept	P C Dagnneau M D Dean	86
87	University of Saskatchewan School of Medical Sciences Saskatoon	SASK.	Degree	2	2	25	25		20		Sept 21	May 13	August	W S Lindsey M B Dean	87

* On probation from Oct 11 1930

** Approval withdrawn Oct 11 1933 without prejudice to the students then enrolled. On June 6 1933 protection was extended to students who may be enrolled in the first year class in 1933-1934

***On probation from June 0 1937

† Enrolment not on above table by classes for the two medical schools of the University of Chicago

* Fifth year (internship) enrolment not included in the total column

§ Sixth year enrolment Alberta % Queen % Western Ontario Toronto 122

Students admitted at different times of the year Stanford second year January 3 Northwestern beginning of any quarter Kansas 1st and 2d semesters of 2d year Sept 16 1937 and Jan 31 1938 Tennessee September 27 December 31 1937 and March 21 1938

TABLE 2—Birthplace

Marginal Number	Name of School	Alabama	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	Dist. of Columbia	Florida	Georgia	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland	Massachusetts	Michigan	Marginal Number	
1	University of Alabama School of Medicine	46			1	1				2			1									1	1	2
2	University of Arkansas School of Medicine	2		21	4					1									1			1	1	2
3	University of California Medical School	1	3		131	3	1		1			1	7	2	3	2						1	1	2
4	College of Medical Evangelists	1		2	86	1	1		3	2	2	7	7	1	1							1	1	2
5	Univ. of Southern California School of Medicine	1	5	1	67	3	2				2	7	7	4	11	7			3	11	6	21	4	5
6	Stanford University School of Medicine		2		11	1			1		1	2	9	4	10	2					12	2	6	6
7	University of Colorado School of Medicine				2	96					3	2	3	3	4	9		1		3	2	3	5	7
8	Yale University School of Medicine	1		1	4	1	44			3		2	2	3	4	9		1			3	5	7	7
9	Georgetown University School of Medicine	1			3	1	13				1	2	2	1	1	1		2	1	5	2	12	1	8
10	George Washington Univ. School of Medicine	1	1	1	4	1	3		62	1	2	6	7	1	3	1		2	6	4	26	5	9	9
11	Howard University College of Medicine	1	1						15	1	3							1		2	7	6	10	10
12	Emory University School of Medicine	17		1			1			23	133			3		1	2		1	3	2	2	11	12
13	University of Georgia School of Medicine	2								2	119			1				1						13
14	Loyola University School of Medicine	1	2		6	1	2			2	1	209	14	5	1				1		4	14	14	14
15	Northwestern University Medical School	1	2	2	13	3	1	1		2	2	12	168	11	13	19	5	2	1	1	2	1	1	1
16	University of Chicago Rush Medical College	8			10	1	1			1	2	87	3	9	2	2								1
17	University of Chicago Div. of Biological Science	3			13	2	1		2	2	1	6	128	9	6	4		1	1			1	17	1
18	University of Illinois College of Medicine				2					1	1	503	13	6								3	2	18
19	Indiana University School of Medicine				2	2				1	1	18	341	2	1	7								2
20	State University of Iowa College of Medicine				2	2				1	1	22	299	5	2									2
21	University of Kansas School of Medicine				2	4				8	1	3	197											4
22	University of Louisville School of Medicine	1	1		5	2				2	2	2	6	11	2	182								3
23	Louisiana State University Medical Center	13		2	1	1	1			8	6	1	2	3	2	1	164							23
24	Louisiana University of Louisiana School of Medicine	47	3	21	1	1			3	12	3			1	1	4	121							24
25	Johns Hopkins University School of Medicine	5	1	2	7	1	5		7	3	5	8	4	1	1	1	3		1	59	8	4	2	25
26	University of Maryland School of Medicine	1			1	1	9	3	5	2	2	1	1	1	1				1	10	6			26
27	Boston University School of Medicine				1	8																		27
28	Harvard University Medical School	2	1	1	19	7	11		2	7	2	21	7	8	5	6	3		13	123	1	2		28
29	Tufts College Medical School				1				1											4	118	14	29	
30	University of Michigan Medical School	2	1		3		3		1	1		10	14	3	3	3		19	1	1	3	144	30	
31	Wayne University College of Medicine	1			2		2					11	6	1	1			1	1	1	3	1	31	
32	University of Minnesota Medical School				3				1			1	1	1	2	1								32
33	University of Mississippi School of Medicine	1																						33
34	University of Missouri School of Medicine	1		1																				34
35	St. Louis University School of Medicine	2	3	2	29	2	5			1	2	50	15	7	8	3					6	3	35	35
36	Washington University School of Medicine	7	3	2	16	3			1	2	5	40	2	6	16	3				2				36
37	Cleveland University School of Medicine		2		58	2	1				1	3	1	13	10									37
38	University of Nebraska College of Medicine				3	7					1	5		27	4	1								38
39	Dartmouth Medical School					3	1		1	1		1												39
40	Albany Medical College																							40
41	Long Island College of Medicine	1			1	6			1										3					41
42	University of Buffalo School of Medicine					1																		42
43	Columbia University College of Phys. and Surg.	3	1	2	3	3	15	1	3		2	1	10	2	1	4	1	1	1	5	2	4		43
44	Cornell University Medical College	3	1			7		2		4	1	4	1	2	2	2	2	1		10				44
45	New York Medical College				2	8																		45
46	New York University College of Medicine	1			1	9				2		2								1	9	11		46
47	University of Rochester School of Medicine				5	7		1				4	1	1										47
48	Syracuse University College of Medicine					2						1												48
49	University of North Carolina School of Medicine																							49
50	Duke University School of Medicine	5			4	3	1	3	4	8		6	3	4			2	1	1	7	4	3	50	50
51	Wake Forest College School of Medical Sciences	1								2														51
52	University of North Dakota School of Medicine																							52
53	University of Cincinnati College of Medicine				3				1			2	7				2							53
54	Western Reserve University School of Medicine				1	1	3		1		1	6	4				2							54
55	Ohio State University College of Medicine	2			1							6												55
56	University of Oklahoma School of Medicine	3		11	4	1				1	1	3			2	11								56
57	University of Oregon Medical School				1					12	7				2									57
58	Hahnemann Medical College			1	1	11	6	1			7	4	2	1				1	2	11				58
59	H Jefferson Medical College of Philadelphia	1			4	7	13	3	3	2	1	2			1			2	1	6	3			59
60	Temple University School of Medicine	1			2	3	1	2			2				2				2	1	2	1		60
61	University of Pennsylvania School of Medicine	3	1		4	2	1	3	1	1	1	2	1		4	3		5	1	17	1			61
62	Woman's Medical College of Pennsylvania					3																		62
63	University of Pittsburgh School of Medicine				1	1	1	1		1														63
64	Medical College of the State of South Carolina	1																						64
65	University of South Dakota School of Medicine				1					1	2			6										65
66	University of Tennessee College of Medicine	19	10	4		1			1	4	3	10	2	2		27		1		3				66
67	Meharry Medical College			1					8	8	0	4	1		2	2	8	1	5	1	2			67
68	Vanderbilt University School of Medicine	16		3	1				4	4	1	3	1			3								68
69	Baylor University College of Medicine	2	1		4	3		1				3			3	2	2							69
70	University of Texas School of Medicine			6	3	1		1		2	1	3		1	2		4							70
71	University of Utah School of Medicine	1								8	3													71
72	University of Vermont College of Medicine				1	13	1																	72
73	University of Virginia Department of Medicine	1			1	2	4	3	1	3	1						2		7	14			73	
74	Medical College of Virginia	1			2			4	3	3	1	1		2			3		1	2	4			74
75	West Virginia University School of Medicine																1							75
76	University of Wisconsin Medical School				1					1	15	4	2	1										76
77	Marquette University School of Medicine				8	2	1				8	3	3											77
78	University of Alberta Faculty of Medicine																							78
79	University of Manitoba Faculty of Medicine																							79
80	Dalhousie University Faculty of Medicine				1																			80
81	Queen's University Faculty of Medicine																							81
82	University of Western Ontario Medical School								1															82
83	University of Toronto Faculty of Medicine				1	1																		83
84	McGill University Faculty of Medicine	1		37	1					1	1	4	1	1			1	4	2	2				84
85	University of Montreal Faculty of Medicine																							85
86	Laval University Faculty of Medicine																							86
87	Univ. of Saskatchewan School of Med. Science								1								1							87
Totals		35	293	716	1,777	2,411	41	154	123	3,690	90	1,500	32,744	454	3,377	2,300	314	11	21	11	11	11	11	

of Students

[illegible]

(Continued from page 659)

jects, such as literature, history or economics, than can be secured in two college years. The medical schools in Canada also vary in their preliminary requirement. One requires a degree for admission to a five year course, four have a six year medical course preceded by senior matriculation which is equivalent to the work of the first year in a college of arts, one school requires one year for entrance to the five year medical course, three require two years, and one has a three year prerequisite.

The preliminary requirements for admission to the medical schools in the United States for 1936-1937 are shown in chart 1. In contrast, chart 2 records the training possessed by 5,718 freshmen enrolled during this period. More than half of the students (3,181) had a college degree before beginning medicine, and 27 per

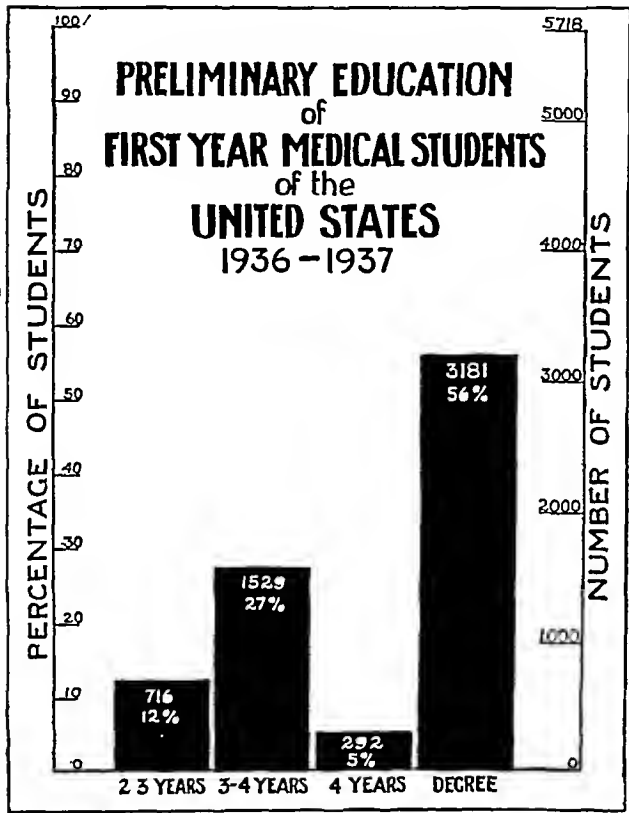


Chart 2

cent had between three and four years, leaving 5 per cent with four years and only 12 per cent with the minimum requirement of two years.

Several medical schools which accept only those with three years of college work require that the bachelor's degree be conferred after completion of the freshman medical year. Therefore many more graduates hold the bachelor's degree than do entering freshmen. A table appears in this study recording the number of graduates of 1937 holding baccalaureate degrees (table 12). Similarly, mention is made of those who have received the degree of B.S. in medicine.

While the two year college prerequisite has been exacted by the Council for nineteen years, there are still eight states which have not revised or amended their statutes to conform, although these states, with possibly one or two exceptions, do not license other than graduates of approved schools. These states are California, Connecticut, Delaware, Massachusetts, Missouri, Nebraska, Ohio and Pennsylvania.

LENGTH OF MEDICAL COURSE

The medical course in the United States in general covers four calendar years of approximately thirty-two weeks each. Fifty-one schools offer such a course. The medical schools of the universities of Minnesota, Duke and Tennessee operate on the quarter plan, enabling the student by utilizing the summer months to complete the course in three calendar years. A good portion of the students of these schools do not elect to study during the summer months. The medical schools of the University of Chicago permit a student to progress as rapidly as he desires but here again, the majority of students complete twelve quarters of work. It may be said that actually fifty-five schools require a four year course, including two operated on the quarter plan and two by individualized instruction and the quarter system, while twelve, including one school operated on the quarter plan, require four years and a fifth year spent as an intern or in research work, the degree being conferred after completion of the internship. Duke University requires a two year internship. The internship requirement of the medical schools of the University of Chicago was discontinued in 1936. Ten schools offer only a two year course.

Five of the medical schools of Canada offer a five year course, four have a six year course and the University of Saskatchewan offers courses in the medical sciences only which are covered in two years. Four Canadian schools require an internship for graduation.

These data are included in table 1.

CURRICULUM

The curriculum to be covered in a course of four years in a medical school enjoying the Council's approval should consist of from 3,600 to 4,400 hours, distributed as from 900 to 1,100 hours a year, and should be grouped as set forth in the following schedule, each group to be allotted approximately the percentage of hours of the whole number of hours in the courses is stated.

1	Anatomy including Embryology and Histology	14	— 18½%
2	Physiology	4½	— 6%
3	Biochemistry	3½	— 4½%
4	Pathology Bacteriology and Immunology	10	— 13%
5	Pharmacology	4	— 5%
6	Preventive Medicine and Hygiene	3	— 4%
7	General Medicine	20	— 26½%
	Neurology and Psychiatry		
	Pediatrics		
	Dermatology and Syphilis		
8	General Surgery	13	— 17½%
	Orthopedic Surgery		
	Urology		
	Ophthalmology		
	Otolaryngology		
	Röntgenology		
9	Obstetrics and Gynecology	4	— 5%
	Total	76	— 100%
	Electives	24	— 0%

When the teaching conditions make it desirable a subject may be transferred from one division to another.

SCHOOLS OF THE BASIC MEDICAL SCIENCES

Facts revealed by the recent medical school survey led to the preparation and adoption by the Council, at its meeting on Feb. 14, 1937, of the following statement concerning schools that do not offer a complete course. The statement as originally prepared did not include the word "Basic," this being added after further consideration by the Council at its meeting in May.

SCHOOLS OF THE BASIC MEDICAL SCIENCES

Following the recent survey of the medical schools it was decided that effective July 1, 1939, the Council will publish a list of schools which teach acceptably gross and microscopic

anatomy, biochemistry, physiology, pharmacology, bacteriology and pathology, even though they do not offer a full course leading to a medical degree.

The acceptance of courses involving the use of clinical material shall be left to the discretion of the faculties which admit to advanced standing students transferring from approved schools of the medical sciences.

Surveys of the clinical courses and facilities will be made by the Council and reported to the individual medical schools on request.

STATISTICS OF MEDICAL SCHOOLS

Table 1, pages 660 and 661, lists the medical schools in the United States and Canada approved by the Council on Medical Education and Hospitals of the American Medical Association during 1936-1937 and contains figures regarding the premedical requirement for the session 1937-1938, length of the medical course by year, enrolment by classes for the session 1936-1937, including fifth year students interning or engaged in research, the number of graduates since July 1, 1936, dates of the beginning and ending of the forthcoming session, and the month until which applications for admission to the freshman class are received. Changes in the classification that have taken place since the publication of the educational statistics in 1936² can be noted in the footnotes at the bottom of the table and refer to those schools which are marked by asterisks preceding the name. Also contained in the footnotes are references to the fifth and sixth year enrolments and those schools which admit students at varying times during the year. The two medical schools of the University of Chicago do not report their students by classes and in this tabulation, therefore, only the total enrolment is given.

The data presented in this table constitute the basis also for several of the subsequent tabulations. Beginning on page 676 are given historical information and essential facts concerning the schools arranged by states.

Seventy-seven institutions in the United States and ten in Canada are listed. With the exception of four, all these schools at the present time enjoy the full approval of the Council. In eighty-five schools 6,564 freshman students were enrolled, 5,858 sophomores, 5,688 juniors, 5,673 seniors, 384 fifth year and 246 sixth year students, during the session just ended. In the two medical schools of the University of Chicago 618 students were enrolled, making a total of 25,031 in the eighty-seven schools listed. There were in the United States 5,910 freshmen, 5,269 sophomores, 5,140 juniors, 5,158 seniors and the 618 students of the University of Chicago, a total of 22,095. The total students registered by classes in the United States was 21,477. The enrolment in the ten Canadian schools was first year 654, second year 589, third year 548, fourth year 515, fifth year 384 and sixth year 246, a total of 2,936. The 25,031 medical students enrolled do not include 1,255 in the United States and 131 in Canada interning as a requirement for the degree of Doctor of Medicine.

Since July 1, 1936, 5,885 received M.D. degrees, 5,377 from schools in the United States and 508 from Canadian institutions.

In addition there were 216 part-time, 288 special and 671 graduate students studying in medical schools.

Eleven medical schools had an enrolment of less than 100 students. None of the schools comprising this figure give the complete medical course. Thirteen schools matriculated fewer than 200 but more than 100, twenty-eight less than 300, fourteen fewer than 400 and 500 respectively, and five less than 600. Two schools matriculated more than 600. The smallest enrolment (twenty)

was at the University of Mississippi School of Medicine, which for the session 1935-1936 did not offer instruction to freshmen and consequently had no sophomore class during 1936-1937. This school does not offer the complete course. The greatest number (834) were enrolled in the University of Toronto Faculty of Medicine, which has a six year course including premedical subjects. The corresponding high figure among schools in the United States was 646 at the University of Illinois College of Medicine. The lowest enrolment among four year medical colleges in the United States was 100 at Albany Medical College. This school likewise awarded M.D. degrees to the smallest group (twenty-one) since July 1, 1936. The school graduating the greatest number was Rush Medical College, which awarded 289 diplomas. This is a far greater figure than in previous years, owing to the discontinuance of the requirement of an internship for the degree and the subsequent issuance of a diploma to those who ordinarily would have received it following the internship and those who profited by the discontinuance of the requirement. The majority of schools will begin the session 1937-1938 about the middle of September and end early in June.

Of sixty-seven schools that replied to the inquiry regarding the month until which applications for admission to the first year class will be received, one replied January, two February, twelve March, nine April, four May, twelve June, four July, five August, seventeen September, and one November.

The name of the dean or administrative officer of each institution is also given in table 1.

BIRTHPLACE OF STUDENTS

In table 2, pages 662 and 663, the birth state of students in attendance in medical schools during 1936-1937 is shown by schools. The state furnishing the greatest number of students, according to state of birth, was New York with 3,226, followed by Pennsylvania with 1,985, Illinois with 1,566 and Ohio with 1,176.

From the twelve states in which no medical schools are located there were enrolled as students the following:

	Number Enrolled	Number of Schools
Arizona	38	22
Delaware	41	14
Florida	133	16
Idaho	90	33
Maine	113	35
Montana	95	34
Nevada	26	15
New Jersey	838	66
New Mexico	69	23
Rhode Island	119	39
Washington	251	44
Wyoming	29	16

There were 140 born in the United States territories and possessions studying in thirty-nine schools in the United States and four in Canada. In addition, 2,580 students of Canadian birth were also studying medicine, 131 of whom were matriculated in forty-two schools in the United States and 2,449 in the ten Canadian medical schools.

The medical school enrolment is further classified by birthplace in table 3, indicating that 14,405 are studying in the state of their birth and 10,626 elsewhere. This is particularly significant in Illinois, where, of the 2,306 students in five schools, 1,121 were born outside the state. More than 900 born elsewhere are studying in Pennsylvania. Altogether, 42.5 per cent are studying in schools located in other than their birth state. Eliminating the 1,842 born in states having no medical school, there are still 8,784 of the total number of students, 25,031, studying outside their birth state.

A perusal of table 3 will show many instances wherein the number studying elsewhere far exceeds the number attending school in the state of birth. It also shows some states in which the contrary is the case, notably Arkansas, Georgia, Indiana, Iowa, Kansas, Minnesota, Ohio, South Carolina and Texas. Of those enrolled in medical schools in Canada, 2,449 were born in Canada, while 487 were born elsewhere.

It is conceded that this tabulation does not present an absolutely true picture in that all those studying in schools located in states other than their birthplace cannot be classed as nonresidents, since they may have

TABLE 3—Students Classified by Birthplace

State	Number of Schools	Attending School in State of Birth	Birthplace Elsewhere
Alabama	1	46	41
Arkansas	1	210	83
California	4	399	694
Colorado	1	96	111
Connecticut	1	44	144
District of Columbia	3	90	700
Georgia	2	202	111
Illinois	5	1180	1121
Indiana	1	341	84
Iowa	1	299	83
Kansas	1	197	93
Kentucky	1	162	109
Louisiana	2	200	492
Maryland	2	204	413
Massachusetts	3	574	618
Michigan	2	378	369
Minnesota	1	431	61
Mississippi	1	18	2
Missouri	3	297	609
Nebraska	2	203	307
New Hampshire	1	2	40
New York	9	1747	810
North Carolina	3	155	200
North Dakota	1	37	16
Ohio	3	662	246
Oklahoma	1	157	82
Oregon	1	99	141
Pennsylvania	6	1424	920
South Carolina	1	158	16
South Dakota	1	20	18
Tennessee	3	243	577
Texas	2	580	125
Utah	1	43	16
Vermont	1	77	87
Virginia	2	268	286
West Virginia	1	27	14
Wisconsin	2	371	240
Canada	10	2,449	487
Totals	87	14,400	10,626

established their homes in other states. It is believed, however, that the table reveals a trend which may be of interest.

RESIDENT AND NONRESIDENT STUDENTS

Table 4, presented for the first time this year, gives for each medical school the number of resident and nonresident students according to the individual school's definition of the word "resident." Among state universities, as well as other schools, there is a variation in the definition of the term. In some universities this is determined by the legal or permanent residence of the student, parents or guardian only, while in some schools continuous residence for six months, one, two or three years just prior to the student's application for enrollment is also required. Others require the student to be a voter, parents' home in the state established prior to beginning of premedical work, the student is a taxpayer or a dependent of a taxpayer, regardless of whether he resides in the state, self-supporting student, and each case determined by attorney after consideration of birth, citizenship, residence of parents, and so on. Of these methods the most common is the determination of residence by ascertaining whether the student, parents or guardian has been a bona fide resident for a period not less than six months. This is in force in sixteen universities. In most schools also a student coming into

the state for educational purposes only and establishing residence would not be considered a resident. Among other than state universities the term "resident" is defined mostly by the home address of the student or the legal residence of the parents or guardian. Two such schools did not reply to our inquiry, while in one school a student is considered a resident if he lives in the state.

TABLE 4—Resident and Nonresident Students

School	Resident Students	Nonresident Students	Totals
University of Alabama	46	41	87
University of Arkansas	215	83	298
University of California	246	1	247
College of Medical Evangelists	86	330	421
University of Southern California	170	12	182
Stanford University	194	44	238
University of Colorado	106	31	137
Yale University	59	129	188
Georgetown University	18	359	401
George Washington University	91	162	253
Howard University	15	120	135
Emory University	133	87	220
University of Georgia	130	8	138
Loyola University	299	181	480
Northwestern University	214	343	557
Rush Medical College	87	237	324
Division of Biological Sciences	123	166	289
University of Illinois	644	2	646
Indiana University	409	16	425
State University of Iowa	376	6	382
University of Kansas	208	32	240
University of Louisville	102	159	261
Louisiana State University	214	97	311
Tulane University	121	340	461
Johns Hopkins University	59	210	269
University of Maryland	240	153	393
Boston University	141	74	215
Harvard University	182	394	576
Tufts College	331	190	521
University of Michigan	343	120	463
Wayne University	267	12	279
University of Minnesota	431	61	492
University of Mississippi	19	1	20
University of Missouri	73	2	75
St. Louis University	103	381	484
Washington University	148	189	337
Creighton University	68	206	274
University of Nebraska	319	17	336
Dartmouth Medical School	2	40	42
Albany Medical College	78	22	100
Long Island College of Medicine	314	50	364
University of Buffalo	242	19	261
Columbia University	212	188	400
Cornell University	160	130	290
New York Medical College	221	87	308
New York University	427	87	514
University of Rochester	100	66	166
Syracuse University	151	22	173
University of North Carolina	60	8	68
Duke University	54	189	243
Wake Forest College	43	6	49
University of North Dakota	51	2	53
University of Cincinnati	220	71	291
Western Reserve University	193	67	260
Ohio State University	352	2	354
University of Oklahoma	237	2	239
University of Oregon	161	69	230
Hahnemann Medical College	300	239	539
Jefferson Medical College	294	294	588
Temple University	320	117	437
University of Pennsylvania	392	177	569
Woman's Medical College	46	59	105
University of Pittsburgh	298	1	299
Medical College of South Carolina	108	16	124
University of South Dakota	30	13	43
University of Tennessee	233	160	393
Meharry Medical College	6	194	200
Vanderbilt University	51	146	197
Baylor University	268	70	338
University of Texas	367	9	376
University of Utah	51	8	59
University of Vermont	103	61	164
University of Virginia	160	82	242
Medical College of Virginia	131	176	307
West Virginia University	34	7	41
University of Wisconsin	281	19	299
Marquette University	163	145	308
Totals	14,026	8,069	22,095

On the basis of these factors, in the seventy-seven approved medical schools in the United States there were 14,026 students reported as residents and 8,069 as nonresidents, a total of 22,095 in the United States. The state university enrolling the greatest number of nonresidents was the University of Maryland College of Physicians and Surgeons, which has 240 residents and 153 nonresidents, while Ohio State University Col-

lege of Medicine and the University of Texas School of Medicine did not register any nonresidents, and only two of the 646 students of the University of Illinois College of Medicine were nonresidents.

Among other than state universities it is of interest to note the resident and nonresident enrolment. Many of the schools draw their enrolment from residents of

TABLE 5—Schools, Students and Graduates by States*

State	Schools	Students	Graduates
Alabama	1	87	
Arkansas	1	208	61
California	4	1,091	226
Colorado	1	207	48
Connecticut	1	188	47
District of Columbia	3	793	211
Georgia	2	363	88
Illinois	5	2,306	741
Indiana	1	423	97
Iowa	1	382	80
Kansas	1	230	69
Kentucky	1	341	89
Louisiana	2	777	136
Maryland	3	667	177
Massachusetts	3	1,192	312
Michigan	2	747	180
Minnesota	1	492	123
Mississippi	1	20	
Missouri	3	406	216
Nebraska	2	609	146
New Hampshire	1	42	
New York	9	2,562	628
North Carolina	3	360	53
North Dakota	1	53	
Ohio	3	908	224
Oklahoma	1	239	59
Oregon	1	240	33
Pennsylvania	6	2,344	594
South Carolina	1	174	43
South Dakota	1	43	
Tennessee	3	870	168
Texas	3	703	137
Utah	1	59	
Vermont	1	164	50
Virginia	2	534	143
West Virginia	1	41	
Wisconsin	2	611	112
Totals	77	27,093	5,377

* Excluding fifth or intern year students

the state. This is particularly true at Southern California, Stanford, Emory, Wayne, Long Island, Buffalo, New York Medical College, New York University, Syracuse, Cincinnati, Western Reserve, Pittsburgh and Baylor.

There is a similarity between the figures in this table and those of the preceding one classifying students by birthplace. Excluding the Canadian registration given in table 3, there were 11,956 students attending school in the state of their birth and 10,139 elsewhere, as compared with 14,026 whose legal residence is in the state in which they are pursuing their medical courses and 8,069 classified as nonresidents.

The ten schools in Canada reported 2,127 residents of Canada and 809 nonresidents. Their definition of a resident varied from students whose permanent address is within one of the provinces of Canada or the specific province in which the school is located to home address on registration, and taxpayers. The greatest number of nonresidents in any one school were enrolled at McGill (355), while only 128 residents of Canada were studying. This school has always obtained the major portion of its student body from the United States. All other institutions registered fewer than 100 nonresidents but more than twenty-five with one exception—the University of Saskatchewan—with only two out of an enrolment of fifty.

Comparing these figures with those in table 3, classifying birthplace reveals as in the United States, somewhat similar figures—2,449 born in Canada and 487 elsewhere, compared with 2,127 residents and 809 nonresidents.

SCHOOLS, STUDENTS AND GRADUATES BY STATES

The number of schools, students and graduates for each state are given in table 5. New York, with the largest number of schools, nine, naturally had the greatest number of students and graduates, 2,562 and 628 respectively. Pennsylvania with six schools, 2,344 students and 594 graduates, Illinois with five schools, 2,306 students and 741 graduates ranks in the third largest group, while Massachusetts with three schools, 1,192 students and 312 graduates and California with four schools, 1,093 students and 226 graduates complete the group of states having a medical school enrolment over 1,000. In the seventy-seven medical schools in the United States, including those that offer only preclinical courses, there were 22,095 students and 5,377 graduates. Students entering as a requirement for the degree, or fifth year students, are not included in the figure 22,095. Also excluded are part-time, special and graduate students.

The greatest number of graduates in any one state were the 741 who completed their courses in Illinois schools. New York with four more schools than Illinois had 113 fewer graduates and Pennsylvania with one more school had 147 fewer graduates than Illinois and thirty-four fewer than New York.

REQUIRED HOSPITAL INTERNSHIPS

The medical schools and licensing boards now requiring a hospital internship for the M.D. degree and state licensure, respectively, are shown in tables 6 and 7.

TABLE 6—Internship Required by Medical Schools

United States	Effective Date
University of California Medical School	1919
College of Medical Evangelists	1927
University of Southern California School of Medicine	1923
Stanford University School of Medicine	1919
Loyola University School of Medicine	1922
Northwestern University Medical School	1920
University of Illinois College of Medicine	1912
Louisiana State University Medical Center	1934
Wayne University College of Medicine	1924
University of Minnesota Medical School	1915
Duke University School of Medicine	1922
University of Cincinnati College of Medicine	1926
Marquette University School of Medicine	1920
Canada	
University of Manitoba Faculty of Medicine	
Dalhousie University Faculty of Medicine	
McGill University Faculty of Medicine*	
University of Montreal Faculty of Medicine	

* Requires a two year internship

** Effective freshman class session 1936-1937

TABLE 7—Internship Required by Medical Licensing Boards

	Effective Date	Effective Date	
Alaska	1917	Oregon	1913
Delaware	1924	Pennsylvania	1914
District of Columbia	1910	Rhode Island	1917
Illinois	192	South Dakota	1923
Iowa	1924	Utah	1920
Michigan	1922	Vermont	1914
New Hampshire	1924	Washington	1919
New Jersey	1916	West Virginia	1912
North Dakota	1918	Wisconsin	1927
Oklahoma	1923	Wyoming	1921

A few of the medical schools will accept research or other clinical work in lieu of the internships. Thirteen schools in the United States and four in Canada exact the internship requisite. Since 1915 the M.D. degree at the University of Minnesota Medical School has been conditioned on an internship. Rush Medical College, which has required the internship for the M.D. degree since 1919 and the School of Medicine of the Division of the Biological Sciences, University of Chicago, since

1930, discontinued this formal requirement in 1936. However, as will be noted elsewhere in these statistics, 272 of the 359 graduates of these schools had or were required to serve an internship before being awarded the degree. McGill University Faculty of Medicine

TABLE 8—*Graduates from July 1, 1935, to July 1, 1936 Who Have Obtained Internships During All or Part of the Period July 1, 1936, to July 1, 1937*

School	Number Graduates	Number Interning
University of Arkansas	45	47
University of California	41*	44
College of Medical Evangelists	80*	70
University of Southern California	46*	46
Stanford University	53*	53
University of Colorado	50	50
Yale University	44	44
Georgetown University	134	134
George Washington University	69	68
Howard University	30	30
Emory University	53	52
University of Georgia	37	36
Loyola University	106*	106
Northwestern University	139*	138
Rush Medical College	289*	137
Division of Biological Sciences	70*	35
University of Illinois	137*	137
Indiana University	108	108
State University of Iowa	94	91
University of Kansas	72	69
University of Louisville	87	80
Louisiana State University	43*	42
Tulane University	112	109
Johns Hopkins University	66	64
University of Maryland	97	97
Boston University	63	63
Harvard University	134	132
Tufts College	110	110
University of Michigan	116	116
Wayne University	80*	80
University of Minnesota	125*	125
St. Louis University	116	116
Washington University	96	90
Craigton University	77	59
University of Nebraska	70	70
Albany Medical College	20	20
Long Island College	104	97
University of Buffalo	62	56
Columbia University	80	83
Cornell University	64	53
New York Medical College	77	66
New York University	131	120
University of Rochester	42	41
Syracuse University	40	40
Duke University	38†	38
University of Cincinnati	69*	69
Western Reserve University	57	57
Ohio State University	92	92
University of Oklahoma	58	56
University of Oregon	50	48
Hahnemann Medical College	98	98
Jefferson Medical College	133	133
Temple University	124	124
University of Pennsylvania	140	140
Womans Medical College	33	33
University of Pittsburgh	60	60
Medical College of South Carolina	32	32
University of Tennessee	102	96
Meharry Medical College	32	32
Vanderbilt University	52	50
Baylor University	79	72
University of Texas	70	73
University of Vermont	41	40
University of Virginia	50	50
Medical College of Virginia	73	72
University of Wisconsin	51	51
Marquette University	64*	64
University of Alberta	21	21
University of Manitoba	52*	52
Dalhousie University	28*	28
Queen's University	41	38
University of Western Ontario	28	27
University of Toronto	126	119
McGill University	45	42
University of Montreal	51*	51
Laval University	38	13
Totals	5,836	5,454

Completed medical course. Internship or other acceptable clinical work is a requirement for the M.D. degree.

* Internship as a requirement for the degree discontinued in 1936.

† Two year internship requirement after graduation.

reorganized its medical curriculum into a course of five years, including an internship replacing the former course spread over five academic years of seven and a half months each by a course covering four years of nine months. The fifth year may be spent in an internship in an approved hospital or in further medical study

at McGill or at another medical school approved by it. The changed curriculum was inaugurated for the freshman class of 1936-1937. It will not affect the students who began their course under the former system.

Duke University School of Medicine grants the degree after the completion of the senior year, but all graduates are required to spend at least two years in hospital or laboratory work after graduation.

As revealed in table 7, eighteen states, Alaska and the District of Columbia require that applicants for licensure possess a hospital internship. The first state exacting this requirement was Pennsylvania in 1914 and the last one New Hampshire, which becomes effective Jan. 1, 1938.

While some of the medical schools and licensing boards may have their own list of hospitals recommended for intern training, generally the Council's list of hospitals approved for internships is followed. A revised edition will be found beginning on page 683.

During 1936-1937 there were 1,255 students of the United States and 131 in Canada reported as interning, a total of 1,386.

GRADUATES AND INTERNSHIPS

In table 8 are enumerated the graduates of the United States and Canada from July 1, 1935, to July 1, 1936, who were serving internships during all or part of the period from July 1, 1936, to July 1, 1937. Included also are figures for those schools which require the internship or other acceptable clinical work as a requirement for graduation. There were 5,484 fifth year students or graduates serving internships during the period July 1, 1936, to July 1, 1937. The number of graduates and those who completed the medical course during the period July 1, 1935, to July 1, 1936, was 5,836, 4,314 graduates of four year medical schools and 1,522 fifth year students. Of the figure 5,836, 352 either were not successful in securing or did not desire internships. Several of the fifth year students satisfied this requirement by research or other clinical work. These 4,314 graduates and 1,522 intern students represented 3,965 graduates and 1,391 intern students of the United States and 349 graduates and 131 intern students in Canada. In the Canadian schools, of the 480 graduates or intern students, 441 were serving internships and thirty-nine are unaccounted for. In the United States there were 5,356 graduates or students, of whom 5,043 were interning, leaving 313 not serving internships during this period.

Of the 5,484 interns, 1,391 in the United States and 131 in Canada were fulfilling the intern requirement for the M.D. degree, a total of 1,522.

With the exception of four, every school in the list has more than 90 per cent of its graduates serving internships, and in thirty-seven schools 100 per cent interned. Excluding those schools that require the internship for graduation, 91.8 per cent of all graduates here listed have or are obtaining this added experience.

The two medical schools of the University of Chicago discontinued the internship requirement in 1936 and in consequence many of those who received the M.D. degree since July 1, 1936, did not serve an internship as a requisite for the degree, although many are interning. For purposes of this table it was necessary to include in the first column both those who received the M.D. degrees with and without an internship since July 1, 1936, since a similar table published in 1936 included those who were classified as intern students up to July 1, 1936, and only in this way could those interning during 1936-1937 be recorded.

WOMEN IN MEDICINE IN THE UNITED STATES

During the past year there were 1,113 women studying medicine, twenty less than during the session 1935-1936. The percentage of women to all students for the academic year 1936-1937 was 5.1. There were 238 graduates, eight less than last year. Of the women matriculants, 107 were in attendance at the one medical college for women, while 1,006 were matriculated in sixty-eight coeducational schools. From the Woman's Medical College twenty-three were graduated, while 215

TABLE 9—Women in Medicine in the United States

Year	Women Students	Percentage of All Students	Women Graduates	Percentage of All Graduates
1903	1 073	4.1	210	4.0
1910	907	4.0	116	2.6
1913	592	4.0	92	2.6
1920	818	5.8	122	4.0
1923	910	5.0	204	5.1
1926	935	5.0	212	5.4
1927	964	4.9	189	4.7
1928	929	4.5	207	4.9
1929	925	4.4	214	4.8
1930	935	4.4	204	4.5
1931	990	4.5	217	4.6
1932	955	4.3	208	4.2
1933	1 056	4.7	214	4.4
1934	1 020	4.5	211	4.2
1935	1 077	4.7	207	4.1
1936	1 133	5.0	246	4.7
1937	1 113	5.1	238	4.4

secured their degrees from coeducational institutions. These data are given in table 9. Of interest also is the fact that eleven schools enrolled more than twenty-five women. In the thirteen years since 1925, 2,771 women have graduated in medicine.

DISTRIBUTION BY SEX

Students and graduates in the United States and Canada classified by sex are shown in table 10. There were seventy-six schools which had both men and women students in the United States and Canada, of which sixty-two had women graduates. At the one medical school for women, the Woman's Medical College of Pennsylvania, 107 students were enrolled and twenty-three graduated. Eight of the eleven schools in the United States and Canada which do not offer the complete course also had women students. Altogether there were 23,787 men and 1,244 women students, and 5,624 men and 261 women graduates. Of these 20,982 male students and 5,139 graduates were in the schools in the United States and 2,805 and 485 respectively in Canada. Likewise there were 1,244 women students and 261 graduates in the United States and Canada respectively. Of the 23,787 and 5,624 male students and graduates, 3,804 and 692 respectively were enrolled in schools in the United States which are not coeducational or do not admit women, and 294 and 47 respectively in Canada. An average of fourteen women students were enrolled in the seventy-six coeducational institutions in the United States and Canada. There was an average of four graduates from sixty-two schools.

PART-TIME, GRADUATE AND SPECIAL STUDENTS

In fifty-one medical schools of the United States and three in Canada there were in addition to the regular, enrolled students 1,175 part-time special and graduate students pursuing medical subjects. This group consists of 216 part-time, 288 special and 671 graduate students.

The part-time students were enrolled in thirty schools, the greatest number (forty-two) were enrolled at the

University of Minnesota Medical School. Twenty-three were at the University of Southern California School of Medicine, the medical schools of the Universities of Arkansas, Kansas, Wayne and St. Louis University.

TABLE 10—Distribution by Sex

School	Students		Graduates	
	Men	Women	Men	Women
University of Alabama	84	3		
University of Arkansas	290	8	50	2
University of California	213	34	37	10
College of Medical Evangelists	391	30	72	8
University of Southern California	179	8	44	2
Stanford University	228	10	48	5
University of Colorado	192	15	46	2
Yale University	172	16	41	6
Georgetown University	407		117	
George Washington University	231	22	55	4
Howard University	129	0	34	1
Emory University	220		55	
University of Georgia	136	7	33	
Loyola University	465	15	99	7
Northwestern University	544	18	138	1
Rush Medical College	312	12	250	9
Division of Biological Sciences	265	29	56	14
University of Illinois	609	37	135	2
Indiana University	410	15	94	3
State University of Iowa	368	14	76	4
University of Kansas	271	19	65	4
University of Louisville	332	9	85	4
Louisiana State University	293	18	41	2
Tulane University	433	13	112	1
Johns Hopkins University	247	27	58	5
University of Maryland	383	10	111	8
Boston University	197	18	33	3
Harvard University	526		139	
Tufts College	430	21	105	9
University of Michigan	431	37	80	6
Wayne University	266	13	61	4
University of Minnesota	472	20	121	4
University of Mississippi	20			
University of Missouri	74	1		
St. Louis University	484		122	
Washington University	328	10	91	3
Creighton University	255	9	58	1
University of Nebraska	328	8	85	2
Dartmouth Medical School	42			
Albany Medical College	91	0	20	1
Long Island College	346	16	78	3
University of Buffalo	252	9	54	4
Columbia University	364	36	86	8
Cornell University	264	32	64	7
New York Medical College	274	14	84	5
New York University	473	41	136	7
University of Rochester	158	8	34	1
Syracuse University	167	6	40	
University of North Carolina	61	7		
Duke University	235	8	55	
Wake Forest College	48	1		
University of North Dakota	50	3		
University of Cincinnati	248	18	67	2
Western Reserve University	246	14	59	2
Ohio State University	337	15	93	1
University of Oklahoma	227	12	74	5
University of Oregon	226	14	51	2
Hahnemann Medical College	544		121	
Jefferson Medical College	518		138	
Temple University	424	23	112	4
University of Pennsylvania	482	17	129	3
Woman's Medical College		107		23
University of Pittsburgh	217	12	59	3
Medical College of South Carolina	169	8	43	2
University of South Dakota	43			
University of Tennessee	404	19	97	5
Meharry Medical College	190	10	34	1
Vanderbilt University	186	11	45	3
Baylor University	325	13	78	
University of Texas	341	26	70	4
University of Utah	57	2		
University of Vermont	157	7	45	2
University of Virginia	241	6	51	2
Medical College of Virginia	279	28	78	4
West Virginia University	39	2		
University of Wisconsin	285	15	47	5
Marquette University	368	1	64	
University of Alberta	195	10	29	3
University of Manitoba	260	14	47	5
Univ. of New Brunswick	175	3	27	1
Queen's University	294		47	
University of Western Ontario	214	12	42	4
University of Toronto	764	10	100	9
McGill University	441	12	102	1
University of Montreal	179	2	51	
U. of New Brunswick	269	2	40	
University of Saskatchewan	44	6		
Totals	23 787	1 244	5 624	261

had between ten and seventeen, while the remainder had less than eight.

Of the special students, the greatest number (eighty-three) were at Northwestern University Medical School, at the School of Medicine of the Division of Biological

Sciences of the University of Chicago there were forty-five, and at the University of Toronto Faculty of Medicine twenty-four. The 288 special students represented thirty-three schools. Twenty of these schools had no part-time matriculants.

Students pursuing subjects leading to higher degrees were studying in twenty-seven schools. Altogether there were 671 such, of whom more than sixty were studying in each of six schools, the greatest number (ninety) having been enrolled at the University of Illinois College of Medicine.

TABLE 11—Part-Time, Special and Graduate Students in Medical Schools 1936-1937

School	Part-Time Students	Special Students	Graduate Students
University of Alabama	7		2
University of Arkansas	11	4	
University of California	2	2	
University of Southern California	23	16	7
Stanford University	1		
University of Colorado			35
Georgetown University		1	
Howard University	3		
Emory University	5		
University of Georgia	6		
Division of Biological Science		45	
Loyola University	3		10
Northwestern University		83	8
Rush Medical College		3	6
University of Illinois		19	90
Indiana University	1	1	1
State University of Iowa	6		16
University of Kansas	10	9	12
University of Louisville		1	
Louisiana State University	5		
Johns Hopkins University	8	0	14
University of Maryland		6	
Boston University	8	1	
Tufts College		1	
University of Michigan	6	3	1
Wayne University	16		6
University of Minnesota	42	3	
St. Louis University	1		
Washington University		1	67
Cleveland University		4	
University of Nebraska	1		9
University of Buffalo	7	7	10
Cornell University		4	9
Columbia University			78
New York University	6	8	81
University of North Carolina			2
University of North Dakota	1		
Duke University		2	
University of Cincinnati		1	63
Western Reserve University		1	
University of Oklahoma	2		
University of Oregon		7	14
Woman's Medical College			1
University of Pittsburgh	3	5	
Medical College of South Carolina		1	
University of South Dakota	1		
University of Tennessee		6	5
Vanderbilt University	4		5
University of Texas		5	
University of Utah	4		
Marquette University	3		
University of Manitoba		2	9
University of Western Ontario		3	
University of Toronto	6	24	33
Total	216	233	671

The following schools matriculated these three types of students: Universities of Southern California, Indiana, Kansas, Johns Hopkins, Michigan, Buffalo, New York University and Toronto.

Among Canadian schools only six part-time, twenty-nine special and forty-two graduate students were enrolled.

These data will be found in table 11.

GRADUATES WITH BACCALAUREATE DEGREES

From the figures contained in table 12, it can be noted that 3,863 of the 5,885 graduates of medical schools during 1936-1937 also hold baccalaureate degrees. Fig-

ures are not readily available to show how many of these graduates obtained their degrees subsequent to beginning the medical course. Only four schools in the

TABLE 12—Graduates with Baccalaureate Degrees

	Number of Graduates	Number Holding Degrees
University of Arkansas	61	16
University of California	47	46
College of Medical Practitioners	80	32
University of Southern California	46	41
Stanford University	53	2
University of Colorado	48	28
Yale University	47	40
Georgetown University	117	80
George Washington University	59	34
Howard University	70	24
Emory University	50	26
University of Georgia	73	7
Loyola University	106	28
Northwestern University	179	28
Rush Medical College	289	211
Division of Biological Sciences	70	6
University of Illinois	137	14
Indiana University	97	21
State University of Iowa	80	24
University of Kansas	69	29
University of Louisville	89	67
Louisiana State University	43	16
Tulane University of Louisiana	111	5
Johns Hopkins University	63	63
University of Maryland	114	7
Boston University	56	4
Harvard University	129	12
Tufts College	117	29
University of Michigan	90	70
Wayne University	8	4
University of Minnesota	120	6
St. Louis University	122	48
Washington University	94	87
Cleveland University	59	21
University of Nebraska	87	1
Albany Medical College	21	21
Long Island College of Medicine	81	19
University of Buffalo	58	19
Columbia University	94	29
Cornell University	71	71
New York Medical College	89	0
New York University	139	129
University of Rochester	30	21
Syracuse University	40	28
Duke University	55	27
University of Cincinnati	69	10
Western Reserve University	61	61
Ohio State University	94	1
University of Oklahoma	59	29
University of Oregon	53	1
Hahnemann Medical College	121	10
Jefferson Medical College of Philadelphia	138	138
Temple University	116	80
University of Pennsylvania	124	121
Woman's Medical College of Pennsylvania	23	16
University of Pittsburgh	62	50
Medical Coll. of the State of South Carolina	4	37
University of Tennessee	102	44
Meharry Medical College	30	31
Vanderbilt University	51	51
Baylor University	78	26
University of Texas	79	41
University of Vermont	50	27
University of Virginia	61	24
Medical College of Virginia	82	28
University of Wisconsin	48	20
Marquette University	61	19
University of Alberta	32	8
University of Manitoba	52	17
Dalhousie University	28	16
Queen's University	47	1
University of Western Ontario	46	17
University of Toronto	109	29
McGill University	103	19
University of Montreal	51	41
Laval University	40	29
Totals	5,885	3,863

Estimated figure

United States required a degree for admission for the session 1936-1937 one required four years, thirty-six required three years, three schools admitted students with three years of college work provided the

baccalaureate degree would be conferred in absentia at the end of the first year in medicine, thirty-two exacted the two year requirement and one the equivalent of two and a half years. Twenty-five schools offer a B S in medicine degree at some time during the medical course—five at the end of the first year, sixteen after two years in medicine, and two each after three and four years respectively. All the graduates of Stanford, Johns Hopkins, Wayne, Albany, Cornell, New York University, Western Reserve, Oregon, Jefferson and Vanderbilt held baccalaureate degrees. Three of these schools—Stanford, Wayne and Oregon—do not have a degree requisite.

SCHOOLS STUDENTS AND GRADUATES IN THE UNITED STATES 1905-1937

The number of medical schools, students and graduates in the United States for each five year period from 1905 to 1920, and for each year since is shown in table 13. The total number of undergraduate medical students for the college session 1936-1937 was 22,095, a decrease of 469 from the preceding session. In 1905 in the 160 schools then existing there were 26,147 students. This tabulation includes data for only those taking medical courses leading to the M D degree. They do not include part-time and special students even though their work may later be accepted for the M D degree, since at the time they are reported as part-time and special students and not candidates for a medical degree. Omitted from these figures also are university graduate students majoring in the medical school but not candidates for the M D degree. In the ten years from 1910 to 1920 there was a steady decrease in the

TABLE 13—Schools Students and Graduates in the United States—1905-1937

Year	No Schools	Students*	Graduates
1905	160	26 147	5 696
1910	131	21 526	4 440
1915	96	14 991	3 366
1920	83	13 798	3 047
1921	83	14 466	3 186
1922	81	15 635	2 320
1923	80	16 060	3 120
1924	79	17 728	3 662
1925	80	18 900	3 9 4
1926	79	18 840	3 962
1927	80	19 662	4 035
1928	80	20 545	4 962
1929	76	20 818	4 446
1930	76	21 597	4 565
1931	76	21 952	4 735
1932	76	22 135	4 976
1933	77	22 466	4 895
1934	77	22 789	5 075
1935	77	22 888	5 101
1936	77	22 564	5 163
1937	77	22 095	5 377

* Includes figures for schools offering preclinical courses

enrollment, while from 1921 to 1935 there was a continuous increase. In 1936 the enrollment decreased by 324 from the preceding year and in 1937 it dropped 469. Two years ago the Council issued a warning against the admission of larger classes than can be accommodated or than can reasonably be expected to satisfy approved scholastic standards. Many of the schools heeded this declaration and decreased their freshmen enrollment in the interest of better medical education and others are planning to do so in the future.

Again referring to table 13, it will be noted that the total number of graduates was 5 377, an increase of 194 over the year 1936. With the exception of the slight decrease in the number of graduates in 1933, as com-

pared with the previous years, there has been a steady increase since 1926. There were marked increases in 1923, 1924 and 1925. In the seventy-seven recognized medical schools in the United States during 1936-1937 there were 22,095 students, including those having an incomplete course, and 5,377 graduates.

STUDENTS BY CLASSES—1930-1937

The total number of students in the various classes of the medical schools in the United States for each session from 1930-1931 to 1936-1937 inclusive is shown in table 14. The total attendance for the first year for the session 1936-1937 was 5,910, ninety-five fewer than the number enrolled for the session 1935-1936. Since the session 1933-1934, when there were 6,457

TABLE 14—Students in the United States Shown by Classes—1930-1937

	1st Year	2d Year	3d Year	4th Year	5th Year†	Total
1930-1931	5 456	5 338	5 080	4 908	1 025	23 007
1931-1932	6 260*	5 462*	4 952*	4 855*	1 067	23 202
1932-1933	6 426*	5 459*	5 017*	4 948*	1 106	23 573
1933-1934	6 457†	5 771†	5 981†	4 961†	1 183	23 952
1934-1935	6 361†	5 634†	5 142†	4 004†	1 233	24 121
1935-1936	6 001†	5 454†	5 230†	5 020†	1 213	23 717
1936-1937	5 910*	5 269*	5 140*	5 158*	1 255	23 350

* Enrollment for the two medical schools of the University of Chicago not included

† Enrollment for the two medical schools of the University of Chicago and Duke University not included

‡ Intern year

enrolled, there has been a reduction in this class of 547. The total attendance for 1936-1937 for the remainder of the classes was respectively 5,269, 5,140, 5,158 and 1,255, a total of 23,350. The two medical schools of the University of Chicago are not operated under the promotion by class system but on an individual plan. It is not possible for the schools to report their students in this manner and accordingly they are not included in the figures by classes, but their enrollment is included in the total. At the School of Medicine of the Division of Biological Sciences of the University of Chicago there were 294 students enrolled and 324 at Rush Medical College, a total of 618. There were 427 fewer students enrolled than in 1935-1936, 771 fewer than 1934-1935, but 343 more than were enrolled in 1930-1931. The sophomore enrollment decreased 189 and the junior enrollment ninety, but there was an increase of 138 in the senior enrollment as well as in the fifth or intern year students (forty-two). These figures are exclusive of the figures for the two schools referred to.

The Association of American Medical Colleges³ reports that there were 35,439 applications for admission to the 1936 freshman class, representing 12,192 applicants, and of these 6,465 were accepted and 5,727 rejected. However, the actual freshman enrollment was 5,910 exclusive of the two Chicago schools. It will be noted that including the new matriculants of the University of Chicago, 649 were accepted by medical schools who did not enroll either because of multiple application or did not remain in medical school a sufficient length of time to be reported at the end of the year as having been members of the class.

NEGRO STUDENTS AND GRADUATES

The Negro medical students for the session 1936-1937 enrolled in the United States and Canada are recorded by classes in table 15. Totals for the college session 1935-1936 are shown for comparison. There were 372

such students and eighty-four graduates, an increase of three and eleven, respectively. The only medical school strictly for Negro youth, Meharry Medical College matriculated 200 students and had thirty-five graduates. At Howard University College of Medicine they comprise a majority of those in attendance, and for this session 126 students of the class of 135 and the thirty-five graduates were Negroes. These two schools graduated the majority of the Negro students. All other schools (eleven) graduated a total of fourteen. In twenty schools in the United States, exclusive of Meharry and Howard, forty students were enrolled. There were six Negro students in three Canadian schools and in one there were two graduates. The enrolment by classes in all schools was first year 130, second year 88, third year 70 and fourth year 82, a total of 372. In 1935-1936 corresponding figures were 107, 98, 84 and 78, a total of 369. The freshman enrolment increased twenty-three, the sophomore class decreased ten, the junior class decreased fourteen and the senior class increased four.

TABLE 15—Negro Students and Graduates

School	Enrolment by Classes During 1936-1937				Totals
	1st Year	2d Year	3d Year	4th Year	
College of Medical Evangelists			2	2	4
Howard University College of Medicine	40	33	20	33	126
Loyola University School of Medicine			1		1
University of Chicago, Div. of Biological Sciences		1		1	2
University of Illinois College of Medicine		1	1	1	3
Indiana University School of Medicine	1		1	1	3
University of Kansas School of Medicine	1				1
Boston University School of Medicine		1			1
Tufts College Medical School	1			1	2
Wayne University College of Medicine	2	2	1		5
University of Michigan Medical School	2			1	3
University of Nebraska College of Medicine		1			1
Dartmouth Medical School	1				1
Columbia Univ. College of Phys. and Surgs.	1				1
New York Medical College				1	1
New York University	1				1
Western Reserve Univ. School of Medicine		1			1
Ohio State Univ. College of Medicine		1	1	2	4
Temple University School of Medicine	1			1	2
University of Pennsylvania School of Medicine			1	1	2
Woman's Medical College of Pennsylvania			1		1
Meharry Medical College	78	46	41	35	200
University of Toronto Faculty of Medicine		1			1
McGill University Faculty of Medicine	1			1	2
University of Montreal Faculty of Medicine				1	1
Totals	130	88	70	82	372
Totals during 1935-1936	107	98	84	78	369

* Includes fifth year enrolment of two

FEES

In table 16 the eighty-seven medical schools of the United States and Canada have been grouped according to the tuition fees charged. To arrive at the figures listed, an average was computed of the resident fees for each school. Included in these fees are the various minor charges, such as for matriculation, breakage, diploma and graduation. Four schools have fees of less than \$100. These were Louisiana State University, University of North Dakota, University of Oklahoma and the University of Texas. The eleven schools having fees over \$500 are Yale, George Washington, Johns Hopkins, Columbia, Cornell, Long Island, New York Medical College, New York University, Syracuse, Buffalo and Pennsylvania. Thirty schools in the United States and three in Canada made an additional charge for nonresidents ranging from \$50 by the Universities

of Mississippi, Missouri, Cincinnati (nonresidents of Cincinnati) and Virginia to \$300 exacted by the University of California and Louisiana State University.

Fees charged for the session 1936-1937 as compared with the session 1935-1936 remained the same with one exception, i. e., a school in the \$100 to \$200 group was raised to the \$200 to \$300 group.

TABLE 16—Fees, 1936-1937—United States and Canada*

	Schools
Under \$100	4
\$100 to 200	9
200 to 300	27
300 to 400	15
400 to 500	21
500 or over	11
Total	87

* Based on fees charged resident students

The lowest nonresident fee was charged by the University of Kansas (\$42 for the first year, \$60 for the second year and \$87 for the third and fourth years). Thirteen schools have a nonresident fee of \$100 or less, fourteen schools between \$100 and \$200, and six schools between \$200 and \$300. The data and text regarding table 4 listing the number of residents and nonresidents and the definition of the term resident may be of interest in connection with the fees charged nonresidents. The fees are not listed in these statistics by individual schools other than in the descriptions beginning on page 676.

The average resident fee charged all schools was \$334.

AVERAGE AGE OF GRADUATES—1937

In table 17 is shown the average age of the students graduating this year from each of the four year medical schools in the United States, and those schools offering a five year course, the fifth year of which is an internship. The average age of the 5,377 graduates was found to be 26.5 years. The school with the highest average (twenty-nine) was Meharry Medical College, three schools had an average of twenty-eight or more but less than twenty-nine, for fifteen schools the average was twenty-seven or twenty-seven and some tenth, twenty-seven had a score of twenty-six years or more but less than twenty-seven, and twenty-one schools ranked below twenty-six, the lowest of which was 24.9 years. One might suppose that the premedical requirement is a factor in the age variance, but in reality, as shown in table 12, 3,622 of these graduates had baccalaureate degrees most of which were obtained before entering medical school. At the bottom of the table are included the total number of graduates at each age, ranging from one who graduated at twenty-one years to 114 at thirty-five years or over.

Twenty-two and four tenths of all graduates attained the age of 25, the next highest figure, 1,161, 21.6 per cent, was 26 years. Six per cent graduated at 22 years and nine per cent at 34 years.

The averages in comparison with investigations made in previous years are given as follows:

1916	26.5
1922	26.8
1925	26.8
1928	26.8
1937	26.5

As will be noted, there has been very little difference in the average age over a period of twenty-one years,

and the age of the majority of graduates can safely be estimated at from 25 to 27 years

CITIZENS OF THE UNITED STATES ENROLLED IN FACULTIES OF MEDICINE ABROAD

A study of the number of citizens of the United States pursuing medical courses in faculties of medicine abroad has been carried on by the Council since 1931, when it became evident that great numbers were going

to Europe to study. Table 18 lists the institutions in which such students are enrolled. This tabulation covers the academic year 1936-1937. In a few cases because figures were not available it was necessary to reproduce figures from previous sessions for several schools known to have citizens of the United States enrolled. Including these figures there were 1,618 students and 509 graduates or those who completed their training in ninety-five institutions—eighty-nine schools in seven-

TABLE 17—Average Age of Graduates—1937

School	Years																30 or Over	Number of Grad	Average Age
	21	22	23	24	25	26	27	28	29	30	31	32	33	34					
University of Arkansas		1	6	9	8	4	8	7	2	5	4	2	1	2	2	61	2		
College of Medical Evangelists*				1	12	12	14	6	9	7	6		1	3	6	50	25.5		
Stanford University*				2	5	11	8	7	3	6	5	2	1	1	2	35	25		
University of California*				1	8	11	9	8	1	4	2			1	2	47	27		
University of Southern California*				2	2	12	11	7	4	3	2	1		1	1	46	26.6		
University of Colorado				7	10	6	7	2	3	6	1	1	1	1	5	48	26.5		
Yale University			1	2	9	14	13	4	1	1			1	1	4	26.5			
George Washington University	1	4	7	13	10	6	4	5	1	1	4	1		2	9	26.7			
Georgetown University			15	22	20	23	12	5	3	2	1	2		1	1	117	26.5		
Howard University			1	1	5	6	6	1	3	1				2	3	25			
Emory University	1	6	13	14	6	8	3	1		1	1			1	5	25.5			
University of Georgia	3	2	7	7	6	3		1	2	2					2	25.5			
Loyola University*			1	6	22	21	18	9	14	5	3	2	1		4	106	27		
Northwestern University*				5	16	37	44	13	8	3	6	2		2	2	159	27		
Rush Medical College**				8	27	59	64	46	27	19	7	12	9	2	2	259	26.8		
Division of Biological Sciences*				3	10	18	12	8	4	4	5	2	1	1	2	70	26.6		
University of Illinois*				14	31	24	22	18	9	5	4	2	4		4	137	27		
Indiana University			12	20	24	11	9	5	2	4	1	1		2	3	97	25.8		
State University of Iowa			8	17	17	19	7	5	3	1			2	1		80	26.7		
University of Kansas	1	5	4	18	12	9	6	3	2	1	1			1		69	26.1		
University of Louisville			1	12	20	15	13	15	2		2	3	2		4	89	26.8		
Louisiana State University*			3	3	7	8	8	3	2	3	1	2		1	2	43	27		
Tulane University	4	9	31	22	19	11	6	4	3	2	1			1	1	113	26.5		
Johns Hopkins University			1	11	22	16	5	1	2	2	3					63	26.8		
University of Maryland	1	12	20	27	20	15	6	2	8	1				1	1	114	26.8		
Boston University			1	4	13	20	9	2	2	1	1	1	1		1	56	26		
Harvard University			4	13	43	38	19	12	3	3	2			1		139	26		
Tufts College Medical School				7	20	36	22	7	9	5	2	4		1	4	117	27		
University of Michigan			7	17	27	17	9	5	7	2	2				2	95	26.9		
Wayne University*			1	2	11	22	13	7	8	11	2	3	2	1	2	8	27		
University of Minnesota*			1	8	27	26	25	15	2	8	6			2	2	12	26		
St. Louis University	10	21	20	26	18	12	1	7	2	1	2	1	2	1	1	1	2		
Washington University			1	9	23	28	15	4	3	3	3			1	1	3	94		
Creighton University			3	9	15	9	6	6	5	3	2	1		1	1	59	26.6		
University of Nebraska			5	18	23	15	8	7	2	2	3	2	1		1	87	26		
Albany Medical College				2	7	6	4	1	1							21	26.9		
Columbia University				4	14	17	22	17	7	5	5	1	1	1	1	94	26		
Cornell University	1	2	17	19	18	11		1	1			2	1		2	71	26		
Long Island College of Medicine	2	3	12	24	19	10	3	2	2	2	1				1	61	26.8		
New York Medical College	1	2	9	26	24	6	9	4	4	1			1	1	1	89	26		
New York University			23	38	34	11	7	4						1	1	139	26.9		
Syracuse University			1	8	7	10	8	5			1					40	26.9		
University of Buffalo			6	15	15	5	4	6	2	1			1		3	58	26.9		
University of Rochester				3	7	9	11	1	1							25	26		
Duke University*	1	7	7	13	10	7	2	3	5					1	1	55	26.9		
Ohio State University			1	9	30	20	12	6	4	2	4			2	1	94	26.6		
University of Cincinnati			1	6	13	14	13	7	5	5	1			1	1	69	26		
Western Reserve University			1	9	19	16	7	4	4	1						61	26.8		
University of Oklahoma	1	2	11	9	9	6	5	2	2	4	1	1	1	1		59	27		
University of Oregon				7	9	11	9	5	3	3	1	1	1	1	2	57	27		
Hahnemann Medical College			10	8	26	17	19	7	4	3	4			1	2	121	26		
Jefferson Medical College			2	13	35	55	15	8	2	2	3	2	1			155	27		
Temple University			4	8	7	25	16	17	7	4	3			1	1	116	26		
University of Pennsylvania	1	3	22	36	39	14	6	5	3	2				1	2	134	26.9		
University of Pittsburgh			6	19	22	7	2	3	1				1		1	62	26		
Woman's Medical College	2	5	1	2	6	2	1	2					1			23	26.6		
Medical College of South Carolina	2			4	8	10	11	7	2					1		45	26		
Meharry Medical College				2	2	3	3	5	1	5	2	2	2	2	2	3	29		
University of Tennessee			1	6	16	17	20	19	6	5	2	2	4	1	1	2	102		
Vanderbilt University				5	17	12	7	1	1		2	1	1			1	61		
Baylor University			1	6	18	13	10	9	3	8		3		1		75	26		
University of Texas				4	20	22	14	9	4	1	3	1			1	79	26.6		
University of Vermont				2	6	12	12	2	5	1	1	4			3	2	40		
Medical College of Virginia			1	14	17	19	9	5	3	2	1					82	26		
University of Virginia				2	19	18	10	4		2	1	2	1		1	61	26.6		
University of Wisconsin				1	6	19	7	10	10	2		4	1	2	1	64	26.9		
Marquette University				1	10	13	6		6		1	1				45	26		
Total number of graduates at each age	1	34	26	71	1262	1161	752	419	253	192	144	77	49	51	114	7			
Percentage of graduates at each age	0.02	0.6	4.4	13.3	22.4	21.6	14.0	7.8	4.5	3.6	2.7	1.4	0.9	0.9	2.1				
Average age at graduation																	26		

* Internship required for graduation

* Internship requirement discontinued in 1936 but required of more than half of 1937 graduates

teen European countries, two in two South American countries and four in three countries of Asia. The files of the Association of American Medical Colleges indicate that the application record of many of these students show that they have made application to medical schools in the United States without success. A study is also being carried on of the license record of foreign physicians.⁴

credentials, which are equivalent to licensure in this country. In 1936, 237 were so registered. While this table makes no differentiation between United States citizens and those foreign born, it can be assumed that the increasing number of those seeking licensure represent to a great extent United States students who migrated to European and other countries. In 1933 the Federation of State Medical Boards adopted a resolu-

TABLE 18—Citizens of the United States Enrolled in Faculties of Medicine Abroad—1936-1937

	Totals		Students Academic Year 1936-1937			Totals		Students Academic Year, 1936-1937	
			Enrolled	Completed Course				Enrolled	Completed Course
Argentina	2	0			Greece	18	0		
Universidad Nacional de La Plata			2*	0*	National University of Athens			15	0
Austria	185	54			Hungary	27	4		
Karl Franzens Universität Graz			9	5	Magyar Királyi Pázmány Petrus Tudományegyetem Budapest			16	4
Leopold Franzens Universität Innsbruck			10*	7*	Magyar Királyi Tisza István Tudományegyetem, Debrecen			4	0
Medizinische Fakultät der Universität Wien			166*	42*	Magyar Királyi Erzsébet Tudományegyetem Pécs			4	0
Belgium	13	1			Magyar Királyi Ferenc József Tudományegyetem Szeged			3	0
Université Libre de Bruxelles			11*	1*	Ireland	7	2		
Université Catholique de Louvain			2*	0	Queen's University Belfast			1	0
Brazil	2	0			National University of Ireland University College Dublin			2	2
Faculdade de Medicina do Paraná Curitiba			2	0	Schools of Surgery, Royal College of Surgeons in Ireland Dublin			1	0
China	18	1			University of Dublin School of Physic Trinity College Dublin			3	0
Peking Union Medical College Peking			5	0	Italy	284	66		
Pennsylvania Medical School Shanghai			13	1	Regia Università di Bologna			20*	15*
Czechoslovakia	13	4			Regia Università di Firenze			4*	0
Univerzita Komenského Bratislava			4	2	Regia Università di Genova			2*	1*
Deutsche Universität Prag			2	2	Regia Università di Messina			6**	0**
Univerzita Karlova Praha			7	0	Regia Università di Modena			2	0
England	47	17			Regia Università di Napoli			53**	4**
University of Birmingham			1	1	Regia Università di Padova			4	2
University of Bristol			5	1	Regia Università di Pavia			1	0
University of Durham Newcastle upon Tyne			3	1	Regia Università di Perugia			3	3
University of Liverpool			1	1	Regia Università di Pisa			2	0
University of London					Regia Università di Roma			12*	3*
Charing Cross Hospital Medical School			5	2	Lithuania	5	1		
Guy's Hospital Medical School			1	0	Vytauto Didžiojo Universiteto Kaunas			5	1
King's College Hospital Medical School			2	2	Netherlands Indies	2	0		
London Hospital Medical College			1	1	Geneeskundige Hoogeschool Batavia Centrum			2	0
London (Royal Free Hospital) School of Medicine for Women			1	0	Poland	14	0		
Middlesex Hospital Medical School			1	1	Uniwersytet Cracow			2	0
St Bartholomew's Hospital Medical College			12	1	Uniwersytet Poznański			4	0
St Mary's Hospital Medical School			3	2	Uniwersytet Józefa Piłsudskiego Warszawa			2	0
University College Hospital Medical School			1	1	Uniwersytet Stefana Batorego Wilno			5	0
University of Oxford			2	0	Scotland	385	80		
University of Sheffield			8	3	University of Aberdeen			2*	1
Estonia	1	0			School of Medicine of the Royal Colleges Edinburgh			227	33
Univeriste de Tartu			1	0	University of Edinburgh			23	10
France	40	14			Anderson College of Medicine Glasgow			38	1*
Université de Lyon			4*	1*	St Mungo's College Glasgow			5*	0*
Université de Montpellier			3	1	University of Glasgow			21	12
Université de Nancy			2	0	University of St Andrews			20	9
Université de Paris			29	11	Spain	3	0		
Université de Strasbourg			2	1	Universidad Central de España Madrid			3	0
Germany	260	122			Switzerland	316	143		
Friedrich Wilhelm's Universität Berlin			50*	13*	Universität Basel			87	23
Rheinische Friedrich Wilhelm's Universität Bonn			16	1	Universität Bern			81	43
Schlesische Friedrich Wilhelm's Universität Breslau			1	0	Université de Genève			32	2*
Medizinische Akademie Düsseldorf			3*	0*	Université de Lausanne			63	19
Friedrich Alexander's Universität Erlangen			1	0	Universität Zurich			53	33
Johann Wolfgang Goethe Universität Frankfurt am Main			4	2	Syria	19	0		
Albert Ludwig's Universität Freiburg			69	69	American University of Beirut			19	0
Georg August Universität Göttingen			2	0	Yugoslavia	6	0		
Vereinigten Friedrich Universität Halle-Wittenberg			3*	0*	Beogradskog Univeristeta			5	0
Hamburgische Universität			1*	1*	Zagrebackog Univeristeta			1	0
Universität Heidelberg			16	6	Totals by countries	1 648	509		
Thüringische Landesuniversität Jena			1	0					
Christian Albrechts Universität Kiel			1	0					
Universität Köln			33*	3*					
Universität Leipzig			1	1					
Philipp's Universität Marburg			31	14					
Ludwig Maximilians Universität München			2	0					
Universität Rostock			1	0					
Eberhard Karls Universität Tübingen			3	0					
Johann Maximilians Universität Würzburg									

* 1933-1936 figures ** 1934-1935 figures *** 1933-1934 figures

Table 19, recording the number of graduates of foreign medical faculties (representing both American and foreign born physicians) examined by licensing boards in the United States in six years and the percentage failing, is of interest. In addition to the figures given, a number have been periodically licensed in New York without examination—by endorsement of their foreign

tion to the effect that no student matriculating in a European medical school subsequent to the academic year 1932-1933 will be admitted to any state medical licensing examination who does not present satisfactory evidence of premedical education equivalent to the requirements of the Association of American Medical Colleges and the Council on Medical Education and Hospitals, and graduation from a European medical

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school after four academic years of attendance, and further submits evidence of having satisfactorily passed the examination to obtain a license to practice medicine in the country in which the medical school from which

TABLE 19—*Graduates of Faculties of Medicine Abroad Examined—1930-1936*

Date	Number Examined	Passed	Percentage Failed
1930	167	92	44.9
1931	158	91	42.4
1932	182	96	47.3
1933	200	129	35.5
1934	285	170	40.2
1935	437	302	30.9
1936	588	380	35.4

he is graduated is located. This policy of the federation has been made effective by individual action on the part of many of the state licensing bodies and the National Board of Medical Examiners.

The House of Delegates of the American Medical Association in 1936 endorsed a resolution urging that graduates of medical faculties of other countries be expected to prove their fitness for medical practice by being in possession of a license to practice in the country of their graduation and a certificate of internship in a hospital approved for such training or complete the fourth year in an American class A medical school. It is to be hoped that those being admitted to practice have such qualifications.

Further, hospitals in which these students seek internships in order to maintain approval by the Council may accept them on the successful completion of parts I and II of the examinations of the National Board of Medical Examiners, provided suitable graduates of American schools are not available.

The enrolment of students in foreign countries for each session since 1930-1931 is shown in table 20. The largest numbers were enrolled in Austria, Germany,

TABLE 20—*Citizens of the United States Enrolled in Faculties of Medicine Abroad—1930-1937*

	1930-1931		1931-1932		1932-1933		1933-1934		1934-1935		1935-1936		1936-1937	
	Enrolled	Completed Course	Enrolled	Completed Course	Enrolled	Completed Course	Enrolled	Completed Course	Enrolled	Completed Course	Enrolled	Completed Course	Enrolled	Completed Course
Argentina														
Austria	114	3	175	0	241	3	253	9	235	6	183	45	185	54
Belgium	3	0	4	1	10	1	11	0	19	3	15	3	1	1
Brazil							2	1	1	0	1	0	2	0
China					12	0	15	0	18	1	19	1	18	1
Colombia							1	0						
Czechoslovakia	2	0	4	0	19	0	7	0	10	0	11	3	13	4
Dominican Republic									1	0				
England	52	2	61	4	57	1	69	4	75	20	60	30	47	17
Estonia													1	0
Finland	1	0												
France	25	2	62	6	78	5	86	2	89	4	75	4	40	14
Germany	72	1	189	5	459	42	331	8	246	25	204	23	260	122
Greece					4	1	9	0	13	0	15	0	18	0
Hungary	9	1	15	2	13	1	25	1	23	0	12	0	24	4
Ireland	14	1	21	0	20	0	4	1	6	1	7	4	7	2
Italy	78	11	155	4	282	14	255	25	286	30	265	65	261	66
Japan			1	0										
Lithuania			4	0	4	0	2	0	2	0	2	0	5	1
Mexico	1	0	1	1										
Netherlands							1	0						
Netherlands Indies					1	0	1	0	1	0			2	0
Philippine Islands					2	0	2	0	7	0				
Poland	2	0	3	0	9	0	14	4	12	1	9	1	14	0
Portugal							1	0	1	0				
Scotland	256	19	256	25	416	9	444	48	476	71	359	48	356	80
South Africa Union of			1	0										
Spain													3	0
Switzerland	65	4	214	1	405	10	351	8	395	54	366	65	316	143
Syria	16	2	8	0	7	0	11	2	13	2	15	3	19	0
Yugoslavia			2	1	5	1	7	0	11	0	7	0	6	0
Totals	710	46	1206	56	2044	88	1905	113	1944	218	1637	153	1645	309

Further, in 1934 the Federation of State Medical Boards passed a resolution recommending to its constituent boards that until adequate information is available, these boards deny graduates of foreign medical schools admission to the licensure examination. The Federation's rulings have not been particularly effective. However, while over 600 secured licenses to practice medicine during 1936 in thirty states, 454 were registered in New York.

Several years ago the governments of many European countries sent representatives to this country to discuss appropriate measures for dealing with students from the United States. By the raising of entrance requirements, reduction in enrolment and careful scrutiny of credentials, the number studying abroad is gradually being reduced. Many are no longer accepting new students.

Italy, Scotland and Switzerland. The greatest number (227) in any one school was the enrolment in the School of Medicine of the Royal Colleges, Edinburgh, followed by the University of Vienna with 166 and the University of Rome with 128. Fifty-four schools had less than five students. Statistics presented in the State Board Number of THE JOURNAL indicate that in a five year period 31.5 per cent of those examined who were graduates of the University of Vienna failed and the University of Rome had 53.6 per cent failures. Completion of the course at the School of Medicine of the Royal Colleges does not qualify the student for practice. He is required to be in possession of the certificate of one of the licensing corporations of Great Britain. It is not known what standing they might have before licensing boards in this country.

DESCRIPTION OF MEDICAL COLLEGES

ALABAMA

University (Tuscaloosa)

UNIVERSITY OF ALABAMA SCHOOL OF MEDICINE—Organized in 1859 at Mobile as the Medical College of Alabama. Classes graduated in 1861 and subsequent years excepting 1862 to 1868 inclusive. Reorganized in 1897 as the medical department of the University of Alabama. Present title assumed in 1907 when all property was transferred to the University of Alabama. In 1920 clinical teaching was suspended and the medical school was removed to the university campus near Tuscaloosa. Coeducational since 1920. Minimum entrance requirements are ninety semester hours of collegiate work. The course of study covers two years of thirty-six weeks each. The faculty includes 15 professors and 12 instructors, assistants, etc., a total of 27. The tuition fees are \$271 each year. Each class is limited to fifty students. The registration for 1936-1937 was 87. The next session begins Sept 8 1937 and ends May 24 1938. The Dean is Stuart Graves, M.D.

ARKANSAS

Little Rock

UNIVERSITY OF ARKANSAS SCHOOL OF MEDICINE 300 West Markham Street—Organized in 1879 as the Medical Department of Arkansas Industrial University. Present title in 1899. In 1911 the College of Physicians and Surgeons united with it and it became an integral part of the University of Arkansas. The first class was graduated in 1880. Clinical teaching was suspended in 1918 but resumed in 1923. Coeducational since organization. The faculty consists of 27 professors and 67 lecturers and assistants, total 94. The curriculum covers four years of nine months each. Entrance requirements are two years of collegiate work. The B.S. degree in medicine is conferred at the end of the second year. The fees for the four years for residents or Arkansas are \$275; nonresidents are charged \$200 additional each year. The registration for 1936-1937 was 298 graduates, 61. The next session begins Sept 29 1937 and ends June 7 1938. The Dean is Frank Vinsonhaler, M.D.

CALIFORNIA

Berkeley-San Francisco

UNIVERSITY OF CALIFORNIA MEDICAL SCHOOL University Campus Berkeley Medical Center San Francisco—Organized in 1862 as the Toland Medical College. The first class graduated in 1864. In 1872 it became the Medical Department of the University of California. In 1909 by legislative enactment the College of Medicine of the University of Southern California at Los Angeles became a clinical department but was changed to a graduate school in 1914. In 1915 the Hahnemann Medical College of the Pacific was merged and elective chairs in homeopathic materia medica and therapeutics were provided. Coeducational since organization. Three years of collegiate work is required for admission. The work of the first year is given at Berkeley and that of the last three years at San Francisco. The faculty is composed of 152 professors and 238 associates and assistants, a total of 390. The course covers four years of eight months each and an additional fifth year consisting of an internship in a hospital or of special work in a department of the medical school. Fees for the four years respectively, for residents of California are \$277 \$240 \$235 and \$235; nonresidents are charged \$300 additional each year. The registration for 1936-1937 was 247, graduates 47. The next session begins Aug 23 1937 and ends May 21 1938. The Dean is Langley Porter, M.D. San Francisco.

Loma Linda-Los Angeles

COLLEGE OF MEDICAL EVANGELISTS—Organized in 1909. The first class graduated in 1914. The laboratory departments are at Loma Linda, the clinical departments at Los Angeles. Coeducational since organization. The faculty is composed of fifty professors and 269 associates, assistants and instructors, a total of 319. The course covers a period of five years including one year of internship. During the second year the students are in school twelve months. This is accomplished by means of the cooperative plan, the student spending alternate months in an approved hospital in practical lines of medical training. The first third and fourth years each cover ten months of continuous school work. Sixty-four semester hours of collegiate work are required for admission. The total fees for the four years respectively are \$470 \$375 \$470 and \$480. The registration for 1936-1937 was 421 graduates, 80. The next session begins September 1 1937 and ends June 12 1938. The Dean is E. H. Risley, M.D. Loma Linda and the Associate Dean is W. E. Macpherson, M.D. Los Angeles.

Los Angeles

UNIVERSITY OF SOUTHERN CALIFORNIA SCHOOL OF MEDICINE 3551 University Avenue—Organized in 1885 as the University of Southern California College of Medicine. First class graduated in 1888. In 1908 it became the Medical Department of the University of California in Los Angeles. In 1909 the College of Physicians and Surgeons established in 1904 became the Medical Department of the University of Southern California. Its activities were suspended in 1920, reorganized in May 1928 under present title. The faculty consists of 139 professors and 139 instructors, assistants and others, a total of 278. An internship is required for graduation. Three years of collegiate work is required for admission. Coeducational since organization. Annual fees amount to \$450. The registration for 1936-1937 was 187 graduates, 46. The next session begins Sept 20 1937 and ends June 4 1938. The Dean is Paul S. McElbreen, Ph.D.

San Francisco

STANFORD UNIVERSITY SCHOOL OF MEDICINE 2398 Sacramento Street San Francisco—Organized in 1908 when by agreement the interests of Cooper Medical College were taken over. The first class graduated in 1913. Coeducational since organization. The faculty consists of 171 professors and 146 lecturers, assistants and others, a total of 267. Three years of collegiate work is required for admission. The course covers four years of eight and one-half months each plus a fifth year of intern work. The fees for the four years respectively are \$470 \$446 \$364 and \$364. The registration for 1936-1937 was 238 graduates, 53. The next session begins Sept 28 1937 and ends June 15 1938. The Dean is Loren Roscoe Chandler, M.D.

COLORADO

Denver

UNIVERSITY OF COLORADO SCHOOL OF MEDICINE 4200 East Ninth Avenue—Organized in 1883. Classes were graduated in 1885 and in all subsequent years except 1898 and 1899. Denver and Gross College of Medicine was merged Jan 1, 1911. Coeducational since organization. The faculty is composed of 57 professors and 130 lecturers, instructors and assistants, a total of 187. The course covers four years of nine months each. The entrance requirements are three years of collegiate work. The fees for residents of Colorado for each of the four years are respectively \$248 \$243 \$228 and \$228. Nonresidents are charged \$165 additional each year. The registration for 1936-1937 was 207 graduates, 48. The next session begins Sept 27 1937 and ends June 13 1938. The Dean is Maurice H. Rees, M.D.

CONNECTICUT

New Haven

YALE UNIVERSITY SCHOOL OF MEDICINE 333 Cedar Street—Chartered in 1810 as the Medical Institution of Yale College. Organized in 1817. Instruction began in 1813. First class graduated in 1814. A new charter in 1879 changed the name to the Medical Department of Yale College. In 1884 the Connecticut Medical Society surrendered such authority as had been granted by the first charter. In 1887 Yale College became Yale University. Coeducational since 1916. The faculty consists of 137 professors and 213 lecturers and assistants, a total of 350. The requirements for admission are three years of collegiate work. The course covers four years of nine months each. The fees for the four years respectively are \$505 \$500 \$500 and \$520. The registration for 1936-1937 was 188 graduates, 47. The next session begins Sept 27 1937 and ends June 15 1938. The Dean is Stanhope Bayne Jones, M.D.

DISTRICT OF COLUMBIA

Washington

GEORGETOWN UNIVERSITY SCHOOL OF MEDICINE 3900 Reservoir Road NW—Organized in 1851. First class graduated in 1852. The faculty is composed of 57 professors, 43 associate professors, 19 assistant professors and 118 instructors, total 237. Required for admission three years of collegiate work. The course of study covers four terms of eight and one-half months each. The present fees for each of the four sessions respectively are \$500 \$460 \$410 and \$450. The registration for 1936-1937 was 407 graduates, 117. The next session begins Sept 20 1937 and ends June 13 1938. The Dean is David V. McCauley, S.J., Ph.D.

GEORGE WASHINGTON UNIVERSITY SCHOOL OF MEDICINE 1335 H Street NW—Organized in 1825 as the Medical Department of Columbian College. Also authorized to use the name National Medical College. Classes were graduated in 1826 and in all subsequent years except 1834 to 1838 and 1861 to 1863 inclusive. The original title was changed to Medical Department of Columbian University in 1873. In 1903 it absorbed the National University Medical Department. In 1904 by an Act of Congress the title of George Washington University was granted to the institution. Coeducational since 1884. The faculty is composed of 55 professors and 117 instructors, demonstrators and a student, a total of 172. Two years of collegiate work is required for admission. The course covers four years of thirty-two weeks each. The fees for the four years respectively are \$550 \$550 \$500 and \$500. The registration for 1936-1937 was 253 graduates, 59. The next session begins Sept 22 1937 and ends June 8 1938. The Dean is Earl D. McKinley, M.D.

HOWARD UNIVERSITY COLLEGE OF MEDICINE Fifth and W Streets NW—Chartered in 1867. Organized in 1869. The first class graduated in 1871. Coeducational since organization. Negro students compose a majority of those in attendance. The faculty comprises 33 professors and 81 lecturers and assistants, 114 in all. The admission requirements are at least two years of collegiate work. The course covers four years of thirty-three weeks each. The fees for each of the four sessions respectively are \$269 \$269 \$259 and \$266. Registration for 1936-1937 was 135 graduates, 35. The next session begins Sept 27 1937 and ends June 10 1938. The Dean is Numa P. G. Adams, M.D.

GEORGIA

Atlanta

EMORY UNIVERSITY SCHOOL OF MEDICINE 50 Armstrong Street and Druid Hills—Organized in 1854 as the Atlanta Medical College. Classes graduated 1855 to 1861 when it suspended. Reorganized in 1865. A class graduated in 1865 and each subsequent year except 1874.

In 1898 it merged with the Southern Medical College (organized in 1878), taking the name of Atlanta College of Physicians and Surgeons. In 1913 it merged with the Atlanta School of Medicine (organized in 1905) reassuming the name of Atlanta Medical College. Became the Medical Department of Emory University in 1915 assumed present title in 1917. Three years of collegiate work is required for admission. The faculty consists of 18 professors and 177 associates and assistants a total of 195. The course of study is four years of thirty-two weeks each. The fees for each of the four years are \$300. The registration for 1936-1937 was 220 graduates 55. The next session begins Sept 28 1937 and ends June 6 1938. The Dean is Russell H Oppenheimer M D.

Augusta

UNIVERSITY OF GEORGIA SCHOOL OF MEDICINE University Place—Organized in 1828 as the Medical Academy of Georgia the name being changed to the Medical College of Georgia in 1829. Since 1873 it has been known as the Medical Department of the University of Georgia the name being changed July 1 1933 to the University of Georgia School of Medicine. Property transferred to university in 1911. Classes were graduated in 1833 and all subsequent years except 1862 and 1863. Coeducation was begun in 1920. The faculty includes 56 professors and 32 assistants 88 in all. Three years of collegiate work is required for admission. The course is four years of thirty-four weeks each. The fees for each of the four years are \$185 for residents of Georgia and \$365 each year for nonresidents. The registration for 1936-1937 was 143 graduates 33. The next session begins Sept 27 1937 and ends June 13 1938. The Dean is G Lombard Kelly M D.

ILLINOIS

Chicago

LOYOLA UNIVERSITY SCHOOL OF MEDICINE 706 South Lincoln Street—Incorporated in 1915 as the Bennett Medical College and operated as an organic part of Loyola University by virtue of an agreement entered into with the trustees of Bennett Medical College. Present title assumed in 1917. The Chicago College of Medicine and Surgery was purchased in 1917. The first class graduated in 1916. Coeducational. Two years of collegiate work is required for admission. The course of study is five years including an internship. The B S degree in medicine is conferred at the end of the third year. The faculty is composed of 136 in professorial rank and 168 others a total of 304. The fees for each year are \$401 \$437 \$367 and \$328 respectively. The enrolment for 1936-1937 was 480 graduates 106. Next session begins Sept 27 1937, and ends June 11 1938. The Dean is Louis D Moorhead M D.

NORTHWESTERN UNIVERSITY MEDICAL SCHOOL 303 East Chicago Avenue—Organized in 1859 as the Medical Department of Lind University. First class graduated in 1860. In 1864 it became independent as the Chicago Medical College. It united with Northwestern University in 1869 but retained the name of Chicago Medical College until 1891 when the present title was taken. Became an integral part of Northwestern University in 1905. Coeducational since 1926. The faculty comprises 133 professors 313 associates and instructors a total of 446. The requirement for admission is three years of collegiate work. The B S degree in medicine may be conferred before the end of the senior year. The course covers four years of eight and one-half months each and a fifth year spent in an approved hospital as an intern or in other practical work. The total fees are \$365 each year. The registration for 1936-1937 was 562 graduates 139. The next session begins Sept 28 1937 and ends June 11 1938. The Dean is Irving S Cutter M D.

THE UNIVERSITY OF CHICAGO MEDICAL SCHOOLS—The Medical Schools include (a) The School of Medicine of the Division of Biological Sciences and (b) Rush Medical College both of which are organized within the Division of Biological Sciences. The first two years of the medical course for both are given in the School of Medicine of the Division of Biological Sciences and the last two years are given either in the School of Medicine of the Division of Biological Sciences or in Rush Medical College.

The School of Medicine of the Division of Biological Sciences Fifty Ninth Street and Ellis Avenue—Organized in 1924. The work of the first two years of the medical course has been given on the Quadrangles since 1899 in cooperation with Rush Medical College and that of the third and fourth clinical years has been given since 1924 with the organization of this medical school and the construction on the Quadrangles of the University hospitals and clinics. Coeducational. The faculty is composed of 98 professors 132 associates instructors and others a total of 230. The requirements for admission are three years of collegiate work. The B S degree in medicine is conferred at the end of the second year. The curriculum covers twelve quarters of work. Students are admitted at the beginning of the autumn quarter. The tuition fee for each of the four years is \$450. The registration for 1936-1937 was 294 graduates 70. The next session begins Oct 1 1937 and ends June 10 1938.

Rush Medical College 1758 West Harrison Street—Chartered in 1837 held first class in 1843. First class graduated in 1844. In 1887 the college became the medical department of Lake Forest University retaining however its self government. This relation was dissolved in April 1898 and in the same month affiliation with the University of Chicago was established. Coeducational since 1898. In May 1924 by a new contract the University of Chicago took over the work of Rush Medical College as a department of the University. Thereafter only clinical work has been offered by Rush Medical College. The work of the first two years is given on the University Quadrangles. Three years of collegiate work are required for admission. The year is divided into four quarters of twelve weeks each the completion of the work of three of these quarters gives credit for a college year. The requirements for the degree consist of twelve full quarters of work. The faculty is composed of 134

professors 163 associates instructors and others a total of 297. The tuition fee is \$375 a year until 1938. Effective Autumn 1938 it will be increased to \$450 for juniors and in Autumn 1939 for juniors and seniors. The registration for 1936-1937 was 324 graduates 289. The next session begins Oct 4 1937 and ends June 10 1938. The school is in session all year except the month of September.

All correspondence relating to general policies should be addressed to W H Tahaferro Ph D Dean of the Division of Biological Sciences or to A C Bachmeyer M D Associate Dean of the Division that relating to Rush Medical College should be addressed to Emmet B Bay M D Associate Dean of the Division of Biological Sciences (Rush Medical College) and that pertaining to student questions should be addressed to B C H Harvey M D Dean of Students.

UNIVERSITY OF ILLINOIS COLLEGE OF MEDICINE 1803 West Polk Street—Organized in 1882 as the College of Physicians and Surgeons. The first class graduated in 1883. It became the Medical Department of the University of Illinois by affiliation in 1897. Relationship with the university was canceled in June 1912 and was restored in March 1913 when the present title was assumed. Coeducational since 1898. Three years of collegiate work is required for admission. The curriculum covers four years of thirty-two weeks each and a year of internship in an approved hospital. The B S degree in medicine is conferred at the end of the second year. The faculty is composed of 126 of professorial rank and 306 associates instructors and assistants a total of 432. The tuition is \$150 a year for students who are residents of Illinois \$225 a year for nonresident students. The registration for 1936-1937 was 646 graduates 137. The next session begins Sept 27 1937 and ends June 10 1938. The Dean is David J Davis M D.

INDIANA

Bloomington-Indianapolis

INDIANA UNIVERSITY SCHOOL OF MEDICINE—Organized in 1903 but did not give all the work of the first two years of the medical course until 1905. In 1907 by union with the State College of Physicians and Surgeons the complete course in medicine was offered. In 1908 the Indiana Medical College which was formed in 1905 by the merger of the Medical College of Indiana (organized in 1878) the Central College of Physicians and Surgeons (organized in 1879) and the Fort Wayne College of Medicine (organized in 1879) merged into it. The first class was graduated in 1908. Coeducational since organization. The faculty consists of 270 professors lecturers associates and assistants. Three years of collegiate work is required for admission. The B S degree in medicine is conferred. The work of the first year is given at Bloomington and the work of the next three years at Indianapolis. The regular fee for the medical course for all four years is \$205 a year for residents of Indiana and \$410 for nonresidents. The registration for 1936-1937 was 425 graduates 97. The next session begins Sept 10 1937 and ends June 13 1938. The Dean at Bloomington is Burton D Myers M D, and the Dean at Indianapolis is Willis D Gatch M D.

IOWA

Iowa City

STATE UNIVERSITY OF IOWA COLLEGE OF MEDICINE University Campus—Organized in 1869. First session began in 1870. First class graduated in 1871. Absorbed Drake University College of Medicine in 1913. Coeducational since 1870. The faculty is made up of 46 professors 63 lecturers demonstrators and assistants a total of 109. At present two years of collegiate work is required for admission but beginning in September 1938 three years of collegiate studies will be required. The B S degree in the combined course of liberal arts and medicine is conferred. The course of study covers four years of thirty-four weeks each. The tuition fee is \$196 each year for residents of Iowa and \$460 for nonresidents. The registration for 1936-1937 was 382 graduates 80. The next session begins Sept 27 1937 and ends June 6 1938. The Dean is Ewen Murchison MacEwen M D.

KANSAS

Lawrence-Kansas City

UNIVERSITY OF KANSAS SCHOOL OF MEDICINE—Organized in 1880. It offered only the first two years of the medical course until 1905 when it merged with the Kansas City (Mo.) Medical College founded in 1869 the College of Physicians and Surgeons founded in 1894 and the Medico-Chirurgical College founded in 1897. Absorbed Kansas Medical College in 1913. First class graduated in 1906. The clinical courses are given at Kansas City. Coeducational since 1880. The faculty includes 59 professors and 129 instructors assistants and others a total of 188. The requirement for admission is two years of collegiate work. The B S degree in medicine is conferred at the end of the second year. The course covers four years of nine months each. The total fees for residents of the state for each of the four years are respectively \$143 \$139 \$155 and \$157. For nonresidents the fees are \$263 \$319 \$405 and \$407. The registration for 1936-1937 was 290 graduates 69. The next session begins Sept 16 1937 and ends June 6 1938. The Dean is H R Wahl M D Kansas City.

KENTUCKY

Louisville

UNIVERSITY OF LOUISVILLE SCHOOL OF MEDICINE First and Chestnut Streets—Organized in 1837 as Louisville Medical Institute. The first class graduated in 1838 and a class graduated each subsequent year except 1863. In 1846 the name was changed to University of Louisville Medical Department. In 1907 it absorbed the Kentucky University

Medical Department in 1908 the Louisville Medical College the Hospital College of Medicine and the Kentucky School of Medicine. In 1922 it changed its name to the University of Louisville School of Medicine. Coeducational since organization. Two years of collegiate work is the minimum requirement for admission. The faculty numbers 68 professors and 95 assistants instructors and others a total of 163. Course covers four years of thirty-two weeks each exclusive of vacations and examinations. Fees for four years are respectively \$404 \$404 \$409 and \$419. The registration for 1936 1937 was 341 graduates, 89. The next session begins Sept 16 1937 and ends June 4 1938. The Dean is John Walker Moore M.D.

LOUISIANA

New Orleans

LOUISIANA STATE UNIVERSITY MEDICAL CENTER 1542 Tulane Avenue—Organized January 1931. Coeducational. First session October 1931 with students of first and third year. Faculty comprises 33 professors and 122 assistant professors instructors and assistants a total of 155. Course covers four years of no less than 32 weeks each and one year of general rotation or laboratory internship in approved hospital. A minimum of three years collegiate work is required for admission. Total fees \$92 each year for residents of Louisiana additional tuition of \$300 each year for nonresidents. The registration for 1936 1937 was 311 graduates 43. The next session begins Sept 13 1937 and ends May 28 1938. The Dean is Arthur Vidrine M.D.

TULANE UNIVERSITY OF LOUISIANA SCHOOL OF MEDICINE 1430 Tulane Avenue—Organized in 1834 as the Medical College of Louisiana. Classes were graduated in 1835 and in all subsequent years except 1863 1865 inclusive. It was transferred to the Medical Department of the University of Louisiana in 1847 and became the Medical Department of the Tulane University of Louisiana in 1884. Present title in 1913. Coeducational since 1915. The faculty comprises 30 professors and 138 associate and assistant professors instructors and assistants a total of 168. The course covers four years of thirty-two weeks each. A minimum of two years of collegiate work is required for admission. Total fees for each of the four years respectively are \$455 \$445 \$430 and \$440. The registration for 1936 1937 was 466 graduates 113. The next session begins Sept 24 1937 and ends June 8 1938. The Dean is Charles C. Bass M.D.

MARYLAND

Baltimore

JOHNS HOPKINS UNIVERSITY SCHOOL OF MEDICINE Washington and Monument Streets—Organized in 1887. Offered preliminary course only until 1893. The first class graduated in 1897. Coeducational since organization. The faculty consists of 69 professors and 334 instructors assistants and others a total of 403. The requirements for admission is a collegiate degree. The course extends over four years of eight and one-half months each. The total fees for each year are respectively \$621 \$620 \$620 and \$620. The registration for 1936 1937 was 274 graduates 63. The next session begins Oct 5 1937 and ends June 14 1938. The Dean is Alan M. Chesney M.D.

UNIVERSITY OF MARYLAND SCHOOL OF MEDICINE AND COLLEGE OF PHYSICIANS AND SURGEONS Lombard and Greene Streets—Organized in 1807 as the College of Medicine of Maryland. The first class graduated in 1810. In 1812 it became the University of Maryland School of Medicine. Baltimore Medical College was merged with it in 1913. In 1915 the College of Physicians and Surgeons of Baltimore was merged and the present name assumed. Coeducational since 1918. The faculty consists of 46 professors 67 associate and assistant professors and 187 instructors and assistants a total of 300. Three years of collegiate work is required for admission. The course covers four years of eight months each. The fees for the four years respectively are \$435 \$425 \$425 and \$440 for residents of the state for nonresidents the fees are \$200 additional each year. The registration for 1936 1937 was 393 graduates 114. The next session begins Sept 21 1937 and ends June 4 1938. The Dean is J. M. H. Rowland M.D.

MASSACHUSETTS

Boston

BOSTON UNIVERSITY SCHOOL OF MEDICINE 80 East Concord St.—Organized in 1873 as a homeopathic institution. In 1874 the New England Female Medical College founded in 1848 was merged into it. The first class was graduated in 1874. Became nonsectarian in 1918. Coeducational since organization. Three years of collegiate work is required for admission. The faculty includes 27 professors 152 associates and others a total of 179. The course covers four years. Total fees for each of the four years respectively are \$426 \$421 \$421 and \$435. The registration for 1936 1937 was 215 graduates 56. The next session begins Sept 23 1937 and ends June 13 1938. The Dean is Alexander S. Begg M.D.

HARVARD UNIVERSITY MEDICAL SCHOOL 25 Shattuck Street—Organized in 1782. The first class graduated in 1788. It has a faculty of 154 professors and 379 other instructors and assistants a total of 533. Two years of collegiate work is required for admission. The total fees for each of the four years is \$420 plus \$5 the first year for matriculation. The registration for 1936 1937 was 526 graduates 139. The next session begins Sept 27 1937 and ends June 23 1938. The Dean is Charles Sidney Burwell M.D.

TUFTS COLLEGE MEDICAL SCHOOL 416 Huntington Avenue—Organized in 1893 as the Medical Department of Tufts College. The first class graduated in 1894. Coeducational since 1894. It has a faculty of 76 professors and 278 assistants lecturers and others a total of 354. A bachelor's degree is required for admission. The course covers four

years of eight months each. The total fees for each of the four years are \$512 \$507 \$407 and \$417. The registration for 1936 1937 was 451 graduates 117. The next session begins Sept 22 1937 and ends June 13 1938. The Dean is A. Warren Stearns M.D.

MICHIGAN

Ann Arbor

UNIVERSITY OF MICHIGAN MEDICAL SCHOOL—Organized in 1850 as the University of Michigan Department of Medicine and Surgery. The first class graduated in 1851. Present title assumed in 1915. Coeducational since 1870. It has a faculty of 25 professors 20 associate professors 27 assistant professors 113 assistants instructors and lecturers a total of 185. The entrance requirements are ninety semester hours. The curriculum covers four years of nine months each. The total fees for Michigan students are \$220 for each of the four years respectively for nonresidents \$350 a year. The registration for 1936 1937 was 468 graduates 95. The next session begins Sept 27 1937 and ends June 18 1938. The Dean is A. C. Furstenberg M.D.

Detroit

WAYNE UNIVERSITY COLLEGE OF MEDICINE, 1516 St. Antoine Street—Organized as the Detroit College of Medicine in 1885 by consolidation of Detroit Medical College organized in 1868 and the Michigan College of Medicine organized in 1880. Reorganized with the title of Detroit College of Medicine and Surgery in 1913. The first class graduated in 1886. In 1918 it became a municipal institution under the control of the Detroit Board of Education. In 1934 the name was changed by the action of the Detroit Board of Education to Wayne University College of Medicine as a part of the program of consolidation of the Detroit City Colleges into a university system. Coeducational since 1917. Entrance requirement is an academic degree or 90 semester hours of academic credit with 'combined degree' guaranteed by school of arts and sciences. The faculty consists of 42 professors 187 lecturers and others a total of 229. The course covers four years of nine months each and a fifth year of intern work. The total fees for each of the first four years are for Wayne County residents \$283 for nonresidents who reside in Michigan \$383 and for nonresidents from outside the state \$408 for the fifth or intern year a diploma fee of \$25. The registration for 1936 1937 was 279 graduates 85. The next session begins Sept 23 1937 and ends June 18 1938. The Dean is Raymond B. Allen M.D.

MINNESOTA

Minneapolis

UNIVERSITY OF MINNESOTA MEDICAL SCHOOL—Organized in 1883 as the University of Minnesota College of Medicine and Surgery reorganized in 1888 by absorption of St. Paul Medical College and Minnesota Hospital College. The first class graduated in 1889. In 1908 the Minneapolis College of Physicians and Surgeons organized in 1883 was merged. In 1909 the Homeopathic College of Medicine and Surgery was merged. Present title in 1913. Coeducational since organization. The faculty includes 90 professors and 238 instructors a total of 328. The curriculum covers four years of nine months each and a year's internship in an approved hospital. The school is operated on the four quarter plan. The entrance requirements are two years of university work which must include six semester credits of rhetoric eight semester credits of physics, thirteen credits of general chemistry qualitative and quantitative analysis and organic chemistry eight credits of zoology and a reading knowledge of scientific German with a C average in all subjects and in the sciences. Beginning with the academic year 1939 1940 the minimum entrance requirement will be three years of college work with the addition of general psychology physical chemistry and genetics and eugenics to the above specified courses. Students are required to meet the requirements for a degree of B.S. or B.A. before receiving the degree of Bachelor of Medicine (M.B.) which is granted at the end of the four year course. The M.D. degree is conferred after a year of intern work of advanced laboratory work or of public health work has been completed. Students are graduated at the end of any quarter in which work is completed and examinations passed. Total fees are \$243 for residents and \$393 for nonresidents each year of three quarters. The registration for 1936 1937 was 492 graduates 125. The next session begins Sept 27 1937 and ends June 11 1938. The Dean is Harold S. Diehl M.D.

MISSISSIPPI

University

UNIVERSITY OF MISSISSIPPI SCHOOL OF MEDICINE—Organized in 1903. Coeducational since organization. Gives only the first two years of the medical course. A clinical department was established at Vicksburg in 1908 but was discontinued in 1910 after graduating one class. The session extends over eight and one-half months. Entrance requirement is three years of collegiate work. The B.S. degree in medicine is conferred at the end of the second year. The faculty includes 9 professors 2 adjunct professors 3 assistant professors and 10 instructors assistants and others a total of 24. The total fees for the first year are \$353 and for the second year \$325. The nonresident fee is \$50 additional each year. The registration for 1936 1937 was 20. The next session begins Sept 14 1937 and ends May 30 1938. The Dean is B. S. Guyton M.D.

MISSOURI

Columbia

UNIVERSITY OF MISSOURI SCHOOL OF MEDICINE—Organized at St. Louis in 1845 was discontinued in 1855 but was reorganized at Columbia in 1872. Teaching of the clinical years was suspended in 1907. Coeducational since 1872. The faculty includes 18 professors and 10 instructors lecturers and others a total of 28. The entrance require

ments are 90 semester hours of collegiate work. The BS degree in medicine is conferred at the end of the second year. Total fees for the first year are \$175 for the second \$200. Nonresidents of the state pay \$25 per semester extra. The registration for 1936-1937 was 75. The next session begins Sept 13 1937 and ends June 7 1938. The Dean is Dudley S Conley MD.

St Louis

ST LOUIS UNIVERSITY SCHOOL OF MEDICINE 1402 South Grand Boulevard. Organized in 1901 as the Marion Sims Beaumont Medical College by union of Marion Sims Medical College organized in 1890 and Beaumont Hospital Medical College organized in 1886. First class graduated in 1902. It became the Medical School of St Louis University in 1903. The faculty is composed of 75 professors and 242 instructors and assistants a total of 317. The requirement for admission is a qualitative standard of two years of collegiate study in the customary subjects but applicants presenting meritorious credit in excess of the two year minimum are accepted by preference. The BS degree in medicine is still conferred in selected cases at the end of the second year but will be discontinued shortly. The curriculum covers four years of thirty two weeks each. The summer is optional and offers courses academically equivalent to those in the regular session. The total fees for the four years respectively are \$525 \$420 \$420 and \$455. The registration for 1936-1937 was 484 graduates 122. The next session begins Sept 20 1937 and ends June 1 1938. The Dean is Alphonse M Schwitalla SJ PhD.

WASHINGTON UNIVERSITY SCHOOL OF MEDICINE Kingshighway and Euclid Avenue—Organized in 1842 as the Medical Department of St Louis University. The first class graduated in 1843. In 1855 it was chartered as an independent institution under the name of St Louis Medical College. In 1891 it became the Medical Department of Washington University. In 1899 it absorbed the Missouri Medical College. Coeducational since 1818. The faculty comprises 110 professors and 196 lecturers instructors and others a total of 306. Four years of collegiate work is required for admission. The BS degree in medicine is conferred at the end of the third or fourth year. The course is four years of eight months each. The total fees for the four years are respectively \$424 \$419 \$419 and \$424. The registration for 1936-1937 was 347 graduates 94. The next session begins Sept 23 1937 and ends June 7 1938. The Dean is Philip A Shaffer PhD.

NEBRASKA

Omaha

CREIGHTON UNIVERSITY SCHOOL OF MEDICINE 306 North Fourteenth Street—Organized in 1892 as the John A Creighton Medical College. The first class graduated in 1893. Present title in 1921. Coeducational since organization. It has a faculty of 69 professors and 74 instructors lecturers and assistants a total of 143. Two years of collegiate work required for admission. The BS degree in medicine is conferred at the end of the second year. The curriculum covers four years of eight months each. The total fees each year for the four years are respectively \$393 \$393 \$348 and \$356. The registration for 1936-1937 was 264 graduates 59. The next session begins Sept 21 1937 and ends June 2 1938. The Dean is Bryan M Riley MD.

UNIVERSITY OF NEBRASKA COLLEGE OF MEDICINE Fort Second Street and Dewey Avenue—Organized in 1881 as the Omaha Medical College. The first class graduated in 1882. It became the Medical Department of Omaha University in 1891. In 1902 it affiliated with the University of Nebraska with the present title. The instruction of the first two years was given at Lincoln and of the last two at Omaha until 1913 when the work of all four years was transferred to Omaha. Coeducational since 1882. The faculty is composed of 66 professors and 54 lecturers and instructors a total of 120. Three years of collegiate work is required for admission. The BS degree in medicine is conferred at the end of the second year. The fees for each of the four years respectively are \$219 \$214 \$214 and \$214. The registration for 1936-1937 was 336 graduates 87. The next session begins Sept 20 1937 and ends June 6 1938. The Dean is C W M Poynter MD.

NEW HAMPSHIRE

Hanover

DARTMOUTH MEDICAL SCHOOL—Organized by Dr Nathan Smith in 1797. The first class graduated in 1798. It is under the control of the trustees of Dartmouth College. Courses of the third and fourth year were discontinued in 1914. The faculty consists of 17 professors and 14 instructors a total of 31. Three years of collegiate work is required for admission. The course covers nine calendar months in each year or eight months of actual teaching. Candidates for the AB degree in Dartmouth College may substitute the work of the first year in medicine for that of the senior year in the academic department. The fees for the first year are \$460 and \$450 for the second year. The registration for 1936-1937 was 42. The next session begins Sept 22 1937 and ends June 17 1938. The Dean is John P Bowler MD.

NEW YORK

Albany

ALBANY MEDICAL COLLEGE 47 New Scotland Avenue—Organized in 1819. The first class graduated in 1839. It became the Medical Department of Union University in 1873. In 1915 Union University assumed educational control. Coeducational since 1915. The faculty is composed of 29 professors and 72 instructors assistants and others a total of 101. A collegiate degree is required for admission. The curriculum covers four years of eight months each. The total fees for four years respec-

tively are \$455 \$430 \$415 and \$415. The registration for 1936-1937 was 100 graduates 21. The next session begins Sept 27 1937 and ends June 13 1938. The Dean is R S Cunningham MD.

Brooklyn

LONG ISLAND COLLEGE OF MEDICINE 350 Henry Street—Organized in 1858 as the Long Island College Hospital. The first class graduated in 1860 and the last class in 1930. Reorganized with a new charter in 1930 as the present institution. The first class graduated in 1931. Coeducational. It has a faculty of 119 professors associate assistant, clinical and assistant clinical professors and 163 lecturers associate instructors assistants and others a total of 282. Seventy two semester hours of collegiate work is required for admission. The course covers four years (first second and fourth years of eight months each and the third year of nine months). The total fee for each of the four years is \$610. The registration for 1936-1937 was 364 graduates 81. The next session begins Sept 27 1937 and ends June 9 1938. The Dean is Jean A Curran MD.

Buffalo

UNIVERSITY OF BUFFALO SCHOOL OF MEDICINE 24 High Street—Organized in 1846. The first class graduated in 1847. It absorbed the Medical Department of Niagara University in 1898. Coeducational since organization. The faculty is composed of 89 professors and 180 associates assistants and others a total of 269. Two years of collegiate work is required for admission. The course covers four years of eight months each. The total fees for each of the four years are respectively \$530 \$525 \$520 and \$530. The registration for 1936-1937 was 261 graduates 58. The next session begins Oct 4 1937 and ends June 11 1938. The Dean is Edward W Koch MD.

New York—Ithaca

CORNELL UNIVERSITY MEDICAL COLLEGE 1300 York Avenue New York City. Organized in 1898. The work of the first year may be taken either in New York City or Ithaca. Coeducational since organization. The faculty is composed of 115 professors and 269 assistants lecturers instructors and others a total of 384. All candidates for admission must be graduates of approved colleges or scientific schools or seniors of approved colleges that will permit them to substitute the first year of this medical school for the fourth year of their college course and will confer on them the baccalaureate degree on the completion of the first year's work. The fees for each of the four years are respectively \$510 \$500 \$510 and \$525. The registration for 1936-1937 was 296 graduates 71. The next session begins Sept 27 1937 and ends June 15 1938. The Dean is William S Ladd MD.

New York

COLUMBIA UNIVERSITY COLLEGE OF PHYSICIANS AND SURGEONS 630 West One Hundred and Sixty Eighth Street—The medical faculty of Columbia College then known as King's College was organized in 1767. Instruction was interrupted by the War of the Revolution. The faculty was reestablished in 1792 and merged in 1814 with the College of Physicians and Surgeons which had received an independent charter in 1807. In 1860 the College of Physicians and Surgeons became the Medical Department of Columbia College. This merger became permanent by legislative enactment in 1891. Columbia College became Columbia University in 1896. The medical school has been coeducational since 1917. The faculty is composed of 206 professors and 435 instructors demonstrators and others a total of 641. Three years of collegiate work is required for admission. The work covers four years of eight months each. The total fees for the four years respectively are \$545 \$530 \$530 and \$550. The registration for 1936-1937 was 400 graduates 94. The next session begins Sept 16 1937, and ends June 1 1938. The Dean is Willard C Rappleye MD.

NEW YORK MEDICAL COLLEGE AND FLOWER HOSPITAL 450 East Sixty Fourth Street—Organized in 1858. Incorporated in 1860 as the Homeopathic Medical College of the State of New York. The title New York Homeopathic Medical College was assumed in 1869. The title New York Homeopathic Medical College and Flower Hospital in 1908. Present title May 11 1936. The first class graduated in 1861. Coeducational since 1919. A baccalaureate degree or its equivalent required for admission. The course covers four years of eight months each. It has a faculty of 68 professors and associate professors 30 assistant professors and 194 lecturers and assistants a total of 292. The total fees for the four years are respectively \$640 \$630 \$630 and \$660. The registration for 1936-1937 was 288 graduates 89. The next session begins Sept 20 1937, and ends June 7 1938. The Dean is Claude A Burrett MD.

NEW YORK UNIVERSITY COLLEGE OF MEDICINE 477 First Avenue—Organized in 1898 by the union of the New York University Medical College organized in 1841 and the Bellevue Hospital Medical College organized in 1861. Named University and Bellevue Hospital Medical College from 1898 to February 1935 when it was changed to New York University College of Medicine. First class graduated in 1899. Coeducational since 1919. The faculty is composed of 136 professors associate assistant clinical and assistant clinical professors and 298 lecturers instructors and others a total of 434. The course covers four years. Entrance requirements are that all candidates must be graduates of approved colleges or scientific schools or seniors in good standing in approved colleges or scientific schools on condition that their faculty will permit them to substitute the first year in the New York University College of Medicine for the fourth year of their college course and will confer the bachelor's degree on the satisfactory completion of the year's work. The fees for each of the four years are \$600. The next session begins Sept 15 1937 and ends June 8 1938. The registration for 1936-1937 was 514 graduates 139. The Assistant Dean is Currier McEwen MD.

Rochester

UNIVERSITY OF ROCHESTER SCHOOL OF MEDICINE—Organized in 1925 as the Medical Department of the University of Rochester Coeducational since organization. The faculty is composed of 60 professors 166 lecturers assistants instructors and others a total of 226. The work embraces a graded course of four years of nine months each. Three years of collegiate work is required for admission. The total fees for each year are \$400. The registration for 1936 1937 was 166, graduates 35. The next session begins Sept 20 1937 and ends June 18 1938. The Dean is George Hoyt Whipple M D.

Syracuse

SYRACUSE UNIVERSITY COLLEGE OF MEDICINE—Organized in 1872 when the Geneva Medical College chartered in 1834 was removed to Syracuse under the title "The College of Physicians and Surgeons of Syracuse University." Present title assumed in 1875 when a compulsory three-year graded course was established. The first class graduated in 1873 and a class graduated each subsequent year. In 1889 the amalgamation with the university was made complete. Course extended to four years in 1896. Coeducational since organization. The faculty is composed of 46 professors and 156 associate and assistant professors lecturers and instructors a total of 202. Two years of a recognized college course is required for admission. The course covers four years of thirty four weeks each. The fee for each of the first three years is \$500 for the fourth year \$510. The enrollment for 1936 1937 was 173 graduates 40. The next session begins Sept 23 1937 and ends June 6, 1938. The Dean is H G Weisskotten M D.

NORTH CAROLINA**Chapel Hill**

UNIVERSITY OF NORTH CAROLINA SCHOOL OF MEDICINE—Organized in 1890. Until 1902 this school gave only the work of the first two years when the course was extended to four years by the establishment of a department at Raleigh. The first class graduated in 1903. A class was graduated each subsequent year including 1910 when the clinical department at Raleigh was discontinued. Coeducational since 1914. Three years of collegiate work is required for admission. The B S degree in medicine is conferred at the end of the first year. The faculty is composed of 14 professors and 7 instructors a total of 21. The fees for each year are \$285 for residents nonresidents an additional fee of \$100. The registration for 1936 1937 was 68. The next session begins Sept 16 1937 and ends June 7 1938. The Dean is W deB MacNider, M D.

Durham

DUKE UNIVERSITY SCHOOL OF MEDICINE—Organized in 1925. The first class was admitted Oct 1 1930. Coeducational. The faculty is composed of 10 professors and 93 associate and assistant professors lecturers instructors and assistants a total of 103. The entrance requirements are seventy hours of collegiate work. The academic year consists of four quarters of eleven weeks each. Students either may study four quarters each year after the first year and if satisfactory will receive the M D certificate after three and one quarter calendar years or three quarters in each year and if satisfactory will be graduated after four calendar years. The B S degree in medicine may be conferred for special work after six quarters. Students are urged to spend three years in hospital or laboratory work after graduation and must give assurance satisfactory to the executive committee that they will spend at least two years. The fees are \$450 for each year of three quarters. The registration for 1936 1937 was 243 graduates 55. The next session begins Sept. 30 1937, and ends June 6 1938. The Dean is Wilhert C. Davison M D.

Wake Forest

WAKE FOREST COLLEGE SCHOOL OF MEDICAL SCIENCES—Organized in 1902. The faculty numbers 11 professors 7 instructors and 8 under graduate assistants. Ninety semester hours of collegiate work are required for admission. Each annual course extends over nine months. The fees for each of the first two years are \$300. The registration for 1936 1937 was 49. The next session begins Sept 14 1937 and ends May 31 1938. The Dean is C C Carpenter M D.

NORTH DAKOTA**Grand Forks**

UNIVERSITY OF NORTH DAKOTA SCHOOL OF MEDICINE—Organized in 1905. Offers only the first two years of the medical course. Coeducational since organization. Three years work in a college of liberal arts is required for admission. The B S degree in combined arts medical course is conferred at the end of the second year. The faculty consists of 5 professors and 8 instructors a total of 13. The fees are \$75 each year for resident students and \$165 for nonresidents. The registration for 1936 1937 was 53. The next session begins Sept 20 1937 and ends June 7, 1938. The Dean is H E French M D.

OHIO**Cincinnati**

UNIVERSITY OF CINCINNATI COLLEGE OF MEDICINE—Eden and Bethesda Avenues—Organized in 1909 by the union of the Medical College of Ohio (founded in 1819) with the Miami Medical College (founded in 1852). The Medical College of Ohio became the Medical Department of the University of Cincinnati in 1896. Under a similar agreement March 2 1909 the Miami Medical College also merged into the University when the title of Ohio Miami Medical College of the University of Cincinnati was taken. Present title assumed in 1915. Coeducational

since organization. Candidates for admission to the freshman class must present three years of college preparation of not less than ninety hours. The B S degree in medicine is conferred at the end of the second year. The faculty consists of 50 professors and 385 associates assistants etc a total of 435. The course covers four years of eight months each. A year's internship in an approved hospital is also required. The total fees for the four years are respectively \$360 \$365 \$360 and \$370, and if not legal citizens of Cincinnati \$50 additional. The registration for 1936 1937 was 296 graduates 69. The next session begins Sept 20 1937 and ends June 3 1938. The Dean is Alfred Friedlander, M D.

Cleveland

WESTERN RESERVE UNIVERSITY SCHOOL OF MEDICINE 2109 Adelbert Road—Organized in 1843 as the Cleveland Medical College in cooperation with Western Reserve College. The first class graduated in 1844. It assumed the present title in 1881. In 1910 the Cleveland College of Physicians and Surgeons was merged. Coeducational since 1919. The faculty includes 79 professors and 205 lecturers assistants and others a total of 284. The curriculum covers three years of nine months each and one year of ten months. Three years of collegiate work is required for admission and a baccalaureate degree for graduation. The total fees for each of the four years are respectively \$442 \$425 \$415 and \$425. The registration for 1936 1937 was 260 graduates 61. The next session begins Sept 23 1937 and ends June 15, 1938. The Dean is Torald Sollmann M D.

Columbus

OHIO STATE UNIVERSITY COLLEGE OF MEDICINE Neil and Eleventh Avenues—Organized in 1907 as the Starling Ohio Medical College by the union of Starling Medical College (organized in 1847 by charter granted by the State Legislature changing the name from Willoughby Medical College which was chartered March 3 1834) with the Ohio Medical University (organized 1890). In 1914 it became an integral part of the Ohio State University with its present title. Coeducational since organization. The faculty consists of 59 professors associate and assistant professors 95 lecturers instructors demonstrators and others a total of 154. Three years of collegiate work is required for admission. The course covers four years of thirty four weeks each. Tuition fees are \$246 \$231 \$231 and \$231 each year respectively for residents of Ohio and \$150 additional for nonresidents. The registration for 1936 1937 was 352 graduates 94. The next session begins Sept 28 1937 and ends June 13 1938. The Dean is J H J Upham M D.

OKLAHOMA**Oklahoma City**

UNIVERSITY OF OKLAHOMA SCHOOL OF MEDICINE—Organized in 1900. Gave only the first two years of the medical course at Norman until 1910 when a clinical department was established at Oklahoma City. The first class graduated in 1911. Coeducational since organization. Since September 1928 the entire course has been given at Oklahoma City. It has a faculty of 27 professors 24 associate professors 20 assistant professors 15 associates 3 lecturers 54 instructors and 12 assistants a total of 155. Two years of collegiate work is required for admission. The B S in medicine degree is conferred at the end of the second year. The course covers four years of nine months each. The total fees for the four years are, respectively \$128 \$95 \$53 and \$58. For students residing outside the State of Oklahoma there is an additional fee of \$250 a year. The registration for 1936 1937 was 239 graduates, 59. The next session begins Sept 20 1937 and ends June 6 1938. The Dean is Robert U Patterson M D.

OREGON**Portland**

UNIVERSITY OF OREGON MEDICAL SCHOOL Marquam Hill—Organized in 1887. The first class graduated in 1888 and a class graduated each subsequent year except 1898. The Willamette University Medical Department was merged in 1913. Coeducational since organization. It has a faculty of 71 professors and 190 lecturers assistants and others a total of 261. Entrance requirements are three years of collegiate work. The course covers four years of thirty three weeks each. The total fees for the four years are respectively \$320 \$315 \$310 and \$316 for residents of Oregon and \$60 a year additional for nonresidents. The registration for 1936 1937 was 240 graduates 53. The next session begins Oct 4 1937 and ends June 4 1938. The Dean is Richard B Dillehunt M D.

PENNSYLVANIA**Philadelphia**

HANNEMANN MEDICAL COLLEGE AND HOSPITAL OF PHILADELPHIA 215 North Fifteenth Street—Organized in 1848 as the Homeopathic Medical College of Pennsylvania. In 1869 it united with the Hanneemann Medical College of Philadelphia taking the latter title. Assumed present title in 1885. The first class graduated in 1849. Two years of collegiate work in a college of arts and science is required for admission. It has a faculty of 82 professors and 177 lecturers instructors and others in all 259. The work covers four years of eight and one half months each. Fees for each of the four years are respectively \$305 \$502 \$502 and \$525. The registration for 1936 1937 was 544 graduates 121. The next session begins Sept 27 1937 and ends June 9 1938. The Dean is William A Pearson Ph D.

JEFFERSON MEDICAL COLLEGE OF PHILADELPHIA 1025 Walnut Street—Organized in 1825 as the Medical Department of Jefferson College Canonsburg Pa. It was chartered with its present title in 1838. Clinicians have been graduated annually beginning 1826. In 1838 a separate unit

sity charter was granted without change of title since which time it has continued under the direction of its own board of trustees. It has a faculty of 71 professors associate and assistant professors and 179 associates lecturers demonstrators and instructors a total of 250. Four years of college work and a bachelor's degree are required for admission. The course of study covers four years of eight and one-half months each. The total fees for the four years are respectively \$445 \$435 \$425 and \$425. The registration for 1936-1937 was 518 graduates 138. The next session begins Sept 20 1937 and ends June 3 1938. The Dean is Ross V. Patterson M.D.

TEMPLE UNIVERSITY SCHOOL OF MEDICINE Broad and Ontario Streets—Organized in 1901. The first class graduated in 1904. Coeducational since organization. The faculty numbers 33 professors and 206 associates assistants and others a total of 239. Three years of collegiate work is required for admission. The fees for each of the four years respectively are \$485 \$455 \$435 and \$455. The registration for 1936-1937 was 447 graduates 116. The next session begins Sept 22 1937 and ends June 16 1938. The Dean is William N. Parkinson M.D.

UNIVERSITY OF PENNSYLVANIA SCHOOL OF MEDICINE Thirty Sixth and Pine Streets—Organized in 1765. Classes were graduated in 1768 and in all subsequent years except 1772 and 1775-1779 inclusive. The original title was the Department of Medicine College of Philadelphia. The present title was adopted in 1909. It granted the first medical diploma issued in America. In 1916 it took over the Medico-Chirurgical College of Philadelphia to develop it as a graduate school. Coeducational since 1914. The faculty consists of 97 professors associate and assistant professors and 334 lecturers associates instructors and others a total of 431. Three years of collegiate work is required for admission. The course covers four years of thirty-three weeks each. The tuition fee is \$500 each year with a deposit fee of \$15 a student health fee of \$10 and a matriculation fee of \$5. The registration for 1936-1937 was 499 graduates 134. The next session begins Sept 27 1937 and ends June 8 1938. The Dean is William Pepper M.D.

WOMAN'S MEDICAL COLLEGE OF PENNSYLVANIA Henry Avenue and Abbottsford Road East Falls—Organized in 1850. Classes were graduated in 1852 and in all subsequent years except 1862. It has a faculty of 48 professors and 65 assistants lecturers and others in all 113. Three years of collegiate work is required for admission. The curriculum covers four years of eight months each. Total fees for each of the four years are respectively \$440 \$433 \$433 and \$455. The registration for 1936-1937 was 107 graduates 23. The next session begins Sept 22 1937 and ends June 8 1938. The Dean is Martha Tracy M.D.

Pittsburgh

UNIVERSITY OF PITTSBURGH SCHOOL OF MEDICINE Bigelow Boulevard—Organized in 1886 as the Western Pennsylvania Medical College and in 1908 became an integral part of the University of Pittsburgh removing to the university campus in 1910. The first class graduated in 1887. Coeducational since 1899. The faculty is composed of 27 professors and 262 associates assistants and others 289 in all. Entrance requirements are two years of collegiate work. The course of study is four years of eight and one-half months each. The total fees for the four years respectively are \$500 \$500 \$500 and \$415. The registration for 1936-1937 was 229 graduates 62. The next session begins Sept 20 1937 and ends June 8 1938. The Dean is R. R. Huggins M.D.

SOUTH CAROLINA

Charleston

MEDICAL COLLEGE OF THE STATE OF SOUTH CAROLINA 16 Lucas Street—Organized in 1823 as the Medical College of South Carolina. The first class graduated in 1825. In 1832 a medical college bearing the present title was chartered and the two schools continued as separate institutions until they were merged in 1838. Classes were graduated in all years except 1862 to 1865 inclusive. In 1913 by legislative enactment it became a state institution. Coeducational from 1895 to 1912 when privileges for women were withdrawn being restored in 1917. It has a faculty of 39 professors and 38 lecturers instructors and others a total of 77. The course covers four years of eight months each. Three years of collegiate work is required for admission. The total fees are \$270 each year. Fees for nonresidents of the state \$420 each year. The enrollment for 1936-1937 was 174 graduates 45. The next session begins Sept 23 1937 and ends June 2 1938. The Dean is Robert Wilson M.D.

SOUTH DAKOTA

Vermilion

UNIVERSITY OF SOUTH DAKOTA SCHOOL OF MEDICINE—Organized in 1907. Coeducational since organization. Offers only the first two years of the medical course. Two years work in a college of liberal arts is required for admission. The B.S. degree in medicine is conferred at the end of the second year. The faculty numbers 11. The tuition is \$100 each year for residents and \$200 for nonresidents. The registration for 1936-1937 was 43. The next session begins Sept 15 1937 and ends June 6 1938. The Dean is Joseph C. Ohlmacher M.D.

TENNESSEE

Memphis

UNIVERSITY OF TENNESSEE COLLEGE OF MEDICINE 874 Union Avenue—Organized in 1876 at Nashville as Nashville Medical College. First class graduated 1877 and a class graduated each subsequent year. Became Medical Department of University of Tennessee in 1879. In 1909 it united with the Medical Department of the University of Nashville to form the joint Medical Department of the Universities of Nashville and Tennessee. This union was dissolved in 1911. The trus-

tees of the University of Nashville by formal action of that board named the University of Tennessee College of Medicine as its legal successor. In 1911 it moved to Memphis where it united with the College of Physicians and Surgeons. The Memphis Hospital Medical College was merged in 1913. Lincoln Memorial University Medical Department was merged in 1914. Coeducational since 1911. The faculty includes 97 professors and 122 assistants instructors and others a total of 219. Two years of collegiate work is required for admission. The B.S. degree in medicine is conferred at the end of the second year. The fees are \$120 quarterly. For residents of the state the charge is reduced \$30 each quarter. The registration for 1936-1937 was 423 graduates 102. During the academic year of 1937-1938 the quarters begin July 9 Sept 27 Dec 31 and March 21 and end Sept 25 Dec 18 March 23 and June 11. The Dean is O. W. Hyman Ph.D.

Nashville

MEHARRY MEDICAL COLLEGE Eighteenth Avenue North and Heffernan Street—This school was organized in 1876 as the Meharry Medical Department of Central Tennessee College which became Walden University in 1900. First class graduated in 1877. Obtained new charter independent of Walden University in 1915. Coeducational since 1876. The faculty is made up of 25 professors and 24 instructors demonstrators lecturers and others 49 in all. Two years work in a college of liberal arts is required for admission. The curriculum covers four years of thirty-two weeks each. Tuition fees are respectively \$270 \$250 \$250 and \$260 each year. The registration for 1936-1937 was 200 graduates 35. The next session begins Oct 1 1937 and ends May 19 1938. The President is John J. Mallowney M.D.

VANNEBILT UNIVERSITY SCHOOL OF MEDICINE Twenty First Street at Edgehill—This school was founded in 1874. The first class graduated in 1875. Coeducational since September 1920. The faculty numbers 223. For matriculation students must be graduates of collegiate institutions of recognized standing or seniors in absentia who will receive the bachelor degree from their college after having completed successfully at least one year of work in the school of medicine. The course covers four years of nearly nine months each. The total fees for the four years respectively are \$315 \$315 \$315 and \$320. The registration for 1936-1937 was 197 graduates 51. The next session begins Sept 20 1937 and ends June 8 1938. The Dean is Waller S. Leathers M.D.

TEXAS

Dallas

BAYLOR UNIVERSITY COLLEGE OF MEDICINE 810 College Avenue—Organized in 1900 as the University of Dallas Medical Department. In 1903 it took its present name and became the Medical Department of Baylor University. It acquired the charter of Dallas Medical College in 1904. Coeducational since organization. The first class graduated in 1901. The faculty consists of 68 professors and 95 instructors and assistants a total of 163. Entrance requirements are two years of collegiate work. The course covers four years of eight months each. The fees for each of the four years respectively are \$364 \$354 \$349 and \$374. The registration for 1936-1937 was 338 graduates 78. The next session begins Oct 1 1937 and ends June 6 1938. The Dean is W. H. Moursund M.D.

Galveston

UNIVERSITY OF TEXAS SCHOOL OF MEDICINE 912 Avenue B—Organized in 1891. The first class graduated in 1892. Coeducational since organization. It has a faculty of 41 professors and 14 lecturers and instructors a total of 55. The curriculum covers four years of eight months each. The entrance requirement is two years of collegiate work for 1937-1938. This will be increased to 90 semester hours beginning in September 1938. The total fees for the four years respectively are \$88 \$92 \$100 and \$104. There is a matriculation fee of \$50 for each year. The registration for 1936-1937 was 367 graduates 79. The next session begins Oct 1 1937 and ends May 31 1938. The Dean is W. S. Carter M.D.

UTAH

Salt Lake City

UNIVERSITY OF UTAH SCHOOL OF MEDICINE—Organized in 1906. Coeducational since organization. Gives only first two years of medical course. Each school year covers thirty-six weeks. Three years of collegiate work is required for admission. The medical faculty consists of 8 professors 3 instructors 16 lecturers demonstrators and fellows and 2 technicians a total of 29. The fees are \$228 per year. There is a nonresident fee of \$25 per quarter. The registration for 1936-1937 was 59. The next session begins Sept 27 1937 and ends June 3 1938. The Dean is L. L. Daines M.D.

VERMONT

Burlington

UNIVERSITY OF VERMONT COLLEGE OF MEDICINE Pearl Street College Park—Organized with complete course in 1822. Classes graduated in 1823 to 1836 inclusive when the school was suspended. It was reorganized in 1853 and classes were graduated in 1854 and in all subsequent years. Coeducational since 1920. It has a faculty of 39 professors and 28 lecturers instructors preceptors and others a total of 67. Two years of collegiate work is required for admission. The course of study covers four years of nine months each. For residents of Vermont the tuition fee is \$300 each session. Nonresidents are charged an additional \$75 each session. A student activity fee of \$30 is charged all students not holding academic degrees or in attendance four years previously and a \$25 fee for the Doctor's degree. The registration for 1936-1937 was 164 graduates 50. The next session begins Sept 17 1937 and ends June 13 1938. The Dean is James V. Jenne M.D.

VIRGINIA

Charlottesville

UNIVERSITY OF VIRGINIA DEPARTMENT OF MEDICINE—Organized in 1827. Classes were graduated in 1828 and in all subsequent years except 1865. Coeducational since the session of 1920-1921. It has a faculty of 37 professors and 32 lecturers, instructors, assistants and others, a total of 69. Two years of collegiate work is required for admission. The B.S. degree in medicine is conferred at the end of the second year when special requirements are fulfilled. For residents of Virginia the total fees for the four years respectively are \$399, \$376, \$351 and \$346. Nonresidents are charged an additional \$50 each year. The registration for 1936-1937 was 247 graduates. 61. The next session begins Sept. 16, 1937 and ends June 13, 1938. The Dean is J. Carroll Flippin, M.D.

Richmond

MEDICAL COLLEGE OF VIRGINIA Twelfth and Clay Streets—Organized in 1838 as the Medical Department of Hampden Sydney College. Present title was taken in 1854. In 1913 the University College of Medicine was merged. In 1914 the North Carolina Medical College was merged. Coeducational since 1918. Classes were graduated in 1839 and in all subsequent years. It has a faculty of 73 professors and 82 lecturers, instructors and others, a total of 155. Three years of collegiate work is required for admission. The course covers four years of eight and one-half months each. Total fees for the four years respectively are \$335, \$335, \$320 and \$350. Nonresidents are charged an additional \$125 each year. The registration for 1936-1937 was 307 graduates. 82. The next session begins Sept. 7, 1937 for the first year class. Sept. 17, 1937 for all other classes and ends June 7, 1938. The Dean is Lee E. Sutton, Jr., M.D.

WEST VIRGINIA

Morgantown

WEST VIRGINIA UNIVERSITY SCHOOL OF MEDICINE—Organized in 1902 gives the first two years of the medical course. Coeducational since organization. Three years of collegiate work is required for admission. The B.S. degree in medicine is conferred at the end of the second year. Session extends through nine months. Faculty numbers 24. Fees for residents of the state \$254, nonresidents \$404 each year. The registration for 1936-1937 was 41. The next session begins Sept. 14, 1937 and ends June 7, 1938. The Dean is Edward J. Van Lier, M.D.

WISCONSIN

Madison

UNIVERSITY OF WISCONSIN MEDICAL SCHOOL 412 North Charter Street—Organized in 1907. Gave only the first two years of the medical course until 1925 when the clinical years were added. Coeducational since organization. Three years of collegiate work are required for admission. The B.S. degree in medical science is conferred at the end of the first year. It has a faculty of 64 professors and 67 lecturers, instructors and others, a total of 131. The fees for each year are respectively \$212, \$192, \$165 and \$110. An additional fee of \$200 each year is charged nonresidents. The registration for 1936-1937 was 300 graduates. 48. The next session begins Sept. 22, 1937 and ends June 20, 1938. The Dean is William S. Middleton, M.D.

Milwaukee

MARQUETTE UNIVERSITY SCHOOL OF MEDICINE 561 North Fifteenth Street—Organized in December 1912 by the merger of the Milwaukee Medical College and the Wisconsin College of Physicians and Surgeons. Coeducational since organization. It has a faculty of 153. Two years of collegiate work is required for admission. The curriculum covers four years of eight and a half months each and one year's internship in an approved hospital. The fees for the first year are \$412 for each of the three following years \$400. The registration for 1936-1937 was 311 graduates. 64. The next session begins Sept. 24, 1937 and ends June 15, 1938. The Dean is Eben J. Carey, M.D.

CANADA

Alberta

UNIVERSITY OF ALBERTA FACULTY OF MEDICINE Edmonton—Organized in 1913. Coeducational since organization. Has given the complete six-year medical course since 1924. The faculty includes 8 full time and 77 part time professors, instructors, assistants and others, a total of 85. Tuition for the first year is \$150 for the second, third and fourth years \$215 for the fifth and sixth years \$225. The registration for 1936-1937 was 205 graduates. 32. The next session begins Sept. 24, 1937 and ends April 30, 1938. The Dean is Allen C. Rankin, M.D.

Manitoba

UNIVERSITY OF MANITOBA FACULTY OF MEDICINE Bannatyne Avenue Winnipeg—Organized in 1883 as Manitoba Medical College. First class graduated in 1886 and a class graduated each subsequent year. The college transferred all its property to the University of Manitoba in 1919 and assumed the present title. Coeducational since organization. The faculty includes 26 professors and 75 instructors and assistants, a total of 101. Matriculation requirements include two years of collegiate work in the faculty of arts and science of a recognized university. The course extends over four years of eight months each and a hospital internship. The total fees for the five years respectively are \$266, \$266, \$266, \$266 and \$115. The registration for 1936-1937 was 214 graduates. 52. The next session begins Sept. 17, 1937 and ends May 18, 1938. The Dean is A. T. Mather, M.D.

Nova Scotia

DALHOUSIE UNIVERSITY FACULTY OF MEDICINE Halifax—Organized in 1867. Incorporated as the Halifax Medical College in 1875. Reorganized as an examining faculty separate from the Halifax Medical College in 1885. In 1911 in accordance with an agreement between the Governors of Dalhousie University and the Corporation of the Halifax Medical College the work of the latter institution was discontinued and a full teaching faculty was established by the university. First class graduated in 1872. Coeducational since 1871. It has a faculty of 24 professors and 43 demonstrators, lecturers and others, a total of 67. Requires for matriculation two years of arts. The medical course covers four years and a hospital internship of one year. The fees are \$317, \$317, \$307 and \$307 for each year respectively. \$250 additional registration fee payable by students outside the British Empire. The registration for 1936-1937 was 178 graduates. 28. The next session begins Sept. 14, 1937 and ends May 17, 1938. The Dean is H. G. Grant, M.D.

Ontario

QUEEN'S UNIVERSITY FACULTY OF MEDICINE Kingston—Organized 1854. First class graduated in 1855 and a class graduated each subsequent year. The faculty numbers 56. The fee for the first year is \$208 and \$230 for each of the other five years. The course covers six years of thirty teaching weeks each. The registration for 1936-1937 was 294 graduates. 47. The next session begins Sept. 30, 1937 and ends May 25, 1938. The Dean is Frederick Etherington, M.D.

UNIVERSITY OF WESTERN ONTARIO MEDICAL SCHOOL Ottawa, Avenue London—Organized in 1881 as the Western University Faculty of Medicine. First class graduated in 1883 and a class graduated each subsequent year. Present title in 1923. The medical school has been under the control of the Board of Governors of the University of Western Ontario since 1913. Coeducational since 1913. The faculty numbers 88. The course of study covers six years of eight months each. The total fees to residents of Canada for the last four years respectively are \$225, \$225, \$233 and \$258. The registration for 1936-1937 was 226 graduates. 46. The next session begins Sept. 20, 1937 and ends May 14, 1938. The Dean is F. J. H. Campbell, M.D.

UNIVERSITY OF TORONTO FACULTY OF MEDICINE Toronto—Organized in 1843 as the Medical Faculty of King's College. Abolished in 1853. Reestablished in 1887. In 1902 it absorbed Victoria University Medical Department and in 1903 it absorbed the Medical Faculty of Trinity University. Coeducational since 1903. The course of study covers six years of eight months each. The B.Sc. (Med.) degree is conferred at the end of the third or sixth year. It has a faculty of 67 professors and 285 lecturers, associates and others, a total of 352. The fees are \$198 for the first year, for the second \$370, \$268 for the third year, \$293 for the fourth and fifth years and \$325 for the sixth year. The registration for 1936-1937 was 834 graduates. 109. The next session begins Sept. 28, 1937 and ends May 14, 1938. The Dean is W. E. Gallie, M.D.

Quebec

MCGILL UNIVERSITY FACULTY OF MEDICINE 3640 University Street Montreal—Founded in 1823 as Montreal Medical Institution became the Medical Faculty of McGill University in 1829. First class graduated under the university auspices in 1833. No session between 1836-1839 owing to political troubles. In 1905 it absorbed the Faculty of Medicine of the University of Bishop College. Coeducational since 1919. Three years of collegiate work is required for admission. The length of the medical course is five years, beginning with the session of 1936-1937 it was changed to four years followed by one year of internship. The faculty consists of 55 professors and 161 lecturers and others, a total of 216. The total fees for each of the five medical years are \$393. The registration for 1936-1937 was 483 graduates. 103. The next session begins Sept. 1, 1937 and ends May 31, 1938. The Dean is A. Grant Fleming, M.D.

UNIVERSITY OF MONTREAL FACULTY OF MEDICINE 1265 St. Denis Street Montreal—Organized in 1843 as the Montreal School of Medicine and Surgery. In 1891 by act of Parliament the Medical Faculty of Laval University (organized in 1878) was absorbed. Present name by act of Parliament in 1920. A class was graduated in 1843 and each subsequent year. Coeducational since 1925. The faculty numbers 195. One year of premedical college work is required for admission to a five year medical course. The total fees for each of the five years respectively are \$253, \$229, \$275, \$243 and \$218. The registration for 1936-1937 was 181 graduates. 51. The next session begins Sept. 15, 1937 and ends June 15, 1938. The Dean is Telesphore Parizeau, M.D.

LAVAL UNIVERSITY FACULTY OF MEDICINE Quebec—The Quebec School of Medicine organized in 1848 became in 1852 the Laval University Faculty of Medicine. First class graduated in 1855 and a class graduated each subsequent year. The faculty numbers 88. The fees for each of the medical years are \$175, \$185, \$175, \$175 and \$195 for residents of Canada. Nonresidents are charged an extra fee of \$190 each year. The premedical requirement is a B.A. degree. The registration for 1936-1937 was 271 graduates. 40. The next session begins Sept. 21, 1937 and ends May 31, 1938. The Dean is P. C. Dagneau, M.D.

Saskatchewan

UNIVERSITY OF SASKATCHEWAN SCHOOL OF MEDICAL SCIENCES Saskatoon—Organized in 1926. Coeducational. Offers the first two years of the medical course. Students require three more years of medicine for graduation. Two years of collegiate work is required for admission. The B.S. degree in medicine is conferred at the end of the second year. The medical faculty includes 7 professors and 3 lecturers and assistants, a total of 10. The fees are \$150 for each year. The registration for 1936-1937 was 50. The next session begins Sept. 23, 1937 and ends May 13, 1938. The Dean is W. S. Lind, M.B.

HOSPITALS APPROVED FOR TRAINING INTERNS

The following general hospitals containing 22,094 beds are considered in position to furnish acceptable internships for medical graduates

HOSPITALS, 712 INTERNSHIPS, 7,167

The terms used in the column Type of Internship are defined as follows

1 Rotating internships include services in medicine surgery pediatrics obstetrics and in the clinical and x-ray laboratories

2 Straight internships are limited to a single field

3 Mixed internships are those comprising more than one service but which do not include all of the six branches which constitute a rotating internship

ABBREVIATIONS

Army	United States Army	Fed	Federal	Part	Partnership
CyCo	City and County	Frat	Fraternal	Req	Required
Corp	Corporation unrestricted as to profit	Indy	Individual	USPHS	United States Public Health Service
		NPA's'n	Nonprofit association		
		Op	Optional		

Name of Hospital	Location	Control	Capacity	Classification of Patients				Type of Internship	Number of Interns	Length of Service in Months	Services Commences	Affiliated Service	Outpatient Service	Autopsy Percentage	Salary per Month
				Free	Part Pay	Full Pay	Total Patients treated								
ALABAMA															
Hillman Hospital	Birmingham	County	474	100			11 612	Mixed	20	24	July	No	Req	23	(d)
Employees Hospital of the Tennessee Coal Iron and Railroad Company	Fairfield	NPA's'n	310		100		6 473	Rotating	8	12	July	No	Req	30	\$25
John A. Andrew Memorial Hospital (col)	Tuskegee Insti- tute	NPA's'n	102	40	40	20	1 561	Rotating	3	12	June & Sept	No	Req	29	\$6
ARIZONA															
St. Joseph's Hospital	Phoenix	Church	190	10	30	60	6 666	Rotating	5	12	July	No	None	59	\$20
ARKANSAS															
Baptist State Hospital	Little Rock	Church	310	10	9	76	3 914	Rotating	4	12	July	No	None	39	\$20
Little Rock City Hospital	Little Rock	City	112	100			1 700	Rotating	4	12	July	No	Req	19	\$20
St. Vincent Infirmary	Little Rock	Church	100	21	18	61	3 695	Rotating	3	12	June	No	None	17	\$20
CALIFORNIA															
Fresno County General Hospital	Fresno	County	618	99	1		7 330	Rotating	10	12	July	No	Req	33	\$20
Glendale Sanitarium and Hospital	Glendale	Church	216	1	21	78	3 370	Mixed	2	12	July	No	Req	29	\$250(a)
Loma Linda Sanitarium and Hospital	Loma Linda	Church	124	12	85		2 766	Mixed	4	11	July	(3)	Req	36	\$20(a)
California Hospital	Los Angeles	Church	292	5	63	30	8 0 9	Rotating	10	12	Jan & July	No	Req	24	\$20
Cedars of Lebanon Hospital	Los Angeles	NPA's'n	288	19	4	77	7 042	Rotating	9	12	July	No	Req	47	\$20
Hollywood Hospital	Los Angeles	NPA's'n	270			100	6 719	Mixed	5	12	July	No	None	44	\$20
Los Angeles County Hospital	Los Angeles	County	3 306	100			53 906	Mixed	120	24	July	No	Req	61	\$10
St. Vincent's Hospital	Los Angeles	Church	244	5	4	91	5 372	Rotating	4	12	July	No	None	30	\$20
Santa Fe Coast Lines Hospital	Los Angeles	NPA's'n	140				2 330	Rotating	6	12	July	(4)	Req	77	\$20
White Memorial Hospital	Los Angeles	Church	120	2	38	60	3 066	Rotating	12	12	July & Sept	No	Req	39	\$40(a)
U. S. Naval Hospital	Marine Island	Navy	496	92	8		2 500	Rotating	12	12	July		Req	64	(b)
Alameda County Hospital	Oakland	County	300	100			10 304	Rotating	24	12	July	(5)	None	66	\$20
Orange County Hospital	Orange	County	288	98	2		3 012	Rotating	8	12	July	No	Req	66	\$10.20
Collis P. and Howard Huntington Memorial Hospital	Pasadena	NPA's'n	200	5	15	80	5 100	Rotating	5	12	Jan & July	(6)	Req	62	\$0
Sacramento County Hospital	Sacramento	County	500	100			8 302	Rotating	10	12	July	No	Req	42	\$20
San Bernardino County Charity Hosp	San Bernardino	County	320	100			3 700	Rotating	8	12	July	(3)	Req	33	\$20
San Diego County General Hospital	San Diego	County	663	100			8 840	Rotating	13	12	July	No	Req	31	\$20
U. S. Naval Hospital	San Diego	Navy	1 000	100			6 741	Rotating	12	12	July	(7)	Req	86	(b)
Franklin Hospital	San Francisco	NPA's'n	240	1	21	78	2 400	Rotating	6	12	July	No	Req	19	\$20
French Hospital	San Francisco	Frat	220	23	20	57	3 790	Rotating	6	12	July	No	Req	32	\$0(c)
Hospital for Children	San Francisco	NPA's'n	240	10	20	60	4 200	Rotating	10	12	July	No	Req	43	\$0
Letterman General Hospital	San Francisco	Army	610	100			4 702	Rotating	6	12	July	No	Req	68	(b)
Mary S. Help Hospital	San Francisco	Church	140	6	10	75	3 900	Rotating	5	12	July	No	Req	43	\$25
Mount Zion Hospital	San Francisco	NPA's'n	189	1	13	70	3 997	Rotating	6	12	June	No	Req	38	\$10
St. Joseph's Hospital	San Francisco	Church	232	3	6	91	7 004	Rotating	5	12	July	No	None	24	\$20
St. Luke's Hospital	San Francisco	Church	220	10	10	89	5 136	Rotating	4	12	July	No	Op	43	\$15
St. Mary's Hospital	San Francisco	Church	220	2	13	60	6 670	Rotating	7	12	July	No	Req	32	\$20
San Francisco Hospital	San Francisco	CyCo	1 516	100			12 7 0	Rotating	48	12	July	(8)	Req	70	\$10
Southern Pacific General Hospital	San Francisco	NPA's'n	400				4 400	Rotating	16	12	July	(9)	Req	44	\$0
Stanford University Hospitals (including Lane Hospital)	San Francisco	NPA's'n	324	4	50	46	9 606	Straight	10	12	July	No	Req	52	\$0
U. S. Marine Hospital	San Francisco	USPHS	493	100			4 090	Rotating	10	12	July	(10)	Op	63	(b)
University of California Hospital	San Francisco	State	294	60		37	6 062	Straight	20	12	June	No	Req	62	\$0
St. Helena Sanitarium and Hospital	Sanitarium	Church	136			*	2 002	Mixed	2	12	July	(11)	None	23	\$0(a)
Santa Clara County Hospital	San Jose	County	496	100			5 500	Rotating	8	12	July	No	Req	56	\$20(c)
St. Francis Hospital	Santa Barbara	Church	100	10	12	78	1 596	Mixed	4	12	July	(12)	Req	40	\$20
Santa Barbara Cottage Hospital	Santa Barbara	NPA's'n	210			100	3 377	Mixed	5	12	July	No	None	40	\$20
Santa Barbara General Hospital	Santa Barbara	County	240	98	1	1	2 111	Rotating	6	12	July	No	Req	52	\$15
COLORADO															
Boulder Colorado Sanit and Hospital	Boulder	Church	107	2	34	64	1 457	Mixed	1	12	July	No	Op	50	\$5
Beth El General Hospital	Colorado Springs	Church	110	22	10	68	2 447	Rotating	3	12	July	No	None	20	\$0
St. Francis Hospital and Sanatorium	Colorado Springs	Church	150	10	60	30	1 004	Mixed	2	12	July	No	None	16	\$20
Colorado General Hospital	Denver	State	150	60	20		3 627	Rotating	12	12	July & Aug	No	Req	74	\$0
Denver General Hospital	Denver	CyCo	607	100			14 107	Rotating	10	18	Jan & July	No	Req	40	\$0
Mersey Hospital	Denver	Church	200	2	26	75	5 400	Rotating	4	12	July	No	None	22	\$20
Prebyterian Hospital	Denver	Church	170	3	8	89	4 167	Mixed	4	12	July	No	None	26	\$20
St. Anthony Hospital	Denver	Church	212	6	91		3 009	Rotating	4	12	July	No	None	18	\$20
St. Joseph's Hospital	Denver	Church	200	4	21	71	4 444	Rotating	5	12	July	No	Req	26	\$20
St. Luke's Hospital	Denver	Church	249	2	48	6	2 111	Rotating	6	12	July	No	None	43	\$20
St. Mary Hospital	Pueblo	Church	162	13	70	17	2 016	Rotating	2	12	July	No	None	20	(f)
CONNECTICUT															
Bridgeport Hospital	Bridgeport	NPA's'n	400	43		57	10 002	Rotating	8	12	July	No	None	47	\$10
St. Vincent's Hospital	Bridgeport	Church	200	2	40	40	800	Rotating	7	12	July	No	Req	20	\$20
Danbury Hospital	Danbury	NPA's'n	161	26	60	14	2 907	Rotating	3	12	July	No	Req	20	\$20
Hartford Hospital	Hartford	NPA's'n	771	2	30	40	10 000	Rotating	24	24	July	No	None	40	(g)
Municipal Hospital	Hartford	City	240	100			5 423	Rotating	10	24	July	No	Req	29	\$10

Numerical and other references will be found on page 682

Name of Hospital	Location	Control	Capacity	Classification of Patients			Total Patients Treated	Type of Internship	Number of Interns	Length of Service in Months	Service Commences	Admitted Service	Outpatient Service	Autopsy Percentage	Salary per Month
				Free	Part Pay	Full Pay									
CONNECTICUT—Continued															
St Francis Hospital	Hartford	Church	525	4	32	64	8 108	Rotating	9	12	July	No	Req	26	No
Meriden Hospital	Meriden	NP Assn	136	2	21	7	2 761	Rotating	4	12	July	No	Req	32	\$10(h)
Middlesex Hospital	Middletown	NP Assn	160	21	29	50	3 842	Rotating	3	12	June & July	No	None	21	\$90(i)
New Britain General Hospital	New Britain	NP Assn	201	21	67	12	4 016	Rotating	5	12	July	No	Req	18	\$0
Grace Hospital	New Haven	NP Assn	287	10	45	45	5 987	Rotating	9	24	July	No	Req	27	\$10
Hospital of St Raphael	New Haven	Church	265	39	32	29	6 175	Rotating	6	12	July & Sept	No	Req	21	\$0
New Haven Hospital	New Haven	NP Assn	511	43	54	21	8 121	Mix & Str	31	12 20	(1 a)	No	Req	67	No
Lawrence and Memorial Associated Hospitals	New London	NP Assn	237	26	18	56	3 810	Rotating	4	12	July	No	Req	96	\$750
Norwalk General Hospital	Norwalk	NP Assn	180	12	60	28	3 831	Mixed	3	12	Jan & July	No	Req	24	\$10
William W Backus Hospital	Norwich	NP Assn	190	8	74	18	3 060	Rotating	2	12	July & Sept	No	Req	21	\$10
Stamford Hospital	Stamford	NP Assn	265	9	67	24	4 256	Rotating	6	12	Jan & July	No	Req	15	\$4
St Mary's Hospital	Waterbury	Church	204	16	82	32	7 845	Rotating	5	12	July	No	Req	31	\$2
Waterbury Hospital	Waterbury	NP Assn	290	3	89	8	5 050	Rotating	7	12	July & Oct	No	Req	39	\$5
DELAWARE															
Delaware Hospital	Wilmington	NP Assn	225	53	10	37	4 368	Rotating	7	12	July	No	Req	18	\$5
Homoeopathic Hospital	Wilmington	NP Assn	108	46	4	50	3 920	Rotating	6	12	July	No	Req	29	\$5
Wilmington General Hospital	Wilmington	NP Assn	163	50	10	40	2 803	Rotating	4	12	July	No	Req	25	\$10(i)
DISTRICT OF COLUMBIA															
Central Disp and Emergency Hospital	Washington	NP Assn	210	2	9	70	8 228	Mixed	13	12	July	No	Req	39	\$10
Freedmen's Hospital (col)	Washington	Fed	376	86	14	4	830	Rotating	25	12	July & Oct	No	Req	31	\$10
Gallinger Municipal Hospital	Washington	City	1 236	99	1		16 037	Rotating	24	18	Jan & July	(13)	None	34	\$15
Garfield Memorial Hospital	Washington	NP Assn	311	17	38	25	6 486	Mixed	10	12	July	No	Req	24	\$10(i)
Georgetown University Hospital	Washington	NP Assn	261	4	40	56	5 638	Rotating	8	12	July	(14)	Req	16	\$10
George Washington University Hosp	Washington	NP Assn	114	1	17	82	2 853	Mixed	4	12	July	No	Req	54	\$10
Providence Hospital	Washington	Church	271	9	56	35	6 105	Rotating	9	12	July	No	Req	22	\$10
St Elizabeths Hospital Medical and Surgical Department	Washington	Fed	450	100			1 500	Rotating	6	24	July & Oct	(1a)	Req	60	(b)
Sibley Memorial Hospital	Washington	Church	310	2	2	96	0 804	Rotating	7	12	July	No	Req	25	\$70
U S Naval Hospital	Washington	Navy	202	100			1 279	Rotating		12	July	No	Op	73	(b)
Walter Reed General Hospital	Washington	Army	1 224	100			7 505	Rotating	6	12	July	No	None	74	(b)
Washington Sanitarium and Hospital	Washington	Church	185	6	23	66	2 865	Mixed	2	12	July	No	Req	33	\$60(a)
Takoma Park	Washington	Church	185	6	23	66	2 865	Mixed	2	12	July	No	Req	33	\$60(a)
FLORIDA															
Brewster Hospital (col)	Jacksonville	Church	75	6	84	10	1 028	Mixed	2	12	July	No	Req	21	\$2
Duval County Hospital	Jacksonville	County	200	100			3 893	Rotating	10	24	July	No	Req	47	\$100
St Luke's Hospital	Jacksonville	NP Assn	175	20			50 3 643	Rotating	4	12	July	No	Req	26	\$5
St Vincent's Hospital	Jacksonville	Church	240	30	10	60	3 770	Rotating	4	12	July	No	None	31	\$0
James M Jackson Memorial Hospital	Miami	City	500	50	20	30	10 566	Rotating	15	24	July	No	Req	18	(k)
Tampa Municipal Hospital	Tampa	City	214	47			55 498	Rotating	7	12	July & Sept	No	Req	16	\$5
GEORGIA															
Georgia Baptist Hospital	Atlanta	Church	184	9	15	76	6 648	Mixed	6	12	July	(16)	Op	15	\$0
Grady Hospitals	Atlanta	City	613	100			19 940	Rotating	42	12	July	No	Req	47	\$15
Piedmont Hospital	Atlanta	Corp	135				100 3 269	Rotating	5	12	July	No	None	29	\$2
University Hospital	Augusta	City	328	50			8 060	Rotating	11	12	July	No	Req	30	\$10(c)
Emory University Hospital	Emory University	NP Assn	196	3	12	85	4 601	Rotating	7	12	July	(17)	None	29	\$0
Macon Hospital	Macon	CyCo	202	70			30 4 622	Rotating	5	12	July	No	Req	17	\$5
ILLINOIS															
Alexian Bros Hosp (male patients only)	Chicago	Church	257	14	29	37	3 116	Rotating	7	12	July	(18)	None	21	\$10
American Hospital	Chicago	NP Assn	170	20	5	75	2 255	Rotating	4	12	July	No	Op	29	No
Augustana Hospital	Chicago	Church	350	15	35	50	4 923	Mixed	10	18	Jan & July	No	Op	27	No
Chicago Memorial Hospital	Chicago	NP Assn	108	31	63	6	2 647	Rotating	4	12	July	No	Req	40	No
Columbus Hospital	Chicago	Church	174	12	64	24	3 377	Rotating	4	12	July	No	None	48	\$5
Cook County Hospital	Chicago	County	3 300	100			72 880	Rotating	100	18	Jan & July	No	Req	19	No
Edgewater Hospital	Chicago	NP Assn	114	14	12	74	3 824	Mixed	5	12	July	No	None	35	\$10
Englewood Hospital	Chicago	NP Assn	126	10	30	60	3 099	Rotating	4	12	Jan & July	No	Req	30	\$10
Evangelical Hospital	Chicago	Church	260	14	26	50	7 975	Mixed	6	12	Jan & July	No	None	15	\$1
Frances L Willard Hospital	Chicago	NP Assn	137	2	90	8	4 111	Rotating	6	12	Jan & July	No	None	25	No
Garfield Park Community Hospital	Chicago	NP Assn	162	7	18	75	3 478	Rotating	6	12	July	No	Op	22	No
Grant Hospital	Chicago	NP Assn	270	18	82	56	5 594	Rotating	6	12	July	No	Req	26	No
Henrotin Hospital	Chicago	NP Assn	122	5	66	29	2 999	Mixed	4	12	Jan & July	No	Req	17	\$10
Holy Cross Hospital	Chicago	Church	114	20	30	50	3 555	Rotating	4	12	July	No	None	33	\$10(m)
Hospital of St Anthony de Padua	Chicago	Church	240	6	4	00	4 472	Rotating	8	16	(1 b)	No	None	23	\$10(m)
Illinois Central Hospital	Chicago	NP Assn	275		35	63	4 949	Rotating	9	12	(1 c)	No	Req	30	No
Illinois Masonic Hospital	Chicago	Frat	184	10			90 2 555	Rotating	6	12	Jan & July	No	Req	25	\$10
Jackson Park Hospital	Chicago	Corp	140	20			80 4 218	Rotating	6	12 & 18	Feb & July	(19)	Req	27	\$5
Lake View Hospital	Chicago	Corp	130	2	5	93	1 855	Rotating	3	12	July	No	Req	75	\$5
Lutheran Deaconess Home and Hospital	Chicago	Church	218	4	17	79	4 734	Mixed	5	12	July	No	None	23	\$5
Lutheran Memorial Hospital	Chicago	Church	201	8	40	52	2 354	Mixed	4	12	July	No	None	21	\$5
Mercy Hospital	Chicago	Church	324	17	15	68	5 902	Rotating	12	12	July	No	Req	25	No
Michael Reese Hospital	Chicago	NP Assn	628	44	33	23	17 052	Rotat & Str	12 & 24	Jan & July	(20)	Op	45	No	
Mother Cabrini Memorial Hospital	Chicago	Church	140	28	55	17	3 046	Rotating	4	12	July	No	None	34	\$5
Mount Sinai Hospital	Chicago	NP Assn	207	31	9	60	6 030	Rotating	12	24	June	(20)	Req	39	No
Norwegian American Hospital	Chicago	NP Assn	219	2	1	97	3 874	Rotating	6	12	July	No	Req	40	\$0
Passavant Memorial Hospital	Chicago	NP Assn	212	10	2	88	4 230	Mixed	6	12	(1 d)	No	Req	61	No
Presbyterian Hospital	Chicago	Church	425	24	47	99	11 500	Mix & Str	27	12 & 16	(1 b)	No	Op	57	No
Provident Hospital (col)	Chicago	NP Assn	155	18	7	75	2 791	Rotating	6	12	July & Sept	No	Req	43	\$10
Ravenwood Hospital	Chicago	NP Assn	188	5	20	75	5 993	Rotating	7	12	July	No	Op	22	\$10
Research and Educational Hospital	Chicago	State	393	100			5 848	Rotating	12	18	Jan & July	No	Op	35	\$10
Roseland Community Hospital	Chicago	Corp	136	10	20	70	3 202	Rotating	4	12	July	No	Req	27	No
St Anne's Hospital	Chicago	Church	290	8	42	50	5 794	Rotating	8	12	July	No	None	40	No
St Bernard's Hospital	Chicago	Church	215	16	15	69	6 028	Rotating	6	12	July	No	Req	25	No
St Elizabeth Hospital	Chicago	Church	323	10	26	64	5 049	Rotating	7	12	July	No	Req	25	No
St Joseph Hospital	Chicago	Church	250	8	36	56	3 324	Rotating	7	12	Apr & July	No	Req	49	No
St Luke's Hospital	Chicago	NP Assn	663	6	5	93	11 661	Rotating	24	12	(1 e)	No	None	19	No
St Mary of Nazareth Hospital	Chicago	Church	250	21	4	55	5 216	Rotating	6	12	July	No	None	19	\$0
Swedi h Covenant Hospital	Chicago	Church	269	2	13	85	3 851	Rotating	6	12	July	(21)	Op	41	(h)
U S Marine Hospital	Chicago	CyPHS	27	100			1 875	Rotating	6	12	July	No	Req	31	\$5
University Hospital	Chicago	Corp	121	5	4	91	2 444	Rotating	3	12	July	No	Req	70	No
University of Chicago Clinics	Chicago	NP Assn	351	17	67	16	7 640	Straight	27	12	Jan & July	No	Req	33	No
Washington Boulevard Hospital	Chicago	NP Assn	110	10	20	70	1 979	Mixed	1	18	(1 f)	No	None	31	No
Wesley Memorial Hospital	Chicago	Church	268	34	12	34	3 074	Rotating	8	12	Jan & July	No	Req	31	No
Women and Children's Hospital	Chicago	NP Assn	125	15	25	69	2 42	Rotating	6	12	Jan & July	No	Req	35	\$
Woodlawn Hospital	Chicago	NP Assn	102	1	68	31	2 502	Mixed	4	12	Jan & July	No	None	35	\$

Name of Hospital	Location	Control	Capacity	Classification of Patients			Total Patients Treated	Type of Internship	Number of Interns	Length of Service in Months	Service Commences	Affiliated Service	Outpatient Service	Autopsy Percentage	Salary per Month
				Free	Part Pay	Full Pay									
ILLINOIS—Continued															
St Mary's Hospital	East St. Louis	Church	290	11	41	48	4,143	Rotating	5	12	July	No	None	23	\$25
Frankston Hospital	Evansston	NPA-sen	260	6	45	49	7,274	Rotating	16	16	(1 h)	No	Req	65	\$20
St Francis Hospital	Evansston	Church	353	7	54	39	6,695	Mixed	6	12	July	No	None	23	\$20
Little Company of Mary Hospital	Evergreen Park	Church	161	4	21	75	5,072	Rotating	4	12	July	No	None	21	\$20
St Joseph's Hospital	Joliet	Church	226	11	9	80	4,715	Rotating	4	12	July	No	None	15	\$20
Oak Park Hospital ¹	Oak Park	Church	165	3	6	91	4,049	Rotating	6	12	July	No	Req	16	\$20
West Suburban Hospital	Oak Park	NPA-sen	427	7	19	74	7,374	Rotating	10	12	(1 g)	No	Req	27	\$20
St Francis Hospital	Peoria	Church	363	5	23	72	8,397	Mixed	6	12	Jan & July	(22)	None	21	\$20
St Mary Hospital	Quincy	Church	215	44	40	16	3,782	Rotating	3	12	July	No	None	19	\$25
St Anthony's Hospital	Rock Island	Church	168	25	40	35	2,040	Mixed	2	12	July	No	Op	12	\$25
INDIANA															
St Catherine's Hospital	East Chicago	Church	250	1	17	82	4,760	Rotating	7	12	July	No	Req	17	\$25
Lutheran Hospital	Fort Wayne	Church	165	10	10	80	3,017	Mixed	3	12	July	No	None	18	\$25 (f)
St Joseph Hospital	Fort Wayne	Church	295	8	32	60	4,462	Rotating	5	12	July	No	None	19	\$25
St Mary's Mercy Hospital	Gary	Church	260	3	19	78	5,590	Rotating	6	12	June & July	No	None	17	\$25
St Margaret's Hospital	Hammond	Church	250	3	74	23	4,593	Rotating	8	12	July & Sept	No	Req	21	\$20
Indianapolis City Hospital	Indianapolis	City	577	*	*	*	10,131	Rotating	23	12	July	No	Req	52	\$10.83
Indiana University Hospitals ¹	Indianapolis	State	504	53	3	14	9,421	Rotating	23	12	July	No	Req	50	\$12.50
Methodist Episcopal Hospital	Indianapolis	Church	348	10	15	75	19,355	Rotating	18	12	July	No	Op	25	\$10
St Vincent's Hospital	Indianapolis	Church	295	16	18	66	5,594	Rotating	9	12	July	No	None	18	\$25
St Elizabeth Hospital	La Fayette	Church	245	21	63	16	4,069	Rotating	4	12	July	No	None	19	\$20
Ball Memorial Hospital ¹	Muncie	NPA-sen	162	*	*	*	3,480	Mixed	6	12	July	No	None	4	\$20
Epworth Hospital	South Bend	NPA-sen	122	13	*	87	4,013	Mixed	2	12	July	No	Req	23	\$25
St Joseph's Hospital	South Bend	Church	147	45	20	35	2,646	Mixed	2	12	July	No	Req	20	\$25 (n)
IOWA															
Mercy Hospital ¹	Cedar Rapids	Church	171	11	34	55	2,502	Mixed	2	12	July	No	Req	16	\$25
St Luke's Methodist Hospital	Cedar Rapids	Church	150	20	52	25	3,291	Mixed	2	12	July	No	Req	25	\$25
Jennie Edmundson Memorial Hospital	Council Bluffs	NPA-sen	131	2	98	1	1,959	Mixed	2	12	July	No	Op	27	\$20
Mercy Hospital ¹	Council Bluffs	Church	159	5	73	22	2,980	Rotating	4	12	June	No	None	19	\$20
Mercy Hospital ¹	Davenport	Church	145	12	15	73	2,706	Rotating	2	12	July	No	None	20	\$25
Broadlawns Polk County Public Hosp	Des Moines	County	116	98	*	*	4,049	Rotating	7	12	July	No	Req	38	\$25
Iowa Lutheran Hospital ¹	Des Moines	Church	145	1	3	96	4,032	Rotating	3	12	July	No	None	17	\$25 (o)
Iowa Methodist Hospital	Des Moines	Church	209	5	17	78	7,142	Rotating	8	12	July	No	Op	17	\$20 (f)
Mercy Hospital	Des Moines	Church	165	4	3	93	4,220	Rotating	5	12	July	No	None	22	\$25
University Hospitals ¹	Iowa City	State	94	87	8	5	18,435	Rotating	10	12	July	No	Req	61	\$100/yr
St Joseph Mercy Hospital	Sioux City	Church	225	24	20	36	4,140	Rotating	4	12	July	No	Req	33	\$25
KANSAS															
Bethany Methodist Hospital ¹	Kansas City	Church	145	9	12	79	3,152	Rotating	3	12	July	No	None	47	\$25
Providence Hospital	Kansas City	Church	115	20	40	40	2,651	Mixed	2	12	July	No	None	34	\$20
St Margaret's Hospital	Kansas City	Church	212	33	65	2	4,016	Rotating	6	12	July	No	Req	59	\$25
University of Kansas Hospitals ¹	Kansas City	State	322	50	46	4	5,658	Rotating	9	12	July	(23)	Req	79	\$15
St Francis Hospital	Wichita	Church	300	15	25	60	5,693	Rotating	6	12	July	(24)	Req	29	\$20
Wesley Hospital	Wichita	Church	266	3	8	89	5,159	Rotating	6	12	July	(25)	Req	29	\$25
Wichita Hospital	Wichita	Church	115	25	26	49	2,316	Mixed	2	12	July	No	Req	24	\$40
KENTUCKY															
St Elizabeth Hospital	Covington	Church	316	30	50	20	5,242	Mixed	6	12	July	No	Req	16	\$25
Good Samaritan Hospital	Lexington	Church	216	37	14	49	5,914	Rotating	5	12	July	No	Req	34	\$25
St Joseph's Hospital ¹	Lexington	Church	221	3	23	74	6,264	Rotating	5	12	July	(26)	Req	24	\$25
Kentucky Baptist Hospital	Louisville	Church	150	43	57	3	5,549	Mixed	3	12	July	(27)	None	17	\$20 & \$25
Louisville City Hospital ¹	Louisville	City	588	90	10	10	10,643	Rotating	18	12	July	(28)	Req	37	\$20
Norton Memorial Infirmary	Louisville	NPA-sen	150	10	60	30	3,174	Mixed	5	12	July	(27)	Op	24	\$20
St Anthony's Hospital	Louisville	Church	157	7	64	29	2,438	Mixed	3	12	July	No	None	16	\$25
St Joseph Infirmary	Louisville	Church	350	21	19	60	6,152	Mixed	3	12	July	No	None	19	\$25
SS Mary and Elizabeth Hospital	Louisville	Church	155	*	*	*	3,241	Mixed	2	12	July	No	None	18	\$40
LOUISIANA															
Charity Hospital ¹	New Orleans	State	1,955	100	*	*	65,500	Rotat & Str	75	12 & 24	July	No	Op	51	No
Filint Goodridge Hospital of Dillard University ¹ (col)	New Orleans	NPA-sen	100	39	15	46	1,495	Rotating	4	12	July	No	Req	22	\$10
Hotel Dieu Hospital	New Orleans	Church	257	6	19	75	8,253	Rotating	8	12	July	No	None	19	\$25
Mercy Hospital Soniat Memorial	New Orleans	Church	150	9	6	85	2,721	Rotating	4	12	July	No	Req	17	\$25
Southern Baptist Hospital ¹	New Orleans	Church	222	10	22	68	5,672	Rotating	9	12	July	No	None	18	\$15 (e)
Touro Infirmary ¹	New Orleans	NPA-sen	366	32	40	28	10,400	Rotating	17	12	July	No	Req	54	\$10
U S Marine Hospital	New Orleans	USPHS	572	100	*	*	4,630	Rotating	12	12	July	(30)	Op	50	(b)
T E Schumpert Memorial Sanitarium	Shreveport	Church	162	25	50	25	3,359	Mixed	2	12	July	No	None	27	\$20
Shreveport Charity Hospital	Shreveport	State	510	100	*	*	22,591	Rotating	20	12	July	No	None	33	\$10
MAINE															
Eastern Maine General Hospital	Bangor	NPA-sen	173	21	19	60	4,119	Rotating	3	12	July	No	Req	21	\$25
Central Maine General Hospital ¹	Lewiston	NPA-sen	120	20	30	50	3,706	Rotating	3	12	July	No	Op	44	No
St Mary's General Hospital	Lewiston	Church	162	40	13	47	2,515	Mixed	2	12	July	No	Req	34	\$20
Maine General Hospital	Portland	NPA-sen	291	42	36	22	5,412	Mixed	9	18	Apr & Oct	No	Req	30	No
MARYLAND															
Baltimore City Hospitals ¹	Baltimore	City	1,410	100	*	*	7,505	Rotat & Str	4	12	July	No	Req	43	No
Bon Secours Hospital	Baltimore	Church	143	25	12	63	2,668	Rotating	3	12	July	(31)	Req	44	\$25
Church Home and Infirmary ¹	Baltimore	Church	184	30	54	16	2,750	Rotat & Str	7	12	July	No	Req	46	\$1
Franklin Square Hospital	Baltimore	NPA-sen	200	70	15	15	1,955	Mixed	5	12	July	No	None	26	\$12 (o)
Hospital for Women ¹	Baltimore	NPA-sen	125	21	43	36	2,110	Mixed	5	12	July	(32)	Req	25	No
Johns Hopkins Hospital ¹	Baltimore	NPA-sen	425	49	11	40	14,401	Straight	55	12	July & Sept	No	Req	67	No
Maryland General Hospital	Baltimore	Church	220	44	12	44	4,313	Rotating	8	12	July	No	Req	16	\$10
Mercy Hospital	Baltimore	Church	250	51	33	16	5,992	Rotating	9	12	July	No	Req	24	No
Provident Hosp and Free Disp (col)	Baltimore	NPA-sen	133	79	2	19	2,055	Rotating	6	12	July & Oct	No	Req	19	No
St Agnes Hospital	Baltimore	Church	216	38	35	27	3,525	Rotating	9	12	July	(33)	Req	1	No
St Joseph's Hospital	Baltimore	Church	220	42	11	47	4,077	Rotating	6	12	July	No	Req	33	\$15
Sinal Hospital ¹	Baltimore	NPA-sen	253	28	10	52	5,245	Stra & Mix	19	12	July	No	Req	21	No
South Baltimore General Hospital	Baltimore	NPA-sen	101	41	30	26	2,916	Rotating	6	12	July	No	Req	41	\$20
Union Memorial Hospital	Baltimore	NPA-sen	331	21	46	33	6,500	Rotating	1	12	July	No	Req	40	No
U S Marine Hospital	Baltimore	USPHS	479	100	*	*	7,779	Rotating	12	12	July	(33)	Req	70	(h)
University Hospital ¹	Baltimore	State	443	47	19	34	8,771	Rotating	24	24	July	No	Req	41	No
West Baltimore General Hospital	Baltimore	Corp	200	33	1	66	2,751	Rotating	5	12	July	(34)	Req	17	\$15
MASSACHUSETTS															
Beverly Hospital	Beverly	NPA-sen	141	4	6	31	3,508	Mixed	3	12	(1 h)	No	Req	67	No
Beth Israel Hospital	Boston	NPA-sen	220	27	12	49	7,447	Straight	1, 1 & 24	12 & 24	(1 b)	No	Req	47	No
Boston City Hospital ¹	Boston	City	1,000	94	*	*	1,40,129	Straight	92	1, 24	Varies	No	Req	21	No
Carney Hospital	Boston	Church	192	5	8	9	5,571	Straight	12	12 & 30	(1 j)	No	Req	20	No

Name of Hospital	Location	Control	Capacity	Classification of Patients			Type of Internship	Number of Interns	Length of Service in Months	Service Commences	Affiliated Service	Outpatient Service	Autopsy Percentage	Salary per Month
				Free	Part Pay	Full Pay								
MASSACHUSETTS—Continued														
Faulkner Hospital	Boston	NP Assn	165	14	64	22	3 743	Mixed	2	12	June	No	Req	43 No
Massachusetts General Hospital ¹	Boston	NP Assn	474	48	34	18	7 931	Straight	34	12 25	(1 f)	No	Req	50 No
Massachusetts Memorial Hospitals ¹	Boston	NP Assn	437	27	41	32	6 992	Rotat&Str	12	16&24	(1 m)	No	Req	51 No
New England Hospital for Women and Children ²	Roxbury	NP Assn	260	4	1	95	4 488	Rotating	8	12	July & Oct	No	Req	33 No
Peter Bent Brigham Hospital	Boston	NP Assn	247	57	43	4	4 712	Straight	24	12 29	(1 n)	(30)	Req	60 No
St Elizabeth's Hospital Brighton	Boston	Church	300	20	30	50	4 326	Mixed	7	21	(1 f)	No	Req	17 No
Brockton Hospital	Brockton	NP Assn	104	13	56	31	2 718	Rotating	4	12	June & Aug	No	Op	18 \$10(f)
Cambridge City Hospital	Cambridge	City	232	65	5	30	5 400	Rotating	14	22 24	(1 b)	No	Req	29 No
Cambridge Hospital	Cambridge	NP Assn	295	21	56	23	5 997	Rotating	4	18	(1 f)	(36)	Req	29 No
U S Naval Hospital	Chelsea	Navy	46	100			2 007	Rotating		12 16	July	None	33 (b)	
Union Hospital	Fall River	NP Assn	202	5	42	53	3 244	Mixed	3	12	July	No	Req	21 \$30-50
Burbank Hospital	Fitchburg	Corp	215	37	1	62	3 902	Rotating	4	12	July & Oct	No	Req	18 \$2
Lawrence General Hospital	Lawrence	NP Assn	150	23	2	75	3 219	Rotating	2	12	June	No	Req	33 \$10
Lowell General Hospital	Lowell	NP Assn	180	7	60	33	3 666	Rotating	2	12	July	No	Req	27 \$2
St John's Hospital	Lowell	Church	173	3	57	40	3 275	Rotating	4	12	June	No	Req	24 No
St Joseph's Hospital	Lowell	Church	122	6	61	33	3 103	Rotating	2	12	July	No	Req	26 \$10
Lynn Hospital	Lynn	NP Assn	205	16	31	53	3 661	Rotating	4	12	June & July	No	Req	35 \$10(p)
St Luke's Hospital	New Bedford	NP Assn	339	10	44	46	6 634	Rotating	6	12	July	No	Req	20 No
Newton Hospital	Newton	NP Assn	244	25	46	59	5 261	Rotating	6	12	June	No	Req	33 No
Quincy City Hospital	Quincy	City	290	8	9	83	6 247	Rotating	6	12	Jan & July	No	Op	56 (j)
Salem Hospital	Salem	NP Assn	185	20	49	31	4 100	Rotating	4	12	(1 o)	No	Req	29 \$2
Mercy Hospital	Springfield	Church	365	28	14	58	6 659	Rotating	6	12	July	No	Req	17 \$2
Springfield Hospital	Springfield	NP Assn	265	8	77	15	5 517	Rotating	9	18	Jan & July	(3)	Req	20 No
Wesson Memorial Hospital	Springfield	NP Assn	125	2	27	71	2 667	Rotating	5	18	Jan & July	(37)	Req	25 \$2
Waltham Hospital	Waltham	NP Assn	216	4	64	32	3 183	Rotating	3	12	July	No	Req	25 \$15(f)
Memorial Hospital	Worcester	NP Assn	215	5	8	87	5 774	Rotating	9	18	(1 b)	No	Req	35 No
St Vincent Hospital	Worcester	Church	250	10	2	88	6 134	Rotating	5	15	(1 f)	No	Req	25 \$20
Worcester City Hospital	Worcester	City	540	61	19	20	9 270	Rotating	18	24	(1 p)	No	Req	49 No
Worcester Hahnemann Hospital	Worcester	NP Assn	140	3	71	26	2 304	Rotating	3	12	July	No	None	49 \$2
MICHIGAN														
St Joseph's Mercy Hospital	Ann Arbor	Church	140	29	29	42	2 723	Rotating	3	12	July	(38)	Req	56 \$2
University Hospital ¹	Ann Arbor	State	1 285	79		21	22 515	Rotat&Mix	33	12	July	No	Req	57 No
Lella Y Post Montgomery Hospital	Battle Creek	Church	175				3 390	Rotating	3	12	July	No	Req	29 \$2
Mercy Hospital	Bay City	Church	160	21	20	59	4 237	Rotating	3	12	July	No	None	23 \$2
City of Detroit Receiving Hospital ¹	Detroit	City	670	100			21 917	Rotating	25	12	July	(39)	Req	40 \$2
Evangelical Deaconess Hospital	Detroit	Church	135	2	37	61	3 571	Rotating	4	12	July	No	Req	16 \$15
Grace Hospital ¹	Detroit	NP Assn	533	31	39	30	13 629	Rotating	24	12	July & Sept	(39)	Req	22 \$2
Harper Hospital	Detroit	NP Assn	710	11			89 17 217	Rotating	33	12	July	(40)	Req	18 No
Henry Ford Hospital	Detroit	NP Assn	608	34			66 11 989	Rotating	25	12	Sept	No	Op	46 \$100(a)
Providence Hospital	Detroit	Church	469	12	76	12	11 967	Rotating	17	12	July	(41)	None	71 \$20
St Joseph's Mercy Hospital	Detroit	Church	235	2	19	79	5 415	Rotating	6	12	July	No	Req	27 \$2
St Mary's Hospital	Detroit	Church	336	28	25	47	6 556	Rotating	12	12	July	No	Req	27 \$20
Eloise Hospital ¹ (Dr William J Seymour Hospital)	Eloise	County	1 450	100			5 651	Mixed	15	12	July	(39)	Req	41 \$2
Hurley Hospital ¹	Flint	City	467	60		40	9 252	Rotating	14	12	July	No	None	41 \$2
Blodgett Memorial Hospital ¹	Grand Rapids	NP Assn	150	20	60	20	3 259	Mixed	4	12	July	(42)	None	51 No
Butterworth Hospital	Grand Rapids	NP Assn	272	15	50	35	4 667	Rotating	6	12	July	No	None	57 \$20
St Mary's Hospital	Grand Rapids	Church	253	30	16	54	6 010	Rotating	6	12	July	No	Req	23 (f)
Highland Park General Hospital	Highland Park	City	190	11		89	4 052	Rotating	6	12	July & Sept	No	Req	23 \$15
W A Foote Memorial Hospital	Jackson	City	155	2	39	59	5 235	Rotating	4	12	July	No	Req	20 \$20
Mercy Hospital	Jackson	Church	140				2 918	Mixed	3	12	July	No	None	17 \$20
Edward W Sparrow Hospital ¹	Lansing	NP Assn	150	2	26	72	4 003	Mixed	2	12	July	No	Req	21 \$20
St Lawrence Hospital	Lansing	Church	178	10	18	72	5 611	Rotating	3	12	July	(43)	Op	43 \$20
Hackley Hospital	Muskegon	NP Assn	125	8	80	12	2 492	Rotating	3	12	July	No	None	21 \$2
Mercy Hospital	Muskegon	Church	125	21	54	25	3 900	Rotating	2	12	Jan & July	No	None	27 \$2
St Joseph Mercy Hospital	Pontiac	Church	175	5	20	75	3 298	Mixed	3	12	July	No	Req	40 \$2
Saginaw General Hospital	Saginaw	NP Assn	152	11	5	84	2 990	Rotating	4	12	July	No	Req	21 \$2
St Mary's Hospital	Saginaw	Church	176	6	29	65	3 484	Mixed	3	12	July	No	Req	25 \$2
MINNESOTA														
St Luke's Hospital	Duluth	NP Assn	270	20	45	35	5 744	Rotating	8	12	July	(44)	Req	73 \$19.50
St Mary's Hospital	Duluth	Church	290	20	35	45	5 633	Rotating	7	12	July	(45)	Req	73 \$19.50
Ashbury Hospital ¹	Minneapolis	Church	140	10		90	3 302	Rotating	4	12	(1 e)	No	None	37 \$2
Fairview Hospital	Minneapolis	Church	225	3	7	90	3 856	Rotating	4	12	Jan & July	(46)	Req	32 \$2
Minneapolis General Hospital ¹	Minneapolis	City	681	100			12 756	Rotat&Str	34	18	Apr & Oct	No	Req	38 No
Northwestern Hospital ¹	Minneapolis	NP Assn	185	10	15	7	6 696	Rotating	4	12	July	No	Op	41 \$2(f)
St Barnabas Hospital	Minneapolis	NP Assn	146	2	1	97	4 097	Mixed	3	12	July	No	None	40 \$2
St Mary's Hospital ¹	Minneapolis	Church	250	9	32	59	5 754	Rotating	5	12	July	No	Op	30 \$2(f)
Swedish Hospital	Minneapolis	NP Assn	267	4	6	90	5 676	Rotating	4	12	(1 e)	No	Req	15 \$2
University Hospitals ¹	Minneapolis	State	450	16	54	30	8 872	Rotat&Str	24	12&24	July	(47)	Req	70 No
Ancker Hospital	St Paul	CyCo	900	98	1		1 10 753	Rotating	32	12	July	No	Req	63 No
Bethesda Hospital	St Paul	Church	137	1	3	96	3 788	Rotating	3	12	July	No	None	29 \$2
Charles T Miller Hospital	St Paul	NP Assn	225	25	34	33	5 017	Rotating	7	12	July	(48)	Req	51 No
Northern Pacific Beneficial Association Hospital	St Paul	NP Assn	150			100	2 340	Mixed	2	12	July	No	Req	59 \$2
St Joseph's Hospital ¹	St Paul	Church	250	7	7	86	6 672	Rotating	6	12	July	(49)	None	25 \$2
MISSOURI														
St Louis County Hospital	Clayton	County	226	98	1	1	4 202	Rotating	10	12	July	No	Req	41 \$2.50
Kansas City General Hospital	Kansas City	City	450	100			10 130	Rotating	24	12	July	No	Req	91 \$20
Kansas City General Hospital No 2 (col)	Kansas City	City	274	100			3 158	Rotating	12	12	July	No	Req	65 \$1.50
Memorial Hospital	Kansas City	NP Assn	143	4	26	70	3 393	Rotating	7	12	July	No	Req	47 \$2
Research Hospital	Kansas City	NP Assn	225	3		97	5 346	Rotating	6	12	July	No	None	71 \$2
St Joseph Hospital	Kansas City	Church	236	18	17	65	4 739	Mixed	6	12	July	No	None	8 \$2
St Luke's Hospital	Kansas City	Church	220	6	23	71	4 545	Mixed	6	12	July	No	None	64 \$2
St Mary's Hospital	Kansas City	Church	175	10	17	67	4 465	Rotating	5	12	July	No	None	54 \$2 (o)
Trinity Lutheran Hospital	Kansas City	Church	176	1	10	89	2 325	Rotating	4	12	July	No	None	25 \$20
Our Method Hospital	St Joseph	Church	140	2	20	78	3 787	Mixed	3	12	July	No	None	33 \$20
St Joseph's Hospital	St Joseph	Church	180	5	43	47	2 066	Rotating	3	12	July	No	None	50 \$2
St Joseph's Hospital	St Louis	Church	350	17	8	75	9 485	Straight	35	12&18	Jan & July	(51)	Op	51 \$2 (f)
Barnes Hospital	St Louis	NP Assn	115	5	9	86	1 732	Rotating	3	12	July	No	Req	21 \$2
Christian Hospital	St Louis	Church	25	25	35	40	7 335	Rotating	7	12	July	No	None	15 \$2(f)
De Paul Hospital	St Louis	Church	19	12	16	72	4 931	Rotating	7	12	July	No	Req	21 \$2
Evangelical Deaconess Home and Hosp	St Louis	NP Assn	25	31	49	20	5 118	Rotating	12	12	July	(52)	Req	21 \$2
Jewish Hospital	St Louis	Church	180	3	25	71	3 651	Rotating	3	12	July	No	None	26 \$2
Lutheran Hospital	St Louis	Church	180	3	25	71	3 651	Rotating	3	12	July	No	None	26 \$2

Name of Hospital	Location	Control	Capacity	Classification of Patients			Total Patients Treated	Type of Internship	Number of Interns	Length of Service in Months	Service Commences	Affiliated Service	Outpatient Service	Autopsy Percentage	Salary per Month	
				Free	Part Pay	Full Pay										
MISSOURI—Continued																
Missouri Baptist Hospital	St. Louis	Church	500	12	10	78	4,486	Mixed	8	12	July	No	None	39	\$2	
St. Anthony's Hospital	St. Louis	Church	200	11	13	76	4,083	Rotating	6	12	July	No	Op	22	\$2	
St. John's Hospital	St. Louis	Church	315	18	3	79	5,536	Rotating	12	12	July	No	Req	19	\$10(h)	
St. Louis City Hospital	St. Louis	City	896	100			20,508	Rotating	60	12	July	(a3)	Req	37	\$10(h)	
St. Louis City Hospital No. 2 (col)	St. Louis	City	325	100			7,689	Rotating	25	12	July	No	Req	47	\$10(h)	
St. Luke's Hospital	St. Louis	Church	210	14	25	53	4,682	Rotating	9	12	July	(a4)	Req	25	\$20	
St. Mary's Group of Hospitals	St. Louis	Church	706	49	29	22	10,299	Rotating	26	12	July	(a5)	Req	46	\$20	
St. Mary's Infirmary (col)	St. Louis	Church	170		83	10	2,229	Rotating	6	12	July	No	None	39	\$9(q)	
MONTANA																
Murray Hospital	Butte	Corp	172			100	2,448	Mixed	2	12	Jan. & July	No	Req	39	\$40	
St. James Hospital	Butte	Church	176	21	25	54	2,635	Rotating	2	12	July	No	Req	25	\$50	
NEBRASKA																
Bryan Memorial Hospital	Lincoln	Church	114		6	94	2,333	Mixed	2	12	July	No	None	32	\$2	
Lincoln General Hospital	Lincoln	City	172	10	50	40	2,971	Mixed	3	12	July	No	Op	23	\$2	
St. Elizabeth's Hospital	Lincoln	Church	200	15	64	21	4,230	Mixed	12	12	July	No	None	18	\$5	
Bishop Clarkson Memorial Hospital	Omaha	Church	170	5	60	35	2,408	Rotating	3	12	July	No	None	43	\$5	
Creighton Memorial St. Joseph's Hosp	Omaha	Church	335	14	71	15	7,540	Rotating	10	12	July	No	Req	6	\$20(c)	
Evangelical Covenant Hospital	Omaha	Church	182	2	60	39	2,838	Mixed	3	12	June	No	Req	25	\$20	
Immanuel Deaconess Institute	Omaha	Church	142	2	13	85	4,019	Rotating	4	12	June	No	None	29	\$20(d)	
Nebraska Methodist Episcopal Hospital	Omaha	Church	200	7	21	70	4,172	Rotating	5	12	July	No	None	19	\$2	
St. Catherine's Hospital	Omaha	Church	170	8	10	82	3,674	Rotating	4	12	July	No	None	22	\$2	
University of Nebraska Hospital	Omaha	State	230	95	5		3,390	Rotating	12	12	July	No	Req	98	\$25	
NEW HAMPSHIRE																
Mary Hitchcock Memorial Hospital	Hanover	NPAsn	142	16		84	3,763	Rotating	4	12	Jan. & July	No	Req	76	\$100yr	
NEW JERSEY																
Atlantic City Hospital	Atlantic City	NPAsn	316	45	22	33	6,408	Rotating	8	12	July	No	Req	45	\$50	
Bayonne Hospital and Dispensary	Bayonne	NPAsn	225	75	6	20	4,023	Rotating	6	15	(1 f)	No	Req	22	\$25	
Cooper Hospital	Camden	NPAsn	366	43	22	30	7,954	Rotating	12	12	July	No	Req	31	\$10	
West Jersey Homeopathic Hospital	Camden	NPAsn	298	28	31	41	5,384	Rotating	7	12	June	No	Req	66	\$10	
Homeopathic Hospital of Essex County	East Orange	NPAsn	120	15	55	30	2,856	Rotating	3	12	July	No	Req	43	\$10	
Alexian Bros. Hosp. (male patients only)	Elizabeth	Church	162	43	6	51	2,000	Rotating	3	12	July	(a6)	Req	24	\$60	
Elizabeth General Hosp. and Dispensary	Elizabeth	NPAsn	226	23		77	5,575	Rotating	9	12	July	No	Req	26	\$15	
Englewood Hospital	Englewood	NPAsn	213	53	33	12	5,228	Rotating	8	12	Jan. & July	No	Req	33	\$30	
Hackensack Hospital	Hackensack	NPAsn	255	62	21	17	6,481	Rotating	9	24	Jan. & July	(b7)	Req	16	\$25	
St. Mary Hospital	Hoboken	Church	430	62	33	5	6,116	Rotating	9	12	July	No	Req	21	\$25	
Christ Hospital	Jersey City	Church	286	10	20	70	4,110	Rotating	8	15	July & Oct	(a8)	Req	19	\$10	
Medical Center of Jersey City	Jersey City	City	1,200	99	7	3	19,554	Rotating	62	12	Jan. & July	(a9)	Req	17	\$10	
St. Francis Hospital	Jersey City	Church	234	28	32	40	3,669	Rotating	8	24	July	(b9)	Req	20	\$15	
Monmouth Memorial Hospital	Long Branch	NPAsn	207	68	15	25	4,740	Rotating	9	18	Jan. & July	(b9)	Op	20	\$15	
Mountainside Hospital	Montclair	NPAsn	350	8	44	48	5,476	Rotating	9	18	Jan. & July	No	Req	20	\$15	
All Souls Hospital	Morristown	Church	134	40	5	55	1,903	Rotating	3	12	July & Sept	(1 q)	No	Req	30	\$40
Morristown Memorial Hospital	Morristown	NPAsn	155	36	6	58	2,380	Rotating	4	12	July	(1 q)	No	Req	31	\$40
Burlington County Hospital	Mount Holly	NPAsn	141	33	27	40	2,333	Rotating	4	12	July	(1 q)	No	Req	31	\$40
Fitch Memorial Hospital	Neptune	NPAsn	178	62	14	34	4,283	Rotating	6	12	Jan. & July	No	Req	25	\$25	
Hospital of St. Barnabas and for Women and Children	Newark	Church	274	14	8	78	4,483	Rotating	3	12	July	No	Req	17	\$41	
Newark Beth Israel Hospital	Newark	NPAsn	473	9	30	61	10,181	Rotating	18	18	Jan. & July	No	Req	33	\$15	
Newark City Hospital	Newark	City	700	100			16,168	Rotating	24	24	(1 f)	No	Req	29	\$15-20	
Newark Memorial Hospital	Newark	NPAsn	161	6	59	35	2,689	Rotating	4	12	July	No	Req	42	\$25	
St. Michael's Hospital	Newark	Church	317	21	26	53	4,527	Rotating	7	12	July & Sept	(b9)	Req	42	\$20	
St. Peter's General Hospital	New Brunswick	Church	212	42	25	40	4,711	Rotating	4	12	July & Sept	No	Req	19	\$120yr	
Orange Memorial Hospital	Orange	NPAsn	400	25	17	55	7,147	Rotating	8	12	July	No	Req	25	\$25	
Passaic General Hospital	Passaic	NPAsn	200	55	15	30	4,120	Rotating	4	12	June & July	No	Req	20	\$25	
Nathan and Miriam Barnert Memorial Hospital	Paterson	NPAsn	118	33	24	43	3,030	Rotating	6	12	July & Sept	No	Req	27	\$15-20	
Paterson General Hospital	Paterson	NPAsn	376	37	4	59	6,473	Rotating	7	18	Jan. & July	No	Op	19	\$12-20(r)	
St. Joseph's Hospital	Paterson	Church	458	50	12	38	6,472	Rotating	8	24	July	No	Req	20	\$12-20	
Muhlenberg Hospital	Plainfield	NPAsn	214	39	16	45	5,724	Rotating	6	12	July	No	Req	24	\$22	
Holy Name Hospital	Teaneck	Church	270	50	20	30	4,163	Rotating	6	12	July	(a7)	Req	30	\$40	
Mercer Hospital	Trenton	NPAsn	250	48	2	50	4,738	Rotating	6	12	July	No	Req	18	\$22	
St. Francis Hospital	Trenton	Church	317	42	39	19	5,460	Rotating	8	12	July	No	Req	24	\$25	
William McKinley Memorial Hospital	Trenton	NPAsn	146	35	8	57	2,563	Rotating	4	12	July	No	Req	27	\$25	
North Hudson Hospital	Weehawken	NPAsn	191	12	54	34	3,515	Rotating	8	12	Jan. & July	(b9)	Req	21	\$25	
NEW YORK																
Albany Hospital	Albany	NPAsn	630	60	15	25	10,446	Rotating	20	12	July	No	Req	71	No	
Memorial Hospital	Albany	NPAsn	126	1	29	70	2,669	Rotating	3	12	July & Sept	No	Req	41	\$25	
St. Peter's Hospital	Albany	Church	151	33	4	63	3,240	Rotating	5	12	July	(b2)	Req	29	\$40	
Binghamton City Hospital	Binghamton	City	500	50	10	40	10,107	Rotating	10	24	July	No	Op	21	(k)	
Beth El Hospital	Brooklyn	NPAsn	238	36	15	49	6,576	Rotating	21	12	Jan. & July	No	Op	25	No	
Beth Moses Hospital	Brooklyn	NPAsn	274	41	4	55	5,207	Rotating	17	24	Jan. & July	No	Op	19	No	
Brooklyn Hospital	Brooklyn	NPAsn	420	47	10	43	7,702	Rotating	16	24	July	No	Op	28	No	
Bushwick Hospital	Brooklyn	NPAsn	130	1	17	82	2,875	Rotating	8	24	July	No	Req	1	No	
Caledonian Hospital	Brooklyn	NPAsn	150	4	55	41	1,705	Rotating	3	12	July	No	Req	23	\$15	
Coney Island Hospital	Brooklyn	City	400	100			9,460	Rotating	20	24	July	No	Op	31	\$15	
Cumberland Hospital	Brooklyn	City	218	100			5,600	Rotating	24	24	July	No	Op	53	\$15	
Greenpoint Hospital	Brooklyn	City	220	100			7,210	Rotating	16	24	July	No	Req	25	\$15	
Israel Zion Hospital	Brooklyn	NPAsn	450	75	6	19	9,255	Rotating	50	12	July	(b2)	Req	33	No	
Jew H. Hospital	Brooklyn	NPAsn	668	2	41	27	15,727	Rotating	42	12	Jan. & July	(b3)	Req	34	No	
Kings County Hospital	Brooklyn	City	290	100			54,761	Rotat & Str	103	12	July	No	Req	16	\$15	
Long Island College Hospital	Brooklyn	NPAsn	470	20	34	46	9,020	Rotat & Str	20	12	July	No	Req	41	No	
Methodist Episcopal Hospital	Brooklyn	Church	484	26	2	62	9,413	Rotating	14	24	July	No	Req	33	No	
Norwegian Lutheran Deaconess Home and Hospital	Brooklyn	Church	200	12	37	51	4,726	Rotating	10	12	July	No	Req	34	No	
St. Catherine's Hospital	Brooklyn	Church	317	7	71	22	5,817	Rotating	16	24	July	No	Req	26	No	
St. John's Hospital	Brooklyn	Church	234	7	6	29	4,708	Rotating	12	24	July	No	Req	43	No	
St. Mary's Hospital	Brooklyn	Church	208	8	22	20	4,650	Rotating	8	24	July	No	Req	17	No	
St. Peter's Hospital	Brooklyn	Church	214	23	54	23	2,221	Rotating	6	12	July	No	None	15	No	
Trinity Hospital	Brooklyn	NPAsn	125	10	26	4	704	Rotating	16	24	July	No	Req	73	No	
U.S. Naval Hospital	Brooklyn	Navy	4	100			2,221	Rotating	12	12	July	No	None	72	(b)	
Wyckoff Heights Hospital	Brooklyn	NPAsn	200	22	59	19	5,089	Rotating	12	24	(1 r)	No	Req	15	No	
Buffalo City Hospital	Buffalo	City	1,033	67	70	2	11,110	Rotating	20	12	July	No	Req	72	\$40(a)	
Buffalo General Hospital	Buffalo	NPAsn	465	10	46	44	10,106	Rotating	14	12	July	(b4)	Req	41	No	
Buffalo Hospital of the Sisters of Charity	Buffalo	Church	211	5	75	20	4,076	Rotating	12	12	July	(b5)	None	15	\$25	

Name of Hospital	Location	Control	Capacity	Classification of Patients			Type of Internship	Number of Interns	Length of Service in Months	Service Commences	Affiliated Service	Outpatient Service	Autopsy Percentage	Salary per Month
				Free	Part Pay	Full Pay								
NEW YORK—Continued														
Dereoness Hospital	Buffalo	NPA Assn	225	1	40	59	6 038	Rotating	6	12	July	No	Op	23 \$75
Mercy Hospital	Buffalo	Church	198	3	33	64	3 746	Rotating	6	12	July	No	Req	17 \$50
Willard Fillmore Hospital	Buffalo	NPA Assn	300	22	46	32	6 183	Rotating	7	12	July	No	Req	40 \$100
Mary Imogene Bassett Hospital	Cooperstown	NPA Assn	90				1 491	Rotating	4	15	July	No	Req	00 \$50
Arnot Ogden Memorial Hospital	Elmira	NPA Assn	213	7	08	3	4 987	Mixed	2	12	July	No	Req	25 \$50(e)
St Joseph's Hospital	Elmira	Church	210	9		91	4 009	Rotating	4	12	July	No	Req	16 \$50
Ideal Hospital	Endicott	City	146	3	8	89	2 934	Rotating	4	12	July	No	Req	16 \$50
Flushing Hospital and Dispensary	Flushing	NPA Assn	268	30		70	6 883	Rotating	8	24	July	No	Req	34 \$50(e)
Meadowbrook Hospital	Hempstead	County	216	90	5	5	4 729	Rotating	9	12	July	No	Op	39 \$25.00
Jamaica Hospital	Jamaica	NPA Assn	187	30	1	69	4 029	Rotating	8	18	Jan & July	No	Req	41 \$10
Mary Immaculate Hospital	Jamaica	Church	321	6	40	54	7 078	Rotating	16	24	July	No	Req	58 \$10
Queens General Hospital	Jamaica	City	636	100			12 634	Rotating	36	24	July	No	Req	58 \$10
Charles S. Wilson Memorial Hospital	Johnston City	NPA Assn	340	1		99	5 478	Rotating	6	24	July	(65)	Req	55 \$30(t)
Kingston Hospital	Kingston	NPA Assn	133	1	72	27	2 021	Rotating	3	12	Jan & July	(66)	Req	26 \$20(q)
Our Lady of Victory Hospital	Laekawanna	Church	152	15	31	54	2 214	Rotating	3	12	July	No	Req	17 \$50
St John's Long Island City Hospital	Long Island City	Church	207	76		24	5 764	Rotating	16	24	July	No	Req	60 \$10
Nassau Hospital	Mineola	NPA Assn	200	13	56	31	4 647	Rotating	4	18	Jan & July	No	Req	15 \$50
New Rochelle Hospital	New Rochelle	NPA Assn	147	36		64	4 701	Rotating	8	12	July	No	Req	40 \$10
Beekman Street Hospital	New York	NPA Assn	100	30	60	5	2 182	Mixed	8	24	Jan & July	No	Req	99 \$30
Bellevue Hospital	New York	City	2 333	100			62 112	Mix & Str	92	12 24	Jan & July	No	Req	32 \$10
Beth David Hospital	New York	NPA Assn	166	10	51	39	2 370	Rotating	8	24	July	No	Req	99 \$10
Beth Israel Hospital	New York	NPA Assn	444	44	11	45	10 151	Rotat & Str	12 36	(1 f)	No	Op	33 \$10	
Bronx Hospital	New York	NPA Assn	362	20	24	56	10 777	Rotating	18	24	(1 s)	No	Req	40 (f)
Columbus Hospital	New York	Church	300	19	45	33	7 108	Rotating	10	18	Jan & July	No	Req	19 \$10
Flower Fifth Avenue Hospital	New York	NPA Assn	351	44	30	26	8 470	Rotating	24	24	July	No	Req	96 \$10
Fordham Hospital	New York	City	609	100			12 696	Rotat & Mix	12 24	(1 t)	No	Op	41 \$10	
French Hospital	New York	NPA Assn	300	30		70	4 792	Straight	15	12 24	(1 f)	No	Op	25 (q)
Gouverneur Hospital	New York	City	229	100			4 269	Rotating	16	24	(1 f)	No	Req	31 \$10
Harlem Hospital	New York	City	672	100			17 318	Rotating	48	24	Jan & July	No	Req	24 \$10
Hospital for Joint Diseases	New York	NPA Assn	300	34	9	37	5 807	Rotating	12	24	Jan & July	(67)	Req	53 \$10
Kniekerhoecker Hospital	New York	NPA Assn	204	3	66	31	3 710	Rotating	11	2 1/2	(1 u)	No	Req	24 \$10
Lebanon Hospital	New York	NPA Assn	154	50	46	4	2 867	Rotating	12	24	(1 t)	No	Req	32 \$10
Lenox Hill Hospital	New York	NPA Assn	593	23	14	63	10 523	Rotat & Mix	24	24	Jan & July	No	Req	43 (v)
Lincoln Hospital	New York	City	368	97	3		9 436	Rotating	37	12 24	Jan & July	No	Req	41 \$10
Metropolitan Hospital	New York	City	1 423	100			11 830	Rotating	44	24	July	No	Req	18 \$10
Misericordia Hospital	New York	Church	252	46		54	5 398	Rotating	8	24	Jan & July	No	Req	67 \$10
Montefiore Hosp for Chronic Diseases	New York	NPA Assn	702	56	13	1	2 076	Mix & Str	14	12	Jan & July	No	Req	0 \$10
Morrisania City Hospital	New York	City	539	100			13 303	Rotating	12	24	Jan & July	No	Req	0 \$10
Mount Sinai Hospital	New York	NPA Assn	806	56	30	14	14 749	Mix & Str	25	12 30	(1 t)	No	Op	48 (q)
New York City Hospital	New York	City	1 030	100			8 645	Rotating	36	24	July	No	Req	23 \$10
New York Hospital	New York	NPA Assn	1 024	5	46	49	14 584	Straight	30	12	July	(68)	Req	52 \$10
New York Infirmary for Women and Children	New York	NPA Assn	162	30	5	60	3 610	Rotating	5	12	June & Sept	No	Req	64 \$10
New York Polytechnic Medical School and Hospital	New York	NPA Assn	346	16	31	53	7 064	Rotating	8	24	(1 f)	No	Req	90 \$10
New York Post Graduate Medical School and Hospital	New York	NPA Assn	406	30	5	60	9 011	Mix & Str	26	12 24	(1 f)	No	Req	0 \$10
Presbyterian and Sloane Hospitals	New York	NPA Assn	997	30	43	27	18 030	Mix & Str	49	12 20	Varies	No	Req	50 \$10
Roosevelt Hospital	New York	NPA Assn	384	34	44	22	7 351	Mixed	21	12 36	Jan & July	No	Req	33 \$10
St Francis Hospital	New York	Church	380	39	47	24	5 100	Mixed	8	24	Jan & July	No	Req	20 \$10
St Luke's Hospital	New York	Church	475	48		52	8 009	Mixed	16	24	Jan & July	No	Req	43 (v)
St Vincent's Hospital	New York	Church	460	56	25	16	8 421	Mixed	33	24	Jan & July	No	Req	31 \$10
Sydenham Hospital	New York	NPA Assn	200	10	50	40	0 337	Rotating	16	24	Jan & July	No	Req	24 \$10
United Hospital	Port Chester	NPA Assn	200	2	26	72	4 466	Rotating	4	12	July	No	Req	22 \$10(f)
Vassar Brothers Hospital	Poughkeepsie	NPA Assn	220	22		78	3 944	Rotating	4	12	July	No	Req	07 \$10(e)
Genesee Hospital	Rochester	NPA Assn	222	29	28	43	3 301	Rotating	8	24	July	No	Req	57 \$10.15
Highland Hospital	Rochester	NPA Assn	200	6	80	14	4 234	Rotating	8	24	July	No	Req	27 \$10
Rochester General Hospital	Rochester	NPA Assn	368	60	30	10	8 244	Rotating	12	12	July & Sept	No	Req	60 \$10
St Mary's Hospital	Rochester	Church	220	10	56	34	5 177	Rotating	5	12	July	No	Req	31 \$10
Strong Memorial and Rochester Municipal Hospitals	Rochester	NPA Assn	637	58	18	24	12 721	Straight	32	12	July	No	Req	69 \$10
Ellis Hospital	Seneca	NPA Assn	291	1	3	96	7 865	Rotating	10	12	July	No	Req	01 (b)
U. S. Marine Hospital (Staten Island)	Stapleton	USPHS	716	100			6 187	Rotating	8	12	July	(69)	Req	19 \$10
St Vincent's Hospital	Staten Island	Church	241	9	69	22	5 364	Rotating	8	24	July	No	Req	00 \$10
Staten Island Hospital	Staten Island	Corp	268	2	84	14	5 302	Rotating	7	24	July	No	Req	00 \$10
Crouse Irving Hospital	Syracuse	NPA Assn	240	13	55	32	5 312	Rotating	4	12	July	No	Req	21 \$10
General Hospital of Syracuse	Syracuse	NPA Assn	110	16	58	26	2 044	Rotating	3	12	July	No	Req	01 \$10
Hospital of the Good Shepherd Syracuse University	Syracuse	NPA Assn	242	2	43	55	5 203	Rotating	0	12	July & Aug	(70)	None	41 \$10
St Joseph Hospital	Syracuse	Church	231	34	46	20	6 294	Rotating	6	12	July	No	Op	00 \$10
Syracuse Memorial Hospital	Syracuse	Corp	240	45	23	27	6 615	Rotating	7	12	July	No	Req	22 \$10
Samaritan Hospital	Troy	NPA Assn	181	5	69	26	2 804	Rotating	4	12	(1 h)	No	Req	22 \$10
Troy Hospital	Troy	Church	294	7	40	53	3 407	Rotating	4	12	July	(62)	Req	71 (f)
Grasslands Hospital	Valhalla	County	932	90	1	9	6 414	Rotating	20	24	Jan & July	No	Req	00 \$10
St Agnes Hospital	White Plains	Church	140	6	4	90	3 044	Rotating	3	12	July	No	Req	05 \$10
St John's Riverside Hospital	Yonkers	NPA Assn	200	29		71	4 447	Rotating	5	12	Jan & July	No	Op	41 \$10
St Joseph's Hospital	Yonkers	Church	107	7	16	77	2 265	Rotating	5	18	Jan & July	No	Req	11 \$10
Yonkers General Hospital	Yonkers	NPA Assn	178	29	15	56	2 227	Rotating	4	12	Jan & July	No	Req	21 (w)
NORTH CAROLINA														
Duke Hospital	Durham	NPA Assn	430	64	27	9	10 750	Straight	31	12	July & Sept	No	Req	61 \$10
Lincoln Hospital (col)	Durham	NPA Assn	108	38	17	20	1 709	Mixed	7	12	July	No	Req	10 \$10
Watts Hospital	Durham	NPA Assn	210	23	30	42	4 971	Rotating	7	12	July	No	Req	10 \$10
Highsmith Hospital	Fayetteville	NPA Assn	120	20	50	30	3 001	Mixed	2	12	July	No	Req	19 \$10
L. Richardson Memorial Hospital (col)	Greensboro	NPA Assn	64	30	30	40	591	Mixed	2	12	July & Oct	No	Req	10 \$10
Rev. Hospital	Raleigh	NPA Assn	126	23	18	4	4 267	Rotating	4	12	July	No	Req	20 (f)
St Agnes Hospital (col)	Raleigh	Church	100	60	10	30	1 776	Mixed	2	12	July & Sept	No	Req	27 \$10
Park View Hospital	Rocky Mount	NPA Assn	120	20	10	60	2 829	Rotating	3	12	July	No	Req	10 \$10
James Walker Memorial Hospital	Wilmington	NPA Assn	152	40	6	4	5 061	Rotating	4	12	July	No	Req	06 \$10
City Memorial Hospital	Winston Salem	City	191	42	6	32	4 614	Mixed	8	12	July	(71)	Req	21 \$10
NORTH DAKOTA														
St John's Hospital	Fargo	Church	160	1	4	4	4 000	Mixed	7	12	July	(72)	None	00 \$10
Trinity Hospital	Minot	Church	202	10	4	4	2 681	Rotating	4	12	July	No	None	00 \$10
OHIO														
City Hospital	Akron	NPA Assn	340	40	7	5	8 541	Rotating	12	12	July	(73)	Req	49 \$10
Peoples Hospital	Akron	NPA Assn	136	19		81	3 740	Rotating	4	12	July	(74)	Req	01 \$10
St Thomas Hospital	Akron	Church	174	9	29	20	4 614	Rotating	4	12	July	No	None	21 \$10

Numerical and other references will be found on page 692

Name of Hospital	Location	Control	Capacity	Classification of Patients			Type of Internship	Number of Interns	Length of Service in Months	Service Commences	Affiliated Service	Outpatient Service	Autopsy 1, percentage	Salary per Month	
				Free	Part Pay	Total Patients Treated									
OHIO—Continued															
Aultman Hospital ¹	Canton	NPAs n	171	13	63	24	3 242	Rotating	4	12	July	(74)	None	28	\$20
Mercy Hospital	Canton	Church	218	17	65	18	5 844	Rotating	4	12	July	(75)	Req	24	\$20(c)
Bethesda Hospital	Cincinnati	Church	239	1	42	57	7 637	Rotating	9	12	July	(76)	Req	17	\$20
Christ Hospital	Cincinnati	Church	369	3	70	27	6 8 2	Rotating	9	12	July	(76)	Req	24	\$20
Cincinnati General Hospital ¹	Cincinnati	City	925	87	10	3	16 618	Rotating	38	12	July	(77)	Req	45	\$20
Deaconess Hospital	Cincinnati	Church	175	5	41	54	4 761	Rotating	6	12	July	(77)	Req	15	\$20
Good Samaritan Hospital	Cincinnati	Church	300	5	66	29	12 318	Rotating	14	12	June	(78)	Op	15	\$20
Jewish Hospital	Cincinnati	NPAs n	272	20	44	36	5 593	Rotating	8	12	July	(79)	Req	30	\$20
St. Mary Hospital	Cincinnati	Church	220	42	50	8	4 807	Rotating	6	12	July	(80)	Req	22	\$20
City Hospital ¹	Cleveland	City	1 579	97	2	1	14 314	Rotating	36	12	July	(80)	Req	41	\$20
Lutheran Hospital	Cleveland	Church	137	10	35	55	3 764	Rotating	4	12	July	(81)	None	23	\$20(c)
Mount Sinai Hospital ¹	Cleveland	NPAs n	270	23	15	62	7 468	Rotating	11	12	July	(81)	Req	22	\$20
St. Alexis Hospital	Cleveland	Church	270	25	3	72	4 44	Rotating	8	12	July	(82)	Req	22	\$20
St. John's Hospital	Cleveland	Church	214	15	10	72	5 200	Rotating	6	12	July	(83)	None	24	\$20
St. Luke's Hospital	Cleveland	Church	391	18	2	80	10 048	Rotating	16	12	July	(84)	Req	23	\$20
St. Vincent Charity Hospital	Cleveland	Church	299	35	1	64	5 429	Rotating	12	12	July	(85)	Req	37	\$20
University Hospitals ¹	Cleveland	NPAs n	826	30	16	54	17 595	Mix. & Str	38	12 24	(1 n)	(86)	Req	57	\$20
Woman's Hospital ¹	Cleveland	NPAs n	100	1	4	95	2 371	Rotating	3	12	July	(87)	None	26	\$20
Grant Hospital	Columbus	NPAs n	333	8	58	34	5 659	Rotating	8	12	July	(88)	None	27	\$20
Mount Carmel Hospital	Columbus	Church	239	20	30	50	3 906	Rotating	6	12	July	(89)	None	36	\$20
St. Francis Hospital	Columbus	State	155	70	13	17	3 18	Rotating	8	12	July	(90)	None	25	\$20
Starling-Loving University Hospital ¹	Columbus	State	257	35	19	26	5 067	Rotat. & Str	10	12 24	July	(91)	Req	47	\$20
White Cross Hospital	Columbus	Church	271	16	84	5 8 7	Mixed	6	12	July	(92)	None	40	\$20	
Good Samaritan Hospital ¹	Dayton	Church	250	30	5	65	3 549	Rotating	4	12	July	(93)	Req	23	\$20
Miami Valley Hospital	Dayton	NPAs n	399	28	29	43	9 115	Rotating	8	12	July	(84)	None	33	\$20
St. Elizabeth Hospital	Dayton	Church	400	49	17	34	5 225	Rotating	6	12	July	(95)	None	38	\$20
Huron Road Hospital ¹	East Cleveland	NPAs n	235	13	87	5 060	Rotating	9	12	July	(96)	Req	33	\$20	
Mercy Hospital	Hamilton	Church	300	25	20	25	3 410	Rotating	2	12	July	(97)	Req	36	\$20
Springfield City Hospital	Springfield	City	298	31	22	47	4 889	Mixed	6	12	July	(98)	Req	22	\$20
Kloster Hospital	Toledo	Church	130	6	37	57	2 919	Rotating	7	12	July	(99)	Req	26	\$20
Lucas County General Hospital	Toledo	County	311	100			4 391	Rotating	10	12	July	(100)	Req	27	\$20
Mercy Hospital	Toledo	Church	140	7	77	18	2 022	Rotating	4	12	July	(101)	Req	34	\$20
St. Vincent's Hospital ¹	Toledo	Church	394	29	36	35	10 030	Rotating	14	12	July	(102)	Req	41	\$20
Toledo Hospital	Toledo	NPAs n	275	6	60	34	3 185	Rotating	5	12	July	(103)	None	41	\$20
St. Elizabeth's Hospital	Youngstown	Church	261	20	19	61	5 462	Rotating	6	12	July	(104)	None	16	\$20(c)
Youngstown Hospital	Youngstown	NPAs n	450	27	23	50	8 582	Rotating	12	12	July	(105)	Req	25	\$20
OKLAHOMA															
Oklahoma City General Hospital	Oklahoma City	Corp	100	32	68	3 490	Mixed	4	12	July	(106)	Req	22	\$20	
St. Anthony Hospital	Oklahoma City	Church	340	10	51	39	8 703	Rotating	8	12	July	(107)	Op	30	\$15
State University and Crippled Children's Hospitals	Oklahoma City	State	445	67	30	3	6 070	Rotating	20	24	July	(108)	Req	67	\$10 25
Wesley Hospital	Oklahoma City	Part	175	25	75	4 345	Rotating	5	12	July	(109)	None	19	\$20	
Morningside Hospital	Tulsa	Corp	250	4	45	51	4 716	Rotating	6	12	July	(110)	Req	24	\$20
St. John's Hospital	Tulsa	Church	250	25	25	50	5 317	Rotating	6	12	July	(111)	Req	22	\$20(cc)
OREGON															
Emanuel Hospital ¹	Portland	Church	310	10	10	80	7 936	Rotating	7	12	June	(85)	None	2	\$20
Good Samaritan Hospital	Portland	Church	350	2	7	91	11 144	Rotating	10	12	July	(112)	Op	33	\$20
Portland Sanitarium and Hospital	Portland	Church	135	12	28	60	4 980	Rotating	4	12	July	(113)	None	44	\$20(n)
St. Vincent's Hospital	Portland	Church	416	15	45	40	10 396	Rotating	8	12	July	(114)	None	3	\$20
Univ. of Oregon Medical School Hosps	Portland	Co Sta	400	100			7 469	Rotating	16	12	July	(115)	Req	66	\$20
PENNSYLVANIA															
Ablington Memorial Hospital	Ablington	NPAs n	302	22	18	60	5 725	Rotating	10	24	July	(117)	Req	35	\$20
Allentown Hospital ¹	Allentown	NPAs n	325	38	15	47	6 599	Rotating	10	12	July	(118)	Req	31	\$20
Sacred Heart Hospital	Allentown	Church	305	50	5	45	4 137	Rotating	6	12	July	(87)	Req	3	\$20
Altoona Hospital	Altoona	NPAs n	150	44	8	48	2 637	Rotating	5	12	July	(120)	Req	10	\$20
Mercy Hospital	Altoona	NPAs n	138	53	2	45	3 164	Rotating	4	12	July	(121)	Req	28	\$20
St. Luke's Hospital	Bethlehem	NPAs n	215	35	11	54	4 582	Rotating	7	12	July	(122)	Req	23	\$20
Braddock General Hospital	Braddock	NPAs n	136	35	17	48	2 913	Rotating	4	12	July	(123)	Req	22	\$20
Bryn Mawr Hospital	Bryn Mawr	NPAs n	261	12	30	58	4 539	Rotating	8	12	July	(124)	Req	40	\$20
Chester Hospital ¹	Chester	NPAs n	255	54	4	42	4 156	Rotating	6	12	July	(125)	Req	17	\$15
George F. Gelsinger Memorial Hospital	Danville	NPAs n	181	27	31	46	4 220	Rotating	10	12	July	(126)	Req	40	\$20
Fitzgerald Mercy Hospital ¹	Darby	Church	248	55	13	32	3 777	Rotating	6	12	July	(127)	Req	13	\$20
La. ton Hospital	La. ton	NPAs n	220	26	7	67	4 847	Rotating	5	12	July	(128)	Req	10	\$20
Hamot Hospital	Erie	NPAs n	255	46	14	40	5 773	Rotating	7	12	July	(129)	Req	21	\$20
St. Vincent's Hospital	Erie	NPAs n	226	39	47	60	6 069	Rotating	8	12	July	(130)	Req	2	\$20(c)
Harrisburg Hospital ¹	Harrisburg	NPAs n	264	48	6	46	6 044	Rotating	8	12	July	(131)	Req	27	\$1
Harrisburg Polytechnic Hospital	Harrisburg	NPAs n	182	42	58	34	4 9	Rotating	4	12	July	(132)	Req	29	\$40
Copemaugh Valley Memorial Hospital	Johnstown	NPAs n	275	47	29	31	7 711	Rotating	6	12	July	(133)	Op	17	\$20
Nesbitt Memorial Hospital ¹	Kingston	NPAs n	170	25	10	65	2 797	Rotating	6	12	July	(134)	Req	0	\$20
Lancaster General Hospital ¹	Lancaster	NPAs n	265	35	5	62	5 456	Rotating	6	12	July	(135)	Req	71	\$17 0
St. Joseph's Hospital ¹	Lancaster	Church	210	39	27	34	3 278	Rotating	5	12	July	(136)	Req	33	\$17 0
McKeesport Hospital	McKeesport	NPAs n	265	31	3	66	4 782	Rotating	6	12	July	(137)	Req	24	\$20
Montgomery Hospital	Norristown	NPAs n	110	58	18	24	3 207	Rotating	4	12	July	(138)	Req	1	\$20
Chestnut Hill Hospital	Philadelphia	NPAs n	114	15	25	57	1 957	Rotating	4	12	July	(139)	Req	4	\$20
Frankford Hospital	Philadelphia	NPAs n	142	12	19	69	3 453	Rotating	7	12	July	(140)	Req	2	\$20
Cermantown Dispensary and Hospital	Philadelphia	NPAs n	296	17	33	50	7 096	Rotating	12	24	July	(141)	Req	2	\$20
Graduate Hospital of the University of Pennsylvania	Philadelphia	NPAs n	306	36	9	55	6 660	Rotating	10	24	July	(142)	Req	2	\$20
Hahnemann Hospital	Philadelphia	NPAs n	592	47	17	36	12 155	Rotating	24	12	July	(143)	Op	2	\$20
Hospital of the Protestant Episcopal Church	Philadelphia	Church	4	67	23	10	7 331	Rotating	18	24	Jan & July	(144)	Req	4	\$20
Hospital of the Univ. of Pennsylvania ¹	Philadelphia	State	57	31	27	42	10 434	Rotating	4	12	July	(145)	Req	4	\$20
Hospital of the Woman's Medical College	Philadelphia	NPAs n	173	27	26	37	3 18	Rotating	4	12	July & Sept	(146)	Req	46	\$20
Jefferson Medical College Hospital	Philadelphia	NPAs n	555	4	18	2	12 650	Rotating	2	27	June	(147)	Req	49	\$20
Jewish Hospital ¹	Philadelphia	NPAs n	446	32	14	54	7 712	Rotating	15	24	June	(148)	Req	2	\$20
Lankenau Hospital	Philadelphia	NPAs n	296	21	10	60	9 957	Rotating	10	24	July	(149)	Req	22	\$20
Mercy Hospital ¹ (col)	Philadelphia	NPAs n	110	73	22	5	2 044	Rotating	5	12	July	(150)	Req	22	\$20
Methodist Episcopal Hospital	Philadelphia	Church	275	24	25	71	3 856	Rotating	8	12	July	(151)	Req	2	\$20
Misericordia Hospital ¹	Philadelphia	Church	250	15	8	77	4 456	Rotating	9	12	July	(152)	Req	2	\$20
Mount Sinai Hospital	Philadelphia	NPAs n	716	19	31	50	7 770	Rotating	14	24	June	(153)	Req	4	\$20
Northeastern Hospital	Philadelphia	NPAs n	102	10	10	80	2 731	Rotating	4	12	July	(154)	Req	1	\$20
Pennsylvania Hospital	Philadelphia	NPAs n	550	21	55	20	10 587	Rotating	15	24	(1 n)	(155)	Req	1	\$20
Philadelphia General Hospital ¹	Philadelphia	City	2 400	95	4	1	21 175	Rotating	60	24	July	(156)	Req	51	\$20

Name of Hospital	Location	Control	Capacity	Classification of Patients				Type of Internship	Number of Interns	Length of Service in Months	Service Commences	Affiliated Service	Outpatient Service	Autopsy Percentage	Salary per Month
				Free	Part Pay	Full Pay	Total Patients Treated								
PENNSYLVANIA—Continued															
Presbyterian Hospital	Philadelphia	Church	356	19	15	66	4 771	Rotating	12	24	July	No	Req	46	Na
St Agnes Hospital	Philadelphia	Church	406	41	25	34	6 960	Rotating	12	12	July	No	Req	15	Na
St Joseph's Hospital	Philadelphia	Church	180	41	19	40	3 007	Rotating	6	12	July	No	Req	22	Na
St Luke's and Children's Hospital	Philadelphia	NPA'ssn	239	38	23	39	4 938	Rotating	8	12	July	No	Req	35	Na
St Mary's Hospital	Philadelphia	Church	272	70	13	17	5 696	Rotating	7	12	July	No	Req	40	Na
Temple University Hospital	Philadelphia	NPA'ssn	451	43	49	8	9 444	Rotating	18	24	July	(93)	Req	34	Na
U S Naval Hospital	Philadelphia	Navy	650	100			5 042	Rotating	12	12	July		Req	47 (b)	
Woman's Hospital	Philadelphia	NPA'ssn	160	50	29	21	3 261	Rotating	6	12	July & Sept	(94)	Op	23	Na
Women's Homeopathic Hospital	Philadelphia	NPA'ssn	200	50	26	24	2 904	Rotating	4	12	July	No	Req	15	\$10
Allegheny General Hospital	Pittsburgh	NPA'ssn	600	65	4	41	6 645	Rotating	16	12	July	No	Req	24	Na
Homoeopathic Medical and Surgical Hospital and Dispensary	Pittsburgh	NPA'ssn	270	27	2	71	4 872	Rotating	7	12	July	(95)	Req	20	Na
Mersey Hospital	Pittsburgh	Church	670	35	35	30	11 466	Rotating	24	12	July	(96)	Req	26	Na
Montefiore Hospital	Pittsburgh	NPA'ssn	238	39	43	18	6 063	Rotating	9	12	July	No	Req	34	\$10
Passavant Hospital	Pittsburgh	Church	140	37	5	58	2 517	Rotating	5	12	July	No	Req	31	\$10
Pittsburgh Hospital	Pittsburgh	NPA'ssn	212	32	8	60	4 128	Rotating	6	12	July	No	Req	23	\$20
Presbyterian Hospital	Pittsburgh	NPA'ssn	163	50	7	43	2 567	Rotating	18	12	July	(97)	Req	15	Na
St Francis Hospital	Pittsburgh	Church	687	14	18	68	8 318	Rotating	20	12	July	(98)	Req	31	Na
St John's General Hospital	Pittsburgh	NPA'ssn	202	33	4	63	3 523	Rotating	5	12	July	No	Req	23 (g)	
St Joseph's Hospital	Pittsburgh	Church	140	30	60	10	2 273	Rotating	4	12	July	No	Req	36 (g)	
St Margaret Memorial Hospital	Pittsburgh	Church	150	43	34	23	2 404	Rotating	4	12	July	No	Req	27	Na
South Side Hospital	Pittsburgh	NPA'ssn	225	25	49	26	5 187	Rotating	7	12	July	No	Req	22	Na
Western Pennsylvania Hospital	Pittsburgh	NPA'ssn	661	35	65	10	6 690	Rotating	19	12	July	No	Req	22	Na
Pottsville Hospital	Pottsville	NPA'ssn	140	48	6	46	3 100	Rotating	4	12	July	No	Req	15	\$20
Homoeopathic Med and Surgical Hosp	Reading	NPA'ssn	115	59	1	40	2 386	Rotating	4	12	June	No	Req	15	\$20
Reading Hospital	Reading	NPA'ssn	263	48	4	48	6 133	Rotating	8	12	July	No	Req	63	Na
St Joseph's Hospital	Reading	Church	205	40	23	28	4 225	Rotating	6	12	July	(99)	Req	29	Na
Robert Packer Hospital	Sayre	NPA'ssn	325	52	5	43	6 611	Rotating	9	12	Jan & July	No	Req	43	Na
Hahnemann Hospital	Scranton	NPA'ssn	125	55	7	38	3 041	Rotating	4	12	July	No	Req	35	\$12.50
Moses Taylor Hospital	Scranton	NPA'ssn	125	67	33	3	2 030	Rotating	3	12	July	(100)	Req	36	\$10
Scranton State Hospital	Scranton	State	188	80	5	15	4 340	Rotating	8	12	July	No	Req	22	\$23
Valley Hospital	Sewickley	NPA'ssn	140	31	6	63	2 636	Rotating	4	12	July	No	Req	18	\$20
Uniontown Hospital	Uniontown	NPA'ssn	210	31	6	63	4 613	Rotating	5	12	July	No	Req	22	\$20
Washington Hospital	Washington	NPA'ssn	166	65	4	31	3 152	Rotating	4	12	July	No	Req	32	\$20
Chester County Hospital	West Chester	NPA'ssn	159	30	17	53	2 588	Rotating	4	12	July	No	Req	36	\$20
Mersey Hospital	Wilkes Barre	Church	222	50	1	40	4 208	Rotating	6	12	July	No	Req	19	Na
Wilkes Barre General Hospital	Wilkes Barre	NPA'ssn	405	65	3	82	8 537	Rotating	10	12	July	No	Req	21	Na
Columbia Hospital	Wilkesburg	Church	213	41	1	58	3 596	Rotating	5	12	July	No	Req	35	\$20
Williamsport Hospital	Williamsport	NPA'ssn	275	47	4	40	4 657	Rotating	6	12	July	No	Req	31	Na
Windber Hospital	Windber	NPA'ssn	117	10	70	20	2 633	Rotating	2	12	July	No	Req	27	\$20
York Hospital	York	NPA'ssn	209	52	6	42	4 651	Rotating	6	12	July	No	Req	33	\$20
RHODE ISLAND															
Memorial Hospital	Pawtucket	NPA'ssn	196	42	5	53	3 043	Rotating	6	12	June & Aug	No	Req	24	Na
Homeopathic Hospital	Providence	NPA'ssn	200	15	35	50	4 418	Rotating	4	12	July	No	Req	31	\$20
Rhode Island Hospital	Providence	NPA'ssn	600	40	28	32	10 406	Rotating	28	24	(1 w)	(101)	Req	45	Na
St Joseph's Hospital	Providence	Church	350	45	15	40	4 594	Rotating	7	24	(1 t)	No	Req	20	Na
SOUTH CAROLINA															
Roper Hospital	Charleston	NPA'ssn	300	78	2	20	7 537	Rotating	14	12	July	No	Req	35	\$10
Columbia Hospital	Columbia	County	277	24	17	59	6 475	Rotating	6	12	July & Oct	No	Req	18	\$20(1)
Greenville General Hospital	Greenville	City	200	50	10	40	4 590	Rotating	5	12	July	No	Req	37	\$10(2)
TENNESSEE															
Baroness Erlanger Hospital	Chattanooga	CyCo	247	60	2	38	7 111	Rotating	12	12	July	No	Req	24	\$20
Knoxville General Hospital	Knoxville	City	274	65	35	7	7 081	Rotating	9	18	(1 f)	No	Req	18	\$20
Baptist Memorial Hospital	Memphis	Church	400	70	18	12	14 608	Rotating	14	18	(1 f)	No	None	90	\$20
John Gaston Hospital	Memphis	City	550	95	5	14	5 871	Rotating	18	18	(1 w)	No	Req	10	\$20
Methodist Hospital	Memphis	Church	155	25	15	60	6 454	Mixed	4	12	(1 f)	No	None	28	\$20
St Joseph's Hospital	Memphis	Church	290	33	35	32	5 910	Rotating	4	12	(1 f)	No	Req	21	\$20
George W Hubbard Hospital (col)	Nashville	NPA'ssn	178	75	21	4	2 241	Rotating	6	12	July	No	Req	20	\$20
Nashville General Hospital	Nashville	City	305	90	10	7	7 350	Rotating	10	12	July	No	Req	37	\$20
St Thomas Hospital	Nashville	Church	225	6	44	50	5 075	Rotating	6	12	July	No	None	37	\$20
Vanderbilt University Hospital	Nashville	NPA'ssn	210	32	33	35	4 650	Straight	12	12	July	(102)	Op	54	\$20
TEXAS															
Baylor University Hospital	Dallas	Church	400	20	20	60	12 658	Rotating	13	12	July	(103)	Req	28	\$20
Methodist Hospital	Dallas	Church	125	10	15	75	3 363	Rotating	4	12	July	No	Req	20	\$20(1)
Parkland Hospital	Dallas	CyCo	300	92	8	9	9 018	Rotating	20	24	Jan & July	No	Req	1	\$20
St Paul's Hospital	Dallas	Church	300	11	17	72	8 798	Rotating	9	12	July	No	Req	22	\$20
El Paso City County Hospital	El Paso	CyCo	204	95	5	3	7 734	Rotating	5	12	July	No	Req	50	\$20(1)
William Beaumont General Hospital	El Paso	Army	608	100			4 466	Rotating	4	12	July	No	Req	78	(b)
City and County Hospital	Fort Worth	CyCo	111	100			3 318	Rotating	4	12	July	No	Req	26	\$20
St Joseph's Hospital	Fort Worth	Church	200	17	16	67	4 631	Rotating	4	12	July	No	None	23	\$20
John Sealy Hospital	Galveston	City	406	60	24	16	6 033	Rotating	12	12	June & July	No	Req	67	\$20
St Mary's Infirmary	Galveston	Church	225	15	50	35	3 769	Mixed	3	12	June	No	None	20	\$20
Hermann Hospital	Houston	NPA'ssn	196	75	25	45	5 559	Rotating	6	12	July	No	Req	44	\$20
Jefferson Davis Hospital	Houston	CyCo	250	100			8 591	Rotating	16	24	July	(104)	Req	20	\$20
Medical and Surgical Memorial Hospital	San Antonio	NPA'ssn	115	4	12	84	3 727	Mixed	4	12	July	No	None	25	\$20
Robert B Green Memorial Hospital	San Antonio	County	170	98	2	4	4 725	Rotating	11	12	June	No	Req	17	\$20
Santa Rosa Hospital	San Antonio	Church	305	21	21	58	5 885	Rotating	6	12	July	No	Req	21	(b)
Station Hospital	San Antonio	Army	634	100			8 639	Rotating	4	12	July	No	Op	80	(b)
Gulf Colorado and Santa Fe Hospital	Temple	NPA'ssn	150				1 901	Rotating	1	12	July	(105)	Op	33	\$20
Kings Daughters Clinic and Hospital	Temple	NPA'ssn	118				2 576	Mixed	2	12	July	No	Req	21	\$20
Scott and White Hospital	Temple	Corp	175				3 443	Rotating	5	12	July	(105)	Req	23	\$20
UTAH															
Thomas D Dee Memorial Hospital	Ogden	Church	240	3	7	90	5 750	Rotating	5	12	July	No	Req	23	\$20
Dr W H Groves Latter Day Saints Hospital	Salt Lake City	Church	430	4	96	6	6 836	Rotating	10	24	July	(106)	Req	17	(dd)
Holy Cross Hospital	Salt Lake City	Church	245	7	21	72	3 242	Mixed	2	12	Jan & July	No	None	27	\$20(1)
St Mark's Hospital	Salt Lake City	Church	161	5	12	83	2 976	Mixed	3	12	July	No	Req	15	\$20(1)
Salt Lake General Hospital	Salt Lake City	County	248	94		6	3 242	Rotating	8	12	July	No	Req	15	\$20
VERMONT															
Bishop DeGoesbriand Hospital	Burlington	Church	122	55	16	26	3 137	Rotating	3	12	July	No	None	34	\$20
Mary Fletcher Hospital	Burlington	NPA'ssn	150	27	37	36	3 612	Rotating	5	12	July & Sept	No	Req	40	\$20

Numerical and other references will be found on page 692

Name of Hospital	Location	Control	Capacity	Classification of Patients			Total Patients Treated	Type of Internship	Number of Interns	Length of Service in Months	Service Commences	Affiliated Service	Outpatient Service	Autopsy Percentage	Salary per Month	
				Free	Part Pay	Full Pay										
VIRGINIA																
Hospital of St Vincent de Paul ¹	Norfolk	Church	240	38	18	44	3 844	Rotating	4	12	July	No	Req	17	\$25	
Norfolk General Hospital	Norfolk	NPAasn	230	39	20	50	6 031	Mixed	6	12	July & Oct	No	Req	125	\$25	
U S Marine Hospital	Norfolk	USPHS	300	100			3 142	Rotating	8	12	July	(107)	Op	61	\$25	
Norfolk Naval Hospital	Portsmouth	Navy	443	100			2 630	Rotating		12	July	No	None	57	\$25	
Johnston Willis Hospital ¹	Richmond	Corp	141	3	5	92	3 451	Rotating		12	July	No	Req	35	\$25	
Medical College of Virginia Hospital																
Division ¹ (Memorial Dooley St)	Richmond	NPAasn	442	20	70	10	9 722	Mixed & Rotat	23	12	July	(108)	Req	41	No	
Phillip and Crippled Children's Hosp's	Richmond	Corp	108	3	45	52	2 804	Rotating	4	12	July	No	Req	33	\$25	
Stuart Circle Hospital	Richmond	NPAasn	110		40	60	2 671	Mixed	2	12	July	No	Req	31	\$25	
Jefferson Hospital	Roanoke	State	376	26	33	41	7 761	Rotating	12	12	July	(109)	Req	38	No	
University of Virginia Hospital ¹	University															
WASHINGTON																
Columbus Hospital	Seattle	Church	240	20	60	20	2 891	Rotating	4	12	July	(110)	Req	23	\$30	
King County Hospital Unit No 1 ¹	Seattle	County	415	100			9 756	Rotating	24	24	July	(111)	Req	41	\$50	
(Harborview)	Seattle	Church	380	3	16	81	7 237	Rotating	8	12	July	(112)	Req	21	\$50	
Providence Hospital	Seattle	NPAasn	120		100	3 675	Rotating	4	12	July	(113)	Req	30	\$50		
Seattle General Hospital	Seattle	NPAasn	260		5	95	5 409	Rotating	8	12	July & Oct	(114)	Op	23	\$50	
Swedish Hospital	Seattle	USPHS	401	100			3 242	Rotating	8	12	July	(115)	Req	75	(b)	
U S Marine Hospital	Seattle	NPAasn	180		18	82	3 626	Rotating	4	12	July	No	None	40	\$50	
Virginia Mason Hospital	Seattle	Church	247	8	30	62	4 483	Rotating	3	12	July	(116)	None	34	\$25	
Dencecess Hospital	Spokane	Church	334	9	21	64	8 407	Mixed	6	12	July	(116)	None	25	\$25	
Sacred Heart Hospital	Spokane	NPAasn	195	5	20	75	3 072	Rotating	4	12	July	(117)	None	36	\$25	
St Luke's Hospital	Spokane	County	230	100			3 029	Mixed	3	12	July	No	Op	50	\$45	
Pierce County Hospital	Tacoma	County	340	6	6	88	3 885	Rotating		12	July	No	Req	25	\$50	
St Joseph's Hospital	Tacoma	Church	220			100	3 910	Rotating	4	12	July	No	None	26	\$50	
Tacoma General Hospital	Tacoma	NPAasn														
WEST VIRGINIA																
Charleston General Hospital	Charleston	NPAasn	225	10	40	50	6 793	Rotating	7	12	July	No	Req	17	\$50	
Huntington	Huntington	NPAasn	130		100		2 469	Rotating	4	12	July	No	Req	24	\$50	
Chesapeake and Ohio Railway Hospital	Huntington	Church	120	11	19	70	3 260	Rotating	4	12	July	No	Req	16	\$50	
St Mary's Hospital	Wheeling	NPAasn	276	9	44	47	5 259	Rotating	7	12	July	No	Req	18	\$25	
Ohio Valley General Hospital	Wheeling	Church	330	25	8	67	3 253	Rotating	4	12	July	No	None	22	\$50	
Wheeling Hospital	Wheeling															
WISCONSIN																
St Elizabeth Hospital	Appleton	Church	180	25	50	25	3 900	Rotating	2	12	June	No	None	30	\$25	
St Agnes Hospital	Fond du Lac	Church	240	22	18	60	5 013	Rotating	5	12	June	No	None	30	\$75	
Mersey Hospital ¹	Janesville	Church	160	25	25	50	1 920	Mixed	2	12	July	No	None	20	\$1250	
La Crosse Lutheran Hospital	La Crosse	Church	129	5	10	85	2 553	Mixed	1	12	July	No	Req	45	\$25	
St Francis Hospital	La Crosse	Church	310	8	42	50	4 750	Rotating	4	12	July	No	Req	45	\$50	
Madison General Hospital	Madison	NPAasn	165	6	15	79	4 670	Rotating	6	12	June & July	No	None	24	\$25	
Methodist Hospital	Madison	Church	120	2	12	86	2 218	Rotating	4	12	July	No	Req	71	\$50	
St Mary's Hospital	Madison	Church	180	13	25	62	4 252	Rotating	5	12	July	No	Req	52	\$25	
State of Wisconsin General Hospital ¹	Madison	State	672	88	7	5	11 253	Rotating	22	12	July	No	Req	61	No	
St Joseph's Hospital	Marshfield	Church	175	5	40	55	3 335	Mixed	2	12	July	No	Req	15	\$50	
Columbia Hospital	Milwaukee	NPAasn	140	10	50	40	2 826	Rotating	8	24	July	(118)	Op	11	\$50	
Evangelical Dencecess Hospital	Milwaukee	Church	162	7	31	62	3 910	Rotating	4	12	June	(119)	None	49	\$25	
Milwaukee Hospital The Passavant	Milwaukee	Church	241	2	31	67	6 845	Rotating	7	12	July	(120)	Req	41	\$25	
Milwaukee Hospital	Milwaukee	Church	150	3	8	89	3 335	Mixed	2	12	July	No	Op	24	\$25	
Milwaukee Hospital	Milwaukee	NPAasn	172	11	69	20	5 911	Rotating	6	12	July	No	Req	76	\$25	
St Joseph's Hospital ¹	Milwaukee	Church	395	19	34	47	6 442	Rotating	7	12	July	No	Req	24	\$25	
St Mary's Hospital	Milwaukee	Church	217	7	13	80	4 418	Rotating	6	12	July	No	Op	27	\$25	
Mersey Hospital ¹	Oshkosh	Church	140	10	20	70	2 953	Rotating	7	12	July	No	Op	39	\$25	
St Mary's Hospital	Racine	Church	195	6	13	81	3 883	Mixed	2	12	July	No	None	23	\$25	
St Mary's Hospital	Superior	Church	130	2	39	59	2 070	Mixed	2	12	July	No	Req	39	\$25	
Milwaukee County General Hospital ¹	Wauwatosa	County	1 125	100			17 940	Rotating	26	12	June	(121)	Req	34	\$10	
CANAL ZONE																
Gorgas Hospital	Ancon	Fed	872	9	91		11 723	Rotating	8	12	July	No	Op	56	(cc)	
HAWAII																
Queen's Hospital	Honolulu	NPAasn	320	8	55	37	8 005	Rotating	7(11)	18	(11)	(122)	None	25	\$1500	
PHILIPPINE ISLANDS																
Philippine General Hospital ¹	Manila	Fed	727	93			7 216.6	Rotating	31(gg)	12	March	(123)	Req	71	No	

Numerical and other references will be found on page 692

HOSPITALS APPROVED FOR INTERNSHIPS IN THE DOMINION OF CANADA

For the benefit of graduates of approved medical colleges who desire an internship in Canada the Council on Medical Education and Hospitals of the American Medical Association has declared that hospitals which conform to the standards of the Department of Hospital Service of the Canadian Medical Association should be regarded as giving an internship equivalent in educational value to that offered by hospitals in the United States approved for intern training by the Council. It is understood however that this statement applies only to hospitals that are unqualifiedly approved under the Canadian plan and does not apply to that group referred to as Recommended.

The following list of hospitals revised to June 1937 has been furnished by the Department of Hospital Service

Name of Hospital	Location	Name of Hospital	Location	Name of Hospital	Location
Victoria General Hospital	Halifax N S	Ottawa Civic Hospital	Ottawa Ont	Hotel Dieu of St Joseph's Hosp	Windsor Ont
St John General Hospital	St John N B	Ottawa General Hospital	Ottawa Ont	Children's Hospital	Winnipeg Man
Hospital du St Sacrement	Quebec Que	Kingston General Hospital	Kingston Ont	Winnipeg General Hospital	Winnipeg Man
Hotel Dieu de Quebec	Quebec Que	Hospital for Sick Children	Toronto Ont	St Boniface General Hosp	St Boniface Man
Jeffrey Hale's Hospital	Quebec Que	St Joseph's Hospital	Toronto Ont	Regina General Hospital	Regina Sask
Children's Memorial Hosp	Montreal Que	St Michael's Hospital	Toronto Ont	St Paul's Hospital	Saskatoon Sask
Hospital Notre Dame	Montreal Que	Toronto East General Hosp	Toronto Ont	Saskatoon City Hospital	Saskatoon Sask
Hospital Ste Justine	Montreal Que	Toronto General Hospital	Toronto Ont	Edmonton General Hospital	Edmonton Alta
Hotel Dieu St Joseph	Montreal Que	Toronto Western Hospital	Toronto Ont	Memorial Hospital	Edmonton Alta
Hospital Ste Luc	Montreal Que	Women's College Hospital	Toronto Ont	Royal Alexandra Hospital	Edmonton Alta
Jewish General Hospital	Montreal Que	Hamilton General Hospital	Hamilton Ont	University of Alberta Hosp	Edmonton Alta
Montreal General Hospital	Montreal Que	Brantford General Hospital	Brantford Ont	St Paul's Hospital	Vancouver B C
Royal Victoria Hospital	Montreal Que	St Joseph's Hospital	London Ont	Vancouver General Hospital	Vancouver B C
St Mary's Hospital	Montreal Que	Victoria General Hospital	London Ont	Provincial Royal Jubilee Hospital	Victoria B C
Woman's General Hospital	Montreal Que	Metropolitan General Hosp	Windsor Ont		

NOTES

- 1 Women interns admitted
2 Women interns only
* Majority of patients available for teaching purposes

- (a) In lieu of maintenance
(b) Salary established by government pay tables

- (c) Bonus of \$110
(d) \$30 per month second year
(e) Bonus of \$80
(f) Bonus of \$250
(g) Bonus of \$25
(h) Bonus of \$180
(i) Bonus of \$100
(j) Bonus of \$120
(k) \$25 per month second year
(m) Bonus of \$20
(n) Bonus of \$300
(o) Bonus of \$100
(p) Bonus of \$190
(q) Bonus of \$50
(r) Bonus of \$225
(s) Bonus of \$210

- (t) Bonus of \$360
(v) Bonus of \$40
(w) \$25 per month for 4 months \$30 per month for 8 months bonus of \$100
(x) Bonus of \$125
(y) Bonus of \$30
(z) \$20 per month to seniors after completion of 12 months service
(aa) Bonus of \$50 first year, \$100 second year
(bb) Bonus of \$200
(cc) Bonus of \$75
(dd) \$15 per month first year \$20 per month second year bonus of \$75
(ee) Net salary \$70 per month Appointments made by Chief of Office The Panama Canal, Washington D C
(ff) Prefer aspirants going into foreign missions or boys born and raised in Hawaii
(gg) All internships reserved for the fifth year students of the College of Medicine University of the Philippines
(1 a) January, March July September November

- (1 b) Every two months
(1 c) January, March, June, September
(1 d) January, May September
(1 e) January, April July
(1 f) Quarterly
(1 g) April, July, October
(1 h) July, August September
(1 i) Surgery February, June October medicine January, April, July, October
(1 j) January April May July September October
(1 m) July 1st and every 4 months thereafter
(1 n) February, June October
(1 o) June July August
(1 p) Every six weeks
(1 q) July, August, September, October
(1 r) January, July, September
(1 s) March June September December
(1 t) March, July, November
(1 u) Every 2½ months
(1 v) July August September November December
(1 w) Monthly

Affiliation as Referred to in Column Headed "Affiliated Service"

- 3 Patton State Hospital Patton psychiatry
4 Children's Hospital and Los Angeles Maternity Service, pediatrics obstetrics
5 Fairmont Hospital San Leandro tuberculosis
6 Woman's Hospital Pasadena, obstetrics
7 Mercy Hospital San Diego obstetrics, gynecology
8 Laguna Honda Home Infirmary San Francisco chronic diseases
9 Hassler Health Home Redwood City tuberculosis
9 St Francis Hospital San Francisco obstetrics pediatrics
10 San Francisco Hospital obstetrics, gynecology, pediatrics
11 White Memorial Hospital Los Angeles obstetrics pediatrics surgery
12 Santa Barbara General Hospital, communicable diseases, tuberculosis, psychiatry, outpatient service
13 St Elizabeth's Hospital Washington obstetrics
14 Gallinger Municipal Hospital, Children's Hospital Providence Hospital Central Dispensary and Emergency Hospital Washington obstetrics pediatrics surgery
15 Gallinger Municipal Hospital and Children's Hospital, Washington obstetrics pediatrics
16 Grady Hospital Atlanta pediatrics
17 Grady Hospital, Atlanta obstetrics
18 Misericordia Hospital and Home for Infants Chicago obstetrics
19 Municipal Contagious Disease Hospital Chicago
20 Winfield Sanatorium Winfield tuberculosis
21 Chicago Maternity Center
22 Peoria State Hospital Peoria Municipal Tuberculosis Sanatorium
23 Watkins Memorial Hospital, Lawrence
24 Sedgwick County Hospital Wichita general and outpatient service
25 Salvation Army Home and Hospital and Sedgwick County Hospital, Wichita obstetrics general and outpatient service
26 Julius Marks Sanatorium Lexington, tuberculosis
27 Louisville City Hospital Children's Free Hospital obstetrics pediatrics
28 Children's Free Hospital Louisville pediatrics
29 Emergency Hospital of the Sisters of Charity St Mary's Infant Asylum and Maternity Hospital and Providence Retreat
30 Charity Hospital New Orleans, obstetrics gynecology pediatrics
31 Johns Hopkins Hospital Baltimore, pathology
32 Johns Hopkins Hospital Baltimore urology
33 Sydenham Hospital University Hospital Baltimore communicable diseases pediatrics, obstetrics
34 Sydenham Hospital communicable diseases
35 Boston State Hospital Children's Hospital psychiatry pediatrics
36 Evangeline Booth Maternity Hospital and Home Boston
37 Shriners Hospital for Crippled Children Health Department Hospital, Wesson Maternity Hospital, Springfield, orthopedics communicable diseases obstetrics
38 Mercywood Sanatorium Ann Arbor, psychiatry
39 Herman Kiefer Hospital, Detroit
40 Herman Kiefer Hospital Children's Hospital
41 Herman Kiefer Hospital communicable diseases tuberculosis St Joseph's Retreat Dearborn, neurology
42 Christian Psychopathic Hospital Sunshine Sanatorium, Grand Rapids psychiatry, tuberculosis
43 Ingham Sanatorium and Boys Vocational School Hospital Lansing, tuberculosis otolaryngology
44 Miller Memorial Hospital Duluth outpatient service
45 Miller Memorial Hospital and Harding Hospital Duluth, outpatient service
46 Gillette State Hospital for Crippled Children St Paul orthopedics Lutheran Girls Maternity Home Minneapolis obstetrics Glen Lake Sanatorium Oak Terrace tuberculosis Shriners Hospital for Crippled Children Minneapolis orthopedics
47 Glen Lake Sanatorium Oak Terrace tuberculosis Shriners Hospital for Crippled Children Minneapolis orthopedics
48 Children's Hospital St Paul pediatrics
49 Gillette State Hospital for Crippled Children St Paul orthopedics
50 St Louis Children's Hospital Shriners Hospital for Crippled Children City Isolation Hospital surgery orthopedics communicable diseases
51 St Louis Children's Hospital Shriners Hospital for Crippled Children City Isolation Hospital surgery orthopedics communicable diseases
52 Jewish Sanatorium Robertson tuberculosis City Isolation Hospital St Louis communicable diseases
53 City Isolation Hospital communicable diseases Robert Koch Hospital tuberculosis City Sanatorium psychiatry
54 City Isolation Hospital St Louis
55 St Mary's Group of Hospitals includes St Mary's Hospital Firmin Desjere Hospital and Mt St Rose Sanatorium
56 Newark City Hospital obstetrics gynecology pediatrics
57 Bergen Piney Bergen County Hospital Ridgewood tuberculosis communicable diseases
58 Margaret Hague Maternity Hospital Jersey City Hudson County Tuberculosis Hospital and Sanatorium Secaucus
59 Margaret Hague Maternity Hospital, Jersey City
60 New Jersey State Hospital Marlboro psychiatry Allenwood Sanatorium Alkwood tuberculosis
61 Fairview Sanatorium New Lisbon tuberculosis
62 Anthony N Brady Maternity Hospital Albany
63 Kingston Avenue Hospital Brooklyn communicable diseases
64 Children's Hospital Buffalo pediatrics
65 Binghamton State Hospital Binghamton psychiatry
66 Ulster County Tuberculosis Hospital Kingston
67 Jewish Maternity Hospital New York City
68 New York State Hospital, Ray Brook, tuberculosis
69 Perth Amboy General Hospital Perth Amboy N J, obstetrics gynecology, pediatrics
70 Syracuse Memorial Hospital, City Hospital Syracuse Psychopathic Hospital obstetrics communicable diseases psychiatry
71 Forsyth County Sanatorium, Winston Salem tuberculosis
72 Cass County Hospital Fargo, surgery obstetrics
73 Children's Hospital Akron, pediatrics
74 Molly Stark Sanatorium Canton tuberculosis Massillon State Hospital, Massillon psychiatry
75 Children's Hospital Cincinnati General Hospital pediatrics obstetrics
76 Children's Hospital Cincinnati pediatrics
77 Hamilton County Tuberculosis Sanatorium Hamilton County Home and Chronic Disease Hospital Cincinnati
78 Longview State Hospital Cincinnati psychiatry
79 Cincinnati General Hospital pediatrics otolaryngology
80 City Hospital, Cleveland psychiatry
81 St Ann's Maternity Hospital Cleveland
82 Children's Hospital Columbus pediatrics
83 Starling Loving University Hospital Children's Hospital, Columbus obstetrics, pediatrics
84 Stillwater Sanatorium Dayton tuberculosis
85 Shriners Hospital for Crippled Children Portland orthopedics
86 University of Oregon Medical School Hospitals include Multnomah Hospital and Doernbecher Memorial Hospital for Children
87 Allentown State Hospital psychiatry
88 Hospital of the University of Pennsylvania Philadelphia obstetrics
89 Philadelphia Hospital for Contagious Diseases
90 Children's Hospital of the Mary J Drexel Home Philadelphia, pediatrics
91 Henry Phipps Institute of the University of Pennsylvania Philadelphia tuberculosis
92 Children's Hospital Philadelphia pediatrics
93 Shriners Hospital for Crippled Children and Philadelphia Hospital for Contagious Diseases
94 Pennsylvania Hospital, Department for Mental and Nervous Diseases, Philadelphia
95 Municipal Hospital for Contagious Diseases, Pittsburgh
96 Rosalia Foundling and Maternity Hospital and Municipal Hospital for Contagious Diseases, Pittsburgh
97 Elizabeth Steel Magee Hospital Children's Hospital, and Erie and Ear Hospital Pittsburgh
98 Berks County Tuberculosis Sanatorium, Reading
99 Scranton State Hospital, obstetrics
100 Providence Lying in Hospital
101 Willard Parker Hospital New York City pediatrics
102 Bradford Memorial Hospital for Babies Dallas, pediatrics
103 Houston Tuberculosis Hospital
104 Gulf Colorado and Santa Fe Hospital and the Scott and White Hospital affiliated furnish one internship
105 Utah State Hospital Provo psychiatry
106 Norfolk Protestant Hospital Florence Crittenton Home and Children's Clinic of the Kings Daughters Norfolk obstetrics pediatrics
107 Pine Camp Hospital Brook Hill, tuberculosis
108 Blue Ridge Sanatorium Charlottesville tuberculosis
109 King County Tuberculosis Hospital Seattle
110 Includes service in King County Hospital Unit No 2
111 King County Hospital Unit No 1 outpatient service
112 Children's Orthopedic Hospital and Florence Crittenton Home Seattle orthopedics pediatrics obstetrics outpatient service
113 Highland Sanatorium and Isolation Hospital Richmond Highlands tuberculosis Children's Orthopedic Hospital Seattle pediatrics orthopedics
114 King County Hospital Unit No 1 obstetrics gynecology pediatrics
115 Edgelliff Sanatorium, Spokane tuberculosis
116 Edgelliff Sanatorium Salvation Army Women's Hospital and Home Florence Crittenton Home tuberculosis obstetrics
117 Milwaukee Children's Hospital, South View Hospital Milwaukee pediatrics, communicable diseases Milwaukee Sanatorium Wauwatosa psychiatry
118 Milwaukee Children's Hospital pediatrics
119 Salvation Army Martha Washington Women's Home and Hospital Wauwatosa obstetrics
120 South View Hospital Milwaukee communicable diseases
121 Kaulkeolani Children's Hospital Honolulu pediatrics
122 Santol Tuberculosis Sanatorium Santol San Lazaro Hospital Manila, and Insular Psychopathic Hospital San Felipe Neri

HOSPITALS APPROVED FOR RESIDENCIES IN SPECIALTIES

By the Council on Medical Education and Hospitals

The following hospitals, conforming to the standards of the Council, furnish acceptable residencies in the several specialties designated. Applicants are required to present evidence of graduation from an approved medical school and completion of at least one year of approved internship. In a few cases, equivalent experience in practice is accepted in lieu of preliminary hospital experience.

Regulations for Certification It is important to emphasize that residencies alone are not necessarily sufficient preparation for the practice of a specialty. Other types of training are also available and may be required. Candidates should acquaint themselves with the requirements by direct correspondence with the secretaries of the examining boards.

Statistical Data The statistical data have been obtained from annual reports covering the calendar year 1936. In a few instances earlier reports have been consulted. In most cases, this information is supplemented in the Council's files by inspection reports and by comments received from residents who have completed the listed service. The data should be examined with the following considerations in mind:

Chief of Service It is required that there be an organized and qualified staff in the department offering residencies. The names listed are those most recently reported as departmental chairmen. In university hospitals, professors usually are given. Blank spaces indicate recent unconfirmed changes or supervision is supplied by chiefs on parallel or rotating assignments. For credentials consult the American Medical Directory.

Inpatients The figures refer to total inpatients treated in the specialty. Exceptions are in anesthesia, radiology and pathology where total hospital admissions are used. In obstetrics, some hospitals include new-borns, others do not.

Per Cent Free An index to charity work performed although in every instance the majority of patients are available for instruction.

Outpatients Where available, the service is nearly always required.

Residencies Assistant Residents and Length of Appointment Information supplied indicates whether progressive services are available and over what period of time. The eldest in point of service is the resident and others assistant residents whether so designated by the hospital or not. Senior internships in specialties are classed as assistant residencies.

Salary It is advisable to confirm the quoted figure when applying. Unless otherwise indicated, compensation includes room and board. In fellowships, the hospital usually supplies maintenance only; the stipend is provided from other sources.

Deaths and Autopsies These are reported for the specialties. In anesthesia, pathology and radiology, figures are given for the entire hospital. Some obstetrical services include new-born deaths and autopsies.

Important All hospitals approved for residencies submit names of residents to the office of the Council for permanent credit and registration. It is in the interest of every house officer to assure himself that his name is properly recorded and that the correct dates of all appointments are submitted.

HOSPITALS 438 RESIDENCIES 3 202

		Inpatients Treated	Per Cent Free	Outpatient Service	Beginning Salary	Residents	Assistant Residents	Apply Before	Service Begins	Available Training (Months)	Deaths	Autopsies
ANESTHESIA												
University of Chicago Clinics		Chicago	H. Livingston	7,640	17	None	1 2	1/1	7/1	12	2 8	180
Methodist Episcopal Hospital		Indianapolis	J. M. Whitehead	19,405	10	\$100	1 0	1/1	7/1	12	2 8	14
Massachusetts General Hospital		Boston	H. K. Beecher	7,921	48	\$42	1 0	Any time	7/1	12	7 6	2
Jersey City Hospital		Jersey City, N. J.		19,004	90	None	2 0	3/1	7/1	12	9 7	1 9
Bellevue Hospital		New York City	F. A. Rosecrance	62,112	100	\$100	12 0	Any time	Varies	36	3 4	1 9
Metropolitan Hospital		New York City	G. H. Van Gillaue	11,850	100	\$100	3 0	3/1	7/1	12	1 20	216
N. Y. Polyclinic Med. School and Hosp.		New York City	C. S. Huot	7,564	16	\$101	1 2	1/1&7/1	1/1&11/1	24	21	4
Grasslands Hospital		Valhalla, N. Y.	F. W. Bowers and R. B. Hammond			\$9,	1 0	4/1	7/1	12	4 6	2 1
State University and Crippled Children's Hospitals		Oklahoma City	F. I. Boland	6,040	67	\$0	3 0	1/1	7/1	12	3 1	1 9
Hahnemann Hospital		Philadelphia	W. T. Killian	12,111	47	\$7,	1 0	5/1	9/1	12	5 2	216
Philadelphia General Hospital		Philadelphia	H. S. Ruth	21,175	91	\$100	1 0	7/1	7/1	12	3 8	1 67
Rhode Island Hospital		Providence, R. I.	F. H. Matthews	10,496	40	\$0	1 0	Any time	Varies	12	7 8	4
State of Wisconsin General Hospital		Madison	R. M. Waters	11,043	88	\$2,	1 3	Any time	7/1	36	3 1	21
CARDIOLOGY												
Indiana University Hospitals		Indianapolis	C. S. Bond	83	Yes	\$32	1 0	2/1	7/1	12		
Pennsylvania Hospital		Philadelphia	W. D. Stroud	31	Yes	\$33	1 0	Any time	7/1	12		
St. Francis Hospital		Pittsburgh	A. P. D. Zmura	292	14	\$0	1 0	11/1	7/1	12		
Rhode Island Hospital		Providence, R. I.	F. F. Fulton	2,216	40	Yes	\$0	1 0	Any time	Varies	12	
COMMUNICABLE DISEASES												
Los Angeles County Hospital		Los Angeles		3,761	100	\$17,	3 0	C/1&12/1	1/1&7/1	12	7 8	54
Hospital for Children		San Francisco	J. B. Shaw	294	10	\$0	1 0	1/1	7/1	12		
Municipal Hospitals		Hartford, Conn.	C. I. Thenebe	525	100	\$119	1 0	1/1	7/1	12	1	7
Municipal Contagious Disease Hosp.		Chicago	A. L. Hoyne	7,625	100	\$100	8 0	Any time	Varies	12	189	142
Boston City Hospital		Boston	J. H. Place	1,071	94	\$2,	1 0	Any time	7/1	12		
Belmont Hospital		Worcester, Mass.	W. S. Holmes	3,337	100	\$173	1 1	Any time	Varies	24	1	3
Herman Kiefer Hospital		Detroit	B. L. Estabrook	2,370	97	\$125	4 0	1/1	7/1	11	20	3
Kansas City General Hospital		Kansas City, Mo.	P. F. Stookrey	619	100	\$0	1 0	1/1	7/1	12	4	1
City Isolation Hospital		St. Louis	H. I. Ulrich	1,870	95	\$75	1 0	4/1	7/1	12	11	40
Essex County Hospital for Contag. Dis.		Belleville, N. J.	F. L. Smith	3,425	90	\$0	12 0	1/1	7/1	12	10	4
Klosterman Avenue Hospital		Brooklyn	H. I. Scheffer	3,300	100	\$100	7 0	5/1&11/1	1/1&7/1	11	11	26
Queens General Hospital		Jamaica, N. Y.	W. C. A. Steffen and C. Boettiger	88	100	\$111	2 0	1/1	7/1	2	20	9
Willard Parker Hospital		New York City	B. W. Hamilton	7,311	100	\$100	8 0	Any time	1/1&7/1	15	51	29
City Hospital		Cleveland	H. J. Gerstenberger	1,771	97	\$37	2 0	1/1	1/1&7/1	12	110	
DERMATOLOGY SYPHILOLOGY												
Los Angeles County Hospital		Los Angeles	F. D. Lovejoy	68	100	Yes	\$0	1 1	6/1&11/1	1/1&7/1	4	6
University of California Hospital		San Francisco	H. Morrow	64	Yes	\$2	1 0	2/1	7/1	7	1	0
University of Chicago Clinics		Chicago	C. W. Becker	17	Yes	None	1 0	1/1	7/1	12	2	2
Massachusetts General Hospital		Boston	C. C. Lane	267	45	\$42	1 1	Any time	7/1	24		
University Hospital		Ann Arbor, Mich.	L. I. Wile	1,771	99	\$2,	1 3	1/1	7/1	4	12	4
Minneapolis General Hospital		Minneapolis	H. F. Michelon	2,600	100	Yes	None	1 0	Any time	Varies	4	4

		Inpatients Treated		Per Cent Free	Outpatient Service	Beginning Salary	Residents	Assistant Residents	Apply Before	Service Begins	Available Training (Months)	Deaths	Autopsies
DERMATOLOGY SYPHILOLOGY—(Continued)													
University Hospitals ¹	Minneapolis	H E Michelson	113	16	Yes	None	1	0	Any time	Varies	36	3	3
Barnard Free Skin and Cancer Hosp	St Louis	M F Engman	37	100	Yes	\$25	1	0	1/1	7/1	19	3	0
Kings County Hospital	Brooklyn	A Potter	668	100	Yes	\$100	1	0	3/1	9/1	12	23	4
Buffalo City Hospital ²	Buffalo	E D Osborne	197	67	Yes	1	1	1	11/1	7/1	10	6	6
Bellvue Hospital	New York City	H Fox	100	100	Yes	\$15	1	1	1/1&7/1	1/1&7/1	18		
Metropolitan Hospital	New York City	F M Dearborn and S Carleton	424	100	Yes	\$75	1	0	3/1	7/1	12	30	2
Montefiore Hosp for Chronic Diseases	New York City	F Wise	23	85	Yes	\$25	1	0	1/1	7/1	12	0	0
N Y Post Grad Med School & Hosp	New York City	G M MacKee	210	30	Yes	None	1	2	1/1&7/1	1/1&7/1	24	3	0
Cincinnati General Hospital	Cincinnati	E B Tauber	510	87	Yes	2	0	2/15	7/1	12	31	4	4
City Hospital	Cleveland	H N Cole	536	97	Yes	\$50	2	0	1/1	1/1&7/1	12	16	
University Hospitals	Cleveland	H N Cole	193	30	Yes	\$35	1	1	1/1	7/1	24	2	
Skin and Cancer Hospital	Philadelphia	A Strickler	180	17	Yes	\$30	1	1	Any time	1/1&7/1	24	15	2
University of Virginia Hospital	University	D C Smith	158	26	Yes	None	1	1	12/1	7/1	36	1	0
EPILEPSY													
Monson State Hospital	Palmer Mass	M B Hodskins	1 486		No	\$150	1	0	Any time	Varies	12	79	94
Craig Colony	Sonyea N Y	W T Shanahan	2 837	94	No	\$150	1	0	Any time	Varies	12	164	64
FRACTURES													
City of Detroit Receiving Hospital	Detroit	A D LaFerte	1 458	100	Yes	\$83	1	1	3/1	7/1	24		
Rhode Island Hospital	Providence	M S Danforth	602	40	No	\$50	1	0	Any time	Varies	12	27	
GYNECOLOGY (Also see Obstetrics Gynecology)													
Los Angeles County Hospital	Los Angeles	W H Smith	1 848	100	Yes	\$10	3	0	6/1&12/1	1/1&7/1	18	14	11
Passavant Memorial Hospital	Chicago	A H Curtis	802	10	Yes	None	1	0	1/1&7/1	1/1&7/1	12	4	2
Indiana University Hospitals	Indianapolis	F C Walker	787	83	Yes	\$33	1	0	2/1	7/1	12	7	5
Touro Infirmary	New Orleans	H F Miller	1046	32	Yes	\$25	1	0	1/1	7/1	12		
Johns Hopkins Hospital	Baltimore	T S Cullen	1545	49	Yes	None	1	4	6/1	9/1	48	15	
University Hospital	Baltimore	J M Hundley Jr	753	47	Yes	None	1	1	12/1	7/1	24	12	4
Free Hospital for Women	Brookline Mass	F A Pemberton	2 134	80	Yes	\$53	1	0	1/1	1/1	12	20	19
Jersey City Hospital	Jersey City N J	C B Kelly and J M Rector	730	90	Yes	\$100	1	0	3/1	7/1	1	90	3
Albany Hospital	Albany N Y	A J Wallingford	1 882	60	Yes	\$25	1	1	12/15	7/1	24	96	15
Buffalo City Hospital ²	Buffalo	F H Long	706	67	Yes	1	1	1	11/1	7/1	14	0	
Buffalo General Hospital ⁴	Buffalo	J E King and D C McKenney	1 113	10	Yes	\$25	1	0	11/1	7/1	12	26	14
Mount Sinai Hospital	New York City	R T Frank	56	Yes	\$50	1	1	Any time	1/1&7/1	18			
N Y Post Grad Med School & Hosp	New York City	W T Dannreuther	470	30	Yes	\$90	1	0	3/1	10/1	12	5	1
Syracuse Memorial Hospital	Syracuse N Y	G B Broad	488	45	Yes	None	1	0	1/1	7/1	12	6	1
University Hospitals	Cleveland	A H Bill	1 418	30	Yes	\$25	1	3	1/1	7/1	36	14	
Starling Loving University Hospital	Columbus O	F Fletcher	374	55	Yes	\$25	1	0	12/1	7/1	12		
Graduate Hospital of the Univ of Pa	Philadelphia	W R Nicholson	603	36	Yes	None	1	0	1/1	7/1	12	17	7
Hospital of the Univ of Pennsylvania	Philadelphia	F E Keene	1 212	31	Yes	None	1	0	1/1	9/1	12	9	5
Elizabeth Steel Magee Hospital	Pittsburgh	R R Huggins	978	40	Yes	\$42	1	1	1/1	8/1	24	33	10
John Gaston Hospital	Memphis Tenn	W T Black	735	95	Yes	\$32	1	0	1/1	7/1	12	33	4
INDUSTRIAL SURGERY													
Indianapolis City Hospital	Indianapolis		944	90	Yes	\$20	1	0	4/1	7/1	12	40	16
MALIGNANT DISEASES													
Los Angeles County Hospital	Los Angeles		814	100	Yes	\$10	1	1	6/1&12/1	1/1&7/1	24	125	67
Albert Steiner Clinic for Cancer and Allied Diseases	Atlanta Ga	R H Fie	504	100	No	\$100	2	0	6/1	7/1	12	33	3
Michael Reese Hospital	Chicago	M Cutler	744	44	Yes	None	2	0	1/1&7/1	1/1&7/1	12		
Collis P Huntington Memorial Hosp ¹	Boston	J C Aub and S Warren	1 411	35	Yes	\$45	3	0	Any time	Varies	14		9
Pondville Hospital at Norfolk	Walpole Mass	E M Daland	1 474	53	Yes	\$150	7	0	Any time	Varies	12	215	166
Eloise Hospital (Dr Wm J Seymour Hospital)	Eloise Mich		373	100	Yes	\$100	1	0	3/1	7/1	12	14	8
Barnard Free Skin and Cancer Hosp ⁵	St Louis	C M Stroud	687	100	Yes	\$25	2	0	1/1	7/1	12	3	1
Jersey City Hospital	Jersey City N J	J B Faison	279	90	Yes	\$75	1	0	1/1	7/1	12	3	1
Memorial Hospital for the Treatment of Cancer and Allied Diseases	New York City	J Ewing	2 608	100	Yes	\$125	1	7	Any time	1/1&7/1	36	166	107
New York City Cancer Institute Hosp	New York City	I I Kaplan	1 053	10	Yes	\$70	4	0	1/1&1/1	1/1&7/1	16	564	221
Jeannes Hospital	Philadelphia	R W Teahan	579	24	Yes	\$50	2	0	4/1	7/1	12	89	10
MAXILLOFACIAL SURGERY													
Graduate Hosp of the Univ of Pa ⁶	Philadelphia	R H Ivy	36	Yes	None	1	0	1/1	7/1	12			
MEDICINE													
Hillman Hospital	Birmingham Ala	J S McLester and H S Ward	2 236	100	Yes	\$40	2	0	1/15	7/1	12	34	95
Employees Hospital of the Tennessee Coal Iron and Railroad Co	Fairfield Ala	G F Walsh	1 768		Yes	\$100	1	0	1/1	7/1	12	166	4
Fresno County General Hospital	Fresno Calif	R B Tupper	1 506	99	Yes	\$55	1	0	1/1	7/1	12	220	54
Cedars of Lebanon Hospital	Los Angeles	H H Liscner	1 143	19	Yes	\$75	1	0	12/1	7/1	17		9
Los Angeles County Hospital	Los Angeles		9 788	100	Yes	\$10	1	5	6/1&12/1	1/1&7/1	36	1 646	9
White Memorial Hospital	Los Angeles	D D Comstock	2	Yes	\$50	1	0	3/1	7/1	27			
Alameda County Hospital	Oakland Calif	R T Sutherland and H G MacLean	3 651	100	No	\$40	1	2	2/1	7/1	12	75	33
San Bernardino County Charity Hosp	San Bernardino Calif		360	100	No	\$75	1	0	4/1	7/1	12		
San Diego County General Hospital	San Diego Calif	J C Schlappl	1 629	100	Yes	\$75	2	0	4/1	7/1	12		
Hospital for Children	San Francisco	R L Ach	414	10	Yes	\$25	1	0	1/1	7/1	17		
Mount Zion Hospital	San Francisco	L H Briggs	1 122	17	Yes	\$50	1	0	1/1	6/15	12	125	45
San Francisco Hospital	San Francisco	G D Barnett and L H Briggs	2 564	100	No	\$25	2	5	2/1	7/1	24	694	4
Stanford University Hospital	San Francisco	A L Bloomfield	1 974	4	Yes	\$25	1	5	1/1	7/1	24	105	23
University of California Hospital	San Francisco	W J Kerr	1 270		Yes	\$25	1	6	2/15	7/1	24	57	
Santa Clara County Hospital	San Jose Calif		3 353	100	Yes	\$5	1	0	1/1	7/1	12	111	
Colorado General Hospital	Denver	J J Waring	1 500	50	Yes	\$5	1	0	12/1	7/1	12		
Denver General Hospital	Denver		1 236	100	No	\$50	1	0	Any time	7/1	12	117	1
Grace Hospital	New Haven Conn	S J Goldberg	472	10	Yes	\$50	1	0	1/1	7/1	12	153	1
New Haven Hospital	New Haven Conn	F G Blake	1 117	43	Yes		1	4	12/15	7/1			

MEDICINE—(Continued)

	Chief of Service	Inpatients Treated	Per Cent Free	Outpatient Service	Beginning Salary	Residents	Assistant Residents	Apply Before	Service Begins	Available Training (Months)	Deaths	Autopsies
Central Disp and Emergency Hospital	Washington, D C	2 441	21	Yes	\$20	1	1	4/1	7/1	24		
Freedmen's Hospital (col)	Washington D C	648	86	Yes	\$52	1	0	3/1	7/1	12	3	12
Gallinger Municipal Hospital	Washington D C	2 815	100	No	\$30	6	0	1/1	7/1	12	537	167
Garfield Memorial Hospital	Washington D C	2 235	17	Yes	\$40	1	0	12/1	7/1	12		
Grady Hospital	Atlanta Ga	3 225	100	Yes	\$20	2	0	1/1	7/1	12	676	130
University Hospital	Augusta Ga	2 133	60	Yes	\$20	3	0	11/1	7/1	12	354	109
Cook County Hospital	Chicago	17 814	100	No	None	4	0	1/1 & 7/1	1/1 & 7/1	12	3 704	309
Passavant Memorial Hospital	Chicago	991	10	Yes	None	2	0	1/1 & 7/1	1/1 & 7/1	12	85	13
Presbyterian Hospital	Chicago	2 612	24	Yes	\$0	1	0	Any time	7/1	12	118	67
Provident Hospital (col)	Chicago	454	11	Yes	\$0	1	0	1/1	9/1	12	68	18
Research and Educational Hospital	Chicago	723	100	Yes	\$20	2	0	1/1	7/1	12	58	33
St Luke's Hospital	Chicago	1 483	6	Yes	None	2	0	1/1	7/1	12	74	21
University of Chicago Clinics	Chicago	2 969	17	Yes	None	4	1	1/1	7/1	12	101	65
Wesley Memorial Hospital	Chicago	703	34	No	\$7	1	0	Any time	7/1	12	27	14
Evanston Hospital	Evanston Ill	1 979	6	Yes	\$33	1	0	4/1	7/1	12	109	72
Indiana University Hospitals	Indianapolis	569	83	Yes	\$20	2	0	2/1	7/1	12	7	37
University Hospitals	Iowa City	2 490	87	No	\$20	2	4	1/1	7/1	12	36	150
University of Kansas Hospitals	Kansas City Kan	547	50	Yes	\$10	1	2	12/1	7/1	12	84	12
Louisville City Hospital	Louisville Ky	2 321	90	Yes	\$14	1	7	3/1	7/1	12	36	413
Charity Hospital	New Orleans	14 125	100	Yes	\$37	1	2	7/1	7/1	24	1 301	408
Touro Infirmary	New Orleans	1 598	82	Yes	\$25	3	0	1/1	7/1	12		
Baltimore City Hospitals	Baltimore	2 016	100	No	\$12	1	5	1/1	7/1	24	534	240
Church Home and Infirmary	Baltimore	370	30	Yes	\$25	1	0	12/1	7/1	12	35	9
Johns Hopkins Hospital	Baltimore	2 781	49	Yes	None	5	6	6/1	9/1	60	2	2
Maryland General Hospital	Baltimore	551	44	Yes	\$35	1	0	11/1	7/1	12	119	13
Mercy Hospital	Baltimore	889	51	Yes	\$2	1	1	1/1	7/1	24	119	19
Provident Hosp and Free Disp (col)	Baltimore	63	79	Yes	\$25	1	0	5/1	10/1	12		
St Agnes Hospital	Baltimore	724	38	Yes		1	0	11/1	7/1	12		
St Joseph's Hospital	Baltimore											
Sinal Hospital	Baltimore	599	42	Yes	None	1	0	12/1	7/1	24	77	31
South Baltimore General Hospital	Baltimore	1 049	38	Yes	\$47	1	2	1/1	7/1	24	141	40
Union Memorial Hospital	Baltimore	311	44	Yes	\$0	1	0	12/1	7/1	12	81	41
University Hospital	Baltimore	1 531	21	Yes	\$12	1	2	1/1	7/1	24		
West Baltimore General Hospital	Baltimore	1 938	47	Yes	None	1	1	12/1	7/1	24	150	74
Beth Israel Hospital	Boston	425	33	No	\$20	1	0	1/1	7/1	12	55	
Boston City Hospital	Boston	1 636	39	Yes	\$	1	0	1/1	7/1	24	125	65
Massachusetts General Hospital	Boston	9 635	94	Yes	\$42	0	0	Any time	0/1	12	1 189	45
Massachusetts Memorial Hospitals	Boston	1 991	48	Yes	\$42	1	5	Any time	1/1 & 7/1	36		
Peter Bent Brigham Hospital	Boston	1 049	27	Yes	\$91	1	2	1/1	7/1	36	81	
University Hospital	Ann Arbor Mich	2 050	57	Yes	\$42	1	6	Any time	Varies	48		
Alexander Blain Hospital	Detroit	3 694	79	Yes	\$75	8	0	12/1	7/1	36	231	158
City of Detroit Receiving Hospital	Detroit	224	0	Yes	\$5	1	0	1/1	7/1	12		
Grace Hospital	Detroit	5 151	100	Yes	\$83	1	5	3/1	7/1	36		
Harper Hospital	Detroit	2 530	31	Yes	\$30	1	0	4/1	9/1	12	324	6
Henry Ford Hospital	Detroit	2 647	11	Yes	\$75	1	6	2/1	7/1	36		
Providence Hospital	Detroit	1 858	12	No	\$100	1	0	12/1	7/1	12	379	
Eloise Hospital (Dr Wm J Seymour Hospital)	Eloise Mich		100	No	\$37	1	1	3/1	7/1	36	6.9	179
Hurley Hospital	Flint Mich	1 145	60	No	\$100	1	0	1/1	7/1	12		
Minneapolis General Hospital	Minneapolis	2 525	100	Yes	\$25	1	5	1/1 & 7/1	1/1 & 7/1	36	416	141
University Hospitals	Minneapolis	1 697	16	Yes	\$40	1	3	1/1	7/1	36	100	19
Acker Hospital	St Paul	3 345	98	Yes	\$30	6	0	3/1	7/1	12	962	217
St Louis County Hospital	Clayton Mo	960	98	Yes	\$100	1	0	3/1	7/1	12	197	77
Barnes Hospital	St Louis	3 475	17	Yes	\$75	1	3	12/1	7/1	24	151	85
Jewish Hospital	St Louis	1 865	31	No	\$42	1	1	12/1	7/1	24	101	33
St Louis City Hospital	St Louis	5 279	100	Yes	\$30	2	4	12/1	7/1	24		
St Louis City Hospital No 2 (col)	St Louis	1 775	100	Yes	\$100	1	4	7/1	7/1	24	402	
St Luke's Hospital	St Louis	855	14	Yes	\$30	1	0	12/1	7/1	12	86	16
St Mary's Group of Hospitals	St Louis	2 339	49	Yes	\$75	1	6	3/1	7/1	34	17	83
Jersey City Hospital	Jersey City N J	3 909	90	Yes	\$30	1	0	1/1	7/1	12	700	89
Albany Hospital	Albany N Y	1 442	60	Yes	\$15	1	3	12/15	7/1	36	149	100
Coney Island Hospital	Brooklyn	2 206	100	Yes	\$100	1	0	6/1	7/1	12	336	88
Cumberland Hospital	Brooklyn	1 104	100	No	\$100	1	0	3/1	7/1	12	175	72
Kings County Hospital	Brooklyn											
Long Island College Hospital	Brooklyn	13 401	100	Yes	None	6	0	6/1 & 11/1	1/1 & 7/1	12	2 752	373
Norwegian Lutheran Deaconesses Home and Hospital	Brooklyn	1 327	90	Yes	\$22	1	1	1/1	7/1	24	167	62
Buffalo City Hospital	Buffalo	606	12	Yes	None	1	0	1/1	7/1	12		
Buffalo General Hospital	Buffalo	1 723	67	Yes	\$25	1	1	11/1	7/1	24	328	109
Millard Fillmore Hospital	Buffalo	2 475	10	Yes	\$25	1	0	11/1	7/1	24	226	10
Clifton Springs Sanitarium and Clinic	Clifton Springs N Y	546	22	Yes	\$75	1	0	11/15	7/1	12	120	43
Queens General Hospital	Jamaica N Y	1 662	10	No	\$25	1	0	1/1	7/1	76	35	13
Charles S Wilson Memorial Hospital	Johnson City N Y	2 500	100	Yes	\$15	1	1	1/1	7/1	24	413	193
Metropolitan Life Insurance Co Sanat	Mt McGregor N Y	949	1	Yes	\$75	1	0	12/1	7/1	12	71	37
Bellevue Hospital	New York City	57	100	No	\$100	1	0	Any time	Varies	12	7	5
Flower Fifth Avenue Hospital	New York City	11 433	100	Yes	\$3	8	5	Any time	1/1 & 7/1	12		
Metropolitan Hospital	New York City	1 092	44	Yes	\$30	1	0	12/1	7/1	12	89	22
Montefiore Hosp for Chronic Diseases	New York City	2 576	100	Yes	\$100	2	0	3/1	7/1	12	468	105
Mount Sinai Hospital	New York City	803	80	Yes	\$25	4	0	3/1 & 9/1	1/1 & 7/1	12	114	80
New York Hospital	New York City											
N Y Post Grad Med School & Hosp	New York City											
Presbyterian Hospital	New York City											
Genesee Hospital	Rochester N Y											
Rochester General Hospital	Rochester N Y											
Strong Memorial and Rochester Mu	Rochester N Y											
nicipal Hospitals	Rochester N Y											
Hospital of the Good Shepherd	Syracuse N Y											
Gracelands Hospital	Valhalla N Y											
Duke Hospital	Durham N C											
Watts Hospital	Durham N C											
City Memorial Hospital	Winston Salem N C											
City Hospital	Akron O											
Cincinnati General Hospital	Cincinnati											
Deaconess Hospital	Cincinnati											
Good Samaritan Hospital	Cincinnati											
Jewish Hospital	Cincinnati											

		Chief of Service	Inp	Per	Out	Begin	Resi	Assi	Apply	Service	Avail	Deaths	Autopsies
			tients	Cent	patient	ning	dents	stant	Before	Begins	Training		
			Treated	Free	Service	Salary		dents			(Months)		
MEDICINE—(Continued)													
City Hospital	Cleveland	R W Scott	2 423	97	Yes	\$30	1	5	1/1	1/1&7/1	24	743	
Mount Sinai Hospital	Cleveland	S S Berger	1 338	23	No	\$60	1	0	12/1	7/1	12	14	
St Alexis Hospital	Cleveland		1 229	25	No	\$60	1	0	12/1	7/1	12	13	
St John's Hospital	Cleveland	R K Updegraff	879	18	No	\$25	1	0	12/1	7/1	12	12	
St Luke's Hospital	Cleveland	W C Stoner	1 914	18	Yes	\$25	1	1	12/1	7/1	24	186	
University Hospitals	Cleveland	J T Wearm	2 915	30	Yes	\$35	1	11	1/1	7/1	24	28	
Starling Loving University Hospital	Columbus, O	C A Doan	1 114	55	Yes	\$2	1	3	12/1	7/1	36		
Miami Valley Hospital	Dartmouth		2 140	28	No	\$7	1	0	12/1	7/1	12		
St Elizabeth's Hospital	Youngstown O	E W Coe	1 344	20	No	\$30	1	0	12/1	7/1	12	189	
State University and Crippled Children's Hospitals	Oklahoma City	G A LaMotte	834	67	Yes	\$30	2	0	1/1	7/1	12	99	
Univ of Oregon Med School Hosps	Portland	L Selling	2 872	100	Yes	\$30	1	1	1/1	7/1	24	439	
Arlington Memorial Hospital	Arlington, Pa	H B Wilmer	1 116	22	Yes	None	1	0	1/1	7/1	12	16	
Geo F Geisinger Memorial Hospital	Danville, Pa	C E Ervin	1 021	23	Yes	\$15	1	0	2/1	7/1	12	6	
Germantown Dispensary and Hospital	Philadelphia		726	17	Yes	\$110	1	0	1/1	7/1	12	101	
Graduate Hospital of the Univ of Pa	Philadelphia	G M Piersol	997	36	Yes	None	1	0	1/1	7/1	12	8	
Hospital of the Univ of Pennsylvania	Philadelphia	A Stengel	1 719	31	Yes	None	1	0	1/1	9/1	12	98	
Jewish Hospital	Philadelphia	J C Doane	1 290	32	No	None	1	0	3/1	6/15	12	11	
Pennsylvania Hospital	Philadelphia	D Farley	1 600	31	Yes	\$42	2	0	Any time	7/1	12	22	
Philadelphia General Hospital	Philadelphia		5 214	95	Yes				7/1	7/1	12		
Allegheny General Hospital	Pittsburgh		880	30	No	\$81	1	0	2/1	7/1	12	10	
Elizabeth Steel Magee Hospital	Pittsburgh	J D Heard	863	46	Yes	\$42	1	1	1/1	8/1	24	6	
Mersey Hospital	Pittsburgh	W W G Maciachian	2 098	30	Yes	\$112	3	0	1/1	7/1	12		
St Francis Hospital	Pittsburgh		1 105	14	Yes	\$7	1	0	11/1	7/1	12		
Reading Hospital	Reading Pa		740	48	Yes	\$83	1	0	1/1	7/1	12	16	
Robert Packer Hospital	Sayre Pa	S D Conklin	2 049	62	No	\$38	1	0	4/1	7/1	24	10	
Roper Hospital	Charleston S C	R Wilson	1 567	78	Yes	\$40	1	0	1/1	7/1	12	264	
John Gaston Hospital	Memphis Tenn	L Leroy	2 309	90	Yes	\$32	2	0	1/1	7/1	12	494	
Nashville General Hospital	Nashville Tenn		1 133	90	Yes	\$3	1	1	12/1	7/1	24	2	
Vanderbilt University Hospital	Nashville Tenn	H J Morlan	1 154	32	Yes	\$35	1	3	3/1	7/1	24	101	
Baylor University Hospital	Dallas, Tex	H M Wnans	2 606	20	Yes	\$6	1	1	4/1	7/1	24	14	
John Sealy Hospital	Galveston, Tex	C T Stone	1 270	60	Yes	None	1	0	12/1	7/15	12	109	
Norfolk General Hospital	Norfolk Va	A B Hodges	1 519	30	Yes	\$30	1	0	1/1	7/1	12		
Medical College of Va, Hosp Division	Richmond	W B Porter	1 736	20	Yes	\$30	1	3	2/1	7/1	24	363	
University of Virginia Hospital	University	J C Flippin	1 760	26	Yes	None	1	1	12/1	7/1	24	123	
State of Wisconsin General Hospital	Madison	W S Middleton		88	Yes	\$25	1	6	Any time	7/1	12		
St Joseph's Hospital	Milwaukee	F D Murphy	1 521		Yes	\$100	1	0	1/1	7/1	12	194	
Milwaukee County General Hospital	Wauwatosa Ws	T J Howard	5 030	100	Yes	\$100	1	2	5/1	7/10	24	774	
MENTAL DEFICIENCIES													
Michigan Home and Training School	Lapeer, Mich	R L Dixon	1 408	100	Yes	\$100	2	0	Any time	Varies	36	80	
METABOLIC DISEASES													
Philadelphia General Hospital	Philadelphia	E S Dillon	640	95	Yes	\$100	1	0	7/1	7/1	12		
MIXED													
St Vincent's Hospital	Birmingham Ala		3 480	6	No	\$65			1/1	7/1	24	110	
Fairmont Hosp of Alameda County	San Leandro Calif	B A Adams	1 130	100	No	\$30	1	0	12/1	7/1	12	40	
Biverside Hospital	Jacksonville Fla		1 000	10	Yes	\$30	1	0	6/1	7/1	12	21	
Eitel Hospital	Minneapolis		5 504	5	Yes	\$80	1	0	1/1	7/1	12	10	
Women's and Children's Hospital	Chicago, O		2 329	3	Yes	\$30	3	0	2/1	7/1	12	114	
Medical Arts Hospital	Dallas Tex	E H Cary	7 084	0	No	\$7	1	0	3/1	7/1	12	68	
Chesapeake and Ohio Railway Hosp	Clifton Forge Va	J M Emmett	3 096	45	Yes	\$30	3	0	1/1	7/1	12	76	
NEUROLOGY													
Los Angeles County Hospital	Los Angeles	P Bailor	1 154	100	Yes	\$10	1	1	6/1	1/1	24	96	
University of Chicago Clinics	Chicago	C E Van Epps		17	Yes	\$20	1	1	1/1	7/1	36	20	
University Hospitals	Iowa City	T J Putnam	820	87	Yes	"	1	1	1/1	7/1	24		
Boston City Hospital	Boston	J B Ayer	664	94	Yes	None	1	0	Any time	7/1&9/1	36	0	
Massachusetts General Hospital	Boston	C D Camp	370	48	Yes	\$42	1	0	Any time	1/1	12	2	
University Hospital	Ann Arbor Mich	O C Perkins	969	79	Yes	\$25	1	0	12/1	7/1	12	2	
Kings County Hospital	Brooklyn	F Kennedy	3 943	100	Yes	None	4	0	6/1&11/1	1/1&7/1	12	523	
Bellevue Hospital	New York City	M Neustaedter	288	100	Yes	\$83	1	2	Any time	7/1	24		
Central Neurological Hospital	New York City		1 176	100	No	\$100	6	0	1/1&7/1	1/1&7/1	12	9	
Lenox Hill Hospital	New York City	S P Jewett	207	23	Yes	\$30	1	0	3/1	7/1	12	1	
Metropolitan Hospital	New York City	S P Goodhart	170	100	Yes	\$15	1	0	3/1	7/1	12	1	
Montefiore Hosp for Chronic Diseases	New York City	I Strauss	1 277	86	Yes	\$25	1	2	3/1&10/1	1/1&7/1	18	43	
Mount Sinai Hospital	New York City	F Tiney		36	Yes	\$30	3	0	Any time	1/1&7/1	18		
Neurological Institute of New York	New York City		3 508	9	No	\$40	1	11	Any time	Varies	36	166	
Philadelphia Orthopaedic Hosp and Infirmary for Nervous Diseases	Philadelphia	C W Burr	314	27	Yes	\$40	1	0	Any time	7/1	12	8	
Temple University Hospital	Philadelphia	T Fay	591	43	Yes	\$30	1	0	1/1	7/1	12	4	
NEUROPSYCHIATRY													
Compton Sanitarium	Compton Calif	G E Myers	340		No	\$12	1	0	Any time	Varies	12	10	
Stanford University Hospitals	San Francisco	G S Johnson	382	4	Yes	\$3	1	2	1/1	7/1	24	2	
University of California Hospital	San Francisco	M B Lennon and E W Twitchell	60		Yes	\$2	0	2	2/15	7/1	12	0	
Mendocino State Hospital	Talmage Calif	R O LeBaron	2 707	91	No	\$30	2	0	Any time	Varies	36	12	
Colorado Psychopathic Hospital	Denver	F G Ebaugh	902	73	Yes	\$100	1		2/1	9/1	36	19	
Neuro Psychiatric Institute of the Hartford Retreat	Hartford Conn	C C Burhagame	621		No		9	0	Any time	Varies	36	276	
Connecticut State Hospital	Middletown	R L Leak	3 184	100	No	\$30	3	0	Any time	Varies	36		
New Haven Hospital	New Haven Conn	E Kahn	366	47	Yes	"	1	4	12/15	7/1	12	89	
Delaware State Hospital	Farmhurst Del	M A Tarumian	1 062	85	Yes	\$30	2	0	1/1	7/1	12	117	
Gallinger Municipal Hospital	Washington, D C	D P Hickling	3 007	100	No	\$30	1	0	1/1	7/1	12	20	
St Elizabeths Hospital	Washington, D C	R W Hall	5 429	100	No	\$67	11	0	7/1&10/1	7/1	12	1	
Cook County Hospital	Chicago	F J Gerty	5 870	100	No	None	2	0	1/1&7/1	1/1&7/1	12	1	
Research and Educational Hospital	Chicago	H D Singer	117	100	Yes	\$30	1	0	1/1	7/1	12	0	
University of Chicago Clinics	Chicago	D Slight	103	17	Yes	\$30	1	1	1/1	7/1	24	4	
Elgin State Hospital	Elgin Ill	C F Read	6 322	100	No	\$10	4	0	Any time	Varies	36	174	
Central State Hospital	Indianapolis	M A Bahr	2 223	90	No	\$30	1	0	4/1	7/1	12	1	
Indianapolis City Hospital	Indianapolis		507	90	Yes	\$30	2	0	Any time	Varies	36	1	
Logansport State Hospital	Logansport Ind	C L Williams	1 916	96	No	\$13	2	0	Any time	7/1	36		
Iowa State Psychopathic Hospital	Iowa City	A H Woods	427	82	Yes	\$142	2	2	1/1	7/1	36		

NEUROPSYCHIATRY—Continued

NEUROPSYCHIATRY—Continued		Chief of Service	In	Per	Out	De	Re	As	Ap	Se	Ad	De	Ad
Osawatimie State Hospital	Osawatimie Kan	R M Fellows	1,630	96	Yes	\$75	2	0	1/1 7/1	1/1 7/1	12	18	30
Meoninger Sanitarium	Topeka Kan	K A Menninger	150	0	Yes	\$120	0	0	Quart	Quart	12	5	7
Baltimore City Hospitals	Baltimore	E L Riehrds	442	100	No	\$200	1	0	1/1	7/1	12	11	7
Johns Hopkins Hospital	Baltimore	A Meyer	266	49	Yes	None	1	2	6/1	9/1	48	4	
Spring Grove State Hospital	Catonsville Md	S W Weltmer	2,363	100	No	\$132	1	0	Any time	Varies	12	149	23
Springfield State Hospital	Springfield Md	I A Darling	3,314	100	No	\$67	4	0	Any time	Varies	12	157	44
Sheppard and Enoch Pratt Hospital	Towson Md	R M Chapman	649	90	No	\$100	3	0	Any time	Varies	12	12	7
McLean Hospital	Belmont Mass	K J Tillotson	440	Yes	Yes	\$75	5	0	Any time	Varies	36	17	4
Boston Psychopathic Hospital	Boston	C M Campbell	2,089	85	Yes	\$75	8	0	4/1	9/1	12	31	11
Boston State Hospital	Boston	H F Norton	3,496	88	No	3	0	Any time	Varies	36	391	296	
Massachusetts General Hospital	Boston	S Cobb	48	Yes	42	2	0	Any time	9/1	12			
Foxboro State Hospital	Foxboro Mass	R B Dexter	1,299	No	No	1	0	Any time	Varies	12	\$4	19	
Gardner State Hospital	Gardner Mass	C E Thompson	1,500	97	Yes	\$150	2	0	Any time	Varies	12	70	31
Medfield State Hospital	Medfield Mass	E K Holt	1,844	99	No	\$100	1	0	Any time	Varies	12	109	48
Grafton State Hospital	North Grafton Mass	H L Paine	1,499	97	No	\$150	2	0	Any time	Varies	12	74	19
Taunton State Hospital	Taunton Mass	R M Chambers	2,224	89	Yes	\$150	4	0	Any time	7/1	12	212	101
Worcester State Hospital	Worcester Mass	W A Bryan	2,276	No	None	1	0	1/1	7/1	12	207	119	
University Hospital	Ann Arbor Mich	R W Waggoner	261	93	Yes	\$50	1	1	4/1	7/1	36	2	1
Eloise Hosp for Mental Diseases	Eloise Mich	M H Hoffmann	4,104	100	Yes	\$150	2	0	Any time	Varies	36	253	59
Pontiac State Hospital	Pontiac Mich	P V Wagley	1,795	Yes	\$150	3	0	7/1	7/1	12	106	44	
Traverse City State Hospital	Traverse City Mich	R P Sheets	1,400	97	Yes	\$150	3	0	Any time	7/1	36	194	64
Ypsilanti State Hospital	Ypsilanti Mich	G F Ioch	1,570	85	Yes	\$50	2	0	Any time	Varies	36	91	47
Minneapolis General Hospital ¹	Minneapolis	J C McNeal	1,300	100	Yes	\$25	1	0	1/1	7/1	12	184	48
University Hospitals ¹	Minneapolis	J C McNeley	16	Yes	\$50	1	1	1/1	7/1	36			
State Hospital No 1	Fulton Mo	R Hanks	2,024	96	No	\$50	3	0	Any time	Varies	36	239	45
State Hospital No 2	St Joseph Mo	O Mullinax	2,688	97	Yes	\$75	2	0	Any time	Varies	36	319	92
City Sanitarium	St Louis	F M Grogan	4,300	81	Yes	\$150	6	0	4/1	7/1	12	269	59
St Louis City Hospital	St Louis	J C McNeen	2,292	100	Yes	\$75	1	1	12/1	7/1	24		
Hastings State Hospital	Hastings Neb	J C McNeen	1,789	85	Yes	\$100	3	0	4/1 11/1	1/1 7/1	12	80	28
Norfolk State Hospital	Norfolk Neb	G E Charlton	1,066	90	No	\$125	1	0	Any time	Varies	36	40	21
New Jersey State Hospital	Greystone Park	M A Curry	7,067	No	\$160	10	0	Any time	Varies	36	551	112	
Albany Hospital	Albany N Y	L H Ziegler	878	60	Yes	\$25	1	1	12/1	7/1	24	60	40
Binghamton State Hospital	Binghamton N Y	W O Garvin	3,018	92	No	\$150	5	0	Any time	Varies	36	206	98
Buffalo City Hospital -	Buffalo	E A Sharp and S W Hartwell	1,119	67	Yes	\$150	1	1	11/1	7/1	152	59	
Buffalo State Hospital	Buffalo	J A Fritchard	2,444	87	Yes	\$150	3	0	Any time	Varies	36	193	3
Hastings Hillside Hospital	Hastings on Hudson N Y	L Wender	137	14	Yes	\$100	1	0	7/1	7/1	12	0	0
Gowanda State Homeopathic Hosp	Helmuth N Y	E V Gray	2,313	100	No	\$150	4	0	Any time	Varies	36	13	69
Kings Park State Hospital	Kings Park N Y	S C Parker	4,891	89	Yes	\$150	4	0	Any time	Varies	36	225	78
Marey State Hospital	Marey N Y	W W Wright	2,632	98	Yes	\$150	3	0	Any time	Varies	36	273	62
Middletown State Homeopathic Hosp	Middletown N Y	R O Woodman	3,156	85	No	\$150	1	0	Any time	Varies	36	116	86
Bellevue Hospital	New York City	K M Bowman	100	Yes	\$15	4	6	Any time	1/1 7/1	24	760	23	
New York Hospital	New York City	O Diethelm	357	5	Yes	\$50	2	6	1/1	7/1	60	6	4
N Y State Psychiatric Inst and Hosp	New York City	N D C Lewis	386	85	Yes	\$25	6	0	3/1	7/1	12	2	0
U S Marine Hospital	New York City	L O Weidon	1,075	100	Yes	\$92	1	0	Any time	7/1	12	12	7
St Lawrence State Hospital	Ogdensburg N Y	P G Taddiken	2,637	93	Yes	\$150	4	0	Any time	Varies	12	186	77
Hudson River State Hospital	Poughkeepsie N Y	P P Folsom	5,132	89	No	\$150	3	0	Any time	Varies	12	799	115
Rochester State Hospital	Rochester N Y	J L Van De Mark	3,681	85	Yes	\$150	6	0	Any time	Varies	12	219	36
Strong Memorial and Rochester Municipal Hospitals	Rochester N Y	E K Clarke	403	88	Yes	\$75	1	0	1/1	7/1	12		
Utica State Hospital	Utica N Y	R H Hutchings	2,377	100	Yes	\$150	1	0	Any time	Varies	12	133	52
Grasslands Hospital	Valhalla N Y	T P Brennan	1,273	90	Yes	\$117	2	0	4/1	7/1	12	69	60
New York Hospital Westchester Div	White Plains N Y	C O Cheney	587	4	Yes	\$123	6	0	Any time	7/1 10/1	60	0	2
Duke Hospital	Durham N C	R S Crispell	64	Yes	\$42	1	0	1/1	7/1	24			
North Dakota State Hosp for Insane	Jamestown N D	E A North	1,814	100	No	\$50	2	0	Any time	Varies	12	133	40
Cincinnati General Hospital	Cincinnati	E A Baber	1,385	87	Yes	\$62	1	2	1/1 7/1	1/1 7/1	24	65	28
Longview State Hospital	Cincinnati	C W Stone	2,472	Yes	\$62	1	0	Any time	Varies	6	218	70	
City Hospital	Cleveland	G H Williams	847	07	Yes	\$37	3	0	1/1	1/1 7/1	12	101	
Cleveland State Hospital	Cleveland	O Fordyce	3,174	Yes	\$50	1	0	Any time	Varies	36	117		
Toledo State Hospital	Toledo O	H I Kloppe	2,350	67	Yes	\$125	4	0	Any time	Varies	12	214	41
Allentown State Hospital	Allentown Pa	A P Noyes	2,135	87	Yes	\$125	4	0	Any time	Varies	36	113	2
Norristown State Hospital	Norristown Pa	A C Buckley	3,668	73	Yes	\$150	3	0	Any time	Varies	36	390	58
Frieds Hospital	Philadelphia	E D Bond	229	4	No	\$100	Any time	Varies	12	9	0	0	
Institute of the Pennsylvania Hosp	Philadelphia	E D Bond	884	0	Yes	\$250	4	0	12/1	7/1	12	1	0
Pennsylvania Hosp Department for Mental and Nervous Diseases	Philadelphia	E D Bond	433	4	Yes	\$125	3	0	12/1	7/1	12	17	4
Philadelphia General Hospital	Philadelphia	E D Bond	6,989	05	Yes	\$100	1	0	7/1	7/1	12		
St Francis Hospital	Pittsburgh	R H Israel	2,121	14	Yes	\$50	1	1	11/1	7/1	24		
Warren State Hospital	Warren Pa	S F H Howes	3,167	82	No	\$125	3	0	Any time	Varies	36	168	4
State Hospital for Mental Diseases	Howard R I	A H Ruggles	2,402	95	Yes	\$150	3	0	Any time	Varies	36	197	61
Butler Hospital	Providence R I	H F Kiene	339	4	Yes	\$50	2	0	Any time	Varies	12	27	6
Charles V Chaplo Hospital	Providence R I	G W Day	638	72	Yes	\$75	1	0	Any time	1/1	12		
Galveston State Psychopathic Hosp	Galvestoo Tex	T H Harris	360	100	Yes	\$100	3	0	1/1	7/1	12	4	1
John Sealy Hospital	Galveston Tex	D C Wilson	501	60	Yes	None	1	0	12/1	7/1	12	26	14
University of Virginia Hospital	University	W F Lorenz	334	26	Yes	\$50	1	0	12/1	7/1	24	20	15
State of Wisconsin General Hospital	Madison Wis	A F Youog	89	Yes	\$50	1	0	Any time	7/1	36			
Wilwaukee County Hospital for Mental Diseases	Wauwatosa Wis	R Sleyter	1,493	100	Yes	\$50	2	0	1/1	7/1	12	47	14
Wilwaukee Sanitarium	Wauwatosa Wis	R Sleyter	26	3	No	\$50	1	0	Any time	Varies	36	3	0

NEUROSURGERY

Univer ity of California Hospital	San Francisco	H W Fleming and											
		O W Jones	404		Yes	\$25	1	0	2/1	7/1	12	17	11
Presbyterian Hospital	Chicago	A Verbruggen	292	24	Yes	None	1	0	Any time	7/1	24	11	6
Recreah and Educational Hospital	Chicago	E Oldberg	188	100	Yes	\$50	1	0	1/1	9/1	24	30	20
Boston City Hospital	Boston	D Munro	364	94	Yes	None	1	11	Any time	7/1 & 9/1	6	2	1
Massachusetts General Hospital	Boston	W J Miter	4		Yes	\$42	1	0	Any time	7/1	12		
Henry Ford Hospital	Detroit	S J Crowford			Yes	\$125	1	0	1/1	9/1	26	2	11
Kings County Hospital	Brooklyn	E J Browder	100		Yes	\$100	1	0	1/1	7/1	12	16	9
Neurological Institute of New York	New York City	C A Elsberg	50	9	No	\$40	1	2	Any time	Varies	36		
Strong Memorial and Rochester Mn													
neipal Hospitals	Rochester N Y	W P Van Wagenen	20	58	Yes	\$5	1	0	1/1	7/1	12		
Temple Univer ity Hospital	Philadelphia	T S Fay	301	43	Yes	\$50	1	0	1/1	7/1	24	4	4
Medial College of Va Hosp Division	Richmond	C C Coleman	1 919	20	Yes	\$50	1	1	2/1	7/1	24	12	63

		Inpatients Treated	Per Cent Free	Outpatient Service	Beginning Salary	Residents	Assistant Residents	Apply Before	Service Begins	Available Training (Months)	Deaths	Autopsies
OBSTETRICS (Also see Obstetrics Gynecology)												
Los Angeles County Hospital	Los Angeles	L G McNelle	5 907	100	Yes	\$10	5	0 6/1&12/1	1/1&7/1	18	56	0
Hospital for Children	San Francisco	H A Stephenson	846	10	Yes	\$25	1	0 1/1	7/1	12		
Garfield Memorial Hospital	Washington D C	A Y P Garnett	825	17	Yes	\$50	1	0 12/1	7/1	12		
Chicago Maternity Center ¹⁰	Chicago	J B DeLee	5,776	100	Yes	None	1	0 10/1	1/1	12	0	3
Cook County Hospital	Chicago	D S Hillis	7 037	100	Yes	None	2	2 1/1&7/1	1/1&7/1	12	51	0
Provident Hospital (col)	Chicago	P M Santos	348	11	Yes	\$50	1	0 1/1	9/1	12	3	
Research and Educational Hospital	Chicago	F H Falls	807	100	Yes	\$50	1	1 1/1&7/1	1/1&7/1	24	31	30
Indiana University Hospitals	Indianapolis	H F Beekman	1 089	83	Yes	\$33	1	0 2/1	7/1	12	11	
Louisville City Hospital	Louisville Ky	A N Plekett	1 205	90	Yes	\$14	1	2 3/1	7/1	36	9	4
Touro Infirmary	New Orleans	W E Levy	1 857	32	Yes	\$25	4	0 1/1	7/1	12		
Johns Hopkins Hospital	Baltimore	N J Eastman	1 680	49	Yes	None	1	3 6/1	0/1	36	11	
Provident Hosp and Free Disp (col)	Baltimore	L H Douglass	176	70	Yes	\$25	1	0 5/1	10/15	12		
Sinal Hospital	Baltimore	M W Aaronson	799	38	Yes	\$47	1	0 1/1	7/1	12		2
University Hospital	Baltimore	J M H Rowland	1 083	47	Yes	None	1	2 12/1	7/1	24	11	10
Boston Lying In Hospital	Boston	F C Irving	3 223	9	Yes	None	1	5 1/1&11/1	1/1&7/1	18	0	4
Massachusetts Memorial Hospitals	Boston	E W Smith	634	28	Yes	\$91	1	0 1/1	7/1	12	29	25
Providence Hospital	Detroit	O H Schwarz	2 305	12	No	\$100	1	0 12/1	7/1	12	5	
St Louis Maternity Hospital	St Louis	F C Irving	2 730	13	Yes	None	0	7 12/1	7/1	12	26	14
Margaret Hague Maternity Hospital	Jersey City N J	S A Cosgrove	6 096	54	Yes	\$100	1	6 Quart	Quart	21	146	95
Cumberland Hospital	Brooklyn	W C Meagher	1 157	100	Yes	\$100	1	0 3/1	7/1	12	5	3
Jewish Hospital	Brooklyn	J Ronsheim	2 539	32	Yes	\$50	1	0 12/1	7/1	18	2	0
Methodist Episcopal Hospital	Brooklyn	O P Humpstone	1 843	26	Yes	\$90	1	0 11/1	7/1	12		
Norwegian Lutheran Deaconesses Home and Hospital	Brooklyn		924	12	Yes	None	1	0 1/1	7/1	12	4	3
Buffalo City Hospital ²	Buffalo	F O Goldsborough	746	67	Yes		1	1 11/1	7/1	12	7	0
Buffalo General Hospital	Buffalo	F C Goldsborough	717	10	Yes	\$25	1	0 1/1	7/1	12	4	0
Millard Tiltmore Hospital	Buffalo		1 389	22	Yes	\$25	1	0 11/1	7/1	12	11	3
Lenox Hill Hospital	New York City	P H Williams and R L McCready	948	23	Yes	\$50	1	0 1/1	7/1	12	12	0
Lincoln Hospital	New York City	E J Davin	1 450	97	Yes	None	1	0 1/1	7/1	12	6	4
Morrisania City Hospital	New York City	H Aranow	1 466	100	Yes	\$15	2	0 1/1&7/1	1/1&7/1	12	48	71
N Y Polytechnic Med School and Hosp	New York City	E M Hawks	879	16	Yes	\$128	1	0 1/1	7/1	12	1	1
Syracuse Memorial Hospital	Syracuse N Y	H W Schoeneek	1 287	45	Yes	None	1	0 1/1	7/1	12	3	1
Cincinnati General Hospital	Cincinnati	H L Woodward	2 401	87	Yes		1	2 2/15	7/1	24	8	3
City Hospital	Cleveland	A H Bill	1 505	97	Yes	\$50	1	3 1/1	7/1	24	7	
Mount Sinai Hospital	Cleveland	M Garber	711	23	No	\$50	1	0 12/1	7/1	12	2	
St Ann's Maternity Hospital	Cleveland		1 093	9	Yes	\$100	2	0 6/1	7/1	12	18	15
St John's Hospital	Cleveland	C A O Connell	754	18	No	\$25	1	0 12/1	7/1	12	3	1
St Luke's Hospital	Cleveland	A J Skeel	1 435	18	Yes	\$25	1	1 12/1	7/1	24	2	1
University Hospitals	Cleveland	A H Bill	2 061	30	Yes	\$35	1	4 1/1	7/1	30	8	
Miami Valley Hospital	Dayton O	G L Erbaugh	1 020	28	No	\$75	1	0 12/1	7/1	12		
State University and Crippled Children's Hospitals	Oklahoma City	W W Wells	570	67	Yes	\$50	1	0 1/1	7/1	12	6	4
Hospital of the Univ of Pennsylvania	Philadelphia	C C Norris	1 967	81	Yes	None	1	0 1/1	9/1	12	5	4
Elizabeth Steel Magee Hospital	Pittsburgh	C E Ziegler	2 915	40	Yes	\$42	3	0 1/1	8/1	12	94	10
John Gaston Hospital	Memphis Tenn	W T Pride	2 200	95	Yes	\$12	1	0 1/1	7/1	12	49	5
Baylor University Hospital	Dallas, Tex	O R Hannah	993	20	Yes	\$35	1	0 4/1	7/1	12	7	0
Medical College of Va Hosp Division	Richmond	H H Ware Jr	1 032	20	Yes	\$50	1	0 2/1	7/1	12	18	9
OBSTETRICS GYNECOLOGY (Also see Obstetrics and Gynecology)												
Hillman Hospital	Birmingham Ala	R J Thompson	2 890	100	Yes	\$40	2	0 1/15	7/1	12	57	16
White Memorial Hospital	Los Angeles	E N Ever and C A DePuy	1 140	2	Yes	\$50	2	0 3/1	7/1	36	9	0
Alameda County Hospital	Oakland Calif	W G Moore and A V Pettit	1 610	100	No	\$40	0	3 2/1	7/1	12		
San Francisco Hospital	San Francisco	L A Emge	2 423	100	Yes	\$25	1	2 2/1	7/1	24	81	3
Stanford University Hospitals	San Francisco	F W Lynch	1 553	4	Yes	\$25	1	2 1/1	7/1	36	7	3
University of California Hospital	San Francisco	A A Shufelt	1 110	Yes	\$25	1	3 2/15	7/1	7/1	36	8	
Santa Clara County Hospital	San Jose Calif	A H Morse	1 024	100	Yes	\$100	1	0 1/1	7/1	12		
New Haven Hospital	New Haven Conn		1 361	43	Yes		1	2 12/15	7/1	12	16	9
Columbia Hospital for Women and Lying In Asylum	Washington D C	J W Ross	3 694	Yes	None	2	4 5/12&11/1	1/1&7/1	18	62	91	
Freedmen's Hospital (col)	Washington D C	H P Kane	1 402	86	Yes	\$50	1	0 3/1	7/1	12	63	15
Gallinger Municipal Hospital	Washington D C	J R McCord	5 037	100	No	\$30	3	0 1/1	7/1	12	145	13
Grady Hospital	Atlanta Ga	R Torpin	4 825	100	Yes	\$50	2	0 1/1	7/1	12	50	11
University Hospital	Augusta Ga	F L Adair	1 961	50	Yes	\$50	2	0 11/1	7/1	12	74	4
Chicago Lying In Hospital and Disp	Chicago	N S Heaney	3 258	25	Yes	None	1	6 1/1&7/1	1/1&7/1	36	54	3
Presbyterian Hospital	Chicago		1 658	21	Yes	\$50	1	0 Any time	7/1	24	5	9
St Luke's Hospital	Chicago		1 090	6	Yes	None	2	0 1/1	7/1	12	38	
University of Chicago Clinics (see Chicago Lying In Hospital and Disp)	Chicago											
University Hospitals	Iowa City	E D Platts	4 061	87	Yes	\$20	1	5 1/1	7/1	36	25	17
University of Kansas Hospitals	Kansas City Kan	L A Calkins	879	50	Yes	\$45	1	2 12/1	7/1	36	8	0
Charity Hospital	New Orleans	E P Smith and W S Gardner	16 873	100	Yes	\$25	2	0 7/1	7/1	12		
Mercy Hospital	Baltimore		1 223	51	Yes	\$25	1	0 1/1	7/1	12	7	0
St Joseph's Hospital	Baltimore		1 052	42	Yes	None	1	1 12/1	7/1	24	6	1
Boston City Hospital	Boston	A F Miller	5 610	94	Yes	None	2	6 Any time	Quart	24	46	1
University Hospital	Ann Arbor Mich	W F Seeley	2 668	79	Yes	\$25	2	0 1/1	7/1	12	60	43
City of Detroit Receiving Hospital ¹¹	Detroit	B Anderson and M A Darling	1 425	100	Yes	\$53	2	2 3/1	7/15	43		
Grace Hospital	Detroit	G A Kamperman	2 671	31	Yes	\$50	1	0 4/1	0/1	12	8	2
Harper Hospital	Detroit	J P Pratt	1 334	11	Yes	\$25	1	2 1/1	7/1	24	41	17
Henry Ford Hospital	Detroit	W F Seeley	3 643	97	No	\$125	1	1 1/1	7/1	43	74	1
Herman Klefer Hospital ¹¹	Detroit	L F Daniels and C H Judd										
Woman's Hospital	Detroit	J A Urner	5 002	8	Yes	\$25	1	8 2/1	7/1	36	18	0
Minneapolis General Hospital ¹	Minneapolis	J G Litzenberg	2 377	100	Yes	\$25	1	1 1/1&7/1	1/1&7/1	36	24	10
University Hospitals ¹	Minneapolis	L W Barry	1 285	16	Yes	\$50	1	1 1/1	7/1	36	13	9
Ancker Hospital ¹	St Paul	S A Weintraub	2 642	98	Yes	\$25	1	0 3/1	7/1	36	18	9
Jewish Hospital	St Louis		933	31	No	\$53	1	0 12/1	7/1	12	8	5
St Louis City Hospital	St Louis	O H Schwarz	3 229	100	Yes	\$25	2	2 1/1	7/1	36	26	11
St Louis Maternity Hospital	St Louis	C D O Keefe	2 730	13	Yes	\$50	1	2 12/1	7/1	12		
St Luke's Hospital	St Louis	W H Vogt	895	14	Yes	\$50	1	4 3/1	7/1	24	23	15
St Mary's Group of Hospitals	St Louis	E C Sage	1 737	50	Yes	\$25	1	0 12/1	7/1	12		
University of Nebraska Hospital	Omaha	C Duncan	868	85	Yes	None	2	6 1/1&11/1	1/1&7/1	24	87	12
Kings County Hospital	Brooklyn	A C Beck	6 000	100	Yes	None	2	2 1/1	7/1	24	18	9
Long Island College Hospital	Brooklyn		2 345	20	Yes	\$22	1	2 1/1	7/1			

		Inpatients Treated	Per Cent Free	Outpatient Service	Beginning Salary	Residents	Assistant Residents	Apply Before	Service Begins	Available Training (Months)	Deaths	Autopsies
OBSTETRICS GYNECOLOGY—Continued												
Buffalo City Hospital -	Buffalo	F O Goldsborough	1,345	67	Yes		1	1	11/1	7/1	21	2
Queens General Hospital	Jamaica N Y	H P Mencken	2,338	100	Yes	\$15	1	1	1/1	7/1	17	13
Bellevue Hospital	New York City	W E Studdiford Jr	3,325	100	Yes		1	10	any time	7/1	45	
Lying In Hospital (Unit of New York Hospital)	New York City	H J Stander	4,436	5	Yes	None	1	10	1/1	7/1	60	14
Metropolitan Hospital	New York City	H B Safford	2,023	100	Yes	\$100	2	0	3/1	7/1	12	72
Sloane Hospital for Women	New York City	B P Watson	3,775	30	Yes	None	1	8	Any time	7/1	47	27
Woman's Hospital	New York City	G G Ward	3,406	9	Yes	None	1	8	Any time	Quart	24	70
Strong Memorial and Rochester Municipal Hospitals	Rochester N Y	K M Wilson	2,178	58	Yes	\$42	1	2	1/1	7/1	26	25
Duke Hospital	Durham N C	F B Carter	1,900	64	Yes	\$42	1	6	1/1	7/1	72	76
Huron Road Hospital	East Cleveland O	S G Runnels	782	13	Yes	\$30	1	0	1/1	7/1	12	10
Univ of Oregon Med School Hosps	Portland	R E Watkins	2,083	100	Yes	\$30	1	2	1/1	7/1	36	25
Kensington Hospital for Women	Philadelphia	E A Schumann and W E Parke	2,753	25	Yes	\$25	1	1	7/1	7/1	24	55
Pennsylvania Hospital	Philadelphia	N W Vaux	3,712	31	Yes	None	2	0	Any time	1/1 & 7/1	12	14
Philadelphia General Hospital	Philadelphia		5,050	95	Yes	\$100	1	0	7/1	7/1	12	7
St Francis Hospital	Pittsburgh		629	14	Yes	\$30	1	0	11/1	7/1	12	
Roper Hospital	Charleston S C	A J Buist Sr	1,322	78	Yes	\$40	1	0	1/1	7/1	12	20
Nashville General Hospital	Nashville Tenn		1,688	90	Yes	\$35	1	1	12/1	7/1	24	22
Vanderbilt University Hospital	Nashville Tenn	L E Burch	655	32	Yes	\$35	1	2	3/15	7/1	24	8
John Sealy Hospital	Galveston Tex	W R Cooke	1,199	60	Yes	None	1	0	12/1	7/15	12	3
University of Virginia Hospital	University	T J Williams	1,068	26	Yes	None	1	1	12/1	7/1	24	11
State of Wisconsin General Hospital	Madison	J W Harris		88	Yes	\$25	1	2	Any time	7/1	34	4
Milwaukee County General Hospital	Wauwatosa Wis	E H Gramling	2,466	100	Yes	\$100	1	0	5/1	7/16	12	75
OPHTHALMOLOGY												
(Also see Ophthalmology Otolaryngology)												
Los Angeles County Hospital	Los Angeles	G H Kress	640	100	Yes	\$10	1	1	6/1 & 12/1	1/1 & 7/1	24	2
Stanford University Hospitals	San Francisco	H Barkan	551	4	Yes	\$25	1	1	1/1	7/1	24	0
University of California Hospitals	San Francisco	F C Cordes	200		Yes	\$25	0	2	2/15	7/1	24	0
Episcopal Eye Ear and Throat Hosp	Washington D C	J B Griffith		25	Yes	None	1	3	Quart	3/1 7/1 11/1	16	2
Cook County Hospital	Chicago	W F Monerell		100	Yes	None	1	1	1/1 & 7/1	1/1 & 7/1	18	1
Illinois Eye and Ear Infirmary	Chicago	H S Grindle		100	Yes	None	6	4	1/1 & 11/1	1/1 & 7/1	12	
Michael Reese Hospital	Chicago	H S Grindle	647	44	Yes	None	1	0	1/1 & 7/1	1/1 & 7/1	24	
Passavant Memorial Hospital	Chicago	S R Gifford	264	10	Yes	None	1	0	1/1	7/1	12	1
Presbyterian Hospital	Chicago	W F Monerell	192	24	Yes	None	1	1	Any time	1/1 & 7/1	12	
Research and Educational Hospital	Chicago	H Beard	244	100	Yes	\$50	1	0	1/1	7/1	12	0
University of Chicago Clinics	Chicago	E V L Brown	231	17	Yes	\$25	1	1	1/1	7/1	24	0
Indianapolis City Hospital	Indianapolis	B J Larkin	195	90	Yes	\$20	1	0	4/1	7/1	12	0
Indiana University Hospitals	Indianapolis	W F Hughes	363	83	Yes	\$33	1	0	2/1	7/1	12	0
University Hospitals	Iowa City	C S O'Brien	1,173	87	Yes	\$20	2	2	1/1	7/1	48	2
Eye Ear Nose and Throat Hospital	New Orleans	W R Buffington	3,236	15	Yes	None	3	0	Any time	7/1	24	3
Johns Hopkins Hospital	Baltimore	A C Woods	1,195	49	Yes	None	1	4	6/1	9/1	60	3
Massachusetts Eye and Ear Infirmary	Boston	J H Wolfe	2,365	46	Yes	None	1	6	1/1 & 6/1	Quart	21	3
University Hospital	Ann Arbor Mich	F B Fralick	1,062	70	Yes	\$25	1	2	12/1	7/1	36	1
Henry Ford Hospital	Detroit	E L Whitney			Yes	\$110	1	1	1/1	7/1	24	
University Hospitals	Minneapolis	F E Burch	239	16	Yes	\$30	1	1	1/1	7/1	36	7
Barnes Hospital	St Louis	L T Post	442	17	Yes	\$37	1	1	12/1	7/1	36	
St Louis City Hospital	St Louis		161	100	Yes	\$100	1	0	12/1	7/1	12	
St Mary's Group of Hospitals	St Louis	W H Luedde	128	49	Yes	\$25	1	1	3/15	7/1	34	2
Brooklyn Eye and Ear Hospital	Brooklyn	P C Jameson		5	Yes	None	6	5	1/1 & 11/1	7/1 & 10/1	18	4
Kings County Hospital	Brooklyn	W Moehle	222	100	Yes	\$100	1	0	6/1	1/1	12	3
Long Island College Hospital	Brooklyn	I N Evans		20	Yes	\$22	1	1	1/1 & 7/1	1/1 & 7/1	12	
Buffalo City Hospital -	Buffalo	H M Weed	191	67	Yes		1	1	11/1	7/1		3
Bellevue Hospital	New York City	W W Weeks	661	100	Yes		1	4	Any time	1/1 & 9/1	36	0
Herman Knapp Memorial Eye Hosp	New York City	Arnold Knapp	741	14	Yes	None	1	1	1/1 & 6/1	1/1 & 6/1	18	0
Manhattan Eye Ear and Throat Hosp	New York City	D H Webster	1,389		Yes	None	1	6	Any time	1/1 & 9/1	24	3
Metropolitan Hospital	New York City	A L Chambers	111	100	Yes	None	1	0	3/1	7/1	12	1
Mount Sinai Hospital	New York City	K Schilke and I Goldstein		56	Yes	\$30	1	0	1/1	7/1		
New York Eye and Ear Infirmary	New York City	F W Shine	2,940	35	Yes	None	1	6	3/1 & 9/1	Quart	12	4
Presbyterian Hospital	New York City	J M Wheeler	1,670	30	Yes	\$125	1	5	Any time	1/1 & 7/1	36	4
Strong Memorial and Rochester Municipal Hospitals	Rochester N Y	J F Gipner	216	58	Yes	\$42	1	1	1/1	7/1	24	0
Grasslands Hospital	Valhalla N Y		77	90	Yes	\$75	1	0	4/1	7/1	24	0
Ochsman General Hospital	Ochsman		378	87	Yes	\$35	1	1	2/15	7/1	24	2
City Hospital	Cleveland	W E Bruner	160	97	Yes	\$37	1	0	1/1	7/1	12	1
University Hospitals	Cleveland	A B Bruner	391	30	Yes	\$35	1	1	1/1	7/1	24	
Univ of Oregon Med School Hosp	Portland	F A Hehle	236	100	Yes	\$30	1	0	1/1	7/1	12	1
Graduate Hosp of the Univ of Pa	Philadelphia	W T Shoemaker	316	36	Yes	None	1	0	1/1	7/1	12	1
Temple University Hospital	Philadelphia	W I Lillie	155	43	Yes	\$30	1	1	1/1	7/1	36	1
Wills Hospital	Philadelphia	F C Parker	3,603	68	Yes	None	1	6	Quart	Quart	21	0
OPHTHALMOLOGY OTOLARYNGOLOGY												
(Also see Ophthalmology and Otolaryngology)												
White Memorial Hospital	Los Angeles	W A Boyce and B Colver	44	2	Yes	\$30	2	0	3/1	7/1	24	6
San Diego County General Hospital	San Diego Calif	H J Stewart	56	100	Yes	\$75	1	0	4/1	7/1	12	
Hospital for Children	San Francisco	R C Martin	1,129	10	Yes	\$25	1	0	1/1	7/1	12	
Gallinger Municipal Hospital	Washington D C		567	100	No	\$30	1	0	1/1	7/1	12	
Grady Hospital	Atlanta Ga	A G Fort	2,015	100	Yes	\$30	2	0	1/1	7/1	12	6
Charity Hospital	New Orleans		2,544	100	Yes	\$37	1	1	7/1	7/1	24	21
Touro Infirmary	New Orleans	H N Blum and A I Well	1,612	32	Yes	\$35	1	0	1/1	7/1	12	
Baltimore Eye Ear and Throat Charity Hospital	Baltimore	H K Fleck	2,311	30	Yes	None	3	0	1/1	7/1	24	4
University Hospital	Baltimore		1,025	47	Yes	None	1	0	1/1	7/1	24	
Boston City Hospital	Boston	J J Regan and L M Friedman	5,484	94	Yes	None	2	5	Any time	Quart	21	24
City of Detroit Receiving Hospital	Detroit	I M Robb	1,161	100	Yes	\$35	1	0	3/1	7/1	12	
Grace Hospital	Detroit	C C McClelland	1,401	31	Yes	\$30	1	0	4/1	9/1	12	
Harper Hospital	Detroit	I M Robb	2,966	11	Yes	\$25	1	2	2/1	7/1	12	
Holmes Hospital (Dr Wm I Seymour Hospital)	Flores Mich	R Beattie and F L Ryerson	1,178	100	Yes	\$35	1	1	3/1	7/1	24	6

		Chief of Service	Inpatients Treated	Per Cent Free	Outpatient Service	Beginning Salary	Residents	Assistant Residents	Apply Before	Service Begins	Available Training (Months)	Dentists	Autopsies
OPHTHALMOLOGY OTOLARYNGOLOGY—(Continued)													
Minneapolis General Hospital ¹	Minneapolis		602	100	Yes	\$25	1	1	1/1&7/1	1/1&7/1	36	5	3
Ancker Hospital	St Paul	R O Leavenworth	1 421	98	Yes	\$30	1	1	3/1	7/1	24	1	1
Jersey City Hospital	Jersey City N J	M G Borrone	3 421	90	Yes	\$75	3	0	3/1&7/1	1/1&10/1	12	13	1
Newark Eye and Ear Infirmary	Newark N J	W P Eagleton	2 008	17	Yes	None	1	2	Any time	Varies	12	20	16
Queens General Hospital	Jamaica N Y	W G Frey Jr and W S Bender	1 060	100	Yes	\$10	1	1	1/1	7/1	24	16	8
N Y Polyclinic Med. School and Hosp	New York City		1 870	16	Yes	None	2	2	1/1&7/1	1/1&7/1	24	5	1
N Y Post Grad Med. School and Hosp	New York City	W Cohen and D MacPherson	2 892	30	Yes	None	1	5	12/1	5/1&11/1	36	16	4
St Luke's Hospital	New York City		2 630	48	Yes	None	1	2	Any time	3/1&9/1	18		
Duke Hospital	Durham N C	W W Eagle and W B Anderson	1 080	64	Yes	\$42	1	2	1/1	7/1	36	8	5
State University and Crippled Children's Hospitals	Oklahoma City	E S Ferguson	591	67	Yes	\$30	1	0	1/1	7/1	12	8	7
Eye and Ear Hospital	Pittsburgh	W F Carson and J H McCready	3 623	12	Yes	None	1	2	1/1	7/1	24	17	8
Memphis Eye Ear Nose and Throat Hospital	Memphis Tenn	L Levy	1 894	10	Yes	None	1	3	3/1&10/1	1/1&7/1	24	5	1
Medical College of Va. Hosp. Division	Richmond	E Hill and K S Blackwell	1 412	20	Yes	\$30	1	1	2/1	7/1	12	10	1
University of Virginia Hospital	University	F D Woodward	1 051	26	Yes	\$20	1	1	12/1	7/1	24	13	1
State of Wisconsin General Hospital	Madison	F A Davis and W M Nesbit		88	Yes	\$25	1	2	Any time	7/1	36		
Milwaukee County General Hospital	Wauwatosa Wis	S G Higgins	321	100	Yes	\$100	1	0	5/1	7/16	12		3
ORTHOPEDICS													
Children's Hospital	Los Angeles	J O Wilson	346	52	Yes	\$90	1	0	3/1	7/1	12	2	1
Los Angeles County Hospital	Los Angeles		5 161	100	Yes	\$10	1	4	6/1&12/1	1/1&7/1	24	143	140
Orthopaedic Hospital	Los Angeles	C L Lowman	1 900	57	Yes	\$30	1	4	6/1	6/1	24	4	2
San Francisco Hospital ¹	San Francisco	F C Boet	1 100	100	No		1	0	Any time	Varies	12		
Shriners Hospital	San Francisco	S L Hans	344	100	Yes	\$25	1	0	1/1	6/1	24	0	0
University of California Hospital	San Francisco	L C Abbott	237		Yes	\$30	2	0	2/15	7/1	12	5	2
Children's Hospital	Denver	H W Wilcox	504	18	No	\$30	1	0	12/1	7/1	24	3	2
New Haven Hospital	New Haven Conn	A L Bassin		43	Yes		1	1	12/15	7/1	12	11	
Cook County Hospital	Chicago	P Lewin	767	100	Yes	None	1	1	1/1&7/1	1/1&7/1	12	3	0
Research and Educational Hospital	Chicago	H B Thomas	302	100	Yes	\$30	1	1	1/1	7/1	36	5	4
University of Chicago Clinics	Chicago	E L Compere	676	17	Yes	\$20	1	3	1/1	7/1	36	7	7
Indiana University Hospitals	Indianapolis	L A Fesminger	1 047	83	Yes	\$33	2	0	2/1	7/1	12	10	5
University Hospitals	Iowa City	A Steindler	3 312	87	Yes	\$20	2	6	1/1	7/1	36	7	6
Charity Hospital	New Orleans		1 204	100	Yes	\$12	1	0	7/1	7/1	24	7	7
Shriners Hosp. for Crippled Children	Shreveport La	H A Durham	263	100	Yes	\$120	1	0	Any time	Varies	12	0	0
James Lawrence Kernan Hospital	Baltimore	A F Voshell	242	96	Yes	\$90	1	0	1/1	7/1	12	3	0
Johns Hopkins Hospital	Baltimore	G E Bennett	428	69	Yes	None	1	2	6/1	9/1	36		
Boston City Hospital	Boston	O J Hermann	1 461	64	Yes	\$33	2	0	Any time	1/1&9/1	12	12	0
Children's Hospital	Boston	F R Oher	348	2	Yes		1	0	Any time	Varies	12	1	1
Massachusetts General Hospital	Boston	M N Smith Petersen	523	45	Yes	\$42	1	0	Any time	7/1	24		
Shriners Hosp. for Crippled Children	Springfield Mass	R N Hatt	407	100	Yes	\$20	1	0	7/1	8/1	12	0	0
Henry Ford Hospital	Detroit	C L Mitchell			Yes	\$110	1	2	1/1	9/1	36	7	2
Gillette State Hospital for Crippled Children	St Paul	C O Chatterton	533	100	Yes	\$100	1	0	3/1	7/1	12	10	19
State Hospital for Crippled Children (Unit of University Hospitals)	Columbia Mo	W J Stewart	600		Yes	None	1	0	Any time	9/1	12	4	2
Shriners Hosp. for Crippled Children	St Louis	C H Crego Jr	430	100	Yes	\$130	1	0	1/1	7/1	12	2	1
Jersey City Hospital	Jersey City N J	S B Sprague and W G Doran	1 661	90	Yes	\$30	2	0	7/1&9/1	1/1&3/1	12	43	0
New Jersey Orthopaedic Hospital and Dispensary	Orange N J	H W Smith	339	29	Yes	\$30	1	1	1/1&7/1	1/1&7/1	15	2	0
Kings County Hospital	Brooklyn	J B L Episcopo	1 224	100	Yes	None	1	1	7/1	7/1	24	37	15
Long Island College Hospital	Brooklyn	J C Rushmore	404	20	Yes	\$45	1	0	1/1	7/1	12	4	1
Bellevue Hospital	New York City	A Krida	1 115	100	Yes		1	1	Any time	1/1&7/1	18		
Hospital for Joint Diseases	New York City		2 671	64	Yes	\$25	1	7	Any time	7/1	36	19	4
Metropolitan Hospital	New York City	A H Bingham	603	100	Yes	\$75	1	0	3/1	7/1	12	3	1
N Y Orthopaedic Disp. and Hospital	New York City	B P Farrell	1 837	74	Yes	\$30	8	0	Any time	Quart	24	2	1
N Y Post Grad Med. School and Hosp	New York City	C Ogilvy	720	30	Yes	\$90	1	0	1/1	7/1	12	10	0
New York Society for the Relief of the Ruptured and Crippled	New York City	P D Wilson	1 306	33	Yes	\$20	4	4	1/1&7/7	1/1&7/1	24		
Strong Memorial and Rochester Municipal Hospitals	Rochester N Y	R P Schwartz	508	58	Yes	\$42	1	1	1/1	7/1	24		11
Sea View Hospital	Staten Island N Y	M Cleveland	285	100	No	\$100	2	0	5/1&11/1	1/1&7/1	12	4	0
New York State Reconstruction Home	West Haverstraw	C Wallace	477	100	Yes	\$100	1	2	1/1&7/1	1/1&7/1	15	4	0
Duke Hospital	Durham N C	A R Shands Jr	606	64	Yes	\$42	1	1	1/1	7/1	48	9	3
Cincinnati General Hospital	Cincinnati	A H Freiberg	473	87	Yes	"	1	1	2/15	7/1	24	8	0
Mount Sinai Hospital ¹	Cleveland	W G Stern	813	23	No	\$60	1	0	12/1	7/1	12		
University Hospitals	Cleveland	M Harbin	820	30	Yes	\$30	1	0	1/1	7/1	12	8	
State University and Crippled Children's Hospitals	Oklahoma City		1 162	67	Yes	\$30	1	2	1/1	7/1	36	10	4
Shriners Hosp. for Crippled Children	Portland Ore	R B Dillehunt	246	100	Yes	\$25	1	0	3/1	7/1	12	0	0
State Hospital for Crippled Children	Elizabethtown Pa	J S Donaldson	190	100	Yes	\$100	1	1	4/1	7/1	24	2	1
Philadelphia Orthopaedic Hospital and Infirmary for Nervous Diseases	Philadelphia	D P Willard	200	37	Yes	\$40	1	0	Any time	7/1	12	1	0
Wills O. Campbell Clinic ¹	Memphis Tenn	W C Campbell	866	0	Yes	\$30	4	0	Any time	1/1&7/1	24	11	0
Texas Scottish Rite Hospital for Crippled Children	Dallas	W B Carrell	816	100	Yes	\$100	1	0	1/1	7/1	12	0	0
University of Virginia Hospital	University	R V Funsten	470	26	Yes	\$30	1	2	12/1	7/1	12	10	4
State of Wisconsin General Hospital	Madison	R E Burns	85	100	Yes	\$20	1	4	Any time	7/1	36		
Milwaukee County General Hospital	Wauwatosa Wis	C C Schneider	517	100	Yes	\$100	1	0	5/1	7/16	12	9	6
OTOLARYNGOLOGY													
(Also see Ophthalmology and Otolaryngology)													
Children's Hospital	Los Angeles	J M Brown	1 403	52	Yes	\$90	1	0	7/1	7/1	12	4	3
Los Angeles County Hospital	Los Angeles	F E Detling	3 212	100	Yes	\$10	1	2	6/1&12/1	1/1&7/1	24	20	0
San Francisco Hospital	San Francisco	R C Martin and H B Graham	1 237	100	Yes	\$70	2	0	2/1	7/1	12	10	0
Stanford University Hospitals	San Francisco	E C Sewall	1 447	4	Yes	\$25	1	2	1/1	7/1	24	6	0
University of California Hospital	San Francisco	W B Smith	719		Yes	\$20	0	1	2/15	7/1	12	11	2
New Haven Hospital	New Haven Conn	N Canfield	1 146	43	Yes	"	1	1	12/15	7/1	11	15	4
Episcopal Eye Ear and Throat Hosp	Washington D C	T C Galloway		20	Yes	None	3	0	Quart	3/1 7/1 11/1	12		
Cook County Hospital	Chicago	H S Grady		100	Yes	None	1	1	1/1&7/1	1/1&7/1	12		
Illinois Eye and Ear Infirmary	Chicago	J S Wilson		100	Yes	None	3	6	4/1&11/1	1/1&7/1	24		
Passavant Memorial Hospital	Chicago	G E Shombaugh	2 30	10	Yes	None	1	0	1/1	7/1	12	1	1
Presbyterian Hospital	Chicago		1 792	24	Yes	None	1	1	Any time	1/1&7/1	12	5	2

OTOLARYNGOLOGY (Continued) (Also see Ophthalmology Otolaryngology)		Chief of Service	Inpatients Treated	Per Cent Free	Outpatient Service	Beginning Salary	Residents	Assistant Residents	Apply Before	Service Begins	Available Training (Months)	Deaths	Autopsies
Research and Educational Hospital	Chicago	F L Lederer	936	100	Yes	\$50	1	0	1/1	7/1	12	6	3
University of Chicago Clinics	Chicago	J R Linday	913	17	Yes	None	1	2	1/1	7/1	12	7	6
Indianapolis City Hospital	Indianapolis	R S Chappell	1,330	90	Yes	\$70	1	0	4/1	7/1	12	12	8
Indiana University Hospitals	Indianapolis	O H McCauley	1,325	83	Yes	\$33	1	0	2/1	7/1	12	17	12
University Hospitals	Iowa City	D M Lierle	2,254	87	Yes	\$20	4	4	1/1	7/1	60	27	12
Eye Ear Nose and Throat Hospital	New Orleans	J R Hume	10,600	15	Yes	None	0	0	Any time	Varies	24		
Johns Hopkins Hospital	Baltimore	S J Crowe	1,115	49	Yes	None	1	2	6/1	9/1	48		
Beth Israel Hospital	Boston	L Arkin and L M Freedman	1,005	39	Yes	None	1	0	1/1	7/1	12		
Massachusetts Eye and Ear Infirmary	Boston	H P Mosher	3,405	26	Yes	None	1	6	1/1 & 6/1	Quart	21	6	15
Memorial Hospital	Worcester Mass	H J Gubby	1,296	5	Yes	\$42	1	0	4/1	7/1	12	8	6
University Hospital	Ann Arbor, Mich	A O Furstenberg	2,607	0	Yes	\$25	1	3	12/1	7/1	48	45	24
Henry Ford Hospital	Detroit	G C Kreutz			Yes	\$110	1	1	1/1	9/1	24	13	3
University Hospitals	Minneapolis	H Newhart	385	16	Yes	\$50	1	1	1/1	7/1	56	6	0
Barnes Hospital	St Louis	L W Dean Sr	1,274	17	Yes	None	1	8	12/1	7/1	56		
Jewish Hospital	St Louis	S B Westlake	882	31	Yes	\$63	1	0	12/1	7/1	12	2	1
St Louis City Hospital	St Louis		1,634	100	Yes	\$100	1	0	12/1	7/1	12		
St Mary's Group of Hospitals	St Louis	W E Sauer	922	49	Yes	\$25	1	0	3/1	7/1	34		2
Newark City Hospital	Newark N J	W P Eagleton	2,429	100	Yes	\$30	1	0	7/1	7/1	12		
Brooklyn Eye and Ear Hospital	Brooklyn	W O Bransell		5	Yes	None	8	0	4/15	6/1 8/1 10/1	16	26	10
Kings County Hospital	Brooklyn	M C Myerson	3,330	100	Yes	None	0	0	6/1 & 11/1	1/1 & 7/1	12	87	32
Long Island College Hospital	Brooklyn	R L Moorhead	1,035	20	Yes	\$12	1	1	1/1 & 7/1	1/1 & 7/1	12	1	0
Buffalo City Hospital	Buffalo	J F Farhain	442	67	Yes		1	1	11/1	7/1	6	0	0
Buffalo General Hospital	Buffalo	J F Farhain	999	10	Yes	\$25	1	1	11/1	7/1	24	8	3
Bellevue Hospital	New York City	J W Fowles	3,148	100	Yes		1	0	Any time	3/1 7/1 11/1	24		
Manhattan Eye Ear and Throat Hosp	New York City	R E Buckley and J G Dwyer	14,617		Yes	None	1	8	Any time	Quart	24	19	4
Metropolitan Hospital	New York City	L E Hetrick	1,118	100	Yes	\$100	1	0	3/1	7/1	12	4	0
Mount Sinai Hospital	New York City	I Friesner and R Kramer		56	Yes	\$50	1	1	7/1	1/1	24		
New York Eye and Ear Infirmary	New York City	T L Saunders	3,008	38	Yes	None	1	7	3/1 & 9/1	Quart	21	14	0
Strong Memorial and Rochester Municipal Hospitals	Rochester N Y	C A Heintz	1,312	58	Yes	\$42	1	1	1/1	7/1	24		
Sea View Hospital	Staten Island N Y	M C Myerson	2,186	100	Yes	\$100	2	0	1/1 & 11/1	1/1 & 7/1	12	0	0
Grasslands Hospital	Valhalla N Y	M T Smith	662	90	Yes	\$75	1	0	4/1	7/1	24	10	
Cincinnati General Hospital	Cincinnati	S Igler	1,436	87	Yes	\$5	1	1	2/15	7/1	24	17	10
City Hospital	Cleveland	W B Chamberlin	1,212	97	Yes	\$37	1	1	1/1	1/1 & 7/1	18	9	
St Luke's Hospital	Cleveland	C E Pitkin	1,780	18	Yes	\$25	1	1	12/1	7/1	24	10	5
University Hospitals	Cleveland	W B Chamberlin	2,212	50	Yes	\$35	1	2	1/1	7/1	24	12	
Univ of Oregon Med School Hosp	Portland	A A Fenton	1,363	100	Yes	\$50	1	0	1/1	7/1	12	6	3
Geo F Gelsinger Memorial Hospital	Danville Pa	F W Davison	423	23	Yes	\$50	1	0	2/1	7/1	12	2	1
Graduate Hospital of the Univ of Pa	Philadelphia		2,996	36	Yes	None	1	0	1/1	7/1	12	12	3
PATHOLOGY													
Hillman Hospital	Birmingham Ala	G S Graham	11,612	100		\$30	1	0	1/15	7/1	12	1,142	261
Children's Hospital	Los Angeles	O M Hyland	4,154	52		\$90	1	0	3/1	7/1	12	18	167
Los Angeles County Hospital	Los Angeles	A G Evans	53,906	100		\$10	1	1	6/1 & 12/1	1/1 & 7/1	24	4,648	2,557
Mount Zion Hospital	San Francisco	G Y Rusk	3,907	17		\$50	1	0	1/1	6/15	12	505	18
San Francisco Hospital	San Francisco	G Y Rusk and J L Carr	12,730	100		\$25	1	0	2/1	7/1	12	1,029	615
University of California Hospital	San Francisco	I F Rhinehart	6,762	100		\$50	1	0	2/15	7/1	12	18	114
Denver General Hospital	Denver	E T Thorsness	14,157	100		\$50	1	0	Any time	7/1	12	1,407	478
New Haven Hospital	New Haven, Conn	M O Winternitz	8,121	43			1	1	12/15	7/1	12	433	259
Gallinger Municipal Hospital	Washington D C	H H Leifer	10,637	100		\$50	1	0	1/1	7/1	12	1,638	662
Garfield Memorial Hospital	Washington D C	J W Lindsay	6,456	17		\$50	1	0	12/1	7/1	12	306	78
Children's Memorial Hospital	Chicago	W G Hibbs	4,246	56		\$50	1	0	1/1	7/1	12	171	101
Cook County Hospital	Chicago	R H Jaffé	72,850	100		None	4	0	1/1 & 7/1	1/1 & 7/1	12	6,637	1,242
Michael Reese Hospital	Chicago	O Saphir	17,052	44		None	2	0	1/1 & 7/1	1/1 & 7/1	12	636	285
Mount Sinai Hospital	Chicago	I Davidsohn	6,030	31		\$50	1	0	5/1	7/1	48	222	87
Presbyterian Hospital	Chicago	C W Apfelhaeh	11,303	21		\$50	1	2	Any time	1/1 & 7/1	36	2,9	169
Provident Hospital (col)	Chicago	J H Lewis	2,791	11		\$50	1	0	1/1	9/1	12	165	71
Research and Educational Hospital	Chicago	S A Levine	5,848	100		\$50	1	0	1/1	9/1	12	226	216
St Luke's Hospital	Chicago	E F Hirsch	11,661	6			2	0	Any time	Varies	12	238	147
University of Chicago Clinics	Chicago	H G Wells	7,640	17		\$25	1	0	1/1	7/1	12	256	180
Evanston Hospital	Evanston Ill	E L Benjamin	7,24	6		\$53	1	0	4/1	7/1	12	196	144
Indianapolis City Hospital	Indianapolis	H C Thornton	10,131	90		\$20	1	0	4/1	7/1	12	610	374
Indiana University Hospitals	Indianapolis	F Forry	9,423	83		\$33	1	0	2/1	7/1	12	319	168
Methodist Episcopal Hospital	Indianapolis	H M Banks	19,005	10		\$50	1	1	1/1	7/1	24	589	145
Ball Memorial Hospital	Muncie Ind	G M Montgomery	3,456			\$100	1	0	1/1	7/1	12	260	117
University Hospitals	Iowa City	H P Smith	18,438	87		\$5	1	1	1/1	7/1	48	518	318
University of Kansas Hospitals	Kansas City Kan	H R Wahl	5,658	50		\$61	1	0	12/1	7/1	12	258	203
Louisville City Hospital	Louisville Ky	A J Miller	10,643	90		\$14	1	1	3/1	7/1	24	0	713
Charity Hospital	New Orleans	I R D Anony	65,809	100		\$5	2	0	7/1	7/1	12	2,740	1,284
Touro Infirmary	New Orleans	J A Lanford	10,040	32		\$25	2	0	1/1	7/1	12	5	38
Baltimore City Hospitals	Baltimore	S S Blackman Jr	7,500	100		\$12	1	1	1/1	7/1	24	1	61
Johns Hopkins Hospital	Baltimore	W G MacCallum	13,401	49		\$50	3	0	6/1	9/1	12	638	652
Boston City Hospital	Boston	F Parker Jr	40,190	91		None	1	2	Any time	1/1 & 7/1	36	2,703	840
Children's Hospital	Boston	S Farber	5,300	2		\$42	1	3	Any time	Varies	12	177	68
Massachusetts General Hospital	Boston	T B Mallory	7,931	48		\$50	1	0	Any time	1/1 & 7/1	24	760	256
New England Deaconess Hospital	Boston	S Warren				\$25	2	0	1/1	7/1	12	251	156
Peter Bent Brigham Hospital	Boston	S B Wolbach	4,712	57		\$5	1	2	Any time	Varies	48	37	207
University Hospital	Ann Arbor Mich	C V Weller	22,055	79		\$50	1	0	12/1	7/1	12	790	433
City of Detroit Receiving Hospital	Detroit	O A Brines	21,917	100		\$5	1	1	7/1	7/15	24	1	91
Henry Ford Hospital	Detroit	F W Hartman	11,439			\$110	1	1		9/1	36	444	206
Eloise Hospital (Dr Wm J Seymour Hospital)	Eloise Mich	S E Gould	14,494	100		\$50	1	0	7/1	7/1	12	1,312	712
Acker Hospital	St Paul	I F Noble	10,753	95		\$50	1	0	3/1	7/1	12	916	509
St Joseph Hospital	Kansas City, Mo	R W Kerr	4,759	18		\$50	1	0	1/1	7/1	12	2	179
Barnes Hospital	St Louis	L Loeb	9,455	17		None	1	0	12/1	7/1	12	67	27
St Louis City Hospital	St Louis	S H Gray	20,505	100		\$12	1	0	12/1	7/1	12	2,007	838
University of Nebraska Hospital	Omaha	J P Tollman	3,790	95		\$50	1	0	1/1	7/1	24	162	140
Mary Hitchcock Memorial Hospital	Hanover N H	H A Kingsford	3,765	16		\$5	1	0	10/1	1/1 & 7/1	12	87	6
Newark Beth Israel Hospital	Newark N J	W A Antopol	10,181	9		\$5	1	1	Any time	10/1	24	471	341
Albany Hospital	Albany N Y	V W Wright	10,156	60		\$15	2	0	1/1	7/1	12	459	241
Bender Hygiene Laboratory	Albany N Y	I I Clemmer Jr				\$50	2	0	Any time	Varies	12	162	
Jewish Hospital	Brooklyn	M Lederer	15,337	52		\$50	1	0	12/1	7/1	12	57	195

PATHOLOGY—(Continued)		Chief of Service	Inpatients Treated	Per Cent Free	Outpatient Service	Beginning Salary	Residents	Assistant Residents	Apply Before	Service Begins	Available Trainees (Months)	Deaths	Autopsies
Kings County Hospital	Brooklyn	W W Hula	54 751	100		\$50	1	0	1/1	7/1	12	5 000	40
Long Island College Hospital	Brooklyn	J R Oliver	9 020	20		\$45	1	0	1/1	7/1	12	333	163
St John's Hospital	Brooklyn	T J Curphey	4 968	55		\$25	1	0	1/1	7/1	12	65	113
Buffalo City Hospital	Buffalo	W F Jacobs	11 130	67			1	1	11/1	7/1	12	1 010	231
Buffalo General Hospital	Buffalo	K L Terplan	10 166	10		\$25	1	0	11/1	7/1	12	637	233
Millard Fillmore Hospital	Buffalo	N W Elton	6 183	22		\$25	1	0	11/1	7/1	12	297	135
Meadowbrook Hospital	Hempstead N Y	T J Curphey	4 729	90		\$100	1	0	1/1	7/1	12	40	160
Mary Immaculate Hospital	Jamaica N Y	E F Koeh	7 078	6		None	1	0	1/1	7/1	12	333	135
Queens General Hospital	Jamaica N Y	A Angrist	12 654	100		\$15	1	0	1/1	7/1	12	815	471
Harlem Hospital	New York City	Solomon Weintraub	17 318	100		\$15	2	0	1/1&7/1	1/1&7/1	12	1 738	429
Lenox Hill Hospital	New York City	G L Rohdenburg	10 528	23		None	1	0	1/1	7/1	12	325	147
Lincoln Hospital	New York City	C R Brown	9 436	97		None	1	0	1/1	7/1	12	791	233
Metropolitan Hospital	New York City	A Sacccone	11 830	100		\$70	1	0	3/1	7/1	12	1 038	216
Montefiore Hosp for Chronic Diseases	New York City	D Marine	2 026	86		\$50	1	0	1/1	7/1	12	515	204
Morrisania City Hospital	New York City	W Aronson	13 303	100		\$15	1	0	1/1	7/1	12	1 654	233
New York City Hospital	New York City	J R Llsn	8 645	100		\$100	1	0	1/1	7/1	12	690	13
New York Hospital	New York City	E L Opie	14 584	5		None	1	0	1/1	7/1	36	563	293
N Y Post Grad Med School and Hosp	New York City	W J Macneal	9 511	30		None	1	0	1/1	7/1	12	333	99
Presbyterian Hospital	New York City	J W Jobling	18 030	30			2	0	Any time	7/1&9/1	12	518	217
St Luke's Hospital	New York City	F C Wood	8 009	48		\$100	1	2	Any time	7/1&7/1	24	315	161
Willard Parker Hospital	New York City	V B Dolgopoi	5 737	100		\$100	1	0	1/1	7/1	12	133	63
Strong Memorial and Rochester Municipal Hospitals	Rochester N Y	G H Whipple	12 721	58		\$42	1	2	1/1	7/1	12	600	430
Grasslands Hospital	Valhalla N Y	G Dalldorf	6 414	90		\$117	1	1	10/1	1/1	24	406	291
Duke Hospital	Durham N C	W D Forbus	10 750	64		\$42	1	2	1/1	7/1	48	385	216
Cincinnati General Hospital	Cincinnati	R S Austria	16 618	87			1	4	2/15	7/1	24	1 000	117
City Hospital	Cleveland	H S Reichle	14 314	97		\$65	1	1	1/1	7/1	24	1 630	679
Mount Sinai Hospital	Cleveland	B S Kane	7 553	23		\$50	1	0	12/1	7/1	12	261	61
St Luke's Hospital	Cleveland	R Dominguez	10 048	18		\$25	1	1	12/1	7/1	24	414	91
St Vincent Charity Hospital	Cleveland	D J Rehbock	5 429	35			1	0	12/1	7/1	12	380	143
University Hospitals	Cleveland	H T Karsner	17 608	30		\$35	1	1	1/1	7/1	24	512	376
Miami Valley Hospital	Dayton O	W M Simpson	9 115	28		\$75	1	0	12/1	7/1	12	54	199
State University and Crippled Children's Hospitals	Oklahoma City	H G Jeter	6 079	67		\$50	1	0	1/1	7/1	12	333	159
St Vincent's Hospital	Portland Ore	T D Robertson	10 396	15		\$25	1	0	1/1	7/1	12	410	115
Univ of Oregon Med School Hosps	Portland	F R Menne	7 569	100		\$30	3	0	1/1	7/1	12	180	43
Abington Memorial Hospital	Abington Pa	J Eiman	5 725	22		\$100	1	0	1/1	7/1	12	261	100
Graduate Hosp of the Univ of Pa	Philadelphia	E A Case	6 650	36		None	1	0	1/1	7/1	12	317	204
Hospital of the Univ of Pennsylvania	Philadelphia	E B Krumhaar	10 434	31		None	2	0	1/1	7/1	12	471	213
Pennsylvania Hospital	Philadelphia	J T Bauer	10 887	31		\$42	1	0	Any time	7/1	12	3 828	1 667
Philadelphia General Hospital	Philadelphia	J H Clark	21 175	95		\$100	2	0	7/1	7/1	12	3 828	1 667
Presbyterian Hospital	Philadelphia	K Fowler	4 771	19		\$50	1	0	3/1	7/1	36	262	130
Allegheny General Hospital	Pittsburgh	S R Haythorn	6 545	55		\$51	2	0	2/1	7/1	12	506	15
Children's Hospital	Pittsburgh	M L Menten	2 623	69		\$35	1	0	1/1	7/1	12	113	75
Mercy Hospital	Pittsburgh	H H Permar	11 466	35		\$90	2	0	12/1	7/1	12	511	113
St Francis Hospital	Pittsburgh	A J Bruecken	8 318	14		\$50	3	0	11/1	7/1	12	500	151
Western Pennsylvania Hospital	Pittsburgh	P Gross	10 090	35		None	1	0	1/1	7/1	12	493	109
Reading Hospital	Reading Pa	E D Funk	6 133	48		\$83	1	0	1/1	7/1	12	299	175
Rhode Island Hospital	Providence	B F Clarke	10 406	40		\$100	1	0	Any time	Varies	12	753	351
John Gaston Hospital	Memphis Tenn	H C Schmeisser	14 871	95		\$32	2	0	1/1	7/1	12	1 415	217
Vanderbilt University Hospital	Nashville Tenn	E W Goodpasture	4 680	32		\$35	1	1	3/15	7/1	24	294	158
Milwaukee County General Hospital	Wauwatosa Wis	J C Grill	17 940	100		\$100	1	0	5/1	7/16	12	1 60	460
PEDIATRICS													
Children's Hospital	Birmingham Ala	A A Walker	906	86	Yes	\$50	1	0	3/1	7/1	12	3	11
Hillman Hospital	Birmingham Ala	A A Walker	1 407	100	Yes	\$50	1	0	1/15	7/1	12	118	57
California Babies Hospital	Los Angeles	A J Scott	495	47	Yes		1	0	1/1	7/1	12	4	1
Children's Hospital	Los Angeles	V F Stork	1 477	52	Yes	\$40	1	8	3/1	7/1	36	150	17
Los Angeles County Hospital	Los Angeles	O Reiss	2 649	100	Yes	\$10	1	1	6/1&12/1	1/1&7/1	24	156	10
White Memorial Hospital	Los Angeles	E F Moody	156	2	Yes	\$50	1	0	3/1	7/1	24	9	5
Children's Hospital of the Last Bay	Oakland Calif	C D Sweet	2 338	2	Yes	\$25	1	1	3/1	7/1	24	3	91
Hospital for Children	San Francisco	O F Gelston	839	10	Yes	\$25	1	0	1/1	7/1	12		
San Francisco Hospital	San Francisco	W A Reilly and R P Seltz	955	100	No	\$25	2	0	2/1	7/1	12	3	11
Stanford University Hospitals	San Francisco	H K Faber	514	4	Yes	\$25	1	1	1/1	7/1	24	19	1
University of California Hospital	San Francisco	F S Smyth	532		Yes	\$25	1	1	2/15	7/1	24	41	2
Children's Hospital	Denver	F S Gengenbach	3 310	18	No	\$50	1	4	12/1	7/1	24	87	3
Denver General Hospital	Denver		990	100	No	\$50	1	0	1/1	7/1	12		
New Haven Hospital	New Haven Conn	G F Powers	298	43	Yes		1	3	12/15	7/1	6	23	
Children's Hospital	Washington D C	F Leech	600	85	Yes	\$70	1	8	1/1&7/1	1/1&7/1	24	310	15
Freedmen's Hospital (col)	Washington D C		645	86	Yes	\$52	1	0	3/1	7/1	12	3	1
Gallagher Municipal Hospital	Washington D C		1 880	100	No	\$30	2	0	1/1	7/1	12	173	23
Grady Hospital	Atlanta Ga	M H Roberts	1 240	100	Yes	\$47	1	0	1/1	7/1	12	135	21
Henrietta Igleston Hosp for Children	Atlanta Ga	M H Roberts	1 035	51	Yes	\$37	2	0	1/1&7/1	1/1&7/1	12	67	21
University Hospital	Augusta Ga	C M Burpee	898	50	Yes	\$50	1	0	11/1	7/1	12	101	21
Children's Memorial Hospital	Chicago	J Brenneemann	4 256	56	Yes	None	1	10	1/1&7/1	1/1&7/1	6	11	101
Cook County Hospital	Chicago	M L Blatt	4 735	100	Yes	None	0	0	1/1&7/1	1/1&7/1	12	45	1119
Michael Reese Hospital	Chicago	J H Hees and A Levinson	3 536	44	Yes	\$100	1	0	1/1&7/1	1/1&7/1	12		
Presbyterian Hospital	Chicago	C G Grulee	460	24	Yes	\$50	1	0	Any time	7/1	12	4	23
Provident Hospital (col)	Chicago	W H Maddux	424	11	Yes	\$50	1	0	1/1	7/1	12	13	6
Research and Educational Hospital	Chicago	J H Hess	153	100	Yes	\$50	1	0	1/1	7/1	12	10	19
University of Chicago Clinics	Chicago	F W Schlutz	843	17	Yes	\$25	1	3	1/1	7/1	12	151	9
Indiana University Hospitals	Indianapolis	M Waters	1 313	83	Yes	\$33	2	0	2/1	7/1	24	67	7
University Hospitals	Iowa City	P C Jeff	1 073	87	Yes	\$20	1	2	1/1	7/1	12	41	41
University of Kansas Hospitals	Kansas City Kan	F C Neff	713	50	Yes	\$45	1	0	12/1	7/1	12	118	31
Louisville City Hospital	Louisville Ky	P F Barbour	957	90	Yes	\$14	1	2	3/1	7/1	24		
Charity Hospital	New Orleans		100	Yes	\$12	1	0	7/1	7/1	12			
Touro Infirmary	New Orleans	L R DeBuys	404	32	Yes	\$25	1	0	1/1	7/1	24	16	
Johns Hopkins Hospital	Baltimore	E A Park	995	42	Yes	None	1	2	6/1	9/1	24		
Union Memorial Hospital	Baltimore		1 157	21	Yes	\$12	1	1	1/1	7/1	24		
Boston City Hospital	Boston	M J English	4 554	94	Yes	None	1	4	Any time	Varies	24	20	23
Boston Floating Hospital	Boston	E W Barron	1 250	100	Yes	\$10	1	2	1/1	7/1&1/10/1	24	60	3
Children's Hospital	Boston	K D Blackfan	823	2	Yes		1	2	Any time	Varies	12		
Massachusetts General Hospital	Boston	H L Higgins	337	48	Yes	\$12	1	0	Any time	10/1	12		

Numerical and other references will be found on page 707

Numerical and other references will be found on page 707

RADIOLOGY—(Continued)		Chief of Service	Inpatients Treated	Per Cent Free	Outpatient Service	Beginning Salary	Residents	Assistant Resi dent	Apply Before	Service Begins	Available Training (Months)	Deaths	Autopsies
Henry Ford Hospital	Detroit	H P Doub	11 969			\$110	1	2	1/1	0/1	36	444	6
Hurley Hospital	Flint Mich	M W Cliff	8 685	60		\$75	1	0	1/1	7/1	36	686	3/4
University Hospitals ¹	Minneapolis	L G Rigler	8 872	16		\$50	1	1	1/1	7/1	36	464	3/4
St Louis City Hospital	St Louis	L Sante	20 506	100		\$75	1	2	12/1	7/1	36	2 001	82
University of Nebraska Hospital	Omaha	H B Hunt	3 390	95		\$ 0	1	1	1/1&7/1	1/1&7/1	36	162	1/6
Newark Beth Israel Hospital	Newark N J	N J Furst	10 181	9			1	0	Any time	10/1	12	43	1/1
Wash County Hospital	Brooklyn	R A Rendle	54 761	100		\$100	1	6/1&11/1	1/1&7/1	24	5 000	9/10	940
Long Island College Hospital	Brooklyn	A L L Bell	9 070	20		\$45	1	0	1/1	7/1	12	203	1/3
Buffalo City Hospital ²	Buffalo	C R Orr	11 130	67			1	1	11/1	7/1	12	116	3/1
Queens General Hospital	Jamaica N Y	I S Startz	12 641	100		\$15	1	0	1/1	7/1	12	815	4/1
New Rochelle Hospital	New Rochelle N Y	A J S Chalko	4 701	56		\$50	1	0	12/1	1/1	18	237	1/1
Bellevue Hospital ¹⁰	New York City	L J Friedman	62 112	100			5	0	Any time	1/1&7/1	12	345	1/10
Leth Israel Hospital	New York City	I S Hirsch	10 151	44		None	3	0	Any time	1/1&7/1	12	309	1/19
Ikenov Hill Hospital	New York City	W H Stewart	10 528	23		\$50	1	0	1/1	7/1	12	325	1/1
Montefiore Hosp for Chronic Dis ¹⁰	New York City	M Lenz	2 026	86		\$50	2	0	1/1&7/1	1/1&7/1	12	515	4/10
Mount Sinai Hospital	New York City	L Jachac	14 749	56		None	1	2	1/1&7/1	1/1&7/1	18	625	0/3
New York Hospital	New York City	J R Carty	14 554	5		\$25	1	1	1/1	7/1	36	563	2/1
N Y Post Grad Med School and Hosp	New York City	W H Meyer	9 511	30		\$90	1	0	1/1	7/1	12	333	9/1
Presbyterian Hospital	New York City	R Golden	18 030	30		\$42	1	2	Any time	10/1	36	518	6/1
St Luke's Hospital	New York City	E J Ryan	8 069	48			1	0	Any time	1/1	12	310	1/1
Strong Memorial and Rochester Mu nicipal Hospitals	Rochester N Y	S L Warren	12 721	58		\$42	1	1	1/1	7/1	24	660	4/10
Sea View Hospital	Staton Island N Y	E Kraft	2 009	100		\$100	1	0	11/1	7/1	12	610	9/10
Grasslands Hospital	Valhalla N Y	W D Duckworth	6 414	90		\$117	1	0	Any time	9/1	24	466	2/1
Duke Hospital	Durham N C	R J Reeves	10 700	64		\$42	1	1	1/1	7/1	24	387	9/16
Cincinnati General Hospital	Cincinnati	H G Reinecke	16 618	87		*	1	1	2/15	7/1	24	1 007	7/1
Jewish Hospital	Cincinnati	Saml Brown	5 003	20		\$150	1	0	12/1	7/1	12	199	6/1
City Hospital	Cleveland	H Hauser	14 314	07		\$50	1	1	1/1	7/1	24	1 609	6/1
University Hospitals	Cleveland	Eugene Freedman	17 95	30		\$50	1	0	1/1	7/1	12	517	3/16
State University and Crippled Chil dren's Hospitals	Oklahoma City	J E Heatley	6 079	67		\$100	1	0	1/1	7/1	12	333	1/19
Univ of Oregon Med School Hosps	Portland	D L Palmer	7 569	100		\$30	1	0	1/1	7/1	24	180	4/1
Hospital of the Univ of Pennsylvania	Philadelphia	H K Pancoast	10 434	31		None	1	0	1/1	7/1	12	317	2/1
Pennsylvania Hospital	Philadelphia	P A Bishop	10 387	31		\$50	2	0	Any time	7/1	12	491	1/1
Philadelphia General Hospital	Philadelphia	H K Pancoast	21 175	95		\$100	1	0	7/1	7/1	12	3 789	1/67
Roper Hospital	Charleston S C	H Rudisill Jr	7 537	78		\$40	1	0	1/1	7/1	12	587	2/1
John Sealy Hospital	Galveston Tex	J B Johnson	6 033	60		None	1	0	12/1	7/15	12	985	2/1
Medical College of Va Hosp Division	Richmond	F B Mandeville	9 722	20		\$50	1	0	2/1	7/1	12	609	3/16
University of Virginia Hospital	University	V W Archer	7 761	26		None	1	1	12/1	7/1	36	404	1/1
State of Wisconsin General Hospital	Madison	E A Pohle	11 233	88		\$25	1	2	Any time	7/1	36	535	2/1
SURGERY													
Hillman Hospital	Birmingham Ala	J M Mason and D S Moore	1 632	100	Yes	\$40	2	0	1/15	7/1	12	180	4/1
Employees Hospital of the Tennessee Coal Iron and Railroad Co	Fairfield Ala	L Noland	2 094		Yes	\$100	2	0	1/1	7/1	12	40	1/1
Fresno County General Hospital	Fresno Calif	J H Pettit	2 924	92	Yes	\$92	1	1	1/1	7/1	24	49	3/1
Cedars of Lebanon Hospital	Los Angeles		1 613	19	Yes	\$75	1	0	12/1	7/1	12	30	1/1
Los Angeles County Hospital	Los Angeles		4 672	100	Yes	\$10	1	5	6/1&12/1	1/1&7/1	36	608	9/1
White Memorial Hospital	Los Angeles	G Thomason	665	2	Yes	\$80	1	0	3/1	7/1	36	0	1/1
Alameda County Hospital	Oakland Calif	L P Adams and C A Dukes	4 359	100	No	\$40	1	3	2/1	7/1	24	16	1/1
San Bernardino County Charity Hosp	San Bernardino Calif		652	100	No	\$15	1	0	4/1	7/1	12	16	1/1
San Diego County General Hospital	San Diego Calif		1 036	100	Yes	\$75	1	0	4/1	7/1	12	16	1/1
Hospital for Children	San Francisco		650	10	Yes	\$25	1	0	1/1	7/1	12	40	1/1
Mary's Help Hospital	San Francisco	I W Thorne	1 233	6	Yes	\$12	1	0	2/1	7/1	12	53	1/1
Mount Zion Hospital	San Francisco	H Brunn	1 792	17	Yes	\$50	1	0	1/1	6/1	12	53	1/1
San Francisco Hospital ¹⁷	San Francisco	H Brunn and L Elosser	2 214	100	No	\$25	0	0	2/1	7/1	12	241	4/1
Stanford University Hospitals	San Francisco	E F Holman	1 566	4	Yes	\$25	1	3	1/1	7/1	36	86	4/1
University of California Hospital	San Francisco	H C Naffziger	1 214		Yes	\$25	1	8	2/15	7/1	36	49	3/1
Santa Clara County Hospital	San Jose Calif		1 271	100	Yes	\$150	1	0	1/1	7/1	12	97	1/1
Colorado General Hospital	Denver	C F Hegner	2 000	80	Yes	\$15	1	0	12/1	7/1	12	50	1/1
Gracia Hospital	New Haven Conn	T H Russell	1 163	10	Yes	\$90	1	0	1/1	7/1	12	110	1/1
New Haven Hospital ¹⁷	New Haven Conn	S O Harvey	2 694	43	Yes	1	9	12/15	7/1	7/1	24	46	1/1
Central Disp and Lmergency Hospital	Washington D C	F J Mitchell	1 016	21	Yes	\$50	1	2	4/1	7/1	12	190	1/1
Freedmen's Hospital (col)	Washington D C	A M Curtis	761	86	Yes	\$12	1	0	3/1	7/1	12	190	1/1
Gallinger Municipal Hospital	Washington D C	C S White	2 001	100	No	\$30	4	0	1/1	7/1	24	190	1/1
Garfield Memorial Hospital	Washington D C	C S White	3 412	17	Yes	\$50	1	1	12/1	7/1	24	190	1/1
Grady Hospital	Atlanta Ga		3 535	100	Yes	\$50	2	0	1/1	7/1	12	599	1/1
University Hospital	Augusta Ga	J H Sherman	2 710	58	Yes	\$50	3	0	1/1	7/1	12	60	1/1
Augustana Hospital	Chicago	N M Percy	1 642	15	Yes	None	1	0	12/1	7/1	12	161	1/1
Parkland Memorial Hospital	Chicago	L Davis	1 204	10	Yes	None	1	2	1/1&7/1	1/1&7/1	24	47	1/1
Presbyterian Hospital	Chicago	V C David	2 112	24	Yes	\$62	1	1	Any time	1/1&7/1	24	67	1/1
Provident Hospital (col)	Chicago	C G Roberts	1 107	11	Yes	\$50	1	0	1/1	9/1	36	54	1/1
Research and Educational Hospital	Chicago	E Oldberg	940	100	Yes	\$50	1	2	5/1	7/1	12	60	1/1
St Luke's Hospital	Chicago		4 456	0	Yes	None	5	0	1/1	7/1	12	45	1/1
University of Chicago Clinics	Chicago	D B Phenister	1 873	17	Yes	\$25	1	4	1/1	7/1	12	23	1/1
Wesley Memorial Hospital	Chicago	R W McNealy	1 723	34	No	\$75	1	0	Any time	1/1	12	12	1/1
Evanston Hospital	Evanston Ill	F Christopher	1 847	6	Yes	\$83	1	0	4/1	7/1	12	161	1/1
Indianapolis City Hospital	Indianapolis		1 533	90	Yes	\$20	4	0	4/1	7/1	12	107	1/1
Indiana University Hospitals	Indianapolis	W D Gateh	1 400	83	Yes	\$33	2	0	2/1	7/1	60	101	1/1
University Hospitals	Iowa City	F R Peterson	3 067	87	Yes	\$20	8	6	1/1	7/1	36	84	1/1
University of Kansas Hospitals	Kansas City Kan	T G Orr	1 123	50	Yes	\$40	1	2	12/1	7/1	12	190	1/1
St Joseph's Hospital	Lexington Ky			3	Yes	\$40	1	0	3/1	7/1	12	190	1/1
Louisville City Hospital	Louisville Ky	C F Bird	5 152	90	Yes	\$14	1	15	3/1	7/1	45	681	1/1
Charity Hospital	New Orleans	I Cohn	16 303	100	Yes	\$17	1	5	7/1	7/1	24	220	1/1
Louisiana State Hospital	New Orleans	A M Shipley	3 108	32	Yes	\$25	1	0	1/1	7/1	12	161	1/1
Baltimore City Hospitals	Baltimore	E Novak	2 202	100	No	\$12	1	4	1/1	7/1	12	161	1/1
Bon Secours Hospital	Baltimore		2 143	25	Yes	\$50	2	0	12/1	7/1	12	161	1/1
Church Home and Infirmary	Baltimore		1 840	30	Yes	\$70	1	2	12/1	7/1	12	161	1/1
Johns Hopkins Hospital	Baltimore	D D Lewis	3 043	49	Yes	None	1	5	6/1	9/1	24	133	1/1
Maryland General Hospital	Baltimore	R P Day	2 723	44	Yes	\$25	1	1	11/1	7/1	24	160	1/1
Mersey Hospital	Baltimore	W D Wise	3 696	51	Yes	\$50	1	4	1/1	7/1	24	160	1/1
Provident Hosp and Free Disp (col)	Baltimore		1 077	79	Yes	\$25	1	2	5/1	10/1	24	160	1/1
St Agnes Hospital	Baltimore		633	33	Yes		1	2	11/1	7/1	24	160	1/1
St Josephs Hospital	Baltimore		1 309	42	Yes	None	2	2	12/1	7/1	45	160	1/1
Sinal Hospital	Baltimore	A Ullman	1 196	38	Yes	\$47	1	4	1/1	7/1	45	160	1/1

SURGERY—(Continued)			Chief of Service	Inpatients Treated	Per Cent Free	Outpatient Service	Beginning Salary	Residents	Assistant Resi- (dents)	Apply Before	Service Begins	Available Training (Months)	Deaths	Autopsies
South Baltimore General Hospital	Baltimore		C W Maxson	1 220	44	Yes	\$20	1	2	12/15	7/1	12	52	20
Union Memorial Hospital	Baltimore			4 443	21	Yes	\$12	1	5	1/1	7/1	24	36	70
University Hospital	Baltimore		A M Mhpley	2 338	47	Yes	None	1	2	12/1	7/1	24	206	11
West Baltimore General Hospital	Baltimore		B M Bernhelm	799	33	No	\$20	1	2	1/1	7/1	24	44	31
Beth Israel Hospital	Boston		C G Mlxter	2 279	39	Yes	\$40	1	1	7/1	1/1	24	91	8
Boston City Hospital	Boston			11 070	94	Yes	*	6	0	Any time	Varies	12	881	8
Childre's Hospital	Boston		W E Ladd	1 824	2	Yes	\$36	1	1	Any time	Varies	12	50	47
Massachusetts General Hospital	Boston		A W Allen and E D Churchill	4 298	48	Yes	\$42	1	4	Any time	1/1 & 7/1	24		
Massachusetts Memorial Hospitals	Boston		H M Clute	3 824	27	Yes	\$91	1	1	1/1	7/1	24	71	
Peter Bent Brigham Hospital	Boston		E C Cutler	2 566	57	Yes	\$42	1	4	Any time	Varies	60		
Cambridge Hospital	Cambridge Mass				21	Yes	\$62	1	0	1/1	7/1	12		
Truesdale Hospital	Fall River Ma s		P E Truesdale	1 030	20	Yes	None	2	0	1/1	7/1	12	94	9
Memorial Hospital	Worcester Mass		W C Seelye and B H Alton	2 181	9	Yes	\$100	1	0	4/1	9/1	24	52	90
University Hospital	Ann Arbor Mich		F A Collier	3 482	79	Yes	\$2	12	0	12/1	7/1	48	189	6
Alexander Blain Hospital	Detroit		A W Blain	889	2	Yes	\$75	3	0	1/1	7/1	12		
City of Detroit Receiving Hospital	Detroit		H K Shawan and C F Vale	4 718	100	Yes	\$2	1	5	3/1	7/1	36		
Grace Hospital	Detroit		R J Palmer	3 785	31	Yes	\$0	1	1	4/1	9/1	24	213	37
Harper Hospital	Detroit		O D Brooks	8 921	11	Yes	\$2	1	6	2/1	7/1	36		
Henry Ford Hospital	Detroit		R D McClure		Yes	\$110	1	20	1/1	9/1	60	9	88	
Providence Hospital	Detroit			5 400	12	No	\$100	1	0	12/1	7/1	12	131	
Elmhurst Hospital (Dr Wm J Seymour Hospital)	Flores Mich				100	Yes	\$37	1	3	3/1	7/1	48	128	50
Hurley Hospital	Flint Mich		R S Morrish		60	No	\$100	1	0	1/1	7/1	12		
Minneapolis General Hospital	Minneapolis		A A Zierold	1 200	100	Yes	\$25	1	6	1/1 & 7/1	1/1 & 7/1	42	7	27
University Hospitals	Minneapolis		O H Waagensteen	1 319	16	Yes	\$0	1	3	1/1	7/1	36	9	70
Ancker Hospital	St Paul		A R Colvin	2 360	98	Yes	\$0	1	1	3/1	7/1	24	116	83
St Louis County Hospital	Clayton Mo		C F Sherwin	800	98	Yes	\$100	1	0	3/1	7/1	12	64	38
St Mary's Hospital	Kansas City Mo			1 149	16	No	\$50	1	0	1/1	7/1	12	0	38
Barnes Hospital	St Louis		E A Graham	3 264	17	Yes	\$2	1	7	12/1	7/1	36	20	1
Jewish Hospital	St Louis		M W Myer	1 108	31	No	\$42	1	1	12/1	7/1	24	55	32
St Louis City Hospital	St Louis			2 800	100	Yes	\$10	3	7	12/1	7/1	36		
St Louis City Hospital No 2 (co)	St Louis		J W Stewart	2 601	100	Yes	\$100	1	4	7/1	7/1	24	111	
St Luke's Hospital	St Louis		E V M MacIn	872	14	Yes	\$0	1	1	12/1	7/1	24	7	27
St Mary's Group of Hospitals	St Louis		W T Coughlin	2 278	49	Yes	\$2	1	6	3/1	7/1	34	118	43
Cooper Hospital	Camden N J		P M Mcrany	1 679	48	No	\$100	1	0		12/1	36	128	
Jersey City Hospital	Jersey City N J		F Burl	4 302	90	Yes	\$100	1	1	3/1	10/1	24	206	34
Burlington County Hospital	Mount Holly N J		W E Lee and T J Summey	902	33	Yes	\$50	1	0	2/1	7/1	12	45	21
Albany Hospital	Albany N Y		J L Donhauser	2 784	60	Yes	\$1	1	4	12/15	7/1	48	98	73
Cunaberland Hospital	Brooklyn		M N Foote	3 684	100	Yes	\$0	1	1	7/1	7/1	24	100	32
Kloos County Hospital	Brooklyn		E H Fliske	13 768	100	Yes	\$100	6	0	6/1 & 11/1	1/1 & 7/1	12	67	107
Long Island College Hospital	Brooklyn		E Goetsch	2 600	100	Yes	\$22	3	1	1/1	7/1	24	81	15
Norwegian Lutheran Deaconesses Home and Hospital	Brooklyn			1 676	12	Yes	None	1	0	1/1	7/1	12		
Buffalo City Hospital	Buffalo		M Clifton	1 711	67	Yes		1	1	11/1	7/1	24	123	28
Buffalo General Hospital	Buffalo			3 640	10	Yes	\$2	1	4	11/1	7/1	24	171	73
Millard Fillmore Hospital	Buffalo		G R Critchlow	1 668	22	Yes	\$7	1	1	11/1	7/1	24	01	47
Clifton Springs Sanitarium and Clinic	Clifton Springs N Y		A S Taylor	569	10	No	\$2	1	0	1/1	7/1	36	23	12
Queens General Hospital	Jamaica N Y		F N Dealy	2 220	100	Yes	\$1	1	1	1/1	7/1	24	102	72
Charles S Wilson Memorial Hospital	Johanna City N Y		C Whittemore	1 887	1	Yes	\$75	1	0	12/1	7/1	36	3	20
Bellerose Hospital	New York City			10 108	100	Yes	\$83	2	6	Any time	1/1 & 7/1	90		
Flower Fifth Avenue Hospital	New York City		C A Burrett	2 877	44	Yes	\$0	1	1	12/1	7/1	24	129	23
Metropolitan Hospital	New York City		J H Fohes	1 781	100	Yes	\$100	2	0	3/1	7/1	12	100	14
Montefiore Hosp for Chronic Diseases	New York City		A A Berg	430	86	Yes	\$0	1	2	1/1 & 7/1	1/1 & 7/1	12	196	139
Mount Sinai Hospital	New York City				0	Yes	\$12	0	0	1/1 & 7/1	1/1 & 7/1	12		
New York Hospital	New York City		G I Heuer	8 017	7	Yes	None	2	13	1/1	7/1	72	146	82
N Y Polyclinic Med School and Hosp	New York City			2 996	16	Yes	None	8	0	1/1 & 3/1	Quart	24	8	11
N Y Post Grad Med School and Hosp	New York City		T H Russell	3 680	30	Yes	\$70	2	4	1/1 & 7/1	1/1 & 7/1	24	10	33
New York Society for the Relief of the Ruptured and Crippled	New York City													
Presbyterian Hospital	New York City		C G Burdick	1 966	33	Yes	\$20	3	0	Any time	Varies	12	4	18
Genesee Hospital	Rochester N Y		A O Whipple	2 209	70	Yes	\$3	4	12	Any time	1/1 & 7/1	36	14	1
Rochester General Hospital	Rochester N Y		C Sumner	900	50	Yes	\$50	1	0	12/1	7/1	12	93	18
St ONG Memorial and Rochester Municipal Hospitals	Rochester N Y		H L Prince	3 613	60	Yes	\$0	1	0	4/1	7/1	12	120	81
Hospital of the Good Shepherd	Rochester N Y		J J Morton	5 016	58	Yes	\$42	1	0	1/1	7/1	48	191	176
Grasslands Hospital	Valhalla N Y		A G Swift	3 721	2	No	\$40	1	1	12/1	7/1	24		
Duke Hospital	Durham N C		G C Adie	1 591	90	Yes	\$12	1	2	4/1 & 10/1	1/1 & 7/1	36	71	2
Watts Hospital	Durham N C		J D Hart	1 762	64	Yes	\$42	1	5	1/1	7/1	48	192	7
City Memorial Hospital	Winston Salem N C		F Roberson	2 477	23	Yes	\$50	1	0	1/1	7/1	12	49	
City Hospital	Akron O		A de T Valk	1 228	42	Yes	\$0	2	0	1/1	7/1	12	6	90
St Thomas Hospital	Akron O			4 480	40	Yes	\$5	1	3	1/1	7/1	24	18	6
Mercy Hospital	Cantoo O			1 030	36	No	\$40	1	0	12/1	7/1	12	40	22
Cincinnati General Hospital	Cincinnati		H M Schuffell	3 293	17	No	\$100	1	0	12/1	7/1	1	81	19
Deaconess Hospital	Cincinnati		M R Reid	2 608	87	Yes	*	2	13	2/1	9/1	2	24	124
Good Samaritan Hospital	Cincinnati			1 689	5	Yes	\$70	1	0	12/1	7/1	12	7	0
Jewish Hospital	Cincinnati			4 829	0	No	\$2	1	2	1/1	7/1	36	196	23
City Hospital	Cleveland		I L Ransohoff	1 680	20	Yes	\$47	2	0	12/1	7/1	12	7	10
Mount Sinai Hospital	Cleveland		C H Lenhart	2 918	97	Yes	\$7	1	12	1/1	1/1 & 7/1	6	19	
St Alexis Hospital	Cleveland		M E Blahd	2 183	23	No	\$7	2	0	12/1	7/1	12	73	21
St John's Hospital	Cleveland			3 310	20	No	\$70	1	2	12/1	7/1	24	10	17
St Luke's Hospital	Cleveland		G P O Malley	2 190	18	No	\$2	1	1	12/1	7/1	24	40	8
St Vincent Charity Hospital	Cleveland		C A Powers	2 247	18	Yes	\$2	1	3	12/1	7/1	48	86	70
University Hospitals	Cleveland		E P Veary	2 602	20	Yes		1	0	12/1	7/1	72	188	40
Starling Loving University Hospital	Columbus O		C H Lenhart	4 200	70	Yes	\$35	4	4	1/1	7/1	2	189	113
Miami Valley Hospital	Davton O		V A Dodd	20 000	50	Yes	\$20	1	0	12/1	7/1	24		
Huron Road Hospital	East Cleveland O			4 734	20	No	\$7	1	0	12/1	7/1	12		
St Elizabeth's Hospital	Youngstown O		B B Kimmel	1 890	13	Yes	\$0	1	0	1/1	7/1	12		29
St Anthony Hospital	Oklahoma City		F W McNamara	2 648	20	No	\$0	1	0	12/1	7/1	12	174	17
State University and Crippled Children's Hospitals	Oklahoma City			4 722	10	No	\$4	2	0	12/1	7/1	12	112	30
Univ of Oregon Med School Hosp	Oklahoma City		R M Howard	2 070	67	Yes	\$0	1	0	1/1	7/1	12	17	79
	Portland		T M Joyce	1 400	100	Yes	\$20	1	1	1/1	7/1	24	0	70

SURGERY—(Continued)			Chief of Service	Inpatients Treated	Per Cent Free	Outpatient Service	Beginning Salary	Residents	Assistant Residents	Apply Before	Service Begins	Available Training (Months)	Deaths	Autopsies
Abington Memorial Hospital	Abington Pa	D B Pfeiffer and W M Sylvius	1 438	22	Yes	None	1	0	1/1	7/1	12	92	23	
St Luke's Hospital	Bethlehem Pa	W L Estes Jr	2,504	35	No	\$50	1	0	Any time	7/1	12	77	31	
Geo I Gelsinger Memorial Hospital	Danville Pa	H L Foss	1,335	23	Yes	\$50	1	0	2/1	7/1	12	94	40	
Germantown Dispensary and Hospital	Philadelphia	W E Lee and W B Swartley	1 600	17	Yes	\$130	1	0	1/1	7/1	12	80	26	
Graduate Hospital of the Univ of Pa	Philadelphia	W E Lee	1 222	36	Yes	None	2	0	1/1	7/1	12	111	37	
Jewish Hospital	Philadelphia	C F Mitchell and W E Lee	2 265	32	No	None	1	0	3/1	6/15	12	134	68	
Pennsylvania Hospital	Philadelphia	O C Gaub	1 961	31	Yes	\$42	2	0	Any time	1/1	12	97	51	
Philadelphia General Hospital	Philadelphia	D O C Gaub	2 787	95	Yes	\$100	1	0	7/1	7/1	12	103	18	
Allegheny General Hospital	Pittsburgh		1 552	55	No	\$81	1	0	2/1	7/1	12	117	60	
St Francis Hospital	Pittsburgh		2 077	14	Yes	\$50	1	0	11/1	7/1	12	77	30	
Reading Hospital	Reading Pa		1 057	48	Yes	\$83	1	0	1/1	7/1	12	117	60	
Robert Packer Hospital	Sayre Pa	D Guthrie	4 067	52	No	\$75	1	1	4/1	7/1	24	77	30	
Roper Hospital	Charleston S C	R S Cathcart	1 380	78	Yes	\$40	1	2	1/1	7/1	36	81	19	
Baroness Erlanger Hospital	Chattanooga Tenn		2 331	60	Yes	\$50	1	0	3/1	7/1	12	117	60	
John Gaston Hospital	Memphis Tenn	J L McGeehee	2 268	95	Yes	\$32	2	0	1/1	7/1	12	231	91	
Nashville General Hospital	Nashville Tenn		1 559	90	Yes	\$35	1	1	12/1	7/1	24	116	70	
Vanderbilt University Hospital	Nashville Tenn	B Brooks	2 049	32	Yes	\$35	1	4	3/15	7/1	24	101	54	
Baylor University Hospital	Dallas Tex	C W Flynn	2 760	20	Yes	\$65	1	1	4/1	7/1	24	75	19	
John Sealy Hospital	Galveston Tex	A O Singleton	1 886	60	Yes	None	1	0	12/1	7/15	12	91	46	
Norfolk General Hospital	Norfolk Va	C C Smith Jr	2 322	30	Yes	\$50	1	0	1/1	7/1	12	117	60	
Medical College of Va Hosp Division	Richmond	J A Bigger	3 132	20	Yes	\$50	2	5	2/1	7/1	24	290	63	
University of Virginia Hospital	University	E P Lehman	1 502	26	Yes	None	1	5	12/1	7/1	48	107	46	
Charleston General Hospital	Charleston W Va	J E Cannaday	3 554	10	Yes	\$50	1	1	10/1	7/1	24	117	60	
State of Wisconsin General Hospital	Madison	F R Schmidt		83	Yes	\$25	1	9	Any time	7/1	36	117	60	
St Joseph's Hospital	Milwaukee	F A Stratton	4 569		Yes	\$40	1	0	1/1	7/1	12	117	60	
Milwaukee County General Hospital	Wauwatosa, Wis	F B McMahon	5 253	100	Yes	\$100	1	2	5/1	7/16	24	74	36	
THORACIC SURGERY														
San Francisco Hospital	San Francisco		100			\$50	1	0	2/1	7/1	12			
Norwich State Tuberculosis Sanatorium (Uncas on Thames)	Norwich Conn	R G Urquhart	350			\$148	3	0	Any time	7/1	24	4	1	
Sea View Hospital	Staten Island N Y	P N Coryllos	438	100		\$100	3	0	5/1 & 11/1	1/1 & 7/1	12	63	30	
City Hospital	Cleveland	S O Freedlander	200	97		\$75	1	0	1/1	7/1	12			
TUBERCULOSIS														
Arroyo Sanatorium	I Livermore Calif	H C Bush	220	100	Yes	\$85	1	0	1/15	7/1	24	10	5	
Barlow Sanatorium	Los Angeles	H W Bosworth	165	10	Yes	\$100	1	0	Any time	Varies	12	0	5	
Los Angeles County Hospital	Los Angeles		1 132	100	Yes	\$175	2	0	6/1 & 12/1	1/1 & 7/1	36	30	110	
Pottenger Sanatorium and Clinic	Monrovia Calif	F M Pottenger	683	5	Yes	\$50	1	0	Any time	Varies	12	94	11	
Olive View Sanatorium	Olive View Calif	E S Bennett	1 618	83		\$75	6	0	Any time	Varies	12	80	30	
San Francisco Hospital	San Francisco	E Rosecrantz	787	100	Yes	\$25	1	1	2/1	7/1	24	901		
Santa Clara County Hospital	San Jose Calif	C L Janne	168	100	Yes	\$150	2	0	1/1	7/1	12	48		
Fairmont Hospital of Alameda County	San Leandro Calif	H G Trumble	593	100	No	\$100	1	0	12/1	7/1	12	110	66	
Union Printers Home and Tuberculosis Sanatorium	Colorado Springs	C O Giese	110	100	No		1	0	Any time	Varies	36	59	9	
Denver General Hospital	Denver	W N Beggs	180	10	Yes	\$50	3	0	Any time	1/1 & 7/1	12	46		
National Jewish Hospital	Denver	C J Kaufman	412	100	Yes	\$100	4	0	Any time	Varies	12	22	19	
Sanatorium of the Jewish Consumptives Relief Society	Spivak Colo	A B Raff	378	100	Yes	\$100	5	0	Any time	Varies	36	23	6	
Undercliff Meriden State Tuberculosis Sanatorium	Meriden Conn	C B Gibson	170	85	Yes	\$100	3	0	Any time	7/1	12	13	3	
Norwich State Tuberculosis Sanatorium (Uncas on Thames)	Norwich Conn	H B Campbell	1 359		Yes	\$148	1	0	Any time	Varies	36	75	73	
City of Chicago Municipal Tuberculosis Sanatorium	Chicago	R J Hennrichsen	1 728	100	No		1	0	Any time	Varies	36	333	19	
Macon County Tuberculosis Sanatorium	Decatur Ill	D O A Lindberg	149	75	Yes	\$100	1	0	1/1	7/1	12	1	6	
Peoria Municipal Tuberculosis Sanatorium	Peoria Ill	M Pollak	269	100	Yes	\$125	1	0	Any time	Varies	12	14	9	
Rockford Municipal Tuberculosis Sanatorium	Rockford Ill	W I Bryan	122	100	No	\$100	1	0	6/1	7/1	12	15	4	
Boehno Tuberculosis Hospital	Evansville Ind	P D Grilman	69	32	Yes	\$50	2	0	Any time	Varies	36	32	37	
Indiana State Sanatorium	Rockville Ind	J V Pace	373	100	Yes	\$50	1	0	Any time	Varies	36	9	0	
Western Maine Sanatorium	Greenwood Mountain	L Adams	325		Yes	\$35	1	0	Any time	Varies	24	12	16	
Baltimore City Hospitals	Baltimore	H M Stein	447	100	No	\$16	1	1	1/1	7/1	24	12	16	
Sanatorium Division of Boston City Hospital	Boston	J A Foley	581	100	No	\$100	1	0	Any time	Varies	12	100	31	
North Reading State Sanatorium	North Wilmington	C C MacCorison	457		Yes	None	1	0	Any time	Varies	12	16	1	
Rutland State Sanatorium	Rutland Mass	F B Emerson	369		Yes	\$75	1	0	Any time	Varies	12	61	19	
Plymouth County Hospital	South Hanson Mass	B H Pelree	204		Yes	\$100	1	0	Any time	Varies	12	37	23	
Middlesex County Sanatorium	Waltham Mass	S H Remick	479		Yes	\$150	1	0	Any time	Varies	12	50	18	
Belmont Hospital	Worcester Mass	M S Holmes	248	100	Yes	\$133	1	1	Any time	Varies	24	45	23	
University Hospital	Ann Arbor Mich	J B Barnwell		79	Yes	\$25	2	0	12/1	7/1	12			
American Legion Hospital	Battle Creek Mich	W L Howard	350	100	No	\$75	2	0	Any time	Varies	12	40		
Herman Kiefer Hospital	Detroit	B U Estabrook	2 260	97	No	\$50	10	0	1/1	7/1	12	23	1	
Michigan State Sanatorium	Howell Mich	G L Leslie	709	100	Yes	\$125	2	0	Any time	Varies	36	26	13	
Morgan Heights Sanatorium	Marquette Mich	R F Berry	155	88	Yes	\$125	1	0	1/1	7/1	12	18	3	
Wm H Maybury Sanatorium	Northville Mich	H S Willis	1 374	100	No	\$150	5	0	Any time	Varies	36	77	41	
Oakland County Tuberculosis Sanatorium	Pontiac Mich	G A Sherman	464	92	Yes	\$150	2	0	3/1	7/1	12	46	17	
Opening Sanatorium	Naperville Minn	A T Laird	411	95	Yes	\$100	1	0	1/1	7/1	12	115	10	
Glen Lake Sanatorium	Oak Terrace Minn	I S Maricette	1 182	87	No	\$10	1	0	3/1	7/1	12	143	3	
City 1olation Hospital	St Louis	H J Ulrich	148	95	No	\$10	1	0	4/1	7/1	12	40	23	
Mount St Rose Sanatorium	St Louis	L C Borsiniere	323	33	No	\$125	1	0	3/1	7/1	12	94	46	
Robert Koch Hospital	St Louis	C D Kettellamp	766	100	No	\$150	5	0	3/1	7/1	12	94	46	
New Jersey State Sanatorium	Glen Gardner	S B English	465	85	Yes	\$50	4	0	Any time	Varies	36	5	21	
Jersey City Hospital	Jersey City N J	B S Pollak	492	80	Yes	\$50	2	0	3/1	1/1	12	16	21	
Hudson County Tuberculosis Hospital and Sanatorium	Secaucus N J	B S Pollak	861	100	Yes	\$100	5	0	Any time	Varies	36	83	1	
U S Marine Hospital	Ft Stanton N M	R E Porter	350	100	Yes	\$203	2	0	Any time	Varies	36	12	10	
Albany Hospital	Albany N Y	R J Erlekson	201	60	Yes	\$50	2	0	12/15	7/1	12	49	0	
Montefiore Hosp Country Sanatorium	Bedford Hills N Y	A Shamskln	517	97	No	\$100	3	0	1/1 & 7/1	1/1 & 7/1	12	11	0	
Kings County Hospital	Brooklyn	C E Hamilton	1 322	100	Yes	\$100	1	2	6/1 & 11/1	1/1 & 7/1	12	16	1	
Buffalo City Hospital	Buffalo	J H Donnelly	774	67	Yes		1	1	11/1	7/1	12	13	3	
Loomis Sanatorium	Loomis N Y	B T McMahon	162	5	No	\$125	1	0	Any time	Varies	12			

Numerical and other references will be found on page 707

TUBERCULOSIS—(Continued)

TUBERCULOSIS—(Continued)			Chief of Service		In	Per	Out	De	Re	As	Ap	Se	Av	De	Av
													(M)		
Metropolitan Life Insurance Co Sanat	Mt McGregor N Y	W H Ordway	195	100	No	\$100	12	0	Any time	Varies	12	2	1		
Bellevue Hospital	New York City	J A Miller	2 369	100	Yes	\$60	1	6	Any time	1/1 & 7/1	24				
Lenox Hill Hospital	New York City	G Thorburn	162	23	Yes	\$60	1	0	1/1	7/1	12	14	3		
Metropolitan Hospital	New York City	G G Ornstein	734	100	Yes	\$100	6	0	3/1	7/1	12	310	26		
Montefiore Hosp for Chronic Diseases	New York City	H Wessler	596	86	Yes	\$60	3	0	1/1 & 7/1	1/1 & 7/1	12	106	70		
Municipal Sanatorium	Otisville N Y	A Kane	963	98	No	\$120	7	0	1/1 & 7/1	1/1 & 7/1	12	3	0		
Iola Monroe County Tuberculosis Sanatorium	Rochester N Y	E R Bridge	562	96	Yes	\$100	1	2	1/1	7/1	24	79	38		
Sea View Hospital	Staten Island N Y	G G Ornstein	3 025	100	No	\$100	18	0	5/1 & 11/1	1/1 & 7/1	12	464	210		
Trudeau Sanatorium	Trudeau N Y	F H C Heise	460	1	No	None	2	0	Any time	Varies	12	2	0		
Grasslands Hospital	Valhalla N Y	J M Nicklas	694	90	Yes	\$117	4	0	Any time	Varies	24	53	33		
Hamilton County Tuberculosis Sanat	Cincinnati	H K Dunham	1 246	94	Yes	\$160	3	0	7/1	7/1	12	173	76		
City Hospital	Cleveland	J C Placak	947	97	Yes	\$65	2	0	1/1	7/1	12	196			
Ohio State Sanatorium	Mt Vernon	F C Anderson	628		No	\$141	1	0	Any time	Varies	12	0	0		
Sunny Acres Cleveland Tuberculosis Sanatorium	Warrensville O	R H Browning	889	100	Yes	\$125	4	0	2/1	7/1	12	19	17		
Fagleville Sanat for Consumptives	Englewood Pa	A J Cohen	340	50	No	\$125	2	0	Any time	Varies	12	15	5		
Philadelphia General Hospital	Philadelphia		1 960	95	Yes	\$100	1	0	7/1	7/1	12				
White Haven Sanatorium	White Haven Pa	F A Crnig	615	6	No	\$60	4	0	Any time	Varies	36	72	34		
State Sanatorium	Wallum Lake R I		723	66	Yes	\$100	4	0	Any time	Varies	12	84	42		
Ilwa Breese Sanatorium	Chattanooga Tenn	J L Hamilton	441	90	Yes	\$125	1	0	1/1	1/1	12	60	11		
Davidson County Tuberculosis Hosp	Nashville Tenn	R R Crowe	546	50	Yes	\$100	1	0	4/1	7/1	12	53	11		
Hopemount Sanatorium	Hopemont W Va	A V Cadden	663		Yes	\$165	4	0	Any time	Varies	36	51	19		
Wisconsin State Sanatorium	Staten Island	H M Coon	192	98	No	\$155	3	0	Any time	Varies	36	24	9		

UROLOGY

Hillman Hospital	Birmingham Ala	W F Scott	506	100	Yes	\$40	1	0	1/15	7/1	12	38	11	
Los Angeles County Hospital	Los Angeles		2 544	100	Yes	\$10	1	3	6/1&12/1	1/1&7/1	36	160	81	
San Francisco Hospital	San Francisco	C M Johnson	595	100	No		1		2/15	7/1	12	32		
Stanford University Hospitals	San Francisco	J R Dillon	562	4	Yes	\$25	1	0	1/1	7/1	12	20	11	
University of California Hospital	San Francisco	F Hlaman	527		Yes	\$60	1	0	2/15	7/1	12	12	7	
New Haven Hospital	New Haven Conn	C L Dering		43	Yes		1	1	12/15	7/1	12	24	10	
Gallinger Municipal Hospital	Washington D C	T O Thompson	267	100	No	\$90	1	0	1/1	7/1	12	26	13	
Grady Hospital	Atlanta Ga		561	100	Yes	\$49	2	0	1/1	7/1	12	46	7	
University of Chicago Clinics	Chicago	C B Hugglas		17	Yes	\$25	1	0	1/1	7/1	12	9	6	
Indianapolis City Hospital	Indianapolis		397	90	Yes	\$20	1	0	4/1	7/1	12	37	16	
University Hospitals	Iowa City	N G Aleock	1 341	67	Yes	*	1	2	1/1	7/1	12	116	6	
Charity Hospital	New Orleans		3 820	100	Yes	\$12	1	1	7/1	7/1	24	148	50	
Touro Infirmary	New Orleans			32	Yes	\$25	1	0	1/1	7/1	12			
Johas Hopkins Hospital	Baltimore	H H Young	693	49	Yes		1	2	6/1	9/1	12	38		
Beth Israel Hospital	Boston	H H Crabtree	310	39	Yes	\$80	1	0	1/1	7/1	24			
Boston City Hospital	Boston	H H Howard and A Riley		480	94	Yes	*	1	0	Any time	1/1	41	7	
Massachusetts General Hospital	Boston	J D Barney		326	48	Yes	\$42	1	2	Any time	12/1	24		
University Hospital	Ann Arbor Mich	R M Nesbit	1 118	79	Yes	\$100	1	2	12/1	7/1	36	64	37	
Battle Creek Sanatorium	Battle Creek Mich	W F Martin	1 967	0	No	\$125	1	0	4/1	7/1	12	0	1	
City of Detroit Receiving Hospital	Detroit	W E Keane and F G Martin		1 199	100	Yes	\$83	1	1	3/1	7/15	24		
Henry Ford Hospital	Detroit	J K Ormond			Yes	\$110	1	1	1/1	9/1	36	7	4	
Flores Hospital (Dr Wm J Seymour Hospital)	Flores Mich	W L Sherman	3 773	100	Yes	\$37	1	1	3/1	7/1	24	41	10	
Acker Hospital	St Paul	F E B Foley	506	88	Yes	\$60	1	0	3/1	7/1	12	44	30	
St Louis City Hospital	St Louis		719	100	Yes	\$100	1	0	12/1	7/1	12			
Bayanone Hospital and Dispensary	Bayonne N J	S R Woodruff	2 14	75	Yes	None	1	0	1/1&7/1	1/1&7/1	12	0	3	
Jersey City Hospital	Jersey City N J	E J Daly	1 112	90	Yes	\$75	1	0	1/1	7/1	12	63	3	
Newark City Hospital	Newark N J	C R O Crowley	770	100	Yes	\$20	1	0	7/1	7/1	18			
Kings County Hospital	Brooklyn	C S Cochrane	1 015	90	Yes	None	1	6	1/1&11/1	1/1&7/1	12	199	23	
Long Island College Hospital	Brooklyn	F J Sengser Jr	312	20	Yes	\$22	1	1	1/1	7/1	24	17	1	
Buffalo City Hospital	Buffalo	F M Wanger	378	67	Yes		1	1	11/1	7/1	12	3	12	
Buffalo General Hospital	Buffalo	F T Parmenter	509	10	Yes	\$25	1	0	11/1	7/1	12	34	13	
Queen's General Hospital	Jamaica N Y	F G Riley and R Boenke		570	100	Yes	\$15	1	1	1/1	7/1	47	26	
Bellevue Hospital	New York City	A R Stevens	1 484	100	Yes		1	2	Any time	1/1&7/1	24			
Morrisania City Hospital	New York City	T M Townsend	736	100	Yes	\$15	1	2	1/1&7/1	1/1&7/1	18	33	12	
New York Hospital	New York City	F J Keyes	702	5	Yes	None	1	3	1/1	7/1	10			
N Y Post Grad Med School and Hosp	New York City	J F McCarthy	369	20	Yes	None	1	0	3/1	10/1	36	21	4	
Presbyterian Hospital	New York City	J B Squier	1 948	30	Yes	\$12	1	4	Any time	7/1	36	62	16	
Strong Memorial and Rochester Municipal Hospitals	Rochester N Y	W W Scott	465	58	Yes	\$42	1	1	1/1	7/1	24			
Sea View Hospital	Staten Island N Y	A J Greenberger and O L A Levin		893	100	\$100	1	0	5/1&11/1	1/1&7/1	12	13	5	
Duke Hospital	Durham N C	E P Alyea	608	64	Yes	\$42	1	1	1/1	7/1	12	20	0	
City Hospital	Cleveland	H R Truttner		97	Yes	\$60	1	0	1/1	7/1	12			
University Hospitals	Cleveland	J J Joelson	633	30	Yes	\$15	1	0	1/1	7/1	12	25		
Starling Loving University Hospital	Columbus O	W N Taylor	2 0	55	Yes	\$25	1	0	12/1	7/1	24			
Graduate Hospital of the Univ of Pa	Philadelphia	J C Birdsall	165	26	Yes	None	1	0	1/1	7/1	12	7	2	
Hospital of the Univ of Pennsylvania	Philadelphia	A Randall	343	31	Yes	\$100	1	0	1/1	9/1	24	17	10	
Pennsylvania Hospital	Philadelphia	Leon Herman	382	31	Yes	\$25	1	0	Any time	7/1	12	12	6	
Presbyterian Hospital	Philadelphia	J C Birdsall	238	19	Yes	None	1	0	1/1	7/1	12	16	10	
Mercy Hospital	Pittsburgh	E J McCague	347	25	Yes		1	0	12/1	7/1	12			
University of Virginia Hospital	University	J H Hoff	536	26	Yes	None	1	1	1/1	7/1	24	23	16	
State of Wisconsin General Hospital	Madison	I R Sisk		55	Yes	\$25	1	2	Any time	7/1	24			
Milwaukee County General Hospital	Wauwatosa Wis	R E Stockinger	448	100	Yes	\$100	1	0	3/1	7/10	12	26	21	

- a Compensation arranged by medical school and hospital
b Autopsy facilities for 12 months only
c In lieu of maintenance
d Twenty nine month appointments begin at no salary
e Hospital facilities by affiliation
f Fellowships available
g Appointments are from 7 to 60 months including 12 to 18 months internship Salary paid in lieu of maintenance
h General experience available in hospitals requiring previous approval internship same credit is given as to senior interns and general residents in hospital approved for internship
i Includes proctology
j One medical and one surgical appointment
k Dental as well as medical degree required
l Recruit appointments available in medicine and surgery
m Includes all specialties
n Include neuro surgery

- 10 Not a hospital outpatient and home delivery service
11 Training includes two years of service at City of Detroit Receiving Hospital in gynecology and two years at Herman Kiefer Hospital in obstetrics
12 Orthopedic resident covers eye ear nose and throat service
13 Apply to chief of service for information about affiliating hospital
14 Three assistant residents serve six months in all specialties
15 Separate appointments in roentgenology and in radiation therapy
16 Training in radiation therapy only
17 Several services include all specialties gynecology
18 Private and semi-private pavilions
19 Admissions are confined to children
20 No applications received
21 Affiliating usually with N Y Post Graduate Medical School New York City
22 Includes dermatology

APPROVED SCHOOLS FOR PHYSICAL THERAPY TECHNICIANS

The cooperation of the Council on Physical Therapy, the American Congress of Physical Therapy and the American Physiotherapy Association was secured in determining minimum educational requirements for physical therapy technicians. "Essentials of an Acceptable School for Physical Therapy Technicians" were adopted by the Council on Medical Education and Hospitals and passed by the House of Delegates of the American Medical Association at the Kansas City

meeting, May 9, 1936, as a result of the resolution introduced by Dr C B Reed of Illinois. The first list of approved schools appeared in THE JOURNAL, Aug 29, 1936, and the schools listed here represent the first revision.

Schools for Physical Therapy Technicians Conforming to the Standard Adopted by the American Medical Association in 1936

Name and Location of School	Director	Entrance Requirement	Length of Course	Student Capacity	Tuition	Certificate
Childrens Hospital Los Angeles ¹	John C Wilson M D	(a) R N (b) Grad phys ed	12 mos	10	\$125	Diploma
Stanford University Hospitals San Francisco	W H Northway M D	(a) R N (b) Grad phys ed	12 mos		\$175-\$250	Certificate
Walter Reed General Hospital Washington D C ²	Major W W McCaw M D	Grad phys ed	12 mos	10	None	Certificate
Northwestern University Medical School Chicago ³	John S Coulter M D	(a) R N (b) Grad phys ed (c) 3 yrs coll ^a	9 mos	7	\$200	Certificate
Bouve Boston School of Physical Education Boston ^{4 b}	Howard Moore M D	High school grad	3 and 4 yrs.	6	\$400 yr	Diploma or B S
Harvard Medical School Course 445 Boston ⁵	F R Ober M D	(a) R N (b) Grad phys ed (c) Coll grad	9 mos	16	\$150	Certificate
Boston University Sargent College of Physical Education Cambridge Mass ⁶	Prof E Hermann Dean	High school grad	4 yrs	25	Univ fees	B S
Battle Creek College Battle Creek Mich ⁷	Paul Roth M D	(a) R N (b) 2 yrs coll (c) Grad phys ed	12 mos		\$250	Certificate or B S
St Louis University School of Nursing St Louis ⁸	A J Kotlik M D	High school grad	4 yrs	7	Univ fees	B S
University of Buffalo Buffalo ⁹	G G Martin M D	R N	18 mos	2	Univ fees	B S
Hospital for Ruptured and Crippled New York City ¹⁰	K G Hanson M D	(a) R N (b) Grad phys ed	9 mos	8	\$500	Certificate
D T Watson School of Physiotherapy Leetsdale Pa (affiliated with Univ of Pittsburgh School of Medicine) ¹¹	Jessie Wright M D	(a) Grad phys ed (b) 2 yrs premed	22 mos	8	None	Diploma
College of William and Mary Richmond Va ¹²	Committee on Physical Therapy	(a) R N (b) Grad phys ed	9 mos		Coll fee	Certificate
University of Wisconsin Madison ^{13 c}	E A Pohle M D	(a) R N (b) Grad phys ed	12 mos	20	Univ fee	Certificate

NOTES

a Including 26 semester hours of the following subjects: physics, chemistry, zoology and biology.

b Four year course leads to B S degree from Simmons College.

c M S degree for advanced work.

AFFILIATED CLINICAL FACILITIES

- 1 Glendale Sanitarium and Hospital Glendale Good Hope Clinic and Los Angeles County Hospital Los Angeles
- 2 Weightmann School for Crippled Children Washington D C
- 3 Michael Reese Hospital Montgomery Ward Clinic Passavant Memorial Hospital and St Luke's Hospital Chicago
- 4 Boston City Hospital Children's Hospital Massachusetts General Hospital and Robert Breck Brigham Hospital Boston Cambridge Hospital Cambridge and Newton Hospital Newton
- 5 Boston Home for Incurables Convalescent Home of the Children's Hospital Children's Hospital Harvard Infantile Paralysis Commission Clinic Industrial School for Crippled and Deformed Children

Massachusetts General Hospital Perkins Institute for the Blind Peter Bent Brigham Hospital and Robert Breck Brigham Hospital Boston and Cambridge Hospital Cambridge

6 Industrial School for Crippled and Deformed Children Massachusetts General Hospital Massachusetts Memorial Hospital and Perkins Institute for the Blind Boston and Cambridge Hospital Cambridge

7 Ann J Kellogg School Battle Creek Sanitarium and other hospitals in Battle Creek

8 Firmin Desloge Hospital St Louis

9 Buffalo City Hospital Buffalo

10 French Hospital New York Polyclinic Hospital and Reconstruction Hospital New York City

11 Allegheny General Hospital Children's Hospital Elizabeth Steef Magee Hospital Falk Clinic Industrial Home for Crippled Children and St Francis Hospital Pittsburgh

12 Stuart Circle Hospital and Wheelton Clinic Richmond and others

13 State of Wisconsin General Hospital Madison

meeting, May 9, 1936, as a result of the resolution introduced by Dr C B Reed of Illinois. The first list of approved schools appeared in THE JOURNAL, Aug 29, 1936, and the schools listed here represent the first revision.

As for other types of medical assistants, there exist many commercial schools for physical therapy technicians throughout the country. Although they are self-

curriculum. Students turned out by commercial schools find their field of employment limited to massage establishments, clubs, gymnasiums, and so on, positions as assistants in hospital physical therapy departments or with members of the medical profession are virtually closed to them.

It has become increasingly apparent that many trained as "physical therapy technicians" in commercial schools

infringe on medical practice and too often are not prosecuted. Those trained in acceptable schools become thoroughly imbued with the necessity of working under the supervision of a qualified physician at all times and thus they become bona fide medical technicians.

The Council's essentials have been prepared with the purpose of designating acceptable basic courses covering all the more important phases of physical therapy. The essentials were printed in *THE JOURNAL*, Aug. 29, 1936, and may be secured through the office of the Council.

APPROVED SCHOOLS FOR CLINICAL LABORATORY TECHNICIANS

The accompanying list of schools for clinical laboratory technicians represents the first revision made since the House of Delegates of the American Medical Association adopted standards for such schools in 1936.

Since 1928 the American Society of Clinical Pathologists has concerned itself with the promotion of standards for clinical laboratory technicians through its Board of Registry. Because of the need for inspection of these schools in order to secure more complete and accurate data as to the organization, faculty, clinical facilities, and so on, the Board requested the cooperation of the Council in this work. As a result of the adoption of "Essentials of an Acceptable School for Clinical Laboratory Technicians" by the Association, the first list of approved schools was published in *THE JOURNAL*, Aug. 29, 1936.

Up to the present time 210 schools have been inspected by the Council's staff. The great majority of these courses are conducted in the departments of clinical pathology of the larger hospitals. Small groups of students, varying from two to six, are the rule. An increasing number of colleges and universities are offering this type of training. Basic sciences and the regular academic requirements occupy the first three years, the fourth year is given over to instruction and practice training in hospital laboratories affiliated with the educational institution. This training, as a rule, leads to a degree of Bachelor of Science in Medical Technology.

Whether the hospital laboratory training follows one or more years of regular college work, it should represent training where the theoretical and practical knowledge are combined. Here the student must be shown, not merely told, how things are done. The practical training should not be a by-product of the hospital laboratory service as has frequently been the method in the past, but it should take its place along with the other important educational functions of the hospital. Since the nature of the training during this year is essentially that of an apprenticeship, it should assume the relationship existing between instructor and pupil. Training in clinical laboratory technique must, of necessity, to have practical value, be coordinated and carefully directed to assure the student of a working knowledge of the fundamental principles and procedures. We should therefore strive to prevent the present tendencies toward uncontrolled education of laboratory workers in short courses offered by advertising schools.

Commercial schools, while they are comparatively few in number, persist in turning out large numbers of technicians in short courses. For the most part these schools are primarily interested in money-making and naturally do not adhere to high standards of admission

and training. While it is conceivable that a short course of training might fit a young woman to do the simple routine laboratory examinations, such courses will not prepare the technician to occupy a responsible position in a hospital laboratory, private laboratory, clinic or research department, where she would be called on to perform a wide variety of examinations in the various phases of clinical pathology. Training in commercial courses will not permit students to enter the examinations of the Board of Registry of the American Society of Clinical Pathologists. Those entering commercial school courses should realize fully that they cannot be certified according to the accepted standards and that the possibilities of securing desirable employment are not great.

The Council's essentials have been drawn up for the purpose of designating acceptable courses of basic training covering all the more important phases of clinical laboratory work. Courses offered in certain phases of the work, such as bacteriology or histology, have therefore not been listed under this scheme. A number of hospital laboratory departments provide such concentrated training, which in itself may be considered high grade, however, the Council is of the opinion that the broad basic training should precede such specialized experience.

Many hospitals now require their clinical laboratory technicians to be registered or eligible for registration. In its approval of hospitals, the Council has not insisted that only registered technicians be employed. It does, however, require that the laboratory department have a competent, well qualified staff. Registration is one of the important methods of identifying those who are qualified.

The Board of Registry has cooperated closely with the Council on Medical Education and Hospitals in the interchange of information and opinions concerning schools under consideration for approval. The Council is organized to maintain continuous contact with the approved schools through its annual survey of hospitals and system of periodic inspections, and an annual check of all the approved schools is made before revisions of the list are printed.

The following list contains the names of 125 schools for clinical laboratory technicians which have been carefully investigated and found to conform to the minimum requirements adopted by the House of Delegates at Kansas City, May 11-15, 1936.

"Essentials of an Acceptable School for Clinical Laboratory Technicians" are printed in *THE JOURNAL*, Aug. 29, 1936, page 682, and copies may be secured through the office of the Council. Additional schools will be approved as they make application and are found to conform.

MINNESOTA

- 41 College of St. Scholastica (St. Mary's Hospital) Duluth
- 42 Fair Lake Hospital Minneapolis
- 43 Fair Lake Hospital Minneapolis
- 44 Minneapolis General Hospital Minneapolis
- 45 Northwestern Hospital Minneapolis
- 46 St. Joseph's Hospital Minneapolis
- 47 University of Minnesota Minneapolis
- 48 Charles F. Miller Hospital St. Paul

MISSISSIPPI

- 2 Vicksburg Sanitarium and Crawford Street Hospital Vicksburg

MISSOURI

- 3 University of Missouri Columbia
- 4 University City Health Department Kansas City
- 5 Memorial Hospital Kansas City
- 6 Memorial Hospital Kansas City
- 7 St. Joseph Hospital Kansas City
- 8 St. Luke's Hospital Kansas City
- 9 St. Mary's Hospital Kansas City
- 10 St. Paul's Hospital Kansas City

NEBRASKA

- 1 Bryan Memorial Hospital Lincoln
- 2 Lincoln General Hospital Lincoln
- 3 University of Nebraska Hospital Omaha

NEW YORK

- 61 Bender Hygienic Laboratory Albany
- 62 Albany Hospital Albany
- 63 Albany Hospital Albany
- 64 Buffalo General Hospital Buffalo
- 65 Buffalo General Hospital Buffalo
- 66 Buffalo General Hospital Buffalo
- 67 Buffalo General Hospital Buffalo
- 68 Buffalo General Hospital Buffalo
- 69 Buffalo General Hospital Buffalo
- 70 Buffalo General Hospital Buffalo
- 71 Buffalo General Hospital Buffalo
- 72 Buffalo General Hospital Buffalo
- 73 Buffalo General Hospital Buffalo

NORTH CAROLINA

- 71 Duke Hospital Durham

OHIO

- 72 City Hospital Akron
- 73 University of Pathology Western Reserve University (University Hospitals) Cleveland
- 74 St. Vincent Hospital Cleveland
- 75 St. Vincent Hospital Cleveland
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OKLAHOMA

- 22 University Hospital Oklahoma City
- 23 Oklahoma Hospital Tulsa

OREGON

- 31 Emanuel Hospital Portland
- 32 Emanuel Hospital Portland
- 33 Emanuel Hospital Portland
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PENNSYLVANIA

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Schools for Clinical Laboratory Technicians Conforming to the Standard Adopted by the American Medical Association in 1936—Continued

Name and Location of School	Direction	Entrance Requirement	Hospital Bed Capacity	Yearly Admissions	Duration of Course	Number of Students	Tuition	Certificate or Degree
PENNSYLVANIA—Continued								
99 St Ann's Hospital Philadelphia	I H Smith M D	1 yr coll	340	6 060	18 mos	10	\$40	Certificate 09
100 St Joseph's Hospital Philadelphia	L A Soff M D	2 yrs coll	169	3 007	12 mos	4	\$120	Certificate 100
101 Temple University (Temple University Hospital), Philadelphia	F W Konzelmann M D	High sch grad	307	9 444	4 yrs	23	Univ fees	BS 101
102 Moses Taylor Hospital Scranton	C L Mattas M D	1 yr coll	123	2 030	12 mos	2	None	Certificate 102
103 Scranton State Hospital Scranton	C L Mattas M D	1 yr coll	180	4 340	12 mos	3	None	Certificate 103
SOUTH CAROLINA								
104 Spartanburg General Hospital Spartanburg	R Mosteller M D	2 yrs coll	304	5 111	18 mos	3	None	Diploma 104
TENNESSEE								
105 Knoxville General Hospital Knoxville	R H Monger M D	2 yrs coll	230	7 081	18 mos	3	None	Diploma 105
106 John Gaston Hospital Memphis	H C Schmelser M D	BS or BA	500	14 871	13 mos	4	None	Certificate 106
TEXAS								
107 Baylor University Hospital Dallas	J M Hill M D	2 yrs coll	335	12 088	12 mos	11	\$100	Certificate 107
108 St Paul's Hospital Dallas	J L Goforth M D	R N or Coll degree	210	8 398	12 mos	2	\$100	Certificate 108
109 John Sealy Hospital Galveston	M Bodansky M D	1 yr coll	382	6 033	12 mos	7	\$130	Certificate 109
110 Robert B Green Memorial Hospital San Antonio	E B Ritchie M D	1 yr coll	130	4 725	12 mos	3	\$200	Certificate 110
VIRGINIA								
111 College of William and Mary Richmond	Special Committee	High sch grad			4 yrs		Coll fees	BS 111
112 Johnston Williams Hospital Richmond	S W Budd M D	1 yr coll	125	3 481	12 mos	2	\$100	None 112
113 Medical College of Virginia Hospital Division Richmond	J H Seherer M D	2 yrs coll	424	9 722	12 mos	5	\$100	Certificate 113
114 Stuart Circle Hospital Richmond	R C Beck M D	Coll degree	90	2 804	12 mos	3	\$20	114
WASHINGTON								
115 V Cohn Laboratory of Clinical Medicine Seattle	V Cohn M D	1 yr coll			12 mos	3	\$400	Certificate 115
116 Duaneess Hospital Spokane	J D Edgar M D	BS or BA	227	4 483	12 mos	2	None	Certificate 116
117 Sacred Heart Hospital Spokane	M M Patton M D	Coll grad	284	8 407	12 mos	2	\$10	None 117
118 St Luke's Hospital Spokane	R F E Stier M D	2 yrs coll	173	3 092	12 mos	3	\$10	Certificate 118
119 St Joseph's Hospital Tacoma	O R McColl M D	2 yrs coll	300	3 883	13 mos	2	None	Certificate 119
WISCONSIN								
120 Madison General Hospital Madison	L McGary M D	2 yrs coll	340	4 070	12 mos	2	None	Certificate 120
121 St Mary's Hospital Madison	S B Pessin M D	2 yrs coll	170	4 282	12 mos	5	\$90	Diploma 121
122 State of Wisconsin General Hospital Madison	W D Stoval M D	2 yrs coll	630	11 233	12 mos	14	\$20	Certificate 122
123 Milwaukee Hospital The Passavant Milwaukee	H K B Allebach M D	2 yrs coll	215	6 843	12 mos	3	\$20	Certificate 123
124 St Joseph's Hospital Milwaukee	J Grifi M D	2 yrs coll	325	4 442	2 yrs	2	None	BS 124
125 Milwaukee County General Hospital Wauwatosa	J Grifi M D	2 yrs coll	1 060	17 940	2 yrs	4	None	BS 125

NOTES	No of Beds	Yearly Admissions	No of Beds	Yearly Admissions
a Graduate course of one year also offered				
b Credit may be applied toward BS following three years at Wayne University	150	4 018		
c Also takes students in fourth year from University of Minnesota for B.S. degree	125	2 046		
d Course includes twelve months very training				
e Same as for medical students				
f Course includes six months very training				
g Credit may be applied toward BS following three years at Marquette College	200	5 914		
h Credit may be applied toward BS following three years at College of William and Mary	130	3 549		
i From Marquette University Milwaukee	523	10 643		
ADDITIONAL AFFILIATIONS				
1 Folsom Clinic Little Rock	150	4 107		
2 Los Angeles City Health Laboratories Los Angeles	80	3 009		
3 Presbyterian Hospital Denver	150	3 027		
4 Creely Hospital Greeley	164	0 048		
5 Georgia Baptist Hospital Atlanta	117	19 040		
6 Mary University Hospital Emory Univ	150	4 001		
7 Laboratory of State Department of Public Health Springfield				
6 Epworth Hospital South Bend				
7 Lexington Clinic Lexington				
8 City Health Department Laboratory Lexington				
9 Kentucky Baptist Hospital, Louisville				
10 Louisville City Hospital Louisville				
11 St Joseph Infirmary Louisville				
12 Hotel Dieu Hospital New Orleans				
13 Mercy Hospital New Orleans				
14 Dr J T NK Clinic New Orleans				
15 Boston Dispensary Boston				
16 Warrmann Laboratory Massachusetts De				
17 City Health Laboratory Battle Creek				
18 University Hospital Minneapolis				
19 Ancker Hospital St Paul				
20 Mississippi State Charley Hospital Vicksburg				
21 Boone County General Hospital Columbia				
22 University Hospital Columbia				
23 Kansas City General Hospital Kansas City				
13 Brady Maternity Hospital Albany				
14 Memorial Hospital Albany				
15 St Peter's Hospital, Albany and others				
16 Children's Hospital, Buffalo				
17 Good Samaritan Hospital, Chelmsford				
18 Good Samaritan Hospital, Dayton				
19 Doernbecher Memorial Hospital for Children Portland				
20 Multnomah Hospital Portland				
21 Allentown Hospital, Allentown				
22 Allentown State Hospital Allentown				
23 Sacred Heart Hospital Allentown				
24 St Luke's Hospital Bethlehem				
25 Easton Hospital Easton				
26 Harrisburg City Board of Health, Harrisburg				
27 Harrisburg Filter Plant Laboratories Harrisburg				
28 City General Clinic San Antonio				
29 City General Clinic San Antonio				
30 St. Vincent's Hospital Richmond				
31 Columbian Hospital Seattle				
32 Maynard Hospital Seattle				

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SATURDAY, AUGUST 28, 1937

MEDICAL STATISTICS

If the numerous medical statistical papers now being written are to fulfil their purpose, an understanding of the advantages and limitations of the statistical method when applied to medicine is essential. Statistical surveys can have no value unless the underlying diagnosis which serves as a starting point is reasonably correct and so well established that other persons of equal qualifications could make similar observations on the same patients. This important prerequisite cannot be ignored.

The quality of the actual manipulation of medical statistics also needs close attention. With this purpose in mind the *Lancet* published a series of articles on medical statistics by A. Bradford Hill,¹ and these have been collected and issued in book form. The statistical method, Hill states, is required in the interpretation of figures that are dependent on numerous influences. Its object is to determine whether individual influences can be isolated and their effects measured. Before this can be done, the selection of patients must be properly made. Thus, in experiments involving the treatment of patients who are to be compared with controls not given the specific treatment, any deliberate choice of individuals to be treated may lead to error. The treated group may differ from the untreated group in some characteristic which, known or unknown, has an influence on the results. This possibility may be illustrated by a hypothetical study of the treatment of colds by vaccine. If the vaccine is offered to volunteers, the vaccine treated group may be selected on the basis of greater frequency of colds and the expectancy of some advantage from the treatment. In any case volunteers cannot be considered comparable to a random sample of the population from which they are drawn.

Inquiries carried out by means of questionnaires, Hill points out, are *par excellence* those in which selection must be suspected. Since replies are received from

only a proportion of the individuals to whom the form is sent, those who choose to reply cannot be considered a representative sample of all individuals approached. The reasons for failure to answer are too manifold and usually too intimately connected with the purpose of the query to require comment.

In the diagram and graph, Hill states care should be used in selecting scales that give a clear picture of the meaning. A distorted mental image of the significance can be easily produced by improper planning of graphs or diagrams. When the "mean" of many observations is plotted, it is necessary to indicate also how much individual "scatter" is present. The calculation of the standard deviation is another integral part of satisfactory statistical expression. The symmetry of distribution of the individual observations around the mean and the calculation of the standard deviation for each set of observations, although involving some mathematics, cannot be neglected by the physician with data important enough to study in this manner.

It must be recognized, Hill emphasizes, that the observations used in statistical studies are merely samples of all the possible observations that might have been made. Hence the statistical technique in the handling of samples in relation to the universe becomes of great importance. The accuracy of a conclusion based on a sample depends on the size of the sample and the variability of the characters within the universe from which it is taken.

The chapters in Hill's book on common fallacies and difficulties should make invaluable reading for those who wish to avoid the worst pitfalls inherent in the statistical method. No comparison is valid, he states, "which does not allow for the sex differentiation of the fatality rates." Satisfactory standards of comparison must be employed, and their absence invalidates any comparative conclusions. The correct interpretation of either direct or indirect association between factors is also necessary and must be differentiated from purely fortuitous parallelism. Other important dangers are the failure to recognize changes in proportion rates, the use of crude death rates and the neglect, especially in problems of inheritance, to consider adequately chance expectancy. It must be recognized that in dealing with statistical papers it is "probabilities" that are weighed and never, as is sometimes suggested, any question of "mathematical proof." The crux of the matter is the tendency of workers to accept figures at their face value without considering all the factors responsible for them. Furthermore the science of statistics is also advancing and no more absolute agreement on method exists in that field than in clinical medicine. There is little doubt, however, that the quality of study of medical problems can be improved by greater attention to the fundamentals of the statistical method. All attempts to forward this purpose are highly desirable.

¹ Principles of Medical Statistics. By A. Bradford Hill. D.Sc. Ph.D. Cloth. Price 6s. Pp. 171. London: The Lancet Limited, 1937.

CEVITAMIC ACID STIMULATION OF SPECIFIC ANTIBODY PRODUCTION

Clinical and statistical observations have led to the belief that sufficiently prolonged vitamin deficiency causes a reduction in the normal antimicrobial defense of the human body. From this it is concluded that administration of vitamins or vitamin-rich foods will lead to a restoration of normal antibacterial resistance in deficiency diseases and might even increase natural resistance in normal persons on nondeficiency diets. The present commercial exploitation of yeast and numerous other vitamin-containing foods, is based largely on the latter assumption. Adequate experimental evidence in support of advertised claims, however, is still lacking.

In order to prepare animals for a test of the currently alleged immunizing power of vitamins, Juszat¹ of the hygienic institute at the University of Marburg, Germany, fed growing rabbits on routine laboratory diets rendered vitamin free by prolonged pressure cooking at 120 C. Rabbits thus fed were arrested in their normal development and often remained at a constant stunted weight for several months. Juszat found a reduction in the normal bactericidal titer in the blood serum of these stunted rabbits and a 90 per cent reduction in their power to form specific antibodies (e. g., horse precipitins) on the injection of antigens (e. g., horse proteins).

The therapeutic effects of numerous commercial vitamins were tested on these stunted animals. Juszat found, for example, that the addition of a commercial fat-soluble vitamin A to the routine deficiency diet (or its introduction by means of the stomach tube) was without demonstrable effect on the subnormal bactericidal titer of his deficiency animals. Furthermore, vitamin A feeding (or intragastric administration) did not improve the subnormal powers of the animals to produce specific precipitins.

Similar tests with commercial vitamin D gave equally discouraging results. Daily feedings (or intragastric injections) of small doses of viosterol led in about half of the deficiency cases to a transient partial restoration of normal bactericidal titer. This partial restoration lasted about a week and was followed in all cases by a rapid sinking of the antimicrobial index to a new low level. This presumably permanent fall in bactericidal titer was attributed by him to a beginning D hypervitaminosis. Furthermore, viosterol therapy did not improve the subnormal powers of his stunted animals to produce specific antihorse precipitins but almost invariably further depressed this immunizing function.

Equally discouraging results were obtained in tests with water soluble vitamin B complex. As this complex Juszat used a commercial preparation of dry yeast. Confirming Holsen's² previous experimental data, Juszat found that the addition of dry yeast to routine

nondeficiency laboratory diets had no demonstrable effect on the bactericidal index of normal rabbits. In his stunted rabbits he found that from 5 to 8 Gm. of dry yeast added to the daily deficiency diet led to no demonstrable improvement in blood titer. Nor would yeast fed stunted rabbits produce antibodies of higher titers than his non-yeast fed stunted controls.

Disappointing results were also obtained in therapeutic tests with water soluble vitamin C. As vitamin C he used both native and commercially available synthetic cevitic acid, both being tested in the form of sodium salts. Juszat found that the addition of from 50 to 100 mg. of cevitic acid to his daily deficiency diet gave no demonstrable improvement in the serologic titers of the stunted animals nor would such therapy improve subnormal antibody production of stunted rabbits.

Results of theoretical interest, however, were obtained on intravenous injection of massive doses of cevitic acid, from 33 to 66 mg., for example, injected intravenously caused a transient rise in the normal (or subnormal) bactericidal index. The height of this cevitic acid immunity was reached in about four hours. The heightened serologic titer was usually lost well before the end of twenty-four hours. By increasing the intravenous dose of cevitic acid to from 200 to 500 mg., a trebling of bactericidal titer could be demonstrated as late as the twenty-fourth hour, with subsequent fall to the initial titer well before the sixth day. Dr. Juszat's most important contribution, however, is his demonstration of the stimulating effect of intravenously injected cevitic acid on specific antibody production. Immediately before each immunizing dose of horse protein, for example, his normal (or deficiency) rabbits were given massive intravenous doses of cevitic acid, control animals being injected with the same horse protein but without previous cevitic therapy. Ten days after his last antigenic dose his cevitic acid reinforced normal rabbits yielded a serum with a precipitin titer of approximately 1:100,000, the average control titer being 1:10,000.

Dr. Juszat afterward simplified this technique by adding 100 mg. of cevitic acid to each immunizing dose of horse protein. An average five to seven fold augmentation in specific precipitin production was noted in the stunted rabbits by this simplified technique. In his control deficiency rabbits, for example, the average precipitin titer rarely exceeded 1:1,000. Titers of 1:10,000 and even as high as 1:100,000 were occasionally reached by immunization of stunted rabbits with the horse protein-cevitic acid complex, injected intravenously.

Although Juszat's data do not confirm the currently advertised immunizing power of orally administered commercial vitamins, his discovery that massive doses of cevitic acid injected intravenously demonstrably increase specific antibody synthesis is a discovery of clinical promise and basic scientific interest. If confirmed, his observations suggest numerous practical

¹ Juszat, H. I. *Ztschr. f. Immunitätsforsch.* 88: 472-483 (Aug.) 1936.
² Holsen, Zisch. *f. Vitaminforsch.* 1: 3, 1932.

applications to specific diagnosis, vaccine therapy and treatment of chronic bacterial infections. In this connection Hochwald³ has recently reported that in his hands cevitamic acid seemed to play an equally important accessory part in allergic and anaphylactic phenomena.

Current Comment

MEDICAL SCHOOL SURVEY

The Council on Medical Education and Hospitals has now completed the survey of medical schools that was begun three years ago. The procedure employed in making the study has been described by Dr. Herman G. Weiskotten,¹ and some of the more significant observations were reported to the House of Delegates at Atlantic City.² Confidential reports in graphic form have been sent to all the schools for the purpose of assisting them in strengthening their respective programs. In response to this stimulus there are already indications of considerable activity, and substantial improvements are being made in standards of admission, in numbers and qualifications of faculty personnel, and in the kind and amount of practical experience comprised in the clinical teaching. While much still remains to be done, the great majority of schools give evidence of healthy growth and development.

INTERNSHIPS AND RESIDENCIES

Half a century ago newly fledged physicians served for a number of years as apprentices or assistants to older men, thus securing actual experience in the practice of medicine before assuming the responsibilities. The development of aseptic surgery, the ever growing importance of indirect methods of examination and the rapid increase in the number of hospitals have led to the development of an institutional apprenticeship or internship which is considered far more desirable than the old assistantship. So important has the internship become that thirteen schools in the United States have made it a requirement for their medical degree, in eighteen states it is legally prerequisite to licensure. Of the graduates of 1936, excluding those schools in which internship is obligatory, 91.8 per cent voluntarily chose to continue their education in this manner. Fifty-four schools have not made internship compulsory, this does not mean that they underestimate its value. The university which is unable to provide internships under the supervision of its own faculty for all its graduates cannot base its degree on an extramural experience which it cannot guarantee or closely supervise. The internship is now generally recognized as a necessary stage in the training of the physician and is a prerequisite for the position of resident in one of the medical specialties. It is almost universally required for membership in those scientific societies which represent the clinical branches

of medicine. Following the internship comes the residency, in general devoted to a limited field. This period of training extends often from two to five years. It represents an important part of the accepted preparation for the practice of a specialty. The examining boards of medicine, surgery, pediatrics, and so on, require a specified amount of institutional apprenticeship of this character. Usually it is necessary to supplement the residency by systematic courses in related medical sciences, such as are increasingly available at the larger universities. The list of approved residencies, pages 693 to 707, has been considerably amplified, so as to give to those interested, as completely as possible, the pertinent data regarding the services described.

GOVERNMENT TO REGULATE THE NAMING OF COMPOUNDS

According to a report in *Drug Trade News*, the Food and Drug Administration has decided to start active enforcement of its long-standing but well-nigh dormant regulation holding a drug product to be misbranded if it contains more than one active medicinal agent but is named after only one of its constituents. The Council on Pharmacy and Chemistry has always objected to the hiding of other active ingredients under a single name. To call a product "X-compound," the latter word to serve as a mask to hide potent drugs which, in some instances, actually are more powerful than the drug from which the "compound" takes its name, is deceptive, whether intentional or not. Organized medicine has insisted that a product should be truthful in name as well as fully named. The stand taken by the Food and Drug Administration that all products should be made to declare clearly and accurately any active ingredients other than the one indicated by the title is a definite advance in the protection of the public against hidden drugs in proprietary medicinal products.

BASAL METABOLISM IN CHILDREN

A special feature of the January issue of the *American Journal of Diseases of Children* was a supplement devoted to two articles dealing with the basal metabolism of children. Talbot and his collaborators¹ recorded the metabolism of 106 healthy girls attending a private school in Boston. The observations were subjected to severe tests for normality and basality and when all the desired information was recorded it was used in group studies. As a result of the careful analysis of the measurements obtained, several important points were established. The most significant factor modifying the metabolism, the authors believe, is geographic location, which cannot be separated from climate. Race does not appear to affect the metabolism, but there is a definite relation between body weight and heat production. Mathematically, the correlation of heat production was closer with body weight than with any other factor studied. A correlation also appeared to exist between the creatinine output and the basal heat production. Since the creatinine output is accepted as a measure of

³ Hochwald, Adolf. *Zentralbl. f. inn. Med.* 56: 769 (Sept. 21) 1935.

¹ Weiskotten, H. G. *The Medical School Survey*. J. A. M. A. 105: 1026 (March 27) 1937.

² Report of the Council on Medical Education and Hospitals. J. A. M. A. 105: 2134 (June 19) 1937.

¹ Talbot, F. B., Wilson, E. B., and Worcester, Jane. *Basal Metabolism of Girls*. *Am. J. Dis. Child.* 53: 273 (Jan. part 2) 1937.

active protoplasmic tissue, it may be said with assurance that the active protoplasmic tissue of the body is the principal factor of importance connected with heat production. The main difference between the adult and the child, according to Lewis and his collaborators,² is that the former is a finished product which remains in statu quo, and the latter is continuously changing. This fact should be considered each time a metabolism reading is interpreted by the clinician. The purpose of the investigations made by Lewis's group was to maintain a study of 100 normal children more or less evenly divided between girls and boys on whom observations were begun not later than one month after birth. Their report is based on studies begun in 1932 as part of the general program of the Child Research Council. The results, therefore, are based on a longitudinal study of normal children. There were 366 basal metabolism tests on fifty-two boys and 271 basal metabolism tests on forty-one girls, all between the ages of 2 and 12 years. The treatment of the data thus gathered indicates that, for the group of normal children under investigation, three of the methods of expressing heat production, namely, calories per hour referred to weight and to surface area, respectively, and calories per hour per square meter referred to age, give the lowest degrees of dispersion. The precise relationship of body build to the basal metabolism of the child, however, cannot be determined until more complete statistical studies in close correlation with anthropometric and other physiologic measurements are available.

EYEWASH FROM THE GENERAL

On August 6, 1937, an announcement from the National Broadcasting Company indicated that General Hugh S. Johnson, rough rider of the Blue Eagle, will make his debut as a radio commentator over the Blue Network on September 27, 1937, being sponsored by the Grove Laboratories, makers of "Bromo Quinine." Quite recently the Federal Trade Commission issued a complaint against the Grove Laboratories, Inc., alleging misleading and exaggerated advertising in the sale of "Grove's Laxative Bromo Quinine Tablets." Moreover, the laboratories stipulated with the commission "to discontinue certain misleading advertising representations in the sale of 'Grove's Emulsified Nose Drops.'" In May 1935 the Food and Drug Administration published a notice of judgment alleging that Grove's Emulsified Nose Drops were sold under fraudulent therapeutic claims. Whether or not these little incidents will embarrass the General's future in radio is, of course, a matter for thought. Once upon a time notables did not hesitate to associate their names with the claims of nostrums and "patent medicines"—for "Peruna" Admiral Schley, Rear Admiral Hichborn and Julia Marlowe testified, the divine Sarah Bernhardt exploited "Duffy's Malt Whiskey," and Madam Schumann-Heink told of the wonders of "Fahrney's Blood Vitalizer." The exact place that General Hugh S. Johnson will occupy in this hall of "fame" will no doubt become apparent.

² Lewis, R. C., Linman, Gladys M. and Iliff, Alberta. The Basal Metabolism of Normal Boys and Girls from Two to Twelve Years Old. *Inclusive Am. J. Dis. Child.* 53: 348 (Jan. part 2) 1937.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

CALIFORNIA

Graduate Courses—Stanford University School of Medicine, San Francisco, will conduct graduate courses in cooperation with the city department of health and the San Francisco Hospital, September 6-10. The subjects will include x-ray diagnosis and therapy, emergency surgery and fractures, diseases of the genito-urinary tract, cardiology and electrocardiography, diagnosis and treatment of malignant tumors, surgical anatomy. There will be ward rounds in medicine and clinics in the medical specialties. Two general meetings Monday and Wednesday evenings will be addressed respectively by Drs. Maurice L. Tainter on "Evaluation of Recently Introduced Drugs" and William P. Shepard, "Problems in Industrial Health."

COLORADO

Study of Health Agencies—A study of public and private health agencies of Colorado Springs and El Paso County is under way by Ira V. Hiscock, C. P. H., professor of public health, Yale University School of Medicine, New Haven, newspapers report. He was invited to make the survey by the Community Chest with a view to recommending a more adequate health service.

Tularemia Following Tick Bite—A specimen of blood received from Dr. Charles E. Fitzgerald, Craig, was identified by the state department of health recently as showing positive reaction to tularemia. The disease developed from a tick bite of the finger. The patient denied handling dead animals and the point of inoculation was typical in appearance of an infected insect bite which went on to a small ulcer formation. Dr. Fitzgerald had two similar cases last spring, *Colorado Medicine* reported. So far as the laboratory is aware, these cases of tularemia due to tick transmission are the first to be reported in Colorado.

CONNECTICUT

State Medical Journal to Become Monthly—At the annual meeting of the Connecticut State Medical Society in May it was voted to make the society's journal a monthly publication beginning with January 1938. The journal has been issued quarterly since it was launched in August 1936. The secretary on scientific work, Dr. Stanley B. Weld, Hartford, will continue as editor.

Dr. Cushing Named Director of Studies in History of Medicine—Dr. Harvey Cushing, Sterling professor of neurology emeritus, Yale University School of Medicine, has been appointed director of studies in the history of medicine with rank of professor at the medical school. Dr. Cushing recently reached the age permitting him to retire. He is also Moseley professor of surgery emeritus of Harvard University Medical School, Boston.

DISTRICT OF COLUMBIA

Medical Bill in Congress—H. R. 8298, introduced by Representative Dingell, Michigan, proposes to provide for the issuance of a license to practice naturopathy in the District of Columbia to Patrick Joseph Clifford.

FLORIDA

Personal—Stewart G. Thompson, Dr. P. H., Jacksonville, managing director of the Florida Medical Association, has resigned as secretary-treasurer of the Florida Public Health Association, and as director of the bureau of vital statistics of the state board of health to devote full time to his work with the state medical association.

Society News—Dr. Chadbourne A. Andrews, Tampa, was elected president and Dr. Lauren M. Sompayrac, Jacksonville, secretary of the Florida Society of Dermatology and Syphilology at its annual meeting in Jacksonville, June 6.—Dr. Arthur L. Walters, Miami Beach, and A. Daniel Ameri, Coral Gables, addressed the Dade County Medical Society, Miami, June 4, on "Modern Management of Diabetes Mellitus" and "Recent Advances of Present-Day Treatment of Syphilis."

Bites' respectively—Dr James R Boulware Jr Lakeland addressed the DeSoto-Hardee-Highlands County Medical Society in Wauchula June 8 on "Pediatric Practice in South Florida—A Comparative Study"

IDAHO

Hospital News—A new hospital was opened at Emmett, June 14 twelve private rooms and two wards are available for the care of patients. Full modern equipment including air conditioning has been installed throughout, according to *Northwest Medicine*

ILLINOIS

Dr Jirka Resigns as Health Commissioner—The resignation of Dr Frank J Jirka as health commissioner of Illinois, effective September 1, was announced in the newspapers August 8. His successor has not been appointed. Dr Jirka has held the position since 1933. He graduated from Northwestern University Medical School in 1910 and is assistant professor of surgery at the University of Illinois College of Medicine Chicago.

Courses in Obstetrics and Pediatrics—The state department of public health, through the University of Illinois College of Medicine, Chicago, and in cooperation with the educational committee of the Illinois State Medical Society, is offering courses in obstetrics and pediatrics for registered physicians of the state. A registration fee of \$10 should accompany the application to take the course and checks should be made payable to the university. Applications should be sent to Mr G R Moon, examiner and recorder of the Chicago Professional Schools, University of Illinois 1853 West Polk Street, Chicago.

Society News—Dr Samuel M Feinberg, Chicago, was the guest speaker before the Hancock County Medical Society in Hamilton, July 21, he discussed hay fever—The Macoupin County Medical Society was addressed, July 27, by Drs Winston H Tucker on "Premarital Health Examination", Paul H Harmon, "Polio-myelitis" and Lyman Stewart, "Is Prostatectomy to Be Replaced by Transurethral Resection?" All are from Springfield—Dr Edward Ross, Alton, addressed the Madison County Medical Society at the Alton State Hospital, August 6 on "Dementia Praecox and Its Relationship to General Practice"

Personal—Dr Benjamin Gruskin director of oncological research in the department of pathology Temple University School of Medicine Philadelphia will spend one week of each month at Paris Hospital Paris where he will direct a newly established department of cancer research it is reported—Dr Richard Clark Benkendorf Chicago has been appointed superintendent of the Elmgrove Sanatorium Bushnell succeeding Dr Arthur K Drake, resigned—Dr Winston H Tucker, coordinating epidemiologist state department of health, Springfield, has been appointed health officer of Evanston, succeeding Dr John W H Pollard resigned. The appointment is effective September 1. Dr Tucker was chosen by the Evanston branch of the Chicago Medical Society, Mayor Penfield having asked that group to recommend a candidate, it was reported.

Chicago

Graduate Courses at Northwestern University—Graduate courses in cardiorenal-vascular medicine and urology will be offered at Northwestern University Medical School during September. The course in medicine will begin August 30 and will continue until September 11, the one in urology will begin September 13 and continue through September 25. Registration is limited to twenty students in each division. The tuition fee is \$50 for each course and a deposit of \$10 is required to hold a place in the class.

IOWA

More Syphilis Cases Reported—A study has been completed of the 1547 cases of syphilis reported to the Iowa State Department of Health for the first six months of 1937. This is two and a half times as many as the 615 cases for the same period in 1936. Linn County has made the most marked improvement in notification with twelve times as many cases reported to July 1 as compared with the same period in 1936.

Personal—Edward A Benbrook DVM professor and head of veterinary pathology Iowa State College of Agriculture and Mechanic Arts Ames has resigned from the state board of basic science examiners. Frank M Smith professor of zoology Buena Vista College Storm Lake will fill the unexpired term. William Strunk DSc Decorah Iowa has succeeded Dr Benbrook as secretary of the board.

Appointments to State Department of Health—Dr James P Sharon Fort Dodge, has been appointed associate director in charge of venereal disease control division of preventable diseases, Iowa State Department of Health effective July 1. He recently completed six months' special training in venereal disease work at Johns Hopkins Hospital Baltimore. He graduated from St Louis University School of Medicine St Louis in 1923. At the same time Dr Charles K McCarthy became director of activities for the control and prevention of tuberculosis, to be carried on by the state medical society, Iowa Tuberculosis Association and the state department of health. Dr McCarthy graduated from Tufts College Medical School, Boston in 1930.

KANSAS

Personal—Dr John C Fear Waverly was guest of honor at a celebration at City Park July 1 marking his completion of sixty years in the practice of medicine. Dr Fear graduated from the College of Physicians and Surgeons Keokuk Iowa. He has been mayor of Waverly five times and has served one term in the state legislature—Dr Clyde W Miller Wichita has been appointed superintendent of the Sedgewick County Hospital Wichita succeeding Dr Harry O Anderson who returned to private practice—Dr Rosecoe T Nichols Hiawatha has been appointed a member of the state board of health to succeed Dr Charles W Robinson Atchison who resigned.

MASSACHUSETTS

Medical Center for Rural Physicians—A gift of \$300,000 to the Boston Dispensary has been pledged by William Bingham 2d to complete the building of the Joseph H Pratt Diagnostic Hospital and finance its operation according to recent announcements. The donation, supplementing a previous gift of \$400,000 made by Mr Bingham in April will be devoted to the creation of a medical center for the rural physicians of New England. The hospital is named in honor of Dr Pratt who is professor of clinical medicine at Tufts College Medical School Boston. It was reported that Mr Bingham is primarily interested in rural medicine and his desire is to provide a medical center at which the development of rural medicine may be planned and supervised. The report pointed out that under normal conditions a country doctor, because of his devotion to his practice and his geographic isolation, requires months or years to learn of each new development in the field of medical science. Everything will be done to make it possible for patients needing diagnosis, patients from any corner of New England and from any economic group to get the latest medical advice and for the country doctor to profit from the knowledge and experience of specialists. According to *Lancet* physicians will take turns studying at the Pratt Hospital. Mr Bingham will pay their expenses in Boston and arrange for exchange doctors' to substitute for them in their home towns. In addition, all New England physicians will have the opportunity to send the 10 per cent or so of their most puzzling cases" to the Pratt Hospital for study and diagnosis.

MICHIGAN

Cooperative Graduate Courses—The department of graduate medicine of the University of Michigan in conjunction with Wayne University College of Medicine and the Michigan State Medical Society will begin, September 13, a series of graduate courses in Battle Creek and Kalamazoo jointly. Bay City, Flint, Grand Rapids, Lansing and Jackson, jointly. Marquette and jointly in Traverse City, Cadillac, Manistee and Potosky. The lectures and demonstrations will cover the field of general medicine and will be held one day each week for eight weeks. Additional information may be obtained from the department of graduate medicine University Hospital Ann Arbor.

Medical Research Institute—The United Automobile Workers has set up in Detroit a Medical Research Institute under the direction of Dr Frederick C Lendrum according to a press release published in the *Detroit Medical News*. The institute was organized for research in industrial diseases, notably lead poisoning, silicosis, chloromum poisoning and industrial skin diseases. It occupies a suite of rooms in the Hoffmann Building with three examining rooms, laboratory, x-ray room, photo dark room and consulting room representing an investment of about \$10,000. Examinations of workers are to be made by a group of physicians who are members of the Wayne County Medical Society, it was said. Dr Emory R Hayhurst, Columbus for many years consultant in industrial hygiene for the Ohio State Board of Health directed the organization of the institute according to the announcement.

MINNESOTA

Mayo Home to Be Used for Educational Purposes—The residence of Dr. and Mrs. William J. Mayo, Rochester, and the east half of the block on which it stands will be deeded for the Mayo Foundation to a board of trustees to aid the educational aims of the foundation and the University of Minnesota, according to a recent announcement. The members of the board of trustees are, tentatively, Dr. Donald C. Balfour, chairman, Dr. Waltman Walters and Mr. H. J. Harwick. The residence, which was built in 1916, is of reinforced concrete faced with stone and is fireproof. The two lower stories and the tower contain living rooms; the third story is occupied by an assembly room. Dr. Mayo intends to endow the property sufficiently to prevent taxes and general maintenance from becoming a burden on the foundation, it was stated, and details of the use to which the property will be put will be formulated by the trustees. Dr. and Mrs. Mayo will build a smaller house on the southwest section of the block.

Southern Minnesota Meeting—The Southern Minnesota Medical Association held its annual meeting in Winona August 11. At the morning session at the Winona High School speakers included

Dr. Fred H. Albee, New York, The Importance of the Liver at the Top of the Femur as a Stabilizing Influence
Dr. Russell M. Wilder, Rochester, The Use of Protamine Insulin
Dr. Lewis I. Younger, Winona, Accurate Diagnosis of Appendicitis
Dr. Ernest M. Hammes, St. Paul, Acute Lymphocytic Meningitis

At the afternoon session, which was held on the steamboat *Capitol*, a group of case reports was presented by Drs. Moses Barron, Minneapolis, on "Pathogenesis and Treatment of Valvular Heart Disease"; Alexander E. Brown, Edwin G. Bannick and Harold C. Habein, Rochester, "The Use of Sulfanilamide (Prontylin)," and Frederick P. Moersch, Rochester, Review of the Hypoglycemic Treatment of Mental Disease. An evening session was held at the Winona Country Club with Drs. William J. Mayo, Rochester, Alfred W. Adson, Rochester, president of the Minnesota State Medical Association, and Harold C. Habein, Rochester, president of the Southern Minnesota association, as speakers.

MISSISSIPPI

Society News—The North Mississippi Medical Society was addressed at its quarterly meeting in Holly Springs, July 28, by Drs. Joseph F. Hamilton, on "Etiology, Pathology and Diagnosis of Infantile Paralysis"; Willis C. Campbell, "Orthopedic Treatment of Poliomyelitis"; and Hugh M. A. Smith Jr., "Emergency Treatment and Transportation of Fractures." All are from Memphis, Tenn.

Society Sponsors Graduate Course—The Central Medical Society is sponsoring the following program to be offered in Jackson, September 7, by members of the faculty of the University of Tennessee College of Medicine, Memphis:

Dr. William T. Pride, Care of an Obstetric Case
Dr. George R. Livermore, Urinary Lithiasis
Dr. Gilbert J. Levy, Acute Poliomyelitis with Special Reference to Its Early Diagnosis and Prevention
Dr. John L. McGehee, Acute Intestinal Obstruction
Dr. Willis C. Campbell, Fractures About the Ankle
Dr. Edward Clay Mitchell, The Care of the Normal Child from Birth Until School Age with Consideration of Those Factors Affecting Its Growth and Development
Dr. Philip M. Lewis, What the General Practitioner Should Know About the Eye
Dr. W. Likely Simpson, Foreign Bodies in Air and Food Passages

MISSOURI

Personal—Dr. Ralph A. Kinsella, St. Louis, has been appointed a member of the city plan commission.—Dr. Clifton Smith, staff physician at the State Hospital No. 2, St. Joseph, has been appointed superintendent of the St. Louis Training School, succeeding Dr. George A. Johns, resigned.

Committee on Syphilis Control—At a meeting of the council of the Missouri State Medical Association July 14, Dr. Dudley S. Conley, Columbia, president of the association, announced the appointment of a committee for the study of the control of syphilis with the following members: Drs. Garold V. Stryker, St. Louis, chairman; Charles C. Dennie, Kansas City; Walter S. Sewell, Springfield; Quitman U. Newell, St. Louis; and Caus T. Ryland, Lexington.

Society News—Dr. Fredrick W. Shaw, Richmond, Va., addressed the Phelps and Crawford County Medical Society in Rolla July 12 on "Pathogenic Fungi."—Dr. Andy Hall Jr., St. Louis, addressed the Randolph-Monroe County Medical Society, Moberly, June 8 on "Urologic Problems of the General Practitioner."—A program on syphilis was presented at a meeting of the South Central Counties Medical Society, Houston, June 18 by Drs. Garold V. Stryker, Robert E. Britt and John A. Brennan, all of St. Louis.

NEW YORK

County Society Names Executive Secretary—The Onondaga Medical Society recently voted to establish a central office with an executive secretary in charge and has appointed R. Marcus Dick, Cranston, R. I., to the position. Mr. Dick graduated from the college of business administration of Syracuse University in the class of 1937.

Pneumonia Control Program Expanded—Production of serums for pneumonia of types V, VII and VIII and any additional types that may be found to be of value in the future will be made possible by a fund of \$400,000 appropriated by the recent legislature to the state department of health. About \$150,000 will be used to enlarge the facilities of the division of laboratories to meet the increased load of serum production. In addition, the department will be able to develop further its typing facilities, to extend the program of graduate professional education through the Medical Society of the State of New York and of education for the general public and to do more extensive epidemiologic research when occasion offers. The pneumonia control program in its present form was begun Nov. 1, 1935, as a cooperative undertaking of the state health department, the state medical society, the State Association of Public Health Laboratories, the Metropolitan Life Insurance Company and the Commonwealth Fund, the last two giving financial assistance.

An Outbreak of Cowpox—Infection of a herd of cows with cowpox through contact with a recently vaccinated person and subsequent infection of other persons from the cows was reported in *Health News*, the bulletin of the state department of health, August 9. An 18-year-old boy who assisted in the care of a herd of about twenty cows was vaccinated June 7. His vaccination ran an uncomplicated course. About June 18 it was noticed that some of the cows had cowpox. Ten days later a younger brother of the first boy developed lesions on the forearm that were described by a physician as typical vaccination pustules. The second boy became acutely ill and later the pustules disappeared leaving typical vaccination scars. About July 5 another brother of the two developed a "vaccination lesion" on his hand, which ran an uncomplicated course. Other members of the family were not infected. The father was the only other one who handled the cows and he had been vaccinated four times. The mother had once been vaccinated but three other children who were not infected had never been vaccinated.

New York City

Paul Hoeber Dies—Paul B. Hoeber, medical book publisher, died August 20, in Lenox Hill Hospital, of perforated duodenal ulcer. Mr. Hoeber was for many years a book dealer specializing in medical books, developing his publishing activities simultaneously. In recent years he had devoted himself entirely to the publishing field under the imprint Paul B. Hoeber, Inc. In 1935 his firm was absorbed by Harper and Brothers and became the medical department of that house. Mr. Hoeber continued as president of the division, and its publications bore the imprints of both firms. In addition to books and monographs, Mr. Hoeber published *Annals of Medical History*. He was 53 years old.

Distribution of Pertussis Vaccine Discontinued—The New York City Department of Health recently announced that because of the equivocal results attending the use of pertussis vaccine and the difference of opinion concerning its prophylactic value, the vaccine will no longer be administered at baby health stations on request. Its administration will be limited to a controlled experimental project now being carried on under the direction of Dr. Ralph Muekenfuss, director of laboratories at the Williamsburgh-Greenpoint health center and at the Prospect Clinic in Brooklyn. Through this project the department hopes to arrive at definite conclusions as to the value of the vaccine for the prevention of whooping cough.

Examination for School Medical Supervisor—The New York City Board of Education announces an examination for license as school medical supervisor in the bureau for children with retarded mental development to be held during the week of October 11. The final date for acceptance of applications is September 1. Forms may be obtained at the office of the board, 500 Park Avenue, or will be sent on receipt of a request accompanied by a large, self-addressed stamped envelope. Applicants must have graduated from a class A medical school, must have a license to practice in New York, must have had twelve semester hours in certain approved courses in school and public health administration and must be between 30 and 45 years old. They must be citizens, except that an alien may be appointed if he has made application to become a citizen. The salary is \$4,000 a year. It is requested that all inquiries be made in writing.

Hospital Employees Enjoined from Striking—A temporary injunction restraining members of a hospital employees' union of Greater New York from calling a strike, picketing or interfering with the patients employees or visitors at the Jewish Hospital in Brooklyn was issued August 9 by Supreme Court Justice Albert Conway. The justice incorporated in his decision the hospital's complaint that recited the disorders at the hospital last March when the union took possession of the kitchen and laundry. He said "The affidavits establish that uninterrupted hospital service for the people of the city is so vital for the preservation of the general health of the community, and especially children the sick and infirm that any organized effort to interfere therewith must be regarded as an act of hostility to the common good and such an unlawful object as to demand the exercise of the equity power of the court to the fullest extent."

NORTH CAROLINA

Society Opposes Federal Control of Practice—The executive committee of the Medical Society of North Carolina at a meeting in Raleigh July 13 adopted a resolution expressing opposition to any plan that involves federal supervision and control of medical practice in the United States. The committee's action was taken following reports from the annual session of the American Medical Association indicating that a plan is being contemplated to place the practice of medicine in the United States, as it involves the care of indigent persons under federal government control, the resolution stated. The committee, representing the society, affirmed its willingness to cooperate at all times with the proper authorities in order to secure adequate medical care for the indigent, yet at the same time recorded its conviction that such care is a state and county responsibility and is properly a function of the local governmental unit and the local medical profession.

SOUTH CAROLINA

Annual Piedmont Assembly—The annual Piedmont Post Graduate Clinical Assembly will be held in Anderson September 8-10. Among the speakers announced on the preliminary program are the following:

Dr. Kenneth M. Lynch, Charleston, The Pathogenesis of Tuberculosis
Dr. David T. Smith, Durham, N. C., Diagnosis and Treatment of Chronic Pulmonary Infections Which Simulate Tuberculosis
Dr. Frank K. Boland, Atlanta, Treatment After Laparotomy
Dr. Marion C. Pruitt, Atlanta, Diagnosis and Treatment of Common Diseases of the Anorectum
Dr. Addison G. Brenner, Charlotte, N. C., Down the Gastro Intestinal Tract with Camera and Tools

At a banquet the evening of September 9 Dr. Boland will speak on Crawford Long and the Discovery of Ether Anesthesia.

TENNESSEE

Personal—Dr. Everett E. Carrier, Johnson City, assistant health officer of Washington County since 1934, has been appointed health officer to succeed Dr. Wallace J. Poole who resigned. Dr. Joseph L. Conyers, Gates, has been appointed assistant to Dr. Carrier.

Society News—Dr. John Shelton Horsley, Richmond, Va., addressed the Chattanooga and Hamilton County Medical Society, July 1, on "Early Diagnosis and Treatment of Cancer." Drs. Albert Weinstein and James Frazier Bunn, Nashville, addressed the Smith County Medical Society, Carthage, July 2, on diabetes and diarrheal diseases of children, respectively. Drs. Edward C. Mitchell and John J. Shea, Memphis, addressed the Gibson County Medical Society, Trenton, July 26 on "Summer Diarrhea" and "Upper Respiratory Infection as a Cause of Diarrhea in Children" respectively. Dr. James W. McElroy addressed the Memphis and Shelby County Medical Society, July 6 on "Congestive Heart Failure." Drs. William C. Colbert and William M. Adams, Memphis, addressed the Fayette-Hardeman Counties Medical Society recently on "Coronary Thrombosis and Angina Pectoris with Special Reference to Differential Diagnosis and Relationship of Plastic Surgery to General Practice" respectively.

WASHINGTON

Hospital News—St. Peter's Hospital, Olympia, celebrated the fiftieth anniversary of its founding recently. The present building was occupied in 1924. Ground was broken June 22 for a new orthopedic wing to the Swedish Hospital, Seattle. Gov. Clarence D. Martin turned the first spadeful of dirt.

Personal—Dr. Richard A. Koch, Tacoma, has been appointed health officer of Whitman County. Dr. Jesse H. Hendry, Tacoma, has been appointed physician in charge of Tacoma Hospital, a federal institution for Indians, to succeed Dr. John N. Allen.

Medical Murals at Fair—The Pierce County Medical Society, the Tacoma Public Health Council and the Tacoma District Dental Society are sponsoring a display of thirty murals at the Western Washington Fair to be held in Puyallup in the fall. According to *Northwest Medicine*, the murals depict the history of medicine from the earliest period to the present and include portraits of famous figures.

WEST VIRGINIA

Committee on Syphilis—Dr. William S. Fulton, Wheeling, president of the West Virginia State Medical Association, has appointed a committee on syphilis to cooperate with the state health department and other agencies in the current campaign. Dr. William M. Sheppe, Wheeling, is chairman of the committee and Drs. Ray M. Bobbitt, Huntington, and Amos H. Stevens, Fairmont, are the other members.

Personal—Dr. Turner E. Cato, New Cumberland, former health officer of Hancock County, has been appointed health officer of Kanawha County, with headquarters in Charleston. Dr. Charles N. Scott, Alloy, has been appointed head of the bureau of venereal diseases in the state department of health. Dr. Donald L. Butterfield, Moundsville, has been appointed medical adviser of the state department of public assistance. He will have charge of work with crippled children, adult physical rehabilitation and emergency medical and hospital care of the department's relief load.

HAWAII

Special Courses—Dr. Franklin G. Ebaugh, professor of psychiatry, University of Colorado School of Medicine, Denver, is conducting a course in mental hygiene at the University of Hawaii during the summer and is making a survey of mental hygiene problems in Honolulu under the auspices of the chamber of commerce. It is planned to establish a psychiatric clinic. Dr. Ernestine V. Kandel, Chicago, and Christopher J. Hamre, Ph.D., associate professor of zoology, University of Hawaii, recently gave a series of graduate lectures on hematology before the Honolulu County Medical Society.

GENERAL

Casselberry Prize to Be Awarded—The American Laryngological Association announces that the Casselberry Prize of \$500 is now available for a prize award, decoration or the expense for original investigation or research in laryngology and rhinology. Theses or reports of work must be in the hands of the secretary, Dr. James A. Babbitt, 1912 Spruce Street, Philadelphia, before February 1.

Society News—The second National Conference on Educational Broadcasting will be held in Chicago at the Drake Hotel, November 29-December 1. Topics selected for discussion are the American system of broadcasting, an evaluation of broadcasting from the point of view of the listener, educational broadcasting and the future of radio. George F. Zook, Ph.D., president of the American Council on Education, Washington, D. C., will again be chairman of the conference and Clarence S. Marsh, L.L.D., Washington, D. C., is executive secretary.

Twenty-five Thousand Persons Sterilized—The Human Betterment Foundation of California announced in a recent report that up to Jan. 1, 1937, a total of 25,403 sterilizations had been performed in state institutions under state laws in the United States. This was an increase of 2,241 over the total announced the previous year. These figures do not include operations in state institutions in states that do not have sterilization laws, the report points out, or operations that are primarily therapeutic, not eugenic in purpose. Twenty-nine states now have sterilization laws, the most recently enacted being that of Georgia. California, whose law was enacted in 1909, has performed the largest number of sterilizations, 11,484. Virginia is next with 2,634.

Aviators Vaccinated Against Yellow Fever—The Pan American Sanitary Bureau recently concluded arrangements with the Pan American Airways whereby all flying personnel will be vaccinated against yellow fever and all passengers will be required to record where they have spent the six days previous to embarkation in an effort to prevent transportation of the disease by air. This program was begun several months ago in Rio de Janeiro under the auspices of the U. S. Public Health Service (*THE JOURNAL*, June 19, p. 2149). It is now announced that a specially trained officer of the service will be detailed to Cristobal, Canal Zone, and Lima, Peru, and later to Miami, Fla., and Brownsville, Texas, to vaccinate the personnel of the air lines at those points. Each passenger will be

requested to fill out a standard form "Certificate of Origin of Passenger, which asks for localities visited or resided in for six days prior to embarkation." This period, plus the time consumed on the voyage, gives a fairly wide margin of safety, it is believed. In cases in which passengers have come from areas actually infected and the six day period of incubation since last possible exposure has not been completed on arrival at destination in the discretion of the quarantine officer the passengers may be placed in open surveillance observation or detention. Persons who can present satisfactory evidence of having had yellow fever or who can present certificates of vaccination will not need the certificate. The Rockefeller Institute for Medical Research will supply the vaccine from its laboratories in New York and Rio de Janeiro. As an additional precaution the planes are to be fumigated during the night with an insecticide and thoroughly ventilated in the morning before the embarkation of passengers, according to the agreement, published in *Public Health Reports* July 30.

Medical Bills in Congress—*Changes in Status* S 1077 has been reported to the House, with amendments proposing, among other things, to confer on the Federal Trade Commission jurisdiction over the dissemination of false advertisements with respect to food drugs, devices and cosmetics. S 1567 has passed the House proposing to permit the government to produce and sell under regulations approved by the President, helium for medical use. S 2970 has been reported to the Senate, proposing to reorganize the agencies of the government to extend the classified civil service and to establish a General Auditing Office and a Department of Welfare. The Secretary of Welfare, it is proposed will administer among others the laws relating to public health and sanitation. H Res 325 has passed the House authorizing the House Committee on World War Veterans Legislation to make a comprehensive survey of veterans hospitals to determine, among other things what further hospital facilities are needed. The committee will not later than Jan 3, 1938, report its conclusions to the Congress in the form of a bill or otherwise as it may deem necessary. H R 2711 has passed the Senate, with amendments, proposing to create a Division of Water Pollution Control in the United States Public Health Service. H R 8245 the third deficiency appropriation bill, has passed the Senate. The bill appropriates \$400,000 for the National Cancer Institute \$200,000 of which is to be available for the purchase of radium. The bill also authorizes the President to allot to the Public Health Service not to exceed \$200,000 to be used to continue the operation of the Hot Springs Transient Medical Center Infirmary at Hot Springs National Park, Ark. A further appropriation of \$50,000 is contained in the bill to enable the American Printing House for the Blind more adequately to provide books and apparatus for the education of the blind. **Bills Introduced** H R 8250, introduced by Representative Somers, New York, proposes to authorize an annual appropriation of \$5,000,000 to be allotted to the states for the study prevention control cure and eradication of syphilis. Plans must be submitted to the Surgeon General of the Public Health Service for approval before a state may obtain an allotment. S 2931, introduced by Senator Caraway, Arkansas proposes to authorize the Secretary of the Treasury to determine the total amount collected by the government from each physician during the period June 1, 1920, to June 30, 1931, for the privilege of prescribing the hot waters from the Hot Springs National Park and to refund to each physician the total amount so determined to have been collected from him with the proviso that no physician shall be repaid more than the sum of \$660. H Res 271, introduced by Representative Collins, Mississippi, proposes to establish a select committee of the House of Representatives to study laws and regulations pertaining to the general welfare of Indians and to require the committee to report the results of its investigations to the House on or before May 1, 1939. The first session of the Seventy-Fifth Congress adjourned sine die August 21. Legislation then pending before the Congress will retain its legislative status and may be acted on when the Congress convenes, Jan 3, 1938.

CANADA

Personal—Dr. Daniel Nicholson assistant professor of pathology at the University of Manitoba, Winnipeg has been promoted to the professorship of pathology, succeeding Dr. William Boyd who recently went to the University of Toronto as professor of pathology.

Graduate Courses—St. Michael's Hospital, Toronto will give a graduate course in medical subjects September 13-18. The University of Toronto Faculty of Medicine, Toronto is offering a course on physical and manipulative therapy and one on cardiovascular disease beginning September 20 and last-

ing a week, and a course on fractures for a week beginning September 27. The third annual refresher course will be presented at the University of Western Ontario, London, September 13-17, covering surgery, medicine, obstetrics and gynecology, and pediatrics.

LATIN AMERICA

Orthopedic Meeting in Brazil—The second congress of the Brazilian Society of Orthopedic Surgery and Traumatology was held in Rio de Janeiro, July 1-4. Among the speakers were Drs. Enrique Lagomarsino, Buenos Aires, Argentina on 'The Technic and Latest Apparatus for Treatment of Fracture of the Neck of the Femur', Fred H. Albee, New York, 'The Importance of the Lever at the Top of the Femur as a Stabilizing Influence and Its Restoration', Jose Luis Bado, Uruguay, 'Treatment of the Supracondylar Fracture of the Humerus', B. Valentin, Hannover-Kleefeld, Germany 'Systemic Diseases of Bone' and 'Congenital Anomalies of the Spine'.

FOREIGN

Personal—Prof. James H. Dible, professor of pathology in the University of Liverpool has been appointed to the chair of pathology in the British Postgraduate Medical School. Prof. Jacques Parisot, Nancy, France has been elected chairman of the Health Committee of the League of Nations to succeed Dr. Thorvald Madsen, Copenhagen.

Symposium on Rheumatism—The French League Against Rheumatism will hold its annual international symposium on rheumatism October 9 in Paris. There will be a clinical meeting in the morning at the Hopital Saint-Antoine and a scientific meeting in the afternoon at the Faculte de medecine. Details may be obtained by writing to Permanence de la Journee du Rhumatisme, 23 rue du Cherche-Midi, Paris VI.

Cholera in Hong Kong—An epidemic of cholera was reported from Hong Kong August 11 and more than 200 deaths had occurred up to August 20 according to the New York Times. Other outbreaks were reported from Macao, a Portuguese colony, and Canton. Hong Kong was reported to be crowded with refugees from the war zone. Inoculations of all new arrivals was required and vaccine for 250,000 injections was shipped from Singapore August 20. A report of that date said that health officers believed the epidemic had reached its peak and that it was confined mostly to the poorer Chinese.

Deaths in Other Countries

Prof. John Gordon Thomson, professor of medical protozoology, London School of Tropical Medicine and Hygiene died in London August 14, aged 60.

CORRECTION

Assistant Professor of Radiology—In a news item announcing recent appointments at Vanderbilt University School of Medicine, Nashville in THE JOURNAL August 7, page 440 the title of Dr. Herbert C. Francis should have been given as assistant professor of radiology.

Government Services

Changes in Public Health Service

Passed Asst. Surg. Erwin W. Blatter relieved at Ellis Island, New York and assigned to duty in the American consulate, Oslo, Norway in connection with the medical examination of aliens. Passed Asst. Surg. Harold L. Lawrence relieved at Oslo and assigned to duty in the American consulate, Berlin, Germany for the examination of aliens and the enforcement of quarantine procedures. Surg. Walter G. Nelson relieved at Berlin and assigned to Paris, France as relief officer in connection with the examination of aliens and the enforcement of quarantine procedures.

Examination for Commission in the Navy

Examinations for commission in the medical corps of the U. S. Navy and for appointment as interns will be held at all naval hospitals and at the naval medical school, Washington, D. C., October 11. Candidates for admission must be between the ages of 21 and 32 years at the time of appointment and graduates of or senior medical students in class A medical schools. Additional information may be obtained from the surgeon general, U. S. Navy, Bureau of Medicine and Surgery, Navy Department, Washington, D. C.

Foreign Letters

LONDON

(From Our Regular Correspondent)

July 31, 1937

War as a Disease

In a recent address to the Royal Institution of Great Britain, Lord Horder declared that war is "the greatest of all modern diseases, though it is primarily a disease of the mind and not of the body. It has existed since the race began, but its casualties were formerly trivial by comparison with those due to ordinary diseases. Today the proportions are reversed. The great war cost us 700 000 lives and 2 500 000 total casualties."

Science has reduced enormously the casualties due to the attack of the microbe on man but science has increased in much greater proportion the casualties due to the attack of man on man. The danger of another great war is never far from the thoughts of Europeans, and measures for averting that catastrophe are a constant preoccupation of England. It is therefore not surprising that a movement has arisen in the medical profession, which has such a special experience of the horrors of war, to play a part in its prevention. An organization of physicians called the 'Medical Peace Campaign' has therefore been formed. It holds meetings and publishes a bulletin. It has adopted the program of the International Peace Campaign, of which the main points are (1) recognition of the sanctity of treaty obligations, (2) reduction and limitation of armaments and (3) strengthening of the League of Nations for the prevention of war.

At the recent annual meeting of the British Medical Association, a resolution was moved that the council be asked to appoint a committee to consider and report on the psychologic causes of war and to press for an international section under the Health Organization of the League of Nations to deal with the psychology of war, on similar lines to the section now dealing with epidemiology. Reference was made to a committee of the Netherlands Association appointed six years ago with a similar purpose. Objection was made that any effective action must be international and an amendment to that effect was carried. The resolution, modified as follows was then carried: "That the Council be asked to press for an international section, under the health organization of the League of Nations to deal with the psychology of war on similar lines to the section now dealing with epidemiology."

Pharmaceutical Conference Criticism of the Politicians

At the British Pharmaceutical Conference Mr. T. E. Lescher, managing director of a well known firm of manufacturing pharmacists, said in his presidential address that our present system of allowing any one to handle the majority of drugs and medicines, on paying of a dollar license annually, encouraged the exploitation of the public by the distribution of "cure-alls" without the slightest knowledge of their properties on the part of the vendor. The official attitude in its most debased form was shown recently in the report of the Select Committee of the House of Commons on Medicine Stamp Duties. The committee recommended a sales tax on medicines and even on foods and beverages, if claimed to be beneficial to health. That in a so called enlightened age a body of public men should suggest that the state was justified in taxing substances used in ill health was unbelievable. Before 1914 under our *laissez faire* policy the fine chemical industry in Britain, particularly on the organic side was not extensive, and we were largely dependent on imported products. War experience gave British chemists their opportunity, and the manufacture of fine chemicals and biologicals today was on a scale sufficient to meet the require-

ments of our trade both at home and overseas. The advance of knowledge in recent years made it safe to prophesy that further important discoveries were just round the corner and that biologic and therapeutic products would increase in variety.

The Treatment of Pleural Effusions

In a discussion at the Royal Society of Medicine on the treatment of pleural effusions Dr. Burton Wood said that many effusions required no active treatment. They were benign and might even be protective in their effect. Thus a pleural effusion was the commonest manifestation of pulmonary tuberculosis in childhood, when it appeared to be analogous to other reactions of allergic type seen in child "contacts." Such effusions had little effect on health, sometimes disappeared rapidly, and were rarely followed by parenchymatous disease. Some of the adolescent pleurisies he thought were of a similar type. For this reason he held that a young person with a 'simple' pleural effusion and possibly in a hypersensitive state, should not be exposed to the risk of further infection for example in a sanatorium cubicle shared by a bacilliferous patient.

What was the after-history of patients whose lungs were apparently sound at the time of occurrence of a simple effusion? It had always been taught that the expectation of subsequent phthisis was from 40 to 50 per cent, but recent figures from Scandinavia suggested that 90 per cent of the patients made a lasting recovery. Time had not enabled Dr. Wood to make an exhaustive inquiry and he could not claim statistical accuracy, but in a series of thirty of his own cases, comprising young persons of the working class (from 15 to 35 years of age at the onset) twenty-seven have remained well and of the three who had died all had bilateral pleurisy.

If effusion is suspected, x-ray examination should precede exploration. Blind tapping was justifiable only for the relief of urgent symptoms, and haphazard aspirations in the front bedroom were to be deprecated. If the disease ran a favorable course the fluid would be absorbed spontaneously but if of less benign type aspiration would be followed by fresh outpouring of fluid, which would thicken as aspirations were repeated. The end result might be a chest still full of fluid, but empyematous fluid. The existence of a tuberculous focus in the underlying lung was often assumed and this had given rise to the practice of air replacement and the maintenance of the pneumothorax for some months to protect the lung. This treatment was based on speculation unless the effusion was known to cover diseased lung. When the large size of an effusion caused mediastinal displacement or distress air or oxygen replacement was of course necessary but Dr. Wood thought it useless to try to prevent reaccumulation by pneumothorax. If hectic fever persisted an aspiration would sometimes be followed by a fall in temperature. It was justifiable to try the effect of this with or without replacement, but repeated aspirations were undesirable. When fluid persisted for a month or more it was customary either to remove a few ounces to encourage absorption of the remainder or to try to secure a dry pleura. It was true that fluid if left would ultimately give rise to pleural thickening but an obliterative pleurisy, with the fibrosis to which it gave rise, was a conservative process. Fibrosis began where tubercle ended.

With regard to the effusions complicating artificial pneumothorax many of these were benign in their effect. An incomplete collapse was sometimes converted into a complete collapse, and a cavity held out by adhesions closed before their section could be considered. Sometimes an effusion rapidly filled the pleural space and it was tempting to replace it by air in the hope of maintaining a controlled collapse. But replacement was usually followed by reaccumulation, and repeated aspirations brought the risk of empyema. If one or two air replacements failed, Dr. Wood thought it better not to continue intervention. A natural serothorax was a good substitute for a pneumothorax and the effusion was slowly absorbed.

PARIS

(From Our Regular Correspondent)

July 31, 1937

First International Congress of Industrial Medicine

The first International Congress of Industrial Medicine was held June 2-6 in Paris. Following an introductory address by Professor Carozzi of Geneva on the important influence of the International Labor Bureau of the League of Nations on legislation in occupational diseases and factory sanitation, the various papers were grouped under four headings: group 1 teaching the subject of industrial medicine, group 2 pathologic aspects of industrial medicine, group 3 prophylaxis and treatment, group 4, legislation.

TEACHING INDUSTRIAL MEDICINE IN FRANCE

A paper on teaching methods as employed in the Paris Medical School was read by Professors Duvour and Rene Fabre. A distinction was made between preventive social medicine, which is a branch of hygiene, and technical social medicine, which in France includes industrial medicine and is considered a branch of legal medicine. The course consists of forty lectures, including (1) generalities and comparative legislation of occupational diseases, (2) study of the latter caused by chemical, physical, plant and bacterial agents, (3) clinical syndromes of occupational origin, (4) diseases in miners, in metallurgical, electrical and chemical industries and in those working at high altitudes, engaged in farming and fishing, and (5) sports at factories. These conferences are supplemented by laboratory work in industrial toxicology for those who wish to receive a degree in industrial medicine.

PATHOLOGIC ASPECTS OF INDUSTRIAL MEDICINE

In group 2 the first paper was by Professor Loeper and Dr Gilbrun, on professional oxycarbonism. In estimating the carbon monoxide content of the blood by the Nicloux method, the authors were able to detect a chronic carbon monoxide intoxication in five gas works employees who complained of headache and digestive disturbances and who were anemic.

Dr Kohn-Abrest said that a certain percentage of carbon monoxide is normally found in the blood. On the other hand, he has noted what would seem to be paradoxical, that in acute intoxication all the carbon monoxide is eliminated in a few hours, whereas in a chronic intoxication small amounts can be found for months. There seems to be a difference of mechanism of fixation by the blood in acute and chronic cases.

Dr Sezary presented a paper on occupational skin lesions and proposed the following classification as being of prognostic, preventive and therapeutic interest. He first distinguished dermatoses due to physical, chemical, microbic and parasitic agents which can involve large groups of workers employed under the same physical conditions. Second, dermatoses due to chemical plant or microbic agents which affect only those especially predisposed. This predisposition can be demonstrated by epidermal reactions, which have much value in the diagnosis of this group of dermatoses.

The problem of intolerance in industrial medicine was the subject of a paper which Drs Tzanck and Sidi presented. They said that a distinction should be made between intoxications due to the direct action of the poison and the individual reactions of intolerance, as regards legislation in legal medicine. They explained the problem of intolerance and distinguished its clinical, evolutive and biologic variations, which permit clearing up our conceptions of idiosyncrasy, anaphylaxis and hypersensitivity. All these have certain features in common. They are all individual, all vary according to the environment in which they occur, and all are different from intoxications. In the discussion of this paper, Duvour emphasized the importance of predisposition. He agreed with the authors in considering intolerance of intoxication as funda-

mental. The tolerant worker can resume his occupation after an intoxication provided no serious organic sequels persist, whereas the worker who has a lack of tolerance for a certain substance must be definitely excluded from taking up the same work, no matter how mild the first intoxication may have been.

Factory work in relation to pregnancy was discussed by the obstetrician Professor Brindeau. Certain occupations that involve prolonged standing, intense vibrations or bending over should be forbidden during pregnancy. Especially to be avoided is work with aniline dyes. Excessive work or intoxications can be followed by abortion, premature labor or the birth of undersized children. The present laws are inadequate. Women during pregnancy ought not to work in a factory and should restrict their activities to housework, but the allowances paid by the state are insufficient and hence it becomes the duty of every employer to interest himself in the protection of woman workers during pregnancy.

In a paper on latent benzoinism in factories around Paris, Dr Tara stated that where benzene is used he had observed an asthenia syndrome associated with blood changes in the form of a mild anemia, leukopenia, agranulocytosis with eosinophilia and prolonged bleeding time. Usually there is inadequate ventilation in such factories.

The question of traumatic arthritis of the elbow in workers who use hammers or pneumatic tools was taken up by Drs Belot and Nahan. They found joint changes similar to those observed in arthritis deformans. Clinically, only slight pain and stiffness of the elbow joint is complained of. Radiography often reveals marked changes such as enlargement of the diaphyses, osteophytes and intra-articular detached pieces of cartilage. The incidence of such changes in workers is very small, only 2 per thousand according to Rostock. In the discussion, Dr Desoille maintained that such joint sequels were often the result of improper use of the tools. This was also Dr Koelsch's opinion.

PROPHYLAXIS AND TREATMENT

Dr Kohn-Abrest reported that great progress had been made in purifying the air in most factories, as the result of frequent analyses for carbon monoxide and dioxide, combustible gases and chlorine derivatives of hydrocarbons by the toxicology laboratory of the city of Paris.

Dr Barthe spoke on the duties of a physician engaged in the practice of industrial medicine. The chief objective should be prevention, next he should act as an adviser in questions involving safety, hygiene and scientific organization of the daily work. There should be a team composed of the physician, engineer, sanitary technician and psychotechnician to study every problem involving the safety and health of the employees. Arrangements must be made with the nearest hospitals, dispensaries and social service organizations, in case the factory does not possess these.

Dr Lahy described the first laboratory of psychotechnic in France established by a large railroad company in 1931. This paper showed that the application of preliminary psychotechnical examination of candidates for positions had resulted in allowing the railroad to avoid placing 60 per cent of those tested in places where accidents were a potential factor and giving them other work.

Dr Marchandise of Belgium, in a paper on medicosocial aid for workers handicapped by cardiovascular disease, stated that the medical and social aspects of the question must be considered separately. A thorough preliminary examination of every worker must be made to permit adaptation of his duties to his physical forces. The best tests in addition to the physical examination, include the use of tachymetry to measure the rapidity of the circulation and radioscopic control of the aortic cardiac shadow. Workers with marked hypertension have a mortality coefficient much higher than those in the same con-

dition who are not obliged to work and hence can be properly cared for. A worker with hyposystole ought not to be allowed to work.

LEGISLATION FOR OCCUPATIONAL DISEASES

The first paper in group 4 was by Professor Ranelatti, who described the Italian laws for six occupational diseases: lead, mercury, phosphorus, carbon bisulfide, benzene and ancylostomiasis. The various diseases incident to coal mining are considered under industrial accidents. Concomitant with better organization a notable decrease has been noticed in the incidence of these occupational diseases, even in the case of lead poisoning.

Delegates from France and other European countries read papers on the legislation in their respective countries. Of interest was a statement by Dr. Bauer of Germany that there are now twenty-six occupational diseases which are indemnified in that country.

Specialists in Social Medicine

An organization known as the Social Insurance Medical Advisers and Inspectors held an annual meeting June 4-7 at Clermont-Ferrand, in central France. The two questions selected for discussion were (1) the role of medical control in social medicine in general and in social insurance in particular, and (2) treatment at health resorts of the socially insured. At the beginning, those who accepted these positions of advisory and inspection type in social medicine encountered a great deal of opposition on the part of their colleagues. The medical men who represented the interests of the caisses, or social insurance disbursing bureaus, were regarded as a sort of police force. At present thanks to the tactful and more ethical methods followed by most of the medical inspectors, this opposition has been overcome to a great extent. This is especially true of those inspectors who have had special training in their duties toward both the medical attendant and the insured.

The social role of the medical comptroller or inspector was defined as (1) search for social diseases and those incident to industrial medicine, and (2) close cooperation with all the government public health agencies, such as social hygiene, maternal and infantile protection and adaptation to vocations.

After the meeting, a number of health resorts in the vicinity of Clermont-Ferrand were visited in order to familiarize the medical officers of the social insurance with the advantages of sending the insured there for treatment.

BERLIN

(From Our Regular Correspondent)

July 19, 1937

The Evaluation of Radioactive Therapeutic Substances

Physical and chemical qualities of radioactive substances were discussed by Dr. S. W. Souci before the Medical Society of Munich. For the evaluation of the numerous radioactive products now on the market (natural and artificial radon-containing waters, radium compresses, radioactive ointments for the skin, radioactive fats and radioactive oils) and the apparatus (emitters, radonators, activators) designed to facilitate the administration of these substances an exact knowledge of radioactive decomposition is indispensable. The atomic fragments produced by these substances appear as alpha rays (positive charged helium nuclei) and beta rays (negative electrons). A third type, the gamma rays, consist of electromagnetic vibrations with great powers of penetration. Conversely, the penetrating capabilities of the alpha and beta rays are proportionately small. Since the rays are effective only if absorbed by the organism, the physiologic reaction is chiefly dependent on the density of the layers of tissue irradiated. There are three routine methods of the administration of radioactive waters: drinking, balneotherapy, and inhalation. The radon ingested if the water is drunk passes rapidly from the gastrointestinal

tract into the circulation and in a short while is given off by the lungs. By preliminary ingestion of a meal or by combining the radon with fats or active charcoal, the period during which the emanation remains in the organism may be increased. In contrast to radon, radium element remains retained in the body for a long period and comes to be stored in the bones. Cumulative storage of even small single doses can cause severe damage or even death after a long time. For this reason substances that contain radium are administered only after special precautionary measures have been taken. In balneotherapy, radon because of its solubility in water and lipoids can gain entrance to the organism through the skin as well as through the lungs and can thus become effective in sufficient concentration. At the same time there is formed on the cutaneous surface a radioactive deposit consisting of the products of radon decomposition, which gives rise to a secondary effect by its beta and gamma radiation. In view of the ubiquitous distribution of radium and its decomposition products many mineral and curative springs present some degree of radioactivity. Springs possessed of truly powerful radioactive properties are, however, rare. The radon content of radioactive water is still sometimes measured by the so-called mach unit in Germany and Austria. According to its definition this is a unit of concentration and not of quantity, yet the mach unit has been extensively but erroneously used as a quantitative unit as well. To avoid uncertainties only the international quantitative unit, the "microcurie" should be used; that is the amount of radon should be the equivalent of 1 microgram of radium, if, however, the term mach unit is applied, it is absolutely necessary that the relative value also be expressed. It is difficult to refer to a particular unit of concentration for therapeutic purposes. The German Society of Balneotherapeutics and Climatology about five years ago formulated guiding principles which placed the evaluation of radioactive therapeutic springs on a sounder basis by more precise definition of terms. According to the society no health resort can properly be designated a radium spa unless it has at its disposal natural radon or radium containing mineral waters the radioactive powers of which amount to at least 80 mach units or 10 (0.0000001 microgram) of radium per liter. Radioactive spring water bottled for shipment must at the time of consignment to sick persons still contain a minimal radioactive value of 800 mach units per liter.

Juvenile Delinquency

The fursorge-erziehung (juvenile delinquent bureau) undertakes the supervision and upbringing of juvenile delinquents and other young persons in need of strict supervision. According to official statistics there were on March 31, 1936 about 60,000 young persons in charge of the fursorge. In the year 1925 there were 100,000 of these minors dependent on public care but by the year 1933 this number had sunk to 52,000. The latest figure accordingly represents a new increase but this is explicable as chiefly due to changed prerequisites of commitment as well as to the increased birth rate of the post-war years. About 55 per cent of the delinquents are boys. The period of life covered by the activities of the fursorge has been somewhat shortened. Despite the decline in unemployment the proportion of unemployed among the fursorge's charges has risen again. The principal manifestation of delinquency among male minors that brings about commitment to the fursorge is in Prussia some offense against property, about 55 per cent of male delinquents are committed on these grounds. Sex delinquents constituted about 14 per cent of the male inmates; the number of vagrant minors increased by 45 per cent. Among the girls, sexual delinquency was the most frequent cause of commitment; it was the cause in 56 per cent of cases. The total expenditure of the fursorge-erziehung for the entire country amounted in 1936 after deduction of the

reimbursements and other income to 28,100,000 reichsmarks. The average annual gross amount expended per juvenile delinquent (without deduction of income) is 534 marks.

The Cancer Problem

Willy Baensch, professor of radiology at Leipzig, in a recent discussion of the cancer problem before the medical society of that city made several important observations. The abundance of new contributions to the literature on the causation and treatment of cancer is characterized by a wide divergence in attitudes, which range from cancerophobia and therapeutic nihilism on the one hand to optimistic claims of new methods of cure on the other. The number of fatal cancer cases in Germany at present may be estimated at from 80,000 to 100,000 and in the United States at about 125,000. A careful study of etiologic factors leads one to conclude that the production of cancer is not based on any single factor but on a multiplicity of factors. Certain irritations will produce cancer in one organism whereas a second organism subjected to identical stimuli will fail to manifest the disease. This susceptibility to cancer formation appears to be to some extent inheritable. The precancerous state of irritation among experimental animals may last from three to four months, as in the mouse, or one year, as in rabbits, whereas in man it may endure for about eight years. The irritant may be mechanical, such as chronic pressure of a dental prosthesis, eyeglasses or a pessary, chemical, as when cancers are produced by a known cancerogenic irritant substance or chemico-physical, as when the irritation is due to long standing injuries from lights and emanations. These two factors (predisposition and irritation) are ultimately combined with a third or liberating factor which is still unknown. Some believe in an invisible virus, which no one yet has been able to identify. One type of malignant neoplasm that may safely be ascribed to just such a virus is the Rous sarcoma of fowls. It seems probable that metabolic disturbances of organic function also play a part in the pathogenesis of cancer.

AUSTRALIA

(From Our Regular Correspondent)

July 15, 1937

Graduate Medical Education in New South Wales

Graduate teaching in medicine has been carried out in Sydney for many years. Since 1900, courses have been arranged at intervals by the University of Sydney or the New South Wales Branch of the British Medical Association. In April 1929 the New South Wales Branch of the British Medical Association formed a standing committee of the Council for the organization of graduate work. This committee arranged a number of regular courses. In September 1932 the New South Wales Branch of the British Medical Association formed a committee, which after several years approached the University of Sydney with the idea of closer cooperation and Aug. 12, 1935 the senate adopted a new by-law for the establishment of a committee to be known as the New South Wales Post-Graduate Committee in Medicine. All money and property of the New South Wales Permanent Post-Graduate Committee, which reverted to the New South Wales Branch of the British Medical Association was presented by the branch to the University of Sydney for use by the new committee. In 1936 the New South Wales government, on the recommendation of the minister for public health, made a grant of the sum of £1,000 to the Post-Graduate Fund in Medicine for the purposes of the committee. The Post-Graduate Committee has a building at its disposal for teaching purposes and courses for graduates. The resources of the University of Sydney and many of the hospitals of New South Wales. Each year the committee holds a general revision course of instruction given at all the larger metropolitan hospitals and designed for general practitioners. Courses of a more special nature are arranged and week end

courses are held at country centers. Instruction for higher degrees and diplomas is provided. The committee also makes arrangements for residence at obstetric, children's and general hospitals, instruction in the diseases of children and infant feeding, attendance at clinics for the diagnosis and treatment of cancer and tuberculosis, and tuition in anesthetics. A feature of graduate education in New South Wales has been the organization of a special hospital for graduate teaching. Aug. 1, 1936, an act was passed reconstituting the Prince Henry Hospital. A board of directors of fifteen was appointed, whose duties are to conduct and maintain the hospital for the treatment of public, private and intermediate patients and to make such provision as may be necessary or desirable to enable graduate teaching and research work in medicine to be carried out at the hospital by or under the authority of the University of Sydney. The board may make provision for the training of medical superintendents, hospital managers, hospital secretaries, hospital matrons, nurses, masscurs, almoners, dietitians, x-ray technicians and pathology technicians. The Prince Henry Hospital is undergoing a period of reconstruction and development preparatory to the introduction of regular graduate instruction and research, which it is hoped will start during the present year.

Medical Research in Australia

Prof. Frederic Wood Jones, professor of anatomy at the University of Melbourne, takes rather a pessimistic view of the problem of medical research in Australia. Professor Jones has been a member of the staffs of universities in Europe, America and Australia, and subsequent to the preparation of his report he resigned his chair in Melbourne to take up a similar position at the University of Manchester, England. As a reason for this action he stated that the opportunity for research work is too restricted in Australia, greater opportunities being given in overseas countries. Professor Jones is one of the most prominent figures in Australian academic medicine. A brilliant orator, a forceful writer and an original thinker, he will be a serious loss to medical education in Australia. He considers that the best research workers are being lost to Australia through lack of suitable prospects of academic research. The best type of research worker is he who from his student days is set in his idea of becoming a research worker—a man to whom the lures of successful practice mean nothing but who is determined on investigation for its own sake. Australia is losing men of this type in a small but continuous stream. One of the difficulties in Australia is that the routine teaching and administrative duties that have to be undertaken by the staff of the medical schools is so pressing that, with the best will in the world, it is in many cases impossible for research work of any real importance or any real continuity to be carried out. The demands made on the occupant of a chair for doing work outside his teaching routine are mainly those of solving problems for medical men practicing in the state and in answering innumerable letters seeking information about all sorts of matters usually unrelated to the professional sphere of the recipient.

Research of national importance must have two prerequisites. The first is coordination of effort, and the second is direct leadership. Professor Jones doubted whether, in the absence of coordinated team work, it was wise to endow with large sums of money the prosecution of such studies as cancer research in Australia. Close coordination between the medical biologist, the chemist and the physicist within a single research institute is almost essential if a successful attack is to be made on the problem of malignancy. It would be one of the miracles in the history of medical science if the solution of the problem should be revealed to any isolated investigator no matter how great his scientific attainments or how ample the funds at his disposal. Until team work is better organized than it is today,

in Australia it would be wise to give preference to the "individual" type of investigation in the allocation of research grants. Meanwhile, every effort should be made to create conditions that would make well coordinated team work a possibility in the Australian medical schools. Another handicap to medical research in Australia is the lack of trained technical assistants. The present meager finance devoted to the teaching departments of medical schools does not permit of proper advancement to those who take on this type of work as a life occupation. In conclusion, Professor Jones considers that it is a waste of money to attempt to create a research worker to deal with a specific problem, but it is always a wise investment to place the real research worker in a position of comparative freedom from urgent financial problems.

Abortion in New Zealand

At the request of the obstetric and gynecologic section of the New Zealand Branch of the British Medical Association, the prime minister of New Zealand set up a commission to inquire into the incidence of septic abortion in New Zealand. A questionnaire was sent to all the executive officers of the divisions of the British Medical Association of New Zealand. These were collated by the obstetric section of the association, and a positive answer was given to the question "Do you consider that induction of abortion is extensively practiced in New Zealand?" In reply to the question "What practice do you consider to be the more common?" the consensus was that the single woman resorts to the abortionist but the married woman, on account of the expense, more commonly attempts self induction. Drug taking is largely practiced in the first instance. This usually fails and is followed by other methods of self induction, such as the insertion of an instrument into the uterus, purgation combined with vaginal douching, and violent exertion. Drugs alone are seldom effective unless taken in doses that are dangerous to the mother. Criminal abortion is usually carried out by the introduction of a catheter into the uterus. Other methods adopted were the injection into the uterus of fluids such as soap solutions, saponated solution of cresol or iodine, and the use of tents. It was stated that septic abortion usually occurs in the induced class, especially the instrumentally induced group but that there were cases of sepsis following spontaneous abortion. The commission of inquiry in its final report estimated that at least one pregnancy in every five ends in abortion. About 66 per cent of these are unethically induced, either through the agency of criminal abortionists or by self induction. Deaths from septic abortion occur almost entirely in such cases. These deaths have greatly increased in recent years and now constitute one fourth of the total maternal mortality. In some districts it amounts to nearly half of the total maternal mortality. According to comparable international statistics, New Zealand has one of the highest death rates from abortion in the world. The main causes for abortion are (1) economic and domestic hardship (2) changes in moral and social outlook (3) pregnancy among the unmarried and (4) fear of childbirth. Suggested remedies to overcome these causes are: 1. Financial, domestic and obstetric help provided by the state. 2. The correction of the outlook of women today which expresses itself in a demand for a right to hunt or to avoid a family. The widespread half knowledge of birth control methods encourages a false sense of security, these ineffectual methods often fail and the temptation to abortion then follows. 3. More careful education of the young in matters of sex. The advertisement of the sale of contraceptives to young people should be prohibited but at the same time there should be a more tolerant attitude on the part of society toward the unmarried mother and her child. 4. Education of the public with regard to the fact that New Zealand now has a very low death rate in actual birth and that relief of pain in labor is largely used. Further efforts in the direc-

tion of the relief of pain should be explored. The public should be educated to the responsibilities and privileges of motherhood and the advisability of self discipline in certain directions. Knowledge of birth control should be given through responsible channels, mainly through well informed doctors and to a certain extent through clinics associated with the hospitals. Through women's social organizations, the womanhood of New Zealand should be appealed to, and the selfish and unworthy motives which have entered into family life should be corrected. The sale or distribution of contraceptives should be restricted to practicing chemists, doctors, hospitals and clinics and public advertisements of contraceptives should be prohibited. No alteration of the law as regards abortion was recommended and it is considered that when the reasons for the operation are valid the doctor runs no risk of prosecution. The committee strongly condemned any suggestion of legalization of abortion for social and economic reasons. It was realized that the legalized performance of the operation by doctors in hospitals might reduce the incidence of criminal abortion and deaths from septic abortion but that this procedure could not be justified on account of its association with grave moral and physical dangers. The committee realized that it was unable to put forward a complete and certain solution of this grave problem, but the full publicity given to the investigation would, it was hoped, awaken the public conscience, and the ultimate issue would rest with the attitude and the action of the people themselves.

BUCHAREST

(From Our Regular Correspondent)

July 26, 1937

The Rumanian Medical Association

The annual congress of the Rumanian Medical Association was held July 18 in the palatial residence of the association in Bucharest, under the presidency of Prof. Peter Tomescu. In his address, Tomescu said that one object of these annual congresses is to examine the social and material position of the medical profession and to search for the best way to adapt itself to the present social scheme. The association is gaining in importance in the eyes of the government and now must assume the task of preparing an adequate plan for the hygienic organization of the whole country. In recent years the association has dealt more and more intensively with the health of the villages. What has been accomplished in this field is due in the main to the work of the minister of health, Dr. Costinescu.

The congress voted approval of the following resolutions: 1. Military field physicians shall be appointed in peace and also in war, according to their special abilities and ages. Reserve physicians shall be given rank corresponding to their civilian occupation. 2. Toward the elimination of obstacles to medical practice, the association will fight for a better distribution of physicians, for it is not satisfactory that in some cities the ratio of physicians to population is 1:300 while in certain rural districts the ratio is one physician to 19,000 people. 3. There should be a revision of foreign medical diplomas obtained since the World War. 4. A sickness insurance bureau for physicians should be organized. 5. Physicians employed in certain public offices should not be dependent on politics but should be appointed definitively and for life for only so can they perform their duties with full devotion. Professor Guie, representing the minister of health, stated that it has become almost a tradition since 1910 that the minister fulfils the wishes of the medical association. While in 1933 the total number of rural physicians was 933, this number is now 1,600. The government has tried to improve the situation of rural doctors and at present they enjoy a salary which ensures them a living worthy of their standing. In the last three years, 550 dispen-

saries were opened and five new foundling houses were established. The budget of the ministry of health approaches two milliard lei (\$20,000,000).

The three 10,000 lei prizes offered by M. Cantacuzino, proprietor of the huge serologic laboratory in Bucharest were awarded to P. Ramneantu for his elaborate charts showing the growth, weight and state of nutrition of Rumanian children between 5 and 15 years of age to R. Patroianu for his work on latent tuberculous infection in children vaccinated with BCG and to N. Paraschivescu for his study "Contributions to the Study of Transmissible Paralysis."

Abramovici and Moisesescu read a paper on the present difficulties of medical practice. The trend to socialization and nationalization wholly ruins private medical practice. Social insurance and other collective activities founded for the purpose of supplying cheap medical service more and more constrict the field from which private practitioners gain their patients. They offer as a remedy the regulation of gratuitous medical attendance, the awakening of interest in rural medical practice, the extension of social insurance to the villages, limitation of the number of physicians who may settle in towns and cities, the extermination of illegal practice, the prohibition of advertising by charlatans in the newspapers and the augmentation of the number of physicians employed in hospitals.

After the conclusion of the work of the congress members of the association visited the Central Clinic for Mental and Nervous Patients which is under the direction of Professor Tomescu, president of the congress. The results of treatment were shown on an instructive film. After the inspection of the clinic, Professor Tomescu entertained the members.

The Late John D. Rockefeller

All medical journals in Rumania have printed editorials on the passing of John D. Rockefeller, expressing their deep feeling on his death. In one year the Rockefeller Foundation granted about 30,000,000 lei for the promotion of health institutes in Rumania. With this sum a malaria station has been built and equipped in the most modern way, the school for nurses in Cluj was enlarged by several new groups of buildings, laboratories were established and the Social Rumanian Institute was built. Funds were allotted to the Bucharest Demographic Institute, the Bucharest Institute of Hygiene and the Central Sanitary Institute. Even more recently the Rockefeller Foundation granted money for the erection of an institute in Jassy for the study of scarlatina.

Marriages

ANTHONY MILLS PERNETTI Paterson N. J., to Miss Louise Joan Cerabone of La Grangeville, N. Y. at Sylvan Lake N. Y., July 29.

KENNETH COSTICH Rochester, N. Y., to Miss Margaret Camilla Kirkland of Durham, N. C. June 14.

EDWIN EMMONS CORCORAN Lancaster S. C. to Miss Dorothy Rowe Lucas of Charleston, June 5.

ROBERT WESLEY BRADON JR. Martin, Tenn., to Miss Mary Frances Harris of Memphis in March.

ION ATHALSTEIN EILDFELL to Miss M. Meech both of Winnipeg Manit., Canada July 10.

ELMER SHEPMAN ALLEN JR., Arcola Ill., to Miss Jane Chloe Jarman in Oklahoma City in June.

FRED I. CRISTROM to Miss Myrtle Helm Puckel both of Rockford Ill. in June.

LEON MATHON COTTRELL to Mr. Charles Henry Birdsall, both of New York June 26.

LESLIE M. CHAPMAN, Boston to Miss Virginia M. Gies of Detroit May 29.

WILLIAM H. ALTIER to Miss Pauline Kerr, both of Fowler, Ind. June 23.

Deaths

Joseph Augustus Blake, Litchfield, Conn., College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1889, assistant demonstrator in anatomy in 1891, instructor in surgery in 1900 and professor of surgery, 1903-1913, at his alma mater, member of the American Surgical Association, Society of Clinical Surgery and the American Association of Anatomists, fellow of the American College of Surgeons, corresponding member, Societe de Chirurgie, Paris, surgeon to the American Ambulance, Neuilly, France, August 1914-October 1915, head of the British base hospital at Ris Orangis, October 1915-March 1917, the American Red Cross Hospital in Paris, April Oct 31, 1917, appointed commanding officer and surgeon in chief to the American Red Cross Military Hospital, number 2, Paris major in the medical reserve corps in 1917 and in 1918 was made a colonel in the medical corps of the U. S. Army, in 1917 was decorated by the Legion of Honor of France and in 1922 was made an officer, in 1919 received the Distinguished Service Medal, consulting surgeon to St. Luke's, Roosevelt New York Orthopedic, Beekman Street and Presbyterian hospitals, New York St. John's Riverside Hospital, Yonkers and Tarrytown (N. Y.) Hospital, on the editorial board of the *American Journal of Surgery* from July 1926 to December 1927, aged 72, died, August 12, of cerebral hemorrhage.

Judson Daland Philadelphia, University of Pennsylvania Department of Medicine, Philadelphia, 1882, formerly professor of clinical medicine at his alma mater, emeritus professor of medicine at the Medical Chirurgical College, Graduate School of Medicine, University of Pennsylvania, fellow of the American College of Physicians, member and past president of the American Clinical and Climatological Association, president of the Philadelphia Institute of Medical Research, surgeon with rank of lieutenant commander in the Naval Coast Defense Reserve in 1917, editor of *International Clinics*, 1891-1899, consulting physician to the Jewish and Misericordia hospitals and the Norristown (Pa.) State Hospital, aged 77, died, August 14 in Ventnor, N. J.

Henry Louis Hilgartner Austin, Texas, University of Maryland School of Medicine, Baltimore, 1889, member of the American Academy of Ophthalmology and Oto-Laryngology, fellow of the American College of Surgeons, on the staffs of the Texas Deaf Dumb and Blind Institute, Brackenridge and St. David's hospitals and the Seton Infirmary, consulting eye, ear nose and throat surgeon and examiner U. S. School for Aeronautics, during the World War, aged 68, died, June 9, in Atlantic City, N. J. of coronary occlusion.

Max Lyon Folk Chicago, Chicago College of Medicine and Surgery, 1917, assistant professor of ophthalmology at the University of Illinois College of Medicine, member of the American Academy of Ophthalmology and Oto-Laryngology, fellow of the American College of Surgeons, served during the World War attending ophthalmology to the Michael Reese Hospital and Research and Educational Hospital of the University of Illinois, aged 47, died June 7, of adenocarcinoma of the stomach.

Ernest Ustick Buckman Wilkes-Barre Pa. University of Pennsylvania Department of Medicine, Philadelphia 1897, member of the American Academy of Ophthalmology and Oto-Laryngology and the American Otological Society, fellow of the American College of Surgeons, past president of the Luzerne County Medical Society, member and past president of the board of directors of the Wilkes-Barre General Hospital, aged 73, died June 1 of coronary thrombosis and arteriosclerosis.

Burton Wilson Mack, Chicago, College of Physicians and Surgeons of Chicago School of Medicine of the University of Illinois 1903, member of the Illinois State Medical Society, fellow of the American College of Surgeons, assistant clinical professor of surgery Loyola University School of Medicine, on the staff of St. Ann's Hospital, aged 66, died June 7 at his home in Oak Park Ill., of carcinoma of the prostate.

Earl Bertrand Sweet, Los Angeles University of Pennsylvania Department of Medicine Philadelphia 1898, member of the California Medical Association, fellow of the American College of Physicians, served during the World War on the staff of the Los Angeles General Hospital, aged 62, died May 22 of carcinoma of the colon and bronchopneumonia.

Julius Joseph Leyko Baltimore University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1927, fellow of the American College of

Surgeons instructor in surgery at his alma mater, on the staff of the Mercy Hospital aged 33 died suddenly, June 8 of an accidental overdose of sodium amytal

Herman William Froehlich * Minneapolis Minneapolis College of Physicians and Surgeons 1906 fellow of the American College of Surgeons, member of the staff of St Barnabas and St Andrews hospitals was a trustee of the Concordia College St Paul, aged 57 died, June 14, of coronary occlusion

Joseph Patrick Burns * Philadelphia University of Pennsylvania Department of Medicine Philadelphia, 1906, served during the World War formerly on the staffs of St Vincent's and St Agnes hospitals, aged 76, died, June 4 in the Misericordia Hospital of traumatic shock, due to a fall

Harry Garland Timbres, Media, Pa., Johns Hopkins University School of Medicine Baltimore 1928 at one time assistant in biostatistics at Johns Hopkins University School of Hygiene and Public Health, aged 38, died, May 12, of typhus while at Marbunstroy, near Kazan, Russia

Edward Joseph Morris, Brooklyn University and Bellevue Hospital Medical College 1899 fellow of the American College of Surgeons served during the World War, aged 66, gynecologist and obstetrician to the Holy Family Hospital where he died, May 23, of coronary thrombosis

Charles Fuller Quinn, Cherokee Iowa, Sioux City College of Medicine, 1896 member of the Iowa State Medical Society county coroner and city health officer aged 78, on the staff of the Sioux Valley Hospital where he died, June 8 of carcinoma of the stomach and pancreas

William James Fleming, West Allis, Wis., Marquette University School of Medicine, Milwaukee, 1916 member of the State Medical Society of Wisconsin, served during the World War aged 48 died June 4 of cerebral hemorrhage and essential hypertension

Frank Aloysius Conlon * Lawrence, Mass Harvard University Medical School, Boston, 1904 member of the American Academy of Ophthalmology and Oto-Laryngology fellow of the American College of Surgeons, aged 56 died, June 23 of acute coronary occlusion

Walter William Peck, Darlington Wis., Rush Medical College, Chicago, 1883 past president and secretary of the Lafayette County Medical Society at one time mayor and president of the school board aged 77 died, June 13 of acute dilatation of the heart

James McElroy Fetterman * Pittsburgh Western Pennsylvania Medical College, Pittsburgh 1900 staff psychologist for the board of education aged 62 died June 1 in the Homeopathic Hospital of perforation of the common bile duct with biliary abscess

John Alfred Workman * P A S, Lieut, U S Navy, Hahnemann Medical College and Hospital of Philadelphia 1930 entered the navy in 1930 aged 31 was drowned when he was lost at sea from the S S *President Polk* April 3 near Honolulu Hawaii

William A Swope, Wheeling, Mo., University of Louisville (Ky) Medical Department 1885 aged 76 formerly on the staff of the Chultheote (Mo) Hospital where he died May 24 of heart disease, as he was preparing a patient for an operation

John Clark Jones, Brookline, Mass Rush Medical College Chicago 1881, Bellevue Hospital Medical College, New York 1882 Harvard University Medical School Boston 1895, member of the Massachusetts Medical Society, aged 80 died, June 17

Charles Howard Jameson * Hays, Kan., Washington University School of Medicine St Louis 1907 fellow of the American College of Surgeons on the staff of St Anthony's Hospital aged 50, died June 14, of acute dilatation of the heart

Thomas Enoch Steen, Florence Miss University of Nashville (Tenn) Medical Department 1911 member of the Mississippi State Medical Association aged 65 died May 27 in a hospital at Jackson, of epithelioma of the mouth

Frank S Morris * McCool Junction Neb Medical College of Indiana Indianapolis 1887, for many years a member and at one time president of the board of education, aged 71, died May 1 of pneumonia and arteriosclerosis

Ronald Corbin Gyles, Siler City, N C Jefferson Medical College of Philadelphia 1917 served during the World War formerly health officer of Edgecombe County aged 43 died suddenly June 19 of coronary thrombosis

George Fred Lewis, Newton Mass Bellevue Hospital Medical College, New York 1886, formerly medical inspector

in the school department and later member of the school committee of New Bedford aged 77, died, June 15

Bayard Taylor Stevenson * Harvey Ill College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1898 on the staff of the Ingalls Memorial Hospital aged 64 died, May 29

Charles Adam Laubach * Norristown Pa., Johns Hopkins University School of Medicine Baltimore 1913 aged 49 on the staff of the Norristown State Hospital where he died suddenly June 20 of coronary thrombosis

Robert Liston Irish, New York University and Bellevue Hospital Medical College, New York 1899 member of the Medical Society of the State of New York, aged 69 died June 6, in the Reconstruction Hospital

Daniel Thomas Sullivan, Mansfield Mass Bellevue Hospital Medical College, New York 1896 member of the Massachusetts Medical Society for many years school physician aged 66, died May 27, of myocarditis

Nellie Ettie Kurtz, Buffalo University of Buffalo School of Medicine, 1910 member of the Medical Society of the State of New York aged 52 died, June 20 of coronary thrombosis and diabetes mellitus

Roger Ralph Olsen * A Surg Lieut (j g) U S Navy, University of Illinois College of Medicine Chicago 1932 aged 30 hanged himself May 2 while a patient in a hospital at Washington, D C

John Thomson, Syracuse Neb Trinity Medical College Toronto Ont Canada, 1902, aged 66, died, May 23 in St Mary's Hospital, Nebraska City of pernicious anemia and chronic nephritis

Robert Hazlett Cummings Phillips * Trenton N J Jefferson Medical College of Philadelphia, 1896, on the staff of the Mercer Hospital, aged 71, died, May 10 of carcinoma of the rectum

O W Statham, Leesburg Ga Baltimore Medical College 1895, chairman of the county board of education aged 65 died May 19, in the Phoebe Putney Hospital Albany of Brill's typhus fever

Frederick Porter Hammond * New York College of Physicians and Surgeons Medical Department of Columbia College New York, 1889 aged 71 was killed June 3, by a trolley car

Foye R Troute * Denver Ohio State University College of Medicine 1917 served during the World War aged 46 died May 27 in Englewood Colo, of pulmonary tuberculosis

Melvin James Brown, Mars Hills Maine Baltimore Medical College 1896 member of the Maine Medical Association aged 83 died June 16, of arteriosclerotic heart disease

Gordon Edward Stanley, Hazelton, B C Canada University of Alberta Faculty of Medicine Edmonton 1934 on the staff of the Hazelton Hospital aged 31 died, May 24

David William Trout, Stockport Ohio Ohio Medical University Columbus 1901 member of the Ohio State Medical Association, aged 62 was found murdered, May 19

Frank Malcolm Child, Teaneck N J University of Vermont College of Medicine, Burlington, 1894 aged 67, died June 21 of chronic myocarditis and arteriosclerosis

Charles Rodman Townsend, Bridgeport Conn Albany (N Y) Medical College 1895 aged 64 died, May 27, of pulmonary tuberculosis and diabetes mellitus

Carlton A Smith, Oklahoma City, Kansas Medical College, Medical Department of Washburn College, Topeka 1903, also a druggist aged 65, died, May 3

Alois Anthony Thuner * Point Loma Calif Detroit Medical College 1879 member of the Michigan State Medical Society, aged 79 died May 24

Edward V Brown, Woodstock Ill, College of Physicians and Surgeons Keokuk, Iowa 1888 aged 81, died, June 4 of chronic myocarditis

Frank Woolford Finley, Williamsburg Ky University of Louisville Medical Department, 1892 aged 74, died June 11 of heart disease

Rufus Moos Wallace, Coryton Tenn, University of Louisville (Ky) Medical Department, 1887, aged 80, died, May 15

William Alvy Jones, Wildie Ky Louisville and Hospital Medical College 1908 aged 50 died June 7 of heart disease

Herbert Maw Caledon * Ont Canada Trinity Medical College Toronto 1897 died May 26

William Thomason Oliphant Ark (licensed in Arkansas in 1903), aged 73 died in Ala

Bureau of Investigation

MOONE'S EMERALD OIL

President of International Laboratories Fined as Shipper of Worthless Varicose Vein Treatment

The United States Department of Agriculture, in a release dated July 29, 1937, reporting terminations of criminal actions under the Federal Food and Drugs Act against some seventeen medicine manufacturers states that the largest fine was paid by Fred W Clements and the International Laboratories Inc, of Rochester, N Y, shippers of "Moone's Emerald Oil"

According to a commercial report, the officers of International Laboratories, Inc, consist of Frederick W Clements president, Miss Daisy E Clements, a sister, vice president and assistant treasurer, and a William Blamire, secretary and treasurer According to the same report, Clements is treasurer and manager of W H Buckley, Inc, manufacturers of proprietary medicines, Rochester, N Y He is also president and treasurer of E Griffith Hughes, Inc, of Rochester distributors of 'Kruschen Salts' (THE JOURNAL, Nov 21, 1931, p 1555), a one-third stockholder and official of the Scobell Chemical Company and a partner in the Johnstone Advertising & Sales Company

Clements was reported to have been at one time connected with the Moone Chemical Company of Rochester N Y which concern in 1916 was putting out an Emerald Oil for external use and claiming that the product was made famous through its power to exterminate pus germs and eliminate their poisons, destroy odors arising from ulcers gangrene cancers, relieve pain and assist Nature in restoring health to the parts" It was claimed to have been used extensively for pains, inflammations, swellings, neuralgias bites, bruises, burns, scalds, chilblains, pimples, sore throats, goiters, tubercular glands, boils, abscesses, carbuncles, ulcers, felons fissures, fistula, piles, ingrowing toe nails, gangrene, cancers, catarrhs and other discharges"

On July 12 1916, the United States attorney for the Western District of New York, acting on a report by the Secretary of Agriculture filed in the District Federal Court an information against the Moone Chemical Company, a corporation Rochester, N Y alleging shipment by the company, in violation of the Food and Drugs Act as amended, of a quantity of Emerald Oil that was misbranded It was alleged in substance in the information that the article was misbranded for the reason that the label bore false and fraudulent statements On Nov 20 1917 the defendant company entered a plea of guilty to the information and the court imposed a fine of \$25

Moone's Emerald Oil has been extensively advertised in various newspapers under such catch headings as 'Reduce Those Dangerous Swollen Veins,' 'How to Reduce Varicose Veins' 'Here's Speedy Relief From Bunions and Soft Corns' The nostrum has also been held out to the public as wonderful for ulcers old sores broken veins and troublesome cases of eczema In 1929 the International Laboratories was advocating Moone's Emerald Oil as a "marvelous antiseptic it destroys germs and poisons caused by germs, is such a remarkable healing agent that eczema barbers itch salt rheum and other inflammatory skin eruptions go in a few days For years it has been used for boils, ulcers abscesses and open sores that discharge and with the most perfect success" This remarkable remedy was claimed to be a Surgeon's Prescription and to have astonished physicians' There is no doubt that physicians would have been astonished to find varicose veins and eczema yielding to a green-colored mixture of mineral oil with camphor wintergreen and carbolic acid which the Food and Drug Administration reported the nostrum to contain

The painful experiences of two women who accepted the Moone's Emerald Oil advertising copy as trustworthy have

been reported to the Bureau of Investigation by the attending physicians In 1934 a New Jersey physician wrote

Recently I had a case of dermatitis venenata in a young woman who rubbed Moone's Emerald Oil into the skin of her feet The skin reaction was similar to that of poison ivy"

In 1935 a New York physician informed the Bureau

One of my patients, having read same [Moone's Emerald Oil advertisements], was thus induced to buy a bottle of this alleged cure and, after applying same in accordance with directions, she was obliged to go to bed because of the tremendous swelling in one of her legs and the appearance of an eruption on the areas where the oil was applied Subsequently both her legs became swollen, the skin became indurated, brawny in appearance and showed an extensive hemorrhagic eruption The hemorrhagic eruption was diffused over an area extending from the ankles up to the knees A few days later the entire body became involved There appeared a papular and macular eruption, some of which became confluent, forming large blotches Because of the itching and burning sensation the patient became very nervous, exhibiting chilly tremors, and had to be confined to bed for about ten days"

Although Clements, president of the firm, had pleaded not guilty to the government's charge in the recent prosecution that

the oil was neither germicidal nor a treatment for the disease conditions named in the labeling the government's allegation that the product was worthless for the conditions advocated was upheld by the jury finding of guilt

MISBRANDED 'PATENT MEDICINES'

Abstracts of Notices of Judgment Issued by the Food and Drug Administration of the United States Department of Agriculture

[EDITORIAL NOTE The abstracts that follow are given in the briefest possible form (1) the name of the product (2) the name of the manufacturer, shipper or consigner (3) the composition, (4) the type of nostrum (5) the reason for the charge of misbranding and (6) the date of issuance of the Notice of Judgment—which may be considerably later than the date of the seizure of the product]

Red Cross Pills—Red Cross Chemical Co Inc Fall River Mass Composition Essentially ferrous carbonate arsenic and manganese compounds potassium sulfate and plant extracts including tryphine and aloin For anemia kidney and bladder troubles impure blood Fraudulent therapeutic claims —[V J 24116 November 1935]

WTC Anti Pollen Salve—Corn Chemical Co Cleveland Tenn Composition Essentially aluminum chloride (21 per cent) in a mixture of petrolatum and wool fat For hay fever Fraudulent therapeutic claims —[V J 24092 November 1935]

Fink's Magic Oil—H G G Fink Laboratories Cincinnati Composition Essentially water alcohol (48 per cent) and small amount of essential oil including cinnamon wintergreen and saffron For malaria cholera morbus fever etc Fraudulent therapeutic claims —[V J 24106 November 1935]

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT HOWEVER REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS BUT THESE WILL BE OMITTED ON REQUEST.

AFTER CARE OF POLIOMYELITIS

To the Editor—I have been unable to find specific and detailed instructions in carrying out the care of paralysis following the acute attack of poliomyelitis. I will appreciate your sending me detailed information as to the best procedures to follow in a case of deltoid paralysis and paralysis of the flexor muscles of the foot. I should like information on these points: How to use the electric stimulation and galvanic currents in the muscle care; how often this should be done; how much active and passive motion is indicated; whether the arm should be kept elevated or allowed to remain in a sling; advisability of swimming and of how much benefit it is. Any further instructions you may have as to the care of these muscles will be appreciated.

M D Texas

ANSWER—The after care of paralysis resulting from acute poliomyelitis requires prolonged and intelligent supervision based on an accurate knowledge of the muscles involved. In the past, many diverse systems have been employed. Opinion now is more crystallized, variations being introduced only to favor paralyzed muscles. There have been several articles by competent authors in the past few years in the *American Journal of Physiotherapy* on the management in the recovery stage of this disease.

Orthopedic after-care begins the moment muscle weakness or paralysis is detected. At this time the extremities should be splinted in a position to relax most of the muscles. In the event of partial paralysis of a member, the position should favor the weakened muscles. The patient should remain in bed, resting on a firm mattress. In the upper extremity the arm should be kept abducted nearly to right angles on the chest, and in a neutral position as regards rotation at the shoulder, i. e., the forearm should be placed in the frontal plane. The position of the elbow depends on the relative strength of the flexors (biceps and brachioradialis) and the triceps extensor. If the latter is extremely weak, extension should be favored. The forearm should lack one third of full supination when extensive paralysis is present here. Special attention should be directed at an accurate analysis of wrist, thumb and hand palsy as much damage has been done in the past to the small muscles of the hand by lack of support. Usually the thumb should be splinted across the palm to relax the opponens pollicis and the adductor pollicis. Flexion at the metacarpophalangeal joints of about 30 degrees should be maintained unless a contraindication is present.

The pelvis should be prevented from sagging by suitable support in bed while the legs are maintained in from 10 to 15 degrees abduction at the hips, slight flexion at the knees, and with the feet at right angles to the legs, special attention being paid to the prevention of foot drop. In the event of focal weakness, as of the calf muscles, such groups should always be favored by relaxation. A strictly convalescent status without active care except general nursing and positional care should be maintained as long as any muscle tenderness remains. The extremities should be removed daily from support for bathing and slight daily passive motion at the major joints to prevent fixation from prolonged immobilization. Even then meticulous care should be taken to avoid rough handling. The physician should always be on the alert for contractures. These often develop rapidly but such deformities are preventable if vigorously combated. When tenderness is gone carefully planned graded active exercise is begun with the aid of water to provide buoyancy or a glazed or polished surface to reduce friction. There are no virtues inherent in either except that the use of water at a suitable temperature (90-95 F.) is most pleasing to the patient and enables exercise to be carried out with the minimum of effort. The types of exercises to be prescribed cannot be listed in so brief a space. Such textbooks as C. L. Lowman's *Technique of Underwater Gymnastics* (American Publications Inc. Los Angeles \$5) can be consulted. It is wise to employ an orthopedic surgeon at least in a consulting capacity to supervise the care of every case of poliomyelitis as the specific care to be given depends on the examination of muscles and judgment as to how much active exercise the patient should have each day. The slightest fatigue should be carefully avoided.

In a few weeks after the acute stage if paralysis remains only in an upper extremity the patient can be allowed out of bed with the paralyzed upper extremity supported on an air-

plane or platform splint. If the residual paralysis is in the lower extremity, extreme caution should be taken against allowing the patient to walk too soon. Braces should always be supplied when indicated. Recovery may be complete in a few weeks or months but in many instances it may extend over two or three years. The experienced orthopedic surgeon can usually give a reliable prognosis at the end of a year if paralysis remains at that time, provided he is in possession of data concerning progress during that year.

Answering specifically in the instances in which deltoid paralysis alone remained, such an extremity should be supported indefinitely on an airplane brace. Active exercises for this case should aim at strengthening any function detectable in the weak or paralyzed deltoid. These are best done with the patient in a recumbent position on a smooth table top or in a semirecumbent position in a moderate sized tank. Paralysis of the flexor muscles of the foot indicate that there is calf group and other paralyses in addition to the paralysis mentioned. An accurate estimation of the muscle strength should be made and the foot carefully splinted in the light of knowledge so gained. If the calf group is paralyzed with normal dorsal flexors, the foot is best supported in moderate equinus by a plaster splint with special attention that the arch is molded carefully and contraction of the plantar fascia avoided by some moderate dorsal pressure on the foot (as by web straps applied loosely). Exercises in this case can be easily given in a bath tub at home.

All electrical stimulation including galvanic and faradic applications to muscles or to nerves should be avoided. Rest in the optimal position and carefully graded active motion, protecting poorly functioning or paralyzed muscles from fatigue and stretching are the two important therapeutic agents used in the recovery phase of this disease. Passive motion should not be used except in minor degree to prevent fixation of joints. Swimming or other hydrotherapy should be used only as part of the program of active exercise and should be carefully supervised. In the two cases mentioned, a cautious start should probably be made at this time on a program of active exercise.

TRANSMISSION OF POISON IVY

To the Editor—The question has recently arisen in a compensation case as to whether or not poison ivy infection might be transmitted to a person exposed to the smoke from a fire in which poison ivy plants were being burned.

M D Washington D C

ANSWER—The active ingredient of all the *Rhus* species is toxicodendron, a phenolic oily resin contained in the sticky sap of the plant. While this is not volatile it may be conveyed for some distance on the soot of the smoke of a burning plant and produce typical lesions of poison ivy (Solimann Torald. *A Manual of Pharmacology and Its Application to Therapeutics and Toxicology*. Philadelphia W B Saunders Company 1936 p. 306).

LYMPHEDEMA OF LEG

To the Editor—I have under my care at present a woman aged 40 with refractory lymphedema of the left leg. The case is of ten years duration and despite all attempts to increase the lymphatic return the edema persists. It is probably of nonflarial origin the patient never having lived in a tropical zone. Southey's tubes have even been resorted to with only temporary relief the condition recurring shortly afterward. There is associated a mild parenchymatous nephritis with albuminuria and a few hyaline casts with a mild hypertension. There is no retention of nonprotein nitrogen however or increase in urea or creatinine. I am writing to inquire as to the possible efficacy of salyrgan or mercupurin in this condition and whether there are any reports in the literature as to the use of these drugs in conditions of lymph stasis or elephantiasis. Attempts to discover a possible source of obstruction to the lymphatic return have failed although abdominal exploration has not as yet been resorted to.

M D Illinois

ANSWER—There are two factors responsible for the swelling in lymphedema one of which is accumulation of unusual amounts of lymph in the tissues and the other of which is actual hyperplasia, or overgrowth of connective tissue. If the patient is put to bed and the extremity elevated in most cases of lymphedema marked reduction in the swelling occurs. This process is hurried occasionally by the use of diuretics such as salyrgan however the swelling will almost certainly recur if the patient becomes active again unless an adequate type of bandage is applied. The best kind of bandage is a pure rubber one 3 inches wide and 15 feet long. Ordinarily the bandage is applied over a hile stocking beginning by making two turns about the foot, two figure of eight turns about the ankle and progressing up the extremity to the knee. The toes and part of the heel are left exposed. The bandage should be removed and applied in the same manner each time as it becomes shriveled to the extremity on repeated use. If it is applied too tightly the toes become discolored cold and numb. If it is applied

too loosely, edema results. Patients soon become adept at bandaging their legs efficiently. The bandage should be removed at midday and reapplied over a dry stocking after the patient has rested for an hour. The same procedure is repeated at night if the patient is active. If he remains home he may remove the bandage and elevate the leg while sitting. Patients object to wearing the bandages because of the inconvenience in applying them repeatedly, the slight discomfort and their unsightly appearance. This is particularly true of women, who object to the appearance of the bandaged limb. Frequently a well fitting elastic stocking may be used for dress occasions and the use of the heavier rubber bandage may be reserved for ordinary activity. It is well to point out to women that the lymphedematous leg has an abnormal appearance which the bandage increases but little and to emphasize that uncontrolled edema almost invariably causes a gradual increase in the size of the limb. It is impossible to say how long the bandage should be worn, in some instances it must be used indefinitely; in others, improvement in circulation of the lymph may occur. Once every month or so the bandage can be left off for a day as a trial. If edema reappears, the support must be worn again.

In many instances in which there is marked increase in the size of the limb surgical treatment is beneficial. The modified Kondoleon operation decreases the size of the limb by removal of hyperplastic tissue and dilated lymph spaces. In a recent survey of sixty-four cases of lymphedema in which surgical treatment of this kind was used, there was improvement of varying degree in forty-one cases. The etiology, classification and treatment of lymphedema were considered in detail in the *Annals of Internal Medicine* 9:516 (Nov.) 1935.

TREATMENT OF ENDARTERITIS OBLITERANS

To the Editor—Will you please tell me what is considered the best treatment for endarteritis obliterans for a man 63 years of age? Would negative and positive pressure be indicated?

H. W. NYE, M.D. Osborne Kan.

ANSWER—The condition is better known as arteriosclerosis obliterans. The term endarteritis obliterans has been discarded for the condition characterized by arteriosclerosis with occlusion of the peripheral arteries since the term "endarteritis" indicates inflammation which is absent in most cases of arteriosclerosis. Since this condition is a chronic one treatment must be carried out over a long period. When the blood supply of the feet is greatly diminished or when there is ulceration or gangrene rest in bed is important since walking may cause injury to the tissues to which the blood supply has been impaired. Smoking should be discontinued since this causes vasoconstriction and contributes to the impairment of the circulation. Careful protection of the feet from injury of all kinds is important. The patient should do everything possible to avoid crushing and bruising the feet and toes, scratches, cuts, skin cracks, blisters, burns and frost bites. Only shoes that are comfortable and that do not bind or rub should be worn. Felt and wool lined shoes and soft woolen stockings should be worn in cold weather. Toenails should be cut straight across after soaking in warm water and should be carefully cleaned with orange-wood sticks. Corns, calluses and bunions should not be cut. If any chiropodist is done the chiropodist should be advised that the circulation is impaired. The removal of ingrown toenails and minor operations on the toes should be avoided as such procedures commonly precipitate gangrene. The feet should be washed carefully and gently at least every two or three days with mild soap and warm water, and 50 per cent alcohol should be applied after careful drying. If the skin of the feet is excessively dry and tends to crack or scale, hydrous wool fat and oil of theobroma may be used. Iodine, mercuriolate, sulfonaphthol phenol (carbolic acid), cresol preparations of soap-nated solution of cresol, carbolated petrolatum and similar preparations should not be applied to the feet since they may cause death of the tissue. Trichophytosis should be sought for and treated if present. However, ordinary preparations used in the treatment of this condition may be strong enough to cause ulceration. A safe method of treatment is to soak the feet in a 1:8000 solution of potassium permanganate. If infection is present in ulcers or gangrene the feet should be soaked in mild antiseptic solutions such as mild solutions of boric acid and preparations containing chlorine. A 10 per cent zinc peroxide salve or allantoin ointment may aid in cleaning up gangrenous areas. Epithelialization may be stimulated by a solution of thioglycerol. Postural exercises or treatment on the oscillating bed may help to develop collateral circulation; the former is carried out by lying on the back and elevating the feet to a vertical position until they become blanched and then sitting on the edge of the bed with the feet hanging down until

they become normal in color or excessively red. These procedures should be repeated a total of fifteen or twenty minutes three times daily. Contrast baths may likewise be of value. Two containers are used, each of which is large enough to immerse both feet to the midleg. In one is cold water (40 F) and in the other warm water (about 105 F). The feet are immersed for one minute alternately in the water of each container for periods of fifteen minutes two or three times daily. It is well to have a baker or a light cradle over the foot of the bed to see that the environmental temperature is elevated above that of the room but it should not exceed 105 F. Electric pads or hot water bottles applied directly to the skin should never be used. Intermittent pressure and suction may be of value and should be used at a minimum of two or three hours daily over a considerable period.

DIFFICULTY WITH SPEECH AND HEARING DEVICES

To the Editor—A boy now 6½ years of age is well developed and well nourished but is unable to talk and does not cooperate with his parents and attendants. The child was delivered normally without any history of obstetric injury, sat up at 7 months, walked at 14 months and had his first teeth at 7 months. From the beginning the parents noticed that he did not understand when he was addressed. However, during the first year of life he seemed to be able to utter a few noises as babies usually do. During the second year of life when the child was unable to learn how to talk and became hard to manage the parents became disturbed. However, they thought that he was a little backward in learning and they were not particularly greatly disturbed as the pediatrician who took care of the child told them that he was backward and that in time he would learn like the rest. About the third year when the child did not talk and he forgot the sounds that he had learned the parents again became alarmed and since have had him to many specialists and clinics. Two years ago he was taken to a well known clinic where a complete examination was done. I will repeat the most important observations. The hemoglobin was 14.1 Gm per hundred cubic centimeters, the red cell count 4,360,000, leukocytes 8,800. Tests for syphilis were negative. Roentgenograms of the head and chest and the Mantoux test were negative. Examination of the spinal fluid taken at the time of encephalography gave a negative Wassermann reaction. Nonne's test was negative. The protein content was 30 mg and the colloidal benzoin test was negative. The encephalograms disclosed nothing abnormal. An intelligence test could not be successfully made. The impression of the clinic was that the underlying aphasia must be a partial basis for the child's failure in development and that the striking disturbance in his behavior was partly reactive to his disorder of speech partly to his environment and possibly partly to disorder in its own name. At the advice of the clinic the child was placed in a well known school in Kansas which makes a specialty of treating cases of this kind. The child was kept there for almost a year without apparently any improvement in his speech. He is well developed, normal healthy and at times appears very intelligent. After the year was up the child was taken home because of lack of speech development and was placed in a school here in the city which specializes in the care of backward children. The child has made slight improvement since he has been at home and attending school. Recently he was taken to an ear, nose and throat specialist for examination and test for hearing. The examination disclosed that his sense of hearing is markedly impaired. Therefore the question comes up whether the child's condition is entirely due to faulty hearing. However, it seems rather strange that one of the best clinics in the country and a school that particularly specializes in the care of backward children had not informed us of this condition before. If we assume that the child's condition is due to hearing deficiency, what kind of a mechanical device would you recommend since there are so many on the market? Do you think that such a device will help his hearing and further his development?

L. M. SHAPIRO, M.D. Kansas City, Mo.

ANSWER—First of all it should be positively ascertained whether the child is so deaf that he cannot hear what people say. If so it may be only a case of ordinary deaf mutism. If not it is most likely a case of agencsis of the speech center since there is no reason to suspect birth injury or any brain disease that may have affected the speech center. We would not advise any mechanical device except after consultation with an otologist. The devices accepted by the Council on Physical Therapy are the acousticon, the audiphonic, the radio ear and the sonotone.

NEUROCIRCULATORY ASTHENIA

To the Editor—Please let me know if you have any information re a case of neuro-circulatory asthenia in a youth aged 16, weighing 172 pounds (78 kg) and 5 feet 9 inches (175 cm) in height. Schilling's count reveals 12 lymphocytes, 0.0 eosinophils, 1.0 myelocytes, 0.0 juveniles, 7.0 lymphocytes, segmented nuclei 8, lymphocytes 8 and large mononuclear 7. White blood cells number 8,500 and the red blood cells 5,320,000. The basal metabolism is 7 plus. The urine is normal with only a trace of albumin. The patient is hemophilic, he faints and passes out very easily.

GUSTAVE E. JACOBS, M.D. St. Louis

ANSWER—The diagnosis of neuro-circulatory asthenia is rather one. Grasping as a clue the statement that the patient faints and passes out very easily, it is assumed that this young man suffers from neuro-circulatory asthenia or the effort syndrome.

From the meager information given it would seem that the patient is in good physical condition. The Schilling count with its relative lymphopenia and rather high number of juvenile cells is not indicative in the presence of a normal total white count. There is no specific therapy for the effort syndrome. The treatment consists of good mental and physical management with the avoidance of drugs.

If the patient is a true hemophiliac it is something apart from the effort syndrome and should be considered as a separate problem. If he has merely a prolonged coagulation time it is probably unnecessary to do anything about it.

TONIC HEPATITIS AFTER DINITROPHENOL

To the Editor—Is there any helpful treatment for acutes resulting from degeneration of the liver brought on by the use of antifat treatment dinitrophenol? I have a patient 20 years of age who had an exploratory operation leading to the diagnosis of cancer. The surgeon prognosed her demise in six weeks which period now has extended to more than twice that. She has been tapped about every ten days and relieved of about 6 quarts of fluid each time.

M D Nebraska

ANSWER—Tonic hepatitis, or hepatic cirrhosis with portal decompensation, especially the latter, is an infrequent form of dinitrophenol poisoning. The former usually resolves when the drug is withdrawn, in addition to the use of a high carbohydrate, low fat diet and a daily saline aperient. Exclusive of syphilitic cirrhosis, there is no specific treatment for hepatic cirrhosis with ascites from whatever cause with the exception of the withdrawal of the particular hepatotoxin such as alcohol, arsenic or cinchophen. In this case the usual high carbohydrate, low fat and low salt regimen is indicated. Fluid should be restricted to 1000 cc daily for the time being. Satisfactory diuresis can be obtained by the use of salyrgan and potassium nitrate so that further paracentesis may be unnecessary. If there are no contraindications of a renal nature half of a 1 cc ampule of salyrgan is given intramuscularly as an initial dose. If there are no untoward effects the drug may be given in 1 cc doses thrice weekly. A maximum of 2 cc has been given at one time. As much as from 4 to 10 Gm of potassium nitrate may be administered daily. It is marketed in the form of enteric coated tablets of $7\frac{1}{2}$ grains (0.5 Gm) each. If adequate diuresis is not obtained by this procedure after a trial of from seven to ten days one must resort to occasional paracentesis and the administration of 10 per cent dextrose solution by phlebotomy. A tendency to acidosis may be combated by phlebotomy of 500 cc of 5 per cent sodium bicarbonate solution.

EFFECTS OF SODIUM PERBORATE ON TEETH AND GUMS

To the Editor—An article appearing in the May issue of *Hygiene* page 398 states that sodium perborate causes gingival manifestations such as pyorrhea. Is this so?

F D THOMPSON M D Chicago

ANSWER—The increased number of iatrogenic burns of the oral mucosae from the indiscriminate use of sodium perborate has led to serious misgivings concerning the use of drugs or of dentifrices containing it. The demand has been created largely no doubt by radio advertising.

The Council on Dental Therapeutics in its book *Accepted Dental Remedies* recognizes the use of sodium perborate for the treatment of Vincent's infection and related conditions. Such use is quite different from the ill advised use as a dentifrice or mouth wash as a supposed preventive for mouth diseases. The use of this drug as a mouth wash, a dentifrice, a bleach for the teeth or as an oral hygiene agent and as a preventive of 'pyorrhea' and trench mouth without individual attention by a qualified dentist or physician is against the public interest.

Sodium perborate was introduced about 1910 but until relatively recently its use was generally confined to sale on prescription. Few untoward incidents were noted which may be explained by its circumscribed use for relatively short periods and possibly to the directions for frequent rinsings of the mouth, a factor of some importance in the control of Vincent's infection. Following general advertising, particularly by the Vince Laboratories of New York, a number of cases of mouth burns were reported in the dental journals and by dentists.

When one considers the alkaline nature of the product and its widespread use, it is not surprising that undesired reactions began to be noted. Isadore Hirschfeld (*J Am Dental A* 21:776 [May] 1934) reported several cases of 'chemical burns,' hairy tongue and edema of the lips from the ill advised use of sodium perborate. Hirschfeld who has had a wide experience in the treatment of periodontal disease says: 'The patient was influenced by an advertisement to use a certain preparation of sodium perborate for inflamed gums. The lining of the cheeks

and lips became a heavy mass of necrotic tissue within a few days. After the perborate wash was discontinued, the burn healed rapidly. Although the solution used (1 tablespoon to the glass) is easily tolerated by the average person, clinical experience indicates that about 20 per cent of patients cannot use the drug stronger than a teaspoonful to three quarters of a glass of water without sustaining a burn of a greater or less degree. In view of these and other circumstances the Council on Dental Therapeutics will not accept dentifrices that contain sodium perborate.

These reactions in the mouth are not unlike reactions on the skin. Dr Leon Goldman (*The Skin Reactions of Infants and Children to Soaps in THE JOURNAL April 17 1937 p 1317*) notes that sodium perborate in a soap is the commonest eczematogenic agent. The patient with a contact dermatitis reacts more frequently to soap than the person with a normal skin.

It is not likely that sodium perborate will cause pyorrhea but it may cause gingival manifestations of the nature described. The danger rests in the possibility of secondary infection due to the inflammation of the tissues caused by the repeated application of an alkali-producing drug.

DIGITALIS THERAPY IN LACTATION

To the Editor—Is there any contraindication to digitalis therapy for a mother who is nursing her child?

M D Pennsylvania

ANSWER—Excretion of digitalis into the milk of the mother has not been demonstrated and is most improbable on theoretical grounds. It becomes fixed in all body tissues especially muscles and liver and is broken down into the digitalis genus and glucosides and excreted as such. It is found in edema fluid. There is no contraindication to administering digitalis to the nursing mother when there is a definite indication for its use, as in auricular fibrillation and passive congestion. As a factor of safety, it would be well to keep the baby under close observation.

LIQUID PETROLATUM IN PERITONEAL CAVITY

To the Editor—Will you please tell me what effect sterile liquid petrolatum will have if any when poured into the peritoneal cavity during operation? I have seen liquid petrolatum used for the purpose of preventing adhesions. Would it produce any inflammatory reaction in the peritoneum and might it actually produce adhesions? Could walled off globules of oil in the peritoneum produce a chronic irritation that might later result in malignant changes?

M D Georgia

ANSWER—When liquid petrolatum is placed in the peritoneal cavity it has a tendency to cause irritation. The pathologic picture is that of chylous-like fluid fatty necrosis of the omentum, and foreign body reaction with subsequent fibrosis. In patients in whom this procedure has been used, the liquid petrolatum did not prevent adhesions but caused them. The symptoms produced were those of vague, sometimes severe abdominal pains necessitating laparotomy and the excision of these fibrotic masses, this being especially true of some segments of the omentum.

It has been shown experimentally that irradiated petrolatum has no appreciable bactericidal effect on aerobic or anaerobic organisms in vitro.

Whether or not walled off fat globules of oil in the peritoneum might later result in malignant changes is problematic, but it does not seem likely.

SENILE VAGINITIS

To the Editor—Will you please outline the treatment for senile vaginitis?

JAMES P TAY M D Albany Ga

ANSWER—The origin of this condition is to be found in local nutritional or circulatory disturbances, atrophy of these parts resulting from the loss of ovarian function and advancing age. Local patches of raw surface appear where the vaginal epithelium has become denuded or cracked, and such surfaces readily adhere to one another.

The atrophic smoothness of the vagina and the narrowing of the introitus and canal are readily seen. The inflamed and also the denuded areas are visible, the granulating surfaces of the latter frequently oozing blood. Attempts at examination are painful and vaginal adhesions are easily detected.

Cancerous changes may be present and a positive diagnosis to the contrary cannot always be made. Segments of tissue should be removed for histologic examination when one is in doubt.

The prognosis is generally poor. Some alleviation of the difficulty is always possible but the process tends to be a progressive one especially if the patient is of advanced age.

For treatment, one may give douches once every day or two using compound powder of zinc sulfate (the pulvis antisepticus

of the National Formulary V), 10 Gm to 1,000 cc or $2\frac{1}{2}$ drachms to 1 quart of warm water. These are soothing and helpful.

Norman Miller recommends mildly antiseptic tampons (2 per cent mercurochrome with 10 per cent mild protein silver or 2 per cent phenolated glycerin) until the separated adhesions have healed and there is no longer any evidence of bleeding. The daily use of vaginal cones or capsules containing estrogen is helpful in certain instances.

DIPHTHERIA OF SKIN PRODUCING ABSCESES

To the Editor—A patient has multiple abscesses involving the muscles and fascia of the right thigh near the inguinal region which are deeply penetrating, are highly offensive and slough profusely. The condition proved to be of diphtheric origin and was cured by a single injection of 10,000 units of diphtheria antitoxin. There was and never had been any throat involvement. Kindly let me know whether similar cases are recorded and whether such conditions are frequent in any part of the body.

E. SHERIDAN ROANE, M.D., Richmond, Va.

ANSWER—Diphtheria of the skin, while unusual today, was not of extremely rare occurrence formerly. It has been observed often in connection with surgical conditions, sometimes following soon after such an operation as circumcision. Diphtheria of the foot has been noted after an operation for tendon transplantation and it has also occurred after abdominal operations. Under these conditions there is often marked sloughing of the tissues. Nose and throat cultures are likely to be negative. Before the days of active immunization, physicians working in contagious disease hospitals sometimes acquired diphtheria of the finger when performing an intubation. Trauma is usually a necessary factor for the diphtheritic infection.

Diphtheria may involve the skin of any portion of the body. It tends to run a more or less chronic course until treated with diphtheria antitoxin, which is generally strikingly effective. Constitutional symptoms may not be marked.

ALLERGY TO INSULIN

To the Editor—Can you help me out on a therapeutic problem? I have a patient who has diabetes mellitus passing a considerable amount of dextrose daily. She has had this condition for several years. I have recently started her on insulin a second time, the first time being about two years ago. She had had from six to eight injections of from 20 to 30 units twice daily, about three in the arm and five in the thigh. After each injection there is a localized reddened and slightly indurated area about the size of a silver dollar (38 mm) which itches intensely. This will last for two or three days. February 4 she was given an injection in one arm after a cessation of injections because of the local reactions for about three days. She ate about five minutes after the injections and about twenty minutes later I was called at which time she was extremely uncomfortable with intense itching over the entire body, especially the hands and the soles. The site of injection was reddened for an area of 2 or 3 inches radially from the point of injection. It was difficult for her to swallow, respiration was slightly difficult and the heart rate was from 130 to 140 beats per minute. One cc of epinephrine subcutaneously relieved this condition in about fifteen minutes. The reddened area—intense itching—lasted for about three or four days. I have been unable to explain this condition. The woman needs insulin. The brand used is insulin Lilly. Can you give me some help in this case? Is there another brand of insulin that would not give this reaction? What probably causes this reaction?

J. S. DUNCAN, M.D., Gary, Ind.

ANSWER—The patient is probably allergic to the traces of protein in the insulin that is being used. This insulin, as prepared for general distribution, is made from hog pancreas. The same firm can supply insulin derived from beef pancreas which the patient will probably be able to take without trouble.

DERMATITIS HERPETIFORMIS

To the Editor—A patient of mine has suffered from dermatitis herpetiformis for some years. He has taken from 8 to 30 drops of solution of potassium arsenite daily for three years. At present he is taking 8 drops daily. The skin of the entire trunk, legs and arms but not the face is heavily pigmented almost black. He has also a large keratosis in the scar of a pressure sore on one heel. The scar was caused by a cast applied to heal a fracture two years ago but the scar has recently built up to a thickness of three eighths inch and is rough and jagged. The patient is so terrified because of the itching of the dermatitis herpetiformis that nothing will persuade him to discontinue the arsenic even for a few weeks. He claims that the dermatitis herpetiformis appears if he decreases the dose of Fowler's solution below 8 drops daily. Is the patient likely to cause any permanent damage by the prolonged ingestion of arsenic? If so could you suggest another remedy for the dermatitis herpetiformis?

M.D., Ontario

ANSWER—The patient is already suffering from a probably permanent injury in his pigmentation. Quinine autohemotherapy and prolonged neutral baths are remedies worthy of being tried in the case.

LOCOMOTOR ATAXIA WITH RECTOGENITAL CRISES

To the Editor—A man aged 51 has locomotor ataxia with crisis of the rectogenital organs. He contracted syphilis about sixteen years ago. He had at that time only three injections of arsphenamine for the secondary eruptions. Then there was a period of quiescence of symptoms of the syphilis for ten years. Thereafter about six years passed the patient began to notice some difficulty in micturition and bowel movements. Meanwhile there were lightning pains. Then two years later there were staggering gait and a sensation of thickness under the feet. In the year next to those two there came the rectogenital crisis, quite extremely painful suffering. With regard to the crisis the patient said that it acquired the spasmodic contractions of the anal orifice and rectal tenesmus in the rectum and at the same time there was a drawn feeling of the penis so that he had to hold and rub it with a hand against the pubis or he must make a hurried walk in order to counter it. Spasmodic acts of the muscles. There were also tossings of the lower half of the body during the spasms. This fit was more severe following each defecation and urination especially after a sleep. The spasms lasted about an hour from two to three hours later becoming quiet. Before the crisis appeared the patient felt as if something were running from the lumbar region down to the anus behind and penis in front hence the tragedy. Sometimes this feeling traveled upward effecting an oppressive sensation in the chest and thus making the crisis less severe. Moreover a performance of strokings applied to the sacral region might also ease the patient a little from the spasms. There were desires of frequent micturition at the height of the spasmodic contractions. He slept very badly. He had to get up at night by the crisis following the longing for voiding urine when he was going to fall into sleep. The bowels were constipated and spastic in manner. The crisis was suppressed by the smoking of some opium whenever it occurred but was greatly exaggerated by the sudden total withdrawal of the drug in the autumn before last. Since then this exaggeration of spasms has no longer been arrested by opium. The patient consulted me last spring for his chief complaint the rectogenital crisis. On examination he was slightly undernourished. There was gingivitis. He could not stand well quietly there were some swingings of the body. The pupils were contracted unequal in size and not accommodated to light. The tendon reflexes of the knee and ankle joints were also lost. There were hyperesthesia and hypesthesia on both legs. The skin of the lower half of the body was somewhat roughened and scaly and itchings of that part were constant. There were numerous petechial spots on a forearm being produced by the application of a hemomanometer. The heart was much hypertrophied. There were to and fro murmurs in the aortic region. The blood pressure was 186 systolic and 28 diastolic. The pulse was 20-30 beats more than normal. The Wassermann reaction was strongly positive. I treated the patient first with acetylarsan and then changed to solu salvarsan of 3 cc each of two doses and another of 4 cc which was reacted to the next day by polyneuritis and increased tendency to rectogenital spasms. After a rest of three weeks I gave thiobismol and iodomaisin. Now I have again changed to iodine pills to mirror and bismuth to neoarsphenamine started at 0.05 Gm strength. They are injected alternately in each week. Further I have prescribed a combined use of vitamin B for the degenerated nerves of the spinal cord. It was injected daily except on the days of neoarsphenamine and iodine. While having been treated so long (about ten months in the course) there are indeed at present some improvements of the skin of the lower extremities being smooth to touch and relieved of itchings. Besides as combined with the vitamin injections, thirty in number the spasms of the rectogenital organs are comparatively not so severe following each urinary and fecal discharge as it formerly did without the vitamin indications. The appetite is rather good and to be sweet. The sleep is somewhat sounder than ever before. The systolic blood pressure is something about 160 but the diastolic pressure is still 28. The pulse diminishes its frequency to normal in quiet times and is yet around 80 during the fit of muscular contractions of the anus and penis. The bowel discharges were easily made every day for two months at a time not long before the present but recently they became spastic again. The serum test is still positive. Kindly advise me how to manage the case particularly to control the crisis in order to do away wholly with the patient's sufferings whereby to spare the damaged heart. What is your idea about the vitamin B to the degenerated heart?

SUEN CHIA SHAN, M.D., Tientsin, China

ANSWER—The treatment of cases of the type described is often discouraging. On the whole, rectal crises respond better to treatment than do gastric crises and continuation of intensive antisyphilitic therapy, is indicated. A number of the drugs mentioned are unfamiliar. Of the drugs used in this country the best results on the whole are obtained with the intensive use of arsphenamine, giving in the neighborhood of thirty six to forty injections in four courses, in combination with double the usual number of injections of a bismuth compound. If the serologic responses of the spinal fluid are strongly positive and associated with a high cell count intraspinal therapy may be tried.

The results with fever therapy, on the whole are not encouraging and the general condition of the patient would hardly permit cordotomy. If a deficiency of vitamin B was present as seems probable from the response obtained with its administration it is possible that the nerves governing heart action were included in the deficiency. It would seem advisable to continue this method of therapy. For relief of the crises themselves the administration of chloral 0.6 Gm and bromides 0.6 Gm given with 30 cc of olive oil instilled into the rectum may give relief.

UNDESCENDED TESTES UNDER FIVE YEARS OLD

To the Editor—Have there been any investigations of the use of gonadotropic substance in the treatment of undescended testes in patients under 5 years of age? All reports I have seen so far have been on older patients. Would there be any risk involved in treating a patient 3 years old who has unilateral cryptorchidism but who is apparently normal other wise?

M D Connecticut

ANSWER—The use of gonadotropic substance in the treatment of undescended testes is not advised at such an early age as 5 years. In many instances patients with unilateral cryptorchidism will undergo a spontaneous cure without any treatment. There is no contraindication to the use of a gonadotropic substance at an early age, but experience has taught that it is better to postpone active medication for a period, as many of these cases will be relieved without treatment.

EFFECTS OF CALCIUM AND VITAMIN D ON
CARIES DURING PREGNANCY

To the Editor—A reply in *Queries and Minor Notes* in THE JOURNAL May 22 would imply that the administration of an abundance of calcium and vitamin D might prevent dental caries during pregnancy. It is unfortunate that the answer gives certain references to articles that leave the impression that an abundance of calcium and vitamin D is useful in the treatment of this disease. It unfortunately overlooks the circumstance that the greatest progress in the control of dental caries has been made not by such diets but by the operative procedures which dentists have long practiced, i. e. removal of the carious areas and treatment and restoration by conservative methods. Unfortunately treatment today is largely arrestive not preventive.

The thesis that the administration of calcium and vitamin D for prophylaxis against dental caries is appealing but the evidence to support it has been disappointing. There can be no quarrel with the general position that a diet ample in calcium and vitamin D is useful to the mother during pregnancy. The effect this has on the carious process of a child or mother is still an open subject. This subject was amply covered in a review of the problem by the Council on Dental Therapeutics in a report entitled *Calcium and Phosphorus Compounds in Dentistry* (J Am Dent A 22 139 [Jan] 1936). That article was the basis of an editorial review in THE JOURNAL May 8 page 1655.

The evidence available does not support the view expressed in the dictum "for every child a tooth, as far as pregnancy is concerned." Mull and Kinney (Am J Obst & Gynec 27 679 [May] 1934) studied the blood and teeth of a large series of pregnant women and concluded:

There is no appreciable change in the teeth of women during pregnancy or the first weeks of lactation other than that which would probably occur in a similar group of nonpregnant women during the same period of time. The levels of the calcium and the inorganic phosphorus of the serum of the pregnant women bear no direct relation to the condition of her teeth. There is critical clinical confirmation of these observations.

Hunscher (J Biol Chem 86 55 [March] 1930) found that negative calcium and phosphorus balances were found in early lactation in spite of large intakes of these elements, but, in late lactation when less milk was secreted both calcium and phosphorus were stored in the maternal body. Macy (ibid p 59) found in addition that daily feeding of cod liver oil and yeast during the highest period of milk flow resulted in greater calcium and phosphorus utilization. No notation is made in that article concerning the effect on the teeth.

The foregoing is interesting nevertheless in pointing out that not calcium or phosphorus alone but vitamin D is important. This would appear to warrant the conclusion that not only the absolute amounts of calcium and phosphorus but those materials on which they are dependent for fixation are important. There is other evidence which bears on this point but which need not be cited here.

If a pregnant woman is to take calcium and cod liver oil during pregnancy it should be taken with the understanding that it is more important for purposes of general hygiene and good health barring other complications during this period than for the effect on the teeth of the mother and milk as a source of calcium in preference to tablets or powders is to be preferred for obvious reasons.

If caries occurs during that period one should avail oneself of the benefit of operative dentistry. This as far as available information goes is the surest means of avoiding the further ingress of dental decay.

SAMUEL M GORDON Chicago

Secretary, Council on Dental Therapeutics

NEUROLOGIC SYMPTOMS DUE TO TRAUMA OR
ARTERIOSCLEROSIS

To the Editor—In your reply to Dr E L Finley of Oneida N Y regarding neurologic symptoms due to trauma or arteriosclerosis (THE JOURNAL July 24 p 298) you state that there is no evidence to show that an accident could have brought about the neurologic syndrome mentioned. Pain in the back, loss of strength and difficulty in getting about. In view of type of injury 200 pounds punning him why could he not have sustained a fracture of the vertebral column or injury with possible rupture of the intervertebral disk? While the patient was lying flat in bed he had no symptoms but the moment the casts were removed from both lower extremities and he was permitted to assume the erect position his syndromes began to appear. Does this not suggest injury to the spine that was perhaps previously overlooked? Unless there is proof that this injury was ruled out entirely it should be kept in mind. Although the loss of speech cannot be accounted for the pain in the back is too important a single symptom from the point of view of trauma to be completely dismissed.

ABRAHAM KATZ M D Bronx

Medical Examinations and Licensure

COMING EXAMINATIONS

STATE AND TERRITORIAL BOARDS

Examinations of state and territorial boards were published in THE JOURNAL August 21 page 611.

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS Parts I and II Sept 13 15 Ex Sec Mr Everett S Elwood 225 S 15th St Philadelphia

SPECIAL BOARDS

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY Written examination for Group B applicants will be held in various cities throughout the country in April. Oral examination for Group A and B applicants will be held at San Francisco in June. Sec Dr C Guy Lane 416 Marlboro St Boston.

AMERICAN BOARD OF INTERNAL MEDICINE Written examination will be held in different centers of the United States and Canada Oct 18. Chairman Dr Walter L Biering 406 Sixth Ave Rm 1210 Des Moines Iowa.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY Written examination and review of case histories of Group B applicants will be held in various cities in the United States and Canada Nov 6. General examination for Groups A and B will be given in San Francisco June 13 14. Applicants must be filed not later than sixty days prior to examination dates. Sec Dr Paul Titus 1015 Highland Bldg Pittsburgh (6).

AMERICAN BOARD OF OPHTHALMOLOGY Chicago Oct 9 and San Francisco June 13. All applications and case reports, in duplicate, must be filed at least sixty days before the date of examination. Sec Dr John Green 3720 Washington Blvd St Louis Mo.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY Los Angeles Jan 14 15. Sec Dr Fremont A Chandler 6 N Michigan Ave Chicago.

AMERICAN BOARD OF OTOLARYNGOLOGY Chicago Oct 8 9. Sec Dr W P Wherry 1500 Medical Arts Bldg Omaha.

AMERICAN BOARD OF PEDIATRICS Chicago Oct 17. Los Angeles Nov 7. Boston Nov 14 and New Orleans Nov 30. Sec Dr C A Aldrich 723 Elm St Winnetka Ill.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY New York Dec 28 (tentative). Sec Dr Walter Freeman 1028 Connecticut Ave NW Washington D C.

AMERICAN BOARD OF RADIOLOGY Chicago Sept 9 11. Sec Dr Byrl R Kirklin 102 110 Second Ave S W Rochester Minn.

AMERICAN BOARD OF SURGERY Part I (written) Oct 20. Sec Dr J Stewart Rodman 225 S 15th St Philadelphia.

Arkansas June Examination

Dr L J Kosminsky secretary, State Medical Board of the Arkansas Medical Society reports the written examination held at Little Rock June 17-18 1937. The examination covered 12 subjects and included 100 questions. An average of 75 per cent was required to pass. Forty four candidates were examined, all of whom passed. The following schools were represented:

School	PASSED								Year Grad	Per Cent
University of Arkansas School of Medicine									(1937)	78.8
79.4	79.8	80.2	80.3	80.3	80.6	80.6	80.7	81.2		
81.4	81.6	81.8	81.9	82	82.1	82.2	82.3	82.3	82.4	
82.5	82.5	82.8	82.8	83.1	83.2	83.3	83.3	83.3	83.6	
83.7	84.1	84.1	84.3	84.4	85	85.2	85.2	85.3	85.3	
85.7	86.3	87.2	87.8							
Johns Hopkins University School of Medicine									(1935)	82.8

Ten physicians were licensed by reciprocity and one physician was licensed by endorsement since January 1. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
Northwestern University Medical School		(1934)	Illinois
University of Kansas School of Medicine		(1935)	Kansas
Tulane University of Louisiana School of Medicine		(1936)	Louisiana
Johns Hopkins University School of Medicine		(1924)	Maryland
Washington University School of Medicine (1932)		(1933)	Missouri
University of Cincinnati College of Medicine		(1921)	Ohio
Melary Medical College		(1907)	Tennessee
Vanderbilt University School of Medicine		(1929)	Tennessee
Universitat Heidelberg Medizinische Fakultät		(1924)	Texas

School	LICENSED BY ENDORSEMENT	Year Grad	Endorsement of
Johns Hopkins University School of Medicine		(1935)	N B M Ex

Nebraska June Examination

Mrs Clark Perkins director, Bureau of Examining Boards reports the medical examination held at Omaha June 8-9 1937. The examination covered 10 subjects and included 92 questions. An average of 75 per cent was required to pass. Seventy eight candidates were examined, all of whom passed. The following schools were represented:

School	PASSED	Year Grad	Number Passed
Creghton University School of Medicine (1936 3)		(1937 11)	14
University of Nebraska College of Medicine (1936)		(1935)	64

Book Notices

Medical Uses of Radium. Summary of Reports from Research Centres for 1935. Medical Research Council Special Report Series No. 216. Paper Price 1s. Pp. 38 with 9 illustrations. London: His Majesty's Stationery Office, 1936.

As formerly this report reviews the research done during the year with radium and radon distributed by the Medical Research Council to selected centers in Great Britain and Ireland. In the experimental section the investigations on cellular action conducted in Strangeways research laboratory in Cambridge are reported under three headings: biologic response as a function of the intensity of radiation (Spear and Hughes), the effect of gamma radiation on cell division in the tadpole (Gluecksmann and Spear) and the mode of action of radiation (Lea, Haines and Coulson). In the St. John Clinic and Institute of Physical Medicine, Taylor has made some studies aimed at the determination of the effect of combining low frequency (so-called ultra short) waves with high frequency oscillations (gamma rays) on tumors of the rat. These examinations showed that the sensitivity of the Jensen rat sarcoma and the Walker carcinoma to radium radiation was not affected by the ultra short waves. At the Imperial College of Science and Technology the measurements during the last year of the effect of temperature of a neutron gas on the absorption of a neutron into silver nuclei has been extended by Moon and Tillman to a number of other elements. From the Mount Vernon Hospital and Radium Institute, Mottram reported on the variations in sensitivity of the cell to radiation in relation to mitosis and on mesoblastic tumors produced in fowls by exposure to radium.

Interesting experiments from the clinical point of view have been performed at the Holt Radium Institute in Manchester by Ham. He treated skin epitheliomas and rodent ulcers with the radium mold, using different distribution in time of the same total dose. In one group of patients he applied the radiation treatment on the first and third days and so on, that is, at intervals of forty-eight hours. In another group he applied the same amount of treatment on the first and fourth days and so on, that is, at intervals of seventy-two hours. In a third group he applied the same total dose at intervals of one week, that is, half of the treatment on the first day and the other half on the seventh day. The results disclosed the fact that irradiating with the split dose as described definitely reduces the skin tolerance compared to the same dose applied with continuous treatment over seven days. The skin reactions were much more pronounced with the split dosage which was most intense when only two treatments were applied, on the first and on the seventh day.

John Ross of the Royal Free Hospital performed experiments in rabbits with the purpose of inducing malignant tumors by implantation of radium tubes, based on an accident in clinical experience when a radium needle used in the treatment of cancer of the breast was lost. This needle became embedded in the intraventricular septum of the heart, and death occurred three years later from a gradual heart failure. At necropsy a malignant hemangioma was found in the liver immediately underlying the needle. In the experiments on rabbits the author could produce five sarcomatous tumors and two squamous cell carcinomas around the embedded radium tubes.

The clinical section of this report is grouped round the new modes of technique for the treatment of cancer in various parts of the body and the statistical records of the results of treatment over a period of years. Cancer of the breast, corpus and cervix uteri, mouth, nasopharynx, larynx, esophagus and rectum are considered. For cancer of the breast no decidedly new method has been used, radiation being reserved for the inoperable lesions or in combination with surgery. In cancer of the cervix the Marie Curie Hospital reports a five year survival rate out of all treated cases of 36.79 per cent (170/462) for patients treated between 1925 and 1930. A slight improvement is noted for those treated during the later years, giving a five year survival rate of 42.6 per cent for patients treated in 1930 against 30 per cent for those treated in 1925 and 1926. The results of treatment of cancer obtained by the different centers are tabulated. No essentially new method of approach is reported in the treatment of cancer of the rectum.

Live Long and Be Happy. How to Prolong Your Life and Enjoy It. By Jewell F. Barker, M.D., Visiting Physician, Johns Hopkins Hospital. Baltimore: Cloth. Price \$2. Pp. 224. New York & London: D. Appleton Century Company, Incorporated, 1936.

This book, which, according to the author, is intended for the "intelligent laymen who wish to prolong their individual lives and for general practitioners of medicine who will advise such laymen as to the best methods," attempts with this declaration an almost impossible task. The material is given according to a well considered outline. The author begins with a discussion on the desire for long life and continues by pointing out the changing duration of human life and on what such longevity depends. He discusses heredity, environment, personal habits and occupations in their relationships to longevity. Following this he points out how life may be prolonged through the prevention and adequate treatment of infectious diseases and diseases of the heart and blood vessels, digestive apparatus, excretory organs and locomotor system. The final chapters deal with the prevention of nervous and mental diseases, as well as diseases of metabolism and the endocrine system that may shorten life. Such a table of contents will intrigue the lay reader as well as the physician, who, after all, is a teacher of health as well as a healer.

After the third chapter, the book attempts to carry out its promise made in the preface and to give information to lay reader and physician alike. The book from here on becomes a semitechnical handbook that serves neither of its avowed masters well. For the layman, to achieve long life and happiness becomes difficult when, for example, the various definitions given for diseases of the respiratory tract are too brief to be informative. The disease condition bronchiectasis is dealt with in seven lines. Pulmonary emphysema is probably of academic interest to most laymen. The difference between catarrhal and diphtheritic laryngitis is of interest to the layman and deserves far more space than the few lines given to it, which mention that during the latter condition "an intubation tube may have to be inserted." For the physician, the short definitions in this chapter are superfluous, since they give him no new knowledge and only an extremely meager review of well known facts.

Another objectionable feature is the attempts of the author to give references to medical literature. Such references to medical journals are necessary when writing for a physician, but the layman usually experiences great difficulty in obtaining the technical journals. Then, too, such journals are never written in language easy for the layman to understand. Examples of such references are found where the author states in discussing pneumonia: "Experiences of F. G. Blake and his associates in New Haven indicate that artificial pneumothorax induced soon after onset is invaluable. . . . seventy-two hours after onset", "abnormal movements like those of myoclonia", "Isaac advises the use of acetyl-beta-methylcholine."

Dietetics Simplified. The Use of Foods in Health and Disease. By L. Jean Bogert, Ph.D., Consultant in Nutrition, Delmonico Institute, New York City. With Laboratory Section. By Vame T. Porter, M.A., Head of Home Economics and Nutrition, Department of Public Welfare, University of Illinois. Cloth. Price \$3. Pp. 637 with 75 illustrations. New York: Macmillan Company, 1937.

The authors attempt the difficult role of providing a simply written yet thoroughly scientific text on dietetics to be of service to students in home economics courses, to hospital dietitians, to nurses and medical students, as well as to physicians who desire to educate their patients and to "intelligent housewives." It appears manifestly impossible to teach at one and the same time such a heterogeneous group of readers. This is particularly true when a knowledge of chemistry is one of the backbones of nutrition. In an effort to simplify the subject of dietetics the authors have allowed factual errors to enter, e.g., "the food carbohydrates consist of starch, double sugars and single or simple sugars," and a large number of like misstatements. It is assumed that the authors intend to be practical. Why then select dry gelatin as an illustration of the calculation of the caloric content of protein? What would one want with 100 Gm of dry gelatin? All the gelatin one could eat at a sitting amounts to 5 Gm. Furthermore it is stated on page 25 that gelatin is 100 per cent protein whereas the table on page 604 reveals that it is 91.4 per cent.

protein Egg white is also given as 100 per cent protein, despite analyses to the contrary. It is realized that these are used merely as illustrative material in the text but they show poor choice and correlation. On page 30 among foods listed as rich in sugar are cocoa and chocolate, which in the unsweetened state are not edible as such. On page 27 the following is to be found: "An animal starch called glycogen also exists but is found in appreciable quantities only in such foods as liver, oysters and other shell-fish." It is feared that this statement is derived from the fact that in the majority of analyses of meat, mention of the carbohydrate content is omitted and therefore it is erroneously assumed that meat is starch free. The contrary is the case. In the carbohydrate analyses of muscle it has been conceded that the carbohydrate is in the form of glycogen and in a great number of meat items it is present in more than appreciable quantities. On page 31 fish is listed as being a food rich in fat, i. e., between 10 and 25 per cent. In the most recent analyses of all the fishes the only items among all the fishes which in the raw state meet this qualification are bloater, butterfish, finnan haddie, mackerel, salmon and swordfish. It is surprising to note on page 31 that a diet high in starch "may be a predisposing factor in arthritis." Part II, on diet in normal conditions encompassing menu building, adequate diets for normal adults and food for children and elderly people, is recommended. It appears that these angles of dietetics are studiously avoided in the average textbook. However, one may take exception to a protein intake of 50 Gm of protein daily as being ample after 60 years of age. The volume cannot be recommended for detailed accuracy, but in a newer, corrected edition it should find a place in the teaching of elementary dietetics.

Les régimes chez l'enfant Par L. Rabonnelle, médecin de l'Hôpital Saint Louis. Paper. Price 75 francs. Pp 607. Paris: Masson & Cie 1936.

The book is divided into three main parts. The first part deals with general physiologic aspects of nutrition and with the phases more closely associated with the nutrition of children. In this part the importance of certain amino acids for life, maintenance and growth is given due consideration. Methionine, it may be mentioned, should be included among the important sulfur-containing amino acids, and glutathione is given as a dipeptide instead of as a tripeptide. An excellent feature of the book is the discussion of the vitamins. In the chapter on minerals, magnesium, with its specific role in the production of lactic acid under certain conditions, may perhaps deserve a little more attention. Another praiseworthy section is the one devoted to the interrelation of various nutritional elements—proteins, fats and carbohydrates, as well as salts, vitamins and water.

The second main part concerns the dietary management of the normal and the sick infant. The advantages of maternal breast feeding are stressed. A few quotations from general and medical literature are given to demonstrate the advantages of breast feeding for the mother's health and beauty. The efforts at stimulating breast feeding in France are noted. In the chapter on the nutrition of sick infants various diets are given, starting with a water diet. Diets based on buttermilk and other acid milks, on dried and condensed milk and on other foods, such as soya meal, are included. The preparation, composition, indications and contraindications are described. Among the humanized milk mixtures synthetic adapted milk might have been included. The milk of asses is given more prominence than is usual, and it is emphasized that the milk spenders should be fed on dry fodder. Protein milk (Finkelsstein) is dismissed in a manner indicating little experience with it. Fruits and vegetables are not neglected. Under special headings, mainly with reference to dietetic management, are discussed the ailments of the infant, such as anemia, anorexia, nervosa, arthritis, with its two main subdivisions of hepatic insufficiency and toxemia, which is a rather problematic entity, and avitaminosis, deficiencies of protein, carbohydrate, fat, minerals and water. Cholera infantum, constipation, congenital debility, various forms of diarrhea and dyspepsia, atresia, eczema and intestinal infantilism (celiac disease) are also discussed. Parenteral infections are considered as well as gastric, hepatic and pancreatic insufficiency, alimentary allergy, prematurity, rachitism, overfeeding and habitual vomiting. In

the rather uneven chapters on these subjects the author often gives a short paragraph of his personal opinions.

The dietary regimen of children from 2 to 15 years of age forms the subject of the third main division, to which thirty-three pages are devoted. In the first part, dietary regimens of normal children are given, and in the second part those of sick children, under the main headings of diseases of the circulation, skin, digestion, nervous system and respiratory tract, infections of the urinary tract and diseases of nutrition including obesity and diabetes, and diet after operation. The second subdivision of the third part is a rather ambitious undertaking, the ambition is perhaps not realizable in such a short compass, and as is to be expected, the section is not free from omissions and other faults.

If one compares the facts in the book about the physiologic aspects of nutrition with the nutrition of patients it becomes evident that there still exists a considerable cleft, the bridging of which will need much further effort. The book has many highly commendable and attractive features.

Manual of Biological Assaying By James C. Munch, B.S., M.S., Ph.D., Professor of Pharmacology and Bioassays, Temple University School of Pharmacy. Paper. Price \$2. Pp 181 with 22 illustrations. Philadelphia: London: C. Montreal: J. B. Lippincott Company 1937.

This brief compendium of methods used in the bio-assay of drugs, although intended for a wider audience, will be found useful chiefly by the student. In addition to concise instructions on the performance of many tests, blank tables and pages are included in profusion for recording experimental data. Among the materials for the bio assay of which directions are given are aconite, anthelmintics, arsenphenamines, biologic products, cannabis, digitalis, epinephrine, ergot, insecticides, insulin, local anesthetics, morphine, parathyroid extract, thyroid, sex hormones and vitamins. For some of these (e.g., estrogens and androgens) actual working details are insufficient for others they appear to be satisfactory. Absence of pagination in the major portion of the book makes reference unnecessarily difficult.

Die Herz und Gefässkrankheiten Von Professor Dr. Walter Frey, Direktor der medizinischen Universitätsklinik Bern. Paper. Price 29 marks. Pp 342 with 67 illustrations. Berlin: Julius Springer 1936.

The author has written a scholarly treatise on diseases of the heart and blood vessels. Instead of cataloging the known facts of the clinical aspects for ready reference he has presented a logically developed summary, correlating the pertinent facts and theories concerning this subject. The material consequently, is developed on an etiologic basis, and the morphologic and physiologic data are brought in where they apply. The same applies to symptoms, signs, diagnosis, prognosis and treatment. Little is said about the distribution of diseases as usually handled when discussing etiology, and this is a favorable aspect of the book. The first section discusses the embryologic origin and development of the heart and blood vessels. The second section discusses in turn the congenital malformations, the normal and abnormal development of the cardiovascular system with age, and the involution of the heart and blood vessels with senility. The third section of the book deals with the sclerotic process. This is subdivided into sclerosis of the heart, the arteries and the veins. This section is properly the longest in the book, and coronary sclerosis receives the greatest consideration. The next section deals with damage of bacterial and toxic origin. There is a discussion in general terms, followed by the action of various bacteria and toxins on the heart arteries and veins. In the final section damage caused by the endocrine system and the vegetative nervous system on the heart and vascular systems is presented. Glandular dysfunction as well as the various neuroses is considered in this section. The organization of this book is different from most dealing with this subject and is an improvement from the point of view of the development of the subject scientifically. While exception may be taken to many of the statements the reader of experience will find a great deal of factual data and theoretical argument which will be stimulating. He will be impressed by the fact that the subject dealt with is not morphology, physiology, bacteriology, pathology or the practice of medicine but in the truest sense is medical science. The book shows beautifully how the conglomeration of facts gathered

from many fields can give rise to a new science. The author demonstrates his familiarity with the international literature. He has kept abreast of the developments of his field and has introduced few personal biases. This book is recommended in the highest terms for the serious student of diseases of the heart and blood vessels.

The Dosage of Antitoxin in Diphtheria. Report of Departmental Committee Appointed by the County Medical Officer of Health and School Medical Officer. London County Council No. 3225. Paper. Price 6d. Pp. 14. London: P. S. King & Son Limited, 1936.

This report is "an attempt to establish criteria for the guidance of the medical officers of the Council's hospitals." It takes up the matter of diphtheria toxin, its tissue combination, and the aim of antitoxin treatment. Emphasis is laid on the time factor and it is insisted that "every hour, every minute of delay—and this is not a figure of speech—is damaging. If the amount of toxin is near the lethal dose, life itself is at stake" (Schick). Intravenous administration is designated as the ideal route when rapidity of action is necessary, but not all cases are recommended for this technique. The intramuscular route is recommended when speedy absorption is less urgent. A single dose is recommended rather than repeated doses. Serum reactions and other unusual effects are briefly but adequately discussed and desensitization is outlined. There is an excellent brief outline of the clinical manifestations of diphtheria. The booklet is a useful summary of the best current knowledge with relation to the early and adequate administration of antitoxin in the treatment of diphtheria.

The Diagnosis and Treatment of Diseases of the Stomach and Intestines. By William Fitch Cheney, B.L., M.D., Henry A. Christian, M.D., Sc.D., LL.D., General Editor of the Series (Reprinted from Oxford Monographs on Diagnosis and Treatment). Cloth. Price \$5.50. Pp. 378. New York: Oxford University Press, 1936.

As a large territory is encompassed in a comparatively small volume, consideration of the various diseases is necessarily brief. In the main, only the commoner, clinically most important, diseases are discussed. There are not many statements with which authorities would disagree. For example, the remark that the great majority of ulcers of the stomach are situated at the pyloric end is debatable. Most chronic benign ulcers are situated at the pars media and lesser curvature as a matter of fact, although the pyloric antrum is a commoner site of gastric carcinoma and carcinomatous ulcers. In the article on chronic gastritis, it is obvious that only the superficial catarrhal, or probably the atrophic, variety is described. The statement that gastric analysis alone supplies the evidence on which a diagnosis of chronic gastritis depends is seriously open to question. Of the various benign tumors, only gastric polyps are considered. The chapter on reflex disturbances of gastric function, especially that portion dealing with appendiceal dyspepsia, is admirably done. Treatment is given ample and sane consideration. The volume has two noteworthy features: (1) a gastro-enterologic point of view of the clinician of the older school and (2) a fine literary quality characterized by simplicity of diction and construction which every medical writer might emulate. Regardless of minor shortcomings, the book can be read with pleasure and profit by practitioner and specialist alike.

Studies and Investigations into the Corpus Luteum Hormone. By Kai Portman. Paper. Pp. 124 with 8 illustrations. Copenhagen: Levin & Munksgaard, 1935.

The author presents here a summary of investigative work performed by him at the University of Copenhagen from 1931 to 1933, with brief discussions of the literature. This work, of course, was completed before crystalline progesterone was isolated and prepared by pseudosynthesis in 1934 and therefore deals with potent but not completely purified preparations. The work described should be of interest both to investigators and to clinicians, representing extensive experiments in animals as well as a series of clinical cases. Much of this is in agreement with reports that have appeared in recent medical literature. An interesting observation made by the author is that by feeding massive doses of progestin to rabbits a slight effect on the uterine mucosa could be obtained. It requires more than fifty times as much by mouth as by injection to produce a detectable effect in the rabbit, owing to destruction of the active principle

by the digestive juices. Favorable results in the treatment of forty patients with menorrhagia, symptoms of the menopause or threatened abortion are described.

L'infection bacillaire et la tuberculose chez l'homme et chez les animaux. Étude biologique et expérimentale. Vaccination préventive. Par A. Calmette. Fourth edition revised by A. Boquet and L. Nègre. Cloth. Price 175 francs. Pp. 1024 with 69 illustrations. Paris: Masson & Co., 1936.

The advances in the knowledge of the tubercle bacillus and of tuberculosis since the previous edition was published nine years ago have been incorporated into the present edition without any change in Calmette's original plan. The book deals primarily with the fundamental—strictly scientific as distinguished from the social—problems of tuberculosis. There are four parts: the bacillus of tuberculosis, the anatomic form of tuberculous infection, its localization and routes of entrance (404 pages), experimental tuberculosis and tuberculosis of animals, the defense of the body against tuberculosis and the use of the reactions of defense in diagnosis, natural immunity and processes of immunization against tuberculosis. There are twenty-four fine plates in colors and many black and white illustrations. Calmette's great book remains a standard, comprehensive French work on the bacteriology, morphology and immunology of tuberculosis.

Recent Advances in Endocrinology. By A. T. Cameron, M.A., D.Sc., F.R.C. Professor of Biochemistry, Faculty of Medicine, University of Manitoba. Third edition. Cloth. Price \$5. Pp. 458 with 60 illustrations. Philadelphia: P. Blakiston's Son & Co., Inc., 1936.

This is the third edition of this member of the Recent Advances Series in a little more than three years. The new volume has been enlarged by the addition of about fifty pages containing new material. In general the work has been improved over previous editions (reviewed in *THE JOURNAL*, May 5, 1934, and Sept. 28, 1935) but it still retains many of the deficiencies pointed out in previous reviews. Some of the discussions, such as those on the estrogens and androgens, have been considerably expanded with the inclusion of much useful material.

A Manual of Operating Room Procedures. By Almira W. Hoppe, Science Instructor, Jewish Hospital of St. Louis, and Lucille M. Halverson, Supervisor of Operating Rooms, University of Minnesota Hospitals. Assisted by the Operating Room Nursing Staff of the University of Minnesota Hospitals. Boards. Price \$2. Pp. 239. Minneapolis: University of Minnesota Press, London: Oxford University Press, 1937.

The purpose of this small volume can be commended, and the tabulation of the necessary equipment for the routine surgical procedures shows evidence of thorough familiarity with such necessities and of excellent judgment in the avoiding of too detailed a discussion on the purposes of operations and the details of technique. It should not be assumed by those who use this book that on these two subjects the information is complete. For example, the statement that the "purpose of radium insertion in the vagina or uterus is to treat cancer" disregards the many cases in which radium is used for nonmalignant conditions. The possible difficulties arising from such incomplete information could easily be removed by a more inclusive statement as to the pathologic conditions for which the operation may be done.

The authors and the University of Minnesota Press have obviously had in mind the constant modification of old methods and the introduction of new ones, and the loose leaf binding will add materially to the usefulness of the manual in making it possible for one to keep pace with the advances in operating room procedures.

Synopsis of Ano Rectal Diseases. By Louis J. Hirschman, M.D., F.A.C.S., Professor of Proctology, Wayne University, Detroit. Cloth. Price \$3.50. Pp. 288 with 189 illustrations. St. Louis: C. V. Mosby Company, 1937.

Anything that comes from the pen of this author merits attention. In this little volume he has presented the common problems of proctology in a most interesting, concise and practical form. There are numerous illustrations, some of which are in color, which aid materially in clarifying the accompanying descriptions. The book was prepared by one whose unusual experience particularly fitted him for the task, and in his own words it is a synopsis of anorectal diseases.

Hemophilia Clinical and Genetic Aspects By Carroll LaFleur Btrch M.D. Assistant Professor of Medicine University of Illinois Bulletin Volume XXXI No 55 Illinois Medical and Dental Monographs Volume I No 4 Paper Price \$2 Pp 151 with illustrations Urbana University of Illinois 1937

This book is based on data from ninety-eight patients with hemophilia, studied from the point of view of the clinical manifestations, blood picture, diagnosis, course of the disease, transmission and genealogy. The family history and background of ninety-four of the patients are given in seventy-five charts and are summarized in tabular form. The photographs are unusually clear and graphic. Treatment is not considered separately, the discussion is limited to the clinical and genetic aspects. It is a valuable source book for physicians, research workers and geneticists interested in hemophilia. The monograph is useful as a supplement to the classics on this disease.

Menstruationsstörungen hormonalen Ursprungs Eine klinische Untersuchung Von P. N. Damm Paper Price 12 Danish kroner 10 marks Pp 285 with 21 illustrations Copenhagen Levin & Munksgaard Leipzig Johann Ambrosius Barth 1936

This small, well printed book contains a review of the literature on sex-endocrine factors in the human female with presentation of the author's own data. The subjects covered include cyclic changes in ovary and uterus, assay of estrogen in blood, urine and feces and determination of gonadotropic substance in blood and urine in the normal menstrual cycle in amenorrhea and hypomenorrhea and in menorrhagia and metrorrhagia, the effects of endocrine therapy are also discussed. Investigations of this type are highly important to an understanding of the physiologic basis of the menstrual cycle and to development of rational therapy of its disturbances. Physiologists and clinicians alike will find this a useful work.

Materia Medica Toxicology and Pharmacognosy By William Mansfield A.M. Ph.D. Dean and Professor of Materia Medica and Toxicology Union University Albany College of Pharmacy Albany N.Y. Cloth Price \$6.75 Pp 707 with 202 illustrations St. Louis C.V. Mosby Company 1937

Through excellent photographs that face the description of almost every individual drug discussed, this book should bring to the student's mind vivid pictures of the specimens seen in the laboratory and thus help him in his study and review. The section on toxicology aims to classify the poisons in such a way as to make it easier for the student to remember the symptoms of poisoning and treatment but the tests for the detection of poisons are not given. Unfortunately, the book seems deficient in that it makes no attempt whatever toward acquainting the student with the histologic appearance of the drug in its powder form, which is something most schools of pharmacy attempt to give their students, nor is there any attempt made at teaching the detection of adulterants.

Klinische Elektrokardiographie mit einem Grundriss der Arrhythmien Von Dr. Wilhelm Dressler Mit einem Geleitwort von Prof. Dr. C. J. Rothberger Fourth edition Paper Price 10.50 marks Pp 180 with 151 illustrations Berlin & Vienna Urban & Schwarzenberg 1937

In this edition the author has completely revised the text and replaced many of the illustrations in an attempt to keep the subject matter down to date. He has introduced the important subject of lead 4 and expanded the section on myocardial disease at the expense of the section on arrhythmias. He has continued the excellent plan of placing in italics the sections in each chapter dealing with clinical aspects. The advances made in electrocardiography are incorporated in simple language; the author shows his acquaintance with foreign as well as with German literature. The subject of arrhythmias so beautifully developed by the Viennese school is presented in clear and direct fashion. This book deserves its popularity.

L'année thérapeutique Médications et procédés nouveaux Par A. Ravina Onzième année 1936 Paper Price 20 francs Pp 175 Paris Masson & Cie 1937

In this volume, appearing annually, the author compiled reports of recent developments and progress in the field of therapeutics for the year 1936 most especially from French literature. Browsing among the numerous items abstracted, one notes the treatment of alcoholism by provoking intolerance by the smuggling of ipecac into the daily dose of liquor. Hot

baths are recommended as efficient in the treatment of urticaria and vitamin B in the neuritis of pregnancy. When local anesthesia relieves lightning pains of tabes but temporarily, alcoholization of the sensory nerve may produce a prolonged relief. In gastric crises, intravenous injections of 10 per cent saline solution antagonizes hypochloridemia. These few examples suffice to give an indication of the range of practical subjects covered.

Dr. F. G. Gades pathologisk anatomiske laboratorium i Bergen 1912-1937 [Dr. F. G. Gades Pathologic Anatomie Laboratory in Bergen 1912 to 1937] Paper Pp 107 with illustrations Bergen J. W. Eides Boktrykkeri A. S. 1937

In 1912 Dr. Gade who died in 1933 founded a laboratory in close affiliation with the city hospital of Bergen. This report covers the first twenty-five years of the activities of this laboratory. In addition to the statistical material—226 necropsies were made in 1936—there are interesting accounts of its history and organization and of special phases of its activities, notably on cancer, medicolegal examinations and extensive investigations of typhoid diseases in the western parts of Norway. The body of the report, as well as the list of publications at the end shows that the laboratory has been an active center of excellent practical and scientific importance from its beginning.

An Introduction to Medical Science By William Boyd M.D. M.R.C.P. F.R.C.P. Professor of Pathology in the University of Manitoba Cloth Price \$3.50 Pp 307 with 108 illustrations Philadelphia Lea & Febiger 1937

One is impressed by the very simplicity of presentation of this introduction to medical science. It "gives an airplane view of disease." There are three sections: the first deals with general principles of disease, the second with diseased organs and the final section with some practical considerations. Great care is exercised by the author to show the relationship between the lesions present and the symptoms produced. The book should prove of value to nurses, premedical students, hospital technicians and the general reader interested in matters of health and disease. There are numerous well chosen illustrations and a good index.

Entstehung und biologische Bekämpfung typischer Infektionskrankheiten Vorlesungen auf Grund der Ergebnisse experimenteller Untersuchungen Von Dr. med. Richard Bieling a. o. Professor für Hygiene und Immunitätswissenschaften an der Johann Wolfgang Goethe Universität Frankfurt a. M. Erste Folge Boards Price 6.60 marks Pp 119 with 7 illustrations Leipzig Johann Ambrosius Barth 1937

The author's plan is to present typical examples of different groups of infectious diseases by way of illustrating the nature and mode of origin as well as biologic principles of treatment and prevention. Two more booklets similar to this are to appear in the course of the next two years. The diseases so far discussed are diphtheria as the example of a strictly toxic infection, pneumonia as an example of the bacteremic infections, and epidemic poliomyelitis as an example of infections caused by filtrable viruses. Symptoms and diagnosis are not included in the discussion, which deals with the fundamental pathogenic nature, the immune reactions and the biologic treatment of the three diseases. No original points of view are presented.

Prostitution An Investigation of Its Causes Especially with Regard to Hereditary Factors By Tage Kemp Paper Price 10 kroner Pp 233 with 12 illustrations Copenhagen Levin & Munksgaard London William Heinemann Ltd 1936

This volume is based on investigations made in Copenhagen between 1931 and 1935. It concerns the records of 530 prostitutes, fifty of the case records being reported in full. This investigation seems to indicate that eugenic sterilization could have been of little value in preventing these cases of prostitution that childhood and youthful environment were in general bad and that there are many widely different factors which may be the immediate or the contributing causes of prostitution. The majority of prostitutes seem to be mentally a little abnormal. It is felt that well organized mental hygiene might be useful in controlling some of these cases and that there should be better coordination between the work of the police and of public welfare agencies in handling this problem.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Accident Insurance Lumbo-sacral or Sacro-Iliac Strain in Relation to Anomalies of Spine—The defendant insurance company, under a policy of accident insurance, promised to pay certain benefits to the physician-plaintiff if he was prevented from performing any and every kind of duty pertaining to his occupation as the result of an accident, independently and exclusively of all other causes. Dec. 25, 1932, in the course of answering a professional call, the physician slipped on an icy surface and, although he did not fall, wrenched his back. After the accident, he was wholly incapacitated and unable to attend to his usual professional duties. The insurance company refused to pay benefits for total disability and the physician brought suit against it. From a judgment in favor of the physician, the company appealed to the Supreme Court of Wisconsin.

The insurance company contended that the evidence showed that the physician's total disability was not due exclusively to accidental causes but was partly, if not wholly, due to conditions of health, and especially to an arthritic condition existing in the lower part of his back at the time of the accident. The company further contended that if the physician had sustained a sacro-iliac strain or sprain as a result of the accident, as he claimed, it should have been completely cured in from two weeks to three months in the absence of contributing causes. The defendant's contentions, however, did not meet with the Supreme Court's approval. In *Heithel v. Time Ins. Co.* 265 N. W. 575, it was held that, if a disease or bodily condition exists and an accident occurs, in order to constitute the accidental means the sole cause of an injury within the meaning of policies of accident insurance it is not necessary to show that the injury or the result thereof would have been as severe in the absence of the preexisting disease or bodily condition. It is sufficient if the accidental means would have solely caused some considerable injury had the disease or bodily condition not existed. The testimony of the physician's medical experts, said the court, entitled the jury to conclude that, while there were certain abnormalities of growth in the physician's spine, these were the result of advancing years or congenital anomalies and were not produced by or evidence of an active disease which contributed to his incapacity in cooperation with the accident. The physician's experts further testified that the injury resulted in lumbo-sacral or sacro-iliac strain and that his present symptoms and disability were solely referable to the strain. The court concluded that this testimony must be taken to mean that the accident "would have solely caused some considerable injury" had the physician's spine been in a normal condition.

Accordingly, the Supreme Court of Wisconsin affirmed the judgment in favor of the physician—*Egan v. Preferred Acc. Ins. Co. of New York (Ins.)* 269 N. W. 667.

Workmen's Compensation Acts Chronic Bronchitis Resulting from Escape of Chlorine an Accidental Injury—Not an Occupational Disease—Curley, an electrician, worked for about two months installing equipment to be used by the defendant corporation in manufacturing beryllium chloride. Some difficulty seems to have been experienced in adjusting the process of manufacture to local conditions and chlorine gas escaped at intervals into the room in which Curley was working until the process of manufacture was perfected. The plaintiff coughed frequently and became short of breath. Finally he had to quit work and seek medical attention. His attending physician diagnosed the condition as chronic bronchitis resulting from exposure to chlorine gas. Curley filed a claim under the Michigan workmen's compensation act but the department of labor and industry denied him relief on the ground that his disability was not the result of an accidental injury and hence was not compensable under the workmen's

compensation act. Without appealing to the courts from the department's determination, Curley instituted a common law action against his employer, attributing his disability to negligence on the part of his employer in failing (1) to provide him with a safe place in which to work, (2) to warn him of the danger of chlorine gas, and (3) to furnish him with protecting safety appliances. The trial court directed a verdict for the employer and Curley appealed to the Supreme Court of Michigan.

The Supreme Court of Michigan affirmed the judgment of the trial court. It pointed out that the enactment of the Michigan workmen's compensation act conferred exclusive jurisdiction on the department of labor and industry in the first instance with respect to accidental injuries arising out of and in the course of employment, that Curley's disability was the result of an accident—the escape of chlorine gas—and not to an occupational disease, that Curley's sole remedy was under the workmen's compensation act, and that he should have appealed from the determination of the department of labor and industry to the courts—*Curley v. Beryllium Corporation (Mich.)*, 270 N. W. 202.

Evidence Admissibility of Complaints Made to Physician Examining to Qualify as Witness—The declarations of a person as to his symptoms, made to a physician not for the purpose of treatment but to aid the physician to form an opinion for the purpose of testifying as a witness for the declarant in a suit brought for personal injuries, said the Court of Errors and Appeals of New Jersey, are not admissible in evidence at the instance of the declarant. An expert witness for the defendant, however, in an action for damages for personal injuries may not only properly testify as to the conduct and result of his examination of the plaintiff but may also testify to any relevant statements made to him by the plaintiff with regard to the accident which caused such personal injuries—*Sandford v. Chanaz Co. (N. J.)*, 189 A. 670.

Practice of Embalming by Cooperative Association Illegal—The state of Iowa sought to enjoin the Fremont Co-operative Burial Association, a corporation which supplied embalming and funeral services and burial supplies to its members when deaths occurred in their families, from engaging in the practice of embalming. From a decree of the trial court granting the injunction, the defendant association appealed to the Supreme Court of Iowa.

The defendant admitted that a corporation cannot lawfully practice a profession and that, as a corporation, it could not engage in embalming without violating the law. It contended, however, that the practice of a profession by a corporation was not involved in this case and that the real question presented was whether the employment of a licensed embalmer by an incorporated nonprofit cooperative association to render professional services as an embalmer to its members only constituted the practice of the profession of embalming by the corporation. Apparently, the defendant admitted that if the employment of the licensed embalmer by it, and the furnishing of his services to the public generally, were a part of the business conducted by it, there would be a violation of the law. But it contended that the services of its licensed embalmer were furnished only to the members of the cooperative association and that therefore there was no selling by it of professional services to the general public, and hence no violation of the law.

That a corporation, said the Supreme Court of Iowa, cannot legally furnish professional services to the public generally through or by means of employing licensed members of a profession, for whose services it makes charges that go into the funds of the corporation, seems to be definitely settled in Iowa. The effect of the articles of incorporation of the defendant corporation and its by-laws, in the opinion of the court, was that any person residing within 35 miles of the town in which the corporation operated might avail himself of its services whether or not he was a member of the association at the time the services were required. If, for instance, a death occurred in the family of a nonmember, the head of the family or any person on whom would devolve the duty and liability of providing a burial for the deceased, even though he or

had never heard of the corporation and had no thought or intention of belonging to it prior to that time, would only have to go to the place of business maintained by the corporation, or to some one authorized to accept membership therein, and pay the membership fee. On such payment the family in which the death had occurred would immediately be entitled to the benefits of the association, including the services of the licensed embalmer. A person applying for membership under such circumstances would have to pay a membership fee of \$15 instead of a fee of \$10 ordinarily charged members, but the court did not think that this increased fee could be used as a standard or criterion by which to determine bona fide membership in a cooperative association. The benefits of such an association, depending on the death of a person should not be extended to cases in which neither the person claiming the benefits nor the deceased person was a member of the association at the time the death occurred. To permit the business of the corporation to be thus conducted, the court said, and the benefits of membership in it to be thus extended to the public generally, regardless of membership in the association at the time the death occurred would be to approve of a scheme and a subterfuge that would permit the corporation to evade the purpose and provisions of the law.

The court did not determine whether an incorporated association, such as the one here involved, could legally furnish the services of a licensed embalmer to its members, if membership in the association was restricted by reasonable and legitimate requirements. Under the record in the case, the court concluded that the requirements as to membership were not such as to confine the benefits of the corporation to a bona fide body of members but extended the benefits to the public generally within a distance of 35 miles from the place of business of the corporation.

The decree of the lower court enjoining the corporation from practicing embalming was therefore affirmed.—*State v Fremont Co-operative Burial Ass'n (Iowa)*, 270 N W 320

Privileged Communications When Privilege Attaches to Examination of Patient—In the trial of the present case for compensation under the Michigan workmen's compensation act it became material to determine whether or not a child was an offspring of the marriage of the deceased workman and his first wife. His second wife, the appellant herein, offered to prove that the first wife and the workman both went to certain physicians to determine why their marriage had been without issue, that the examinations indicated that the workman was incapable of reproduction because of a prior gonorrhea and double epididymitis, that subsequently the first wife gave birth to the child in question, and that later a second examination of the workman by the same physicians failed to change their original conclusions. The trial court refused to allow the physicians to testify, holding that their testimony was privileged under 3 Compiled Laws of Michigan, 1929, section 14216, reading in part as follows:

No person duly authorized to practice medicine or surgery shall be allowed to disclose any information which he may have acquired in attending any patient in his professional character and which information was necessary to enable him to prescribe for such patient as a physician, or to do any act for him as a surgeon.

From that ruling of the trial court, the second wife appealed to the Supreme Court of Michigan.

The appellant contended first that the privilege, if any, was waived because of the presence of the first wife at the examination of the workman. But, said the Supreme Court, the presence of an intimate family relation at the time of consultation should not and does not waive the privilege. The appellant next contended that the information obtained by the physicians was not privileged because the workman and his first wife had gone to the physicians for examination only and not for treatment, citing *In re Bruendl's Will* 102 Wis 45, 78 N W 169. In the Bruendl case, said the Supreme Court, the matter or treatment by the physician was wholly foreign to the purpose of the visit. No treatment was contemplated. Instead the woman examined in that case sought to establish that her sterility was such that a guardianship over her should be removed. In the present case the workman and his wife went

to the physicians for the purpose of ascertaining why a child or children were not born of their union. Confidential communications followed, as well as several examinations and tests from which it was ascertained that the workman was incurably impotent. The workman and his wife were desirous of having offspring and the inference necessarily arises that, if curative or remedial measures were available, such were contemplated. The privilege arises between a physician and his patient notwithstanding the patient's condition as disclosed is not subject to treatment. *Grattan v Metropolitan Life Ins Co* 24 Hun (N Y) 43. In the present case the workman examined subsequently died. After the death of the patient, the privileged matter is all the more sacred and the protection of the patient continues unless waived by some one authorized to do so. The court was of the opinion that the second wife was not authorized to waive the privilege.

The Supreme Court held, therefore, that the trial court properly refused to admit in evidence the proffered testimony.—*Bassil v Ford Motor Co (Mich)* 270 N W 258

Society Proceedings

COMING MEETINGS

- Academy of Physical Medicine Philadelphia, Oct 19 21 Dr Herman A Osgood 144 Commonwealth Ave Boston Secretary
- American Academy of Ophthalmology and Otolaryngology Chicago Oct 10 15 Dr W P Wherry 107 South Seventeenth St Omaha Executive Secretary
- American Association for the Study of Neoplastic Diseases Washington D C Sept 9 11 Dr Eugene R Whitmore 2139 Wyoming Ave N W Washington D C Secretary
- American Association of Obstetricians Gynecologists and Abdominal Surgeons Hot Springs Va Sept 20 22 Dr James R Bloss 418 Eleventh St Huntington W Va Secretary
- American Association of Railway Surgeons Chicago Sept 20 22 Dr Daniel B Moss 547 W Jackson Blvd Chicago Secretary
- American Clinical and Climatological Association Baltimore Oct 11 13 Dr Francis M Rackemann 263 Beacon St Boston Secretary
- American Congress of Physical Therapy Cincinnati Sept 20 24 Dr Richard Kovacs 1100 Park Ave New York Secretary
- American Hospital Association Atlantic City N J Sept 13 18 Dr Bert W Caldwell 18 East Division St Chicago Executive Secretary
- American Public Health Association New York Oct 5 8 Dr R M Atwater 50 West 50th St New York Executive Secretary
- American Roentgen Ray Society Chicago Sept 13 17 Dr Eugene P Fendergrass 3400 Spruce St Philadelphia Secretary
- Association of Military Surgeons of the United States Los Angeles Oct 14 16 Dr H I Gilchrist Army Medical Museum Washington D C Secretary
- Central Association of Obstetricians and Gynecologists Dallas Texas Oct 14 16 Dr Ralph A Reis 104 South Michigan Blvd Chicago Secretary
- Clinical Orthopaedic Society Chicago Sept 30 Oct 2 Dr H Earle Conwell 215 Medical Arts Bldg Birmingham Ala Secretary
- Colorado State Medical Society Colorado Springs Sept 22 25 Mr Harvey T Seihman 537 Republic Building Denver Executive Secretary
- Delaware Medical Society of Wilmington Oct 12 13 Dr W H Speer 917 Washington St Wilmington Secretary
- Idaho State Medical Association Boise Aug 30 Sept 3 Dr Harold W Stone 105 North Eighth St Boise Secretary
- Indiana State Medical Association French Lick Oct 4 6 Mr T A Hendricks 25 East Ohio St Indianapolis Executive Secretary
- Inter State Postgraduate Medical Association of North America St Louis Oct 18 22 Dr W B Peck 27 E Stephenson St Freeport Ill Managing Director
- Kentucky State Medical Association Richmond Sept 13 16 Dr A T McCormack 532 West Main St Louisville Secretary
- Michigan State Medical Society Grand Rapids Sept 27 30 Dr L Fernald Foster 311 Center Ave Bay City Secretary
- Mississippi Valley Medical Society Quincy Ill, Sept 29 Oct 1 Dr Harold Swanberg 510 Maine St Quincy Ill Secretary
- Nevada State Medical Association Elko Sept 24 25 Dr Horace J Brown 120 N Virginia St Reno Secretary
- Omaha Mid West Clinical Society Omaha Oct 17 22 Dr J D McCarthy 107 South Seventeenth Street Omaha Secretary
- Oregon State Medical Society Salem Oct 21 23 Dr Morris L Bridge man 1020 S W Taylor St Portland Secretary
- Pennsylvania Medical Society of the State of Philadelphia Oct 4 7 Dr Walter F Donaldson 500 Penn Avenue Pittsburgh Secretary
- Radiological Society of North America Chicago Sept 13 17 Dr Donald S Childs 607 Medical Arts Building Syracuse N Y Secretary
- Utah State Medical Association Salt Lake City Sept 2 4 Dr F M McHugh 17 Exchange Place Salt Lake City Secretary
- Vermont State Medical Society St Johnsbury Oct 14 15 Dr A B Soule Jr Mary Fletcher Hospital Burlington Secretary
- Virginia Medical Society of Roanoke Oct 12 14 Miss A A Edwards 1200 East Clay St, Richmond Secretary
- Wisconsin State Medical Society of Milwaukee Sept 14 17 Mr J G Crownhart 119 East Washington Ave Madison Secretary

Current Medical Literature

AMERICAN

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Alabama Medical Association Journal, Montgomery

7 140 (July) 1937

- Cancer of Colon and Rectum F H Lahey Boston—p 1
New Protamine Insulin in Treatment of Diabetes Mellitus D B Snelling Montgomery—p 9
Vulvovaginitis Report of Two Cases (One Causing Intussusception the Other Pseudomyoma of Peritoneum) J O Morgan, Gadsden—p 14

American Heart Journal, St Louis

13 633 776 (June) 1937

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Hemodynamic Studies in Experimental Coronary Occlusion I Open Chest Experiments L Gross, M Mendlowitz and G Schauer New York—p 647
Id II Closed Chest Experiments M Mendlowitz G Schauer and L Gross New York—p 664
*Diagnosis of Impending Acute Coronary Artery Occlusion J J Sampson and M Elaser Jr San Francisco—p 675
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Mobile Unit for Simultaneously Recording Heart Sounds Pulse Tracing and Electrocardiogram K Jochim S F Gaddas and H Marquis Chicago—p 731

Impending Coronary Artery Occlusion—In contrast to the occurrence of progressive angina pectoris, it has been apparent to Sampson and Elaser, on observation of twenty-nine cases extending over two and one-half years, that a single spontaneous attack of prolonged anginal pain strongly suggests the approach of a typical coronary thrombosis. Certain characteristics of these attacks of pain seemed to be so well defined that several patients were put to bed either at home or in a hospital from one to fourteen days prior to the development of the typical symptoms and signs of the arterial block. An interesting clinical comparison may be drawn between the diagnosis of impending coronary artery occlusion and impending occlusion of an intestinal artery. Dunphy defined the typical features of the latter condition and quoted a case history of premonitory pain occurring two months prior to death from the acute block of gradually thrombosing celiac axis and inferior mesenteric arteries. With a rich collateral blood supply, acute symptoms and signs of the blockage may never develop. This may account for the rare "silent coronary occlusion" seen at necropsy. The duration of the warning attack varied from two minutes to two hours, averaging sixty-three minutes in individuals without a history of angina pectoris and from fifteen minutes to fourteen hours, averaging two hours and forty minutes in patients with that history. There were only seven patients who had pain of less than twenty minutes' duration. No premonitory attacks occurred during sleep, and strenuous exertion occasionally preceded the pain. The interval between the premonitory attacks and the major attacks of the entire series varied between one and twenty-one days. The electrocardiograms taken were chiefly notable in that they offered no demonstrable assistance in making a diagnosis of impending thrombosis. Electrocardiograms taken after their occlusive attacks showed characteristic pathologic changes. There was a fatality of 34.5 per cent in the patients with the premonitory syndrome in the twenty-nine cases. The diagnosis of the premonitory syndrome is made

difficult because certain patients seem to present some of the characteristics mentioned previously but fail to develop the typical signs of a coronary artery occlusion within a period of weeks afterward.

American Journal of Cancer, New York

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- Primary Carcinoma of Lung L F Frissell and Leila Charlton Knox, New York—p 219
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Thymoma (Adenoma of Thymus) from Unusual Case of Myasthenia Gravis with Observations on General Pathology E H Norris Minneapolis—p 308
*Etiology of Cancer of Mamma in Mouse and in Man W Cramer London, England—p 318
Glycolysis and Tumor Growth J C Krantz Jr Ruth Musser C J Carr and W G Harne Baltimore—p 332
Cell Division Stimulating and Inhibiting Substances in Tissues G L Rohdenburg and S M Nagy New York—p 335
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Transplantable Metastasizing Cysticercus Plasmoma of Rats Liver Associated with Multiple Subcutaneous Benzpyrene Sarcomas F D Bullock M R Curtis and W F Dunning New York—p 355
Production of Spontaneous Melanotic Neoplasms in Fishes by Selective Matings II Neoplasms with Macromelanophores Only III Neoplasms in Day Old Fishes M Gordon Ithaca, N Y—p 367

Cancer of Mamma—Cramer believes that the experimental production of cancer of the mamma by estrogen has enlarged the outlook on the etiology of cancer by demonstrating the existence of a carcinogenic environment which is entirely internal. In that respect there is an essential difference from the experimental carcinogenesis of the skin when the decisive factor is a carcinogenic agent acting from without and when the carcinogenic environment is partly external and partly internal. The existence of a carcinogenic environment which is entirely internal enables one to understand why a malignant condition can develop in organs not exposed to influences coming from without why it is possible to obtain by inbreeding pure strains of mice with a high incidence of spontaneous cancer in one organ—the mamma—but not in another—the skin, and why such pure strains show considerable differences from one another and from mixed strains in the response of the mamma to the carcinogenic action of estrogen, while in the same strains no such differences are found in the response of the skin to the chemical substances carcinogenic for the skin. In man the familial incidence of cancer shows corresponding differences between the mamma, when the familial incidence is high, and the lip, when it is low. The inference is that cancer of the breast in women—at least in those with a family history of cancer of the breast—is the result of an internal carcinogenic environment. Since in mice this internal carcinogenic environment is associated with abnormalities in the endocrine system a search for such abnormalities in women with cancer of the breast and a family history of cancer of the breast is indicated.

American Journal of Diseases of Children, Chicago

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- Infection of Renal Parenchyma from Pelvis of Kidney H F Helmholz Rochester Minn—p 1
*Fate of Children Infected with Tuberculosis During the First Five Years of Life H A Rosenberg Jackson Heights N Y and Camille Kereszturi New York—p 15
*Results of Blood Transfusions in Primary Pneumonia in Infants and in Children J M Arena Durham N C—p 23
*Caloric and Protein Requirements and Basal Metabolism of Children from Four to Fourteen Years Old J W Maroney and J A Johnston Detroit—p 29
Tubercle Bacilli in Gastric Washings of Infants and of Children Demonstration When Cutaneous Reaction to Tuberculin Is Positive But There Is No Evidence of Tuberculosis on Physical or Roentgenographic Examination J L Rothstein New York—p 47
Similarity of Erythroblastic Anemia and Chronic or Congenital Malaria Successful Treatment of Eight Patients with Quinine S Little Detroit and G Spiliopoulos Athens Greece—p 69
Immunization Against Scarlet Fever M G Peterman Milwaukee—p 89

Tuberculosis in Young Children—From a study of 349 infants infected with tuberculosis during the first five years of life and observed for from one to nine years, Rosenberg and Kereszturi found that the rate of deaths from tuberculosis

was 91 per cent. Of the patients for whom roentgenograms of the chest were taken, 289 per cent presented parenchymal lesions of the lungs. The rate of mortality from tuberculosis among the Negro children was about twice that among the white ones. The incidence of parenchymal lesions of the lungs also was higher in the Negro group. The rate of deaths from tuberculosis among 175 children infected with the disease during the first year of life was 14.8 per cent; the fifty-nine who were infected during the first half of the second year showed a rate of 10.2 per cent. The highest rate, 43.7 per cent, occurred in the children infected during the first three months of life. No deaths from tuberculosis occurred in the group of 114 children infected after reaching 18 months of age. All the deaths from tuberculosis occurred in children less than 3 years of age. The rate of deaths from tuberculosis was more than five times as high in the children with parenchymal lesions as in those with enlarged tracheobronchial glands, and about eight times as high as in those who gave no roentgenographic evidence of having tuberculosis.

Blood Transfusions in Primary Pneumonia—According to Arena, during the last three years, efforts were made at the Duke Hospital to give one or more blood transfusions to all infants and children who had severe primary pneumonia, whether or not they had anemia. However, because of the difficulty in obtaining suitable donors, thirty-five patients did not receive blood and consequently served as controls. The other twenty-four had one or more transfusions of citrated blood by the gravity method (maximal amount, 20 cc per kilogram of body weight). The clinical symptoms, hemoglobin content and red and white blood cell count for the two groups were almost identical. The only difference which could be noted was that in the group who received transfusions there were probably more ill patients and more infants. Prompt and marked symptomatic improvement usually followed the transfusion, and the patient appeared more comfortable. The temperature fell by crisis within twenty-four hours of the transfusion in fifteen cases and within forty-eight hours in the other nine. The average interval between the onset and the crisis or lysis for this group was seven and nine-tenths days. Four of these children had the complication of suppurative otitis media, and one died. For the thirty-five patients who did not receive transfusions, the average interval between the onset and the crisis or lysis was nine and nine-tenths days. Three of these children had the complication of empyema, and nine had otitis media. Five died. The severe dyspnea and cyanosis which many of these children had were improved instead of made worse by the transfusions. Possibly, transfusions stimulate an increase in segmented polymorphonuclear leukocytes. The hemogram studies which have been made for several patients with primary pneumonia indicate that improvement or a crisis is attempted by an increase in the segmented polymorphonuclear leukocytes with a decrease in the percentage of nonsegmented forms. The ratio of segmented to nonsegmented forms appears to be a good indication of the severity of the infection and the ultimate outcome. Perhaps transfusions are a form of serotherapy, introducing neutralizing antibodies or causing non-specific protein shock. Another factor may be the supplying of cells to carry needed oxygen to the tissues, the replacing of those withdrawn from the circulation by the pathologic process.

Nutrition and Basal Metabolism of Children—Maroney and Johnston measured the dietary intake of thirteen girls, aged from 5 to 12 years, and fourteen boys aged from 4 to 14 years, over periods averaging nine and four-tenths months; their nitrogen balances were noted for an average of 111 days for each child, and periodic observations on their basal metabolism were made. Caloric and protein requirements per unit of height and weight were recorded for each child. Gain in weight and height was obtained with caloric intakes representing increments over the basal calories averaging 67 per cent for the girls and 74 per cent for the boys. With calories adequate for growth, intakes of protein representing 15 per cent of the total calories seemed optimal. Amounts greater than 20 per cent were usually productive of pallor, loss of appetite, abdominal discomfort and sometimes vomiting. With amounts less than 15 per cent a

negative nitrogen balance or depression of the basal metabolism was frequently observed. The so called sparing effect of fat and carbohydrate on protein was reexamined and confirmed, thus constituting an argument for recording the protein requirement in terms of the percentage of calories rather than of grams per unit of weight.

American Journal of Medical Sciences, Philadelphia

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- Intensive Collapse Therapy in Pulmonary Tuberculosis. II Study of Indications and Use of Various Operative Procedures in Group of 1124 Patients. G. L. Leslie and R. S. Anderson. Howell, Mich.—p. 1.
- Death Following Phrenicectomy. D. A. Cooper and W. H. Erh. Philadelphia—p. 19.
- *Chronic Myelogenous Leukemia. Observations Before and During Remissions Induced by Solution of Potassium Arsenite and by Roentgen Therapy with Particular Reference to Bone Marrow. D. J. Stephens. Rochester, N. Y.—p. 25.
- Effect of Subcutaneous Injection of Adrenalin on Leukocyte Count of Splenectomized Patients and of Patients with Certain Diseases of Hematopoietic and Lymphatic Systems. S. P. Lucia, M. E. Leonard and E. H. Falconer. San Francisco—p. 35.
- Paroxysmal Complete Heart Block Alternating with Normal Rhythm and Conduction. W. J. Comeau. Boston—p. 43.
- Vagal Reflex Irritability and Treatment of Paroxysmal Atrial Tachycardia with Ipecac. S. Weiss and H. B. Sprague. Boston—p. 53.
- Adult Scoury. Study of Urinary Output of Cerivamic Acid. A. Nissen and A. G. Cohen. New York—p. 63.
- *Febrile Albuminuria. J. W. Welty. Philadelphia—p. 70.
- Human Autonomic Pharmacology. VI. General and Local Sweating Produced by Acetyl-beta-Methylcholine Chloride (Mecholyl). Myerson, J. Loman and M. Runkel. Boston—p. 75.
- Clinical Effectiveness of Lactic Acid Jelly as Contraceptive. C. J. Gamble. Philadelphia and G. W. Beebe. New York—p. 79.
- Diabetes and Pregnancy. D. Hurwitz and F. C. Irving. Boston—p. 85.
- Adenoma of Islet Cells of Pancreas with Operation and Recovery. F. W. Lukens and I. S. Ravdin. Philadelphia—p. 92.
- Tumor of the Brain with Normal Encephalogram. A. Savitsky and M. B. Bender. New York—p. 96.
- *Vascular Pathology in Measles. Clinicopathologic Study of 100 Fatal Cases. J. A. Degen, Jr. New York—p. 104.
- Congenital Polycystic Kidney. Report of Its Occurrence in Several Members of One Family. G. R. Gordon and A. Trasoff. Philadelphia—p. 112.

Chronic Myelogenous Leukemia—Stephens presents detailed observations of the peripheral blood, bone marrow, nitrogen balance and oxygen consumption in two patients with typical chronic myelogenous leukemia before and during satisfactory remissions induced by solution of potassium arsenite and by roentgen therapy. In each instance treatment was followed by clinical improvement, reduction of the total leukocyte count to a normal level, marked decrease in immature cells, reticulocytosis, improvement in the anemia, return of the oxygen consumption to a normal level and striking changes in the bone marrow. In each instance the gray, hyperplastic, cellular leukemic bone marrow was replaced (presumably temporarily) by a relatively hypocellular, fibrotic marrow and the markedly increased myeloid erythroid ratio was decreased to an approximately normal level. Roentgen therapy was followed by a marked increase in the nitrogen excretion. The administration of solution of potassium arsenite was followed by no significant change in the nitrogen balance.

Febrile Albuminuria—Welty studied the relation of fever to albumin in the urine in forty patients receiving fever therapy. The patients treated were suffering from dementia paralytica, atrophic arthritis, gonorrheal arthritis and chorea. All had a blood urea nitrogen within normal limits, a normal Mosenthal concentration test and several negative examinations of the urine for albumin. Fever was induced by means of the Kettering hypertherm and an average temperature from 105 to 106 F was maintained for from four to six hours. A specimen of urine was obtained before the febrile period; a second specimen was collected after the fever had reached its height and had been maintained for several hours; the third specimen was the first urine voided after the temperature had fallen to normal. These urines were then examined as to specific gravity, reaction to litmus paper and for gross albumin by the sulfosalicylic acid reagent. The exact amount of urinary albumin was determined by the quantitative sedimentation method of Skevly and Stafford. In 95 per cent of the subjects the prefever urine albumin was below 0.03 per cent and 80 per cent presented a figure below 0.02 per cent. The urine albumin exceeded 0.04 per

cent in only one case. These are normal values and offer better proof of absence of renal disease in the group than the blood urea nitrogen and the Mosenthal test. During the febrile period 22.5 per cent of cases showed a decrease in albumin with fever, while 77.5 per cent had an increase in the level of urine albumin. This increase was very definite, being more than 100 per cent in twenty of the subjects and more than 200 per cent in sixteen cases. On four occasions the albumin level increased 500 per cent. In spite of the rather large percentage rise, the actual albuminuria is not likely to be massive. During fever only nine of the forty cases showed albumin in the urine as determined by the sulfosalicylic acid method. The patients had a temperature elevation for only a few hours, but had this been maintained for days, as is the rule in infectious fevers, it is probable that larger amounts would have appeared. Comparison of the prefever and postfever urine albumin levels indicated that 70 per cent of the subjects continued to show an increase in albumin in the specimens voided after return of the temperature to normal. This suggests that the increased output is carried over into the postfever stage, the possible delay in voiding, however, must be considered in evaluating these results.

Visceral Pathology in Measles—Degen made a study of the pathologic changes found throughout the body in 100 deaths from measles. In analyzing the pathologic observations in these cases, he found the most striking observation to be the absence of any specific gross or microscopic pathologic lesion which, in the absence of additional clinical data, could lead to a diagnosis of measles. The most constant pathologic change appears to be pneumonia and inflammation of the upper part of the respiratory tract, but even the pneumonia is not of a single type. Elsewhere the gross picture is one of secondary infection and concomitant toxic changes, the infection being most often apparently of a streptococcal nature. Microscopic examination also shows evidence chiefly of a severe and widespread toxic and infectious process. Among these changes, the frequent presence of an interstitial, mononuclear cell infiltration is of especial interest. A purely interstitial mononuclear infiltration was observed in the measles series in practically all of the twenty-two sections of the trachea, in twenty of the eighty-nine liver sections, and in from one to six cases each in the heart, kidney, adrenal and pancreas. The eleven skin sections examined all showed slight mononuclear cell infiltration of the corium. Slight endothelial cell changes were observed in four of these, but in none were there the marked changes and proliferation of these cells described in measles rashes by Ewing, Mallory and Medlar, and Denton. Bacteriologic studies at necropsy showed the hemolytic streptococcus, either alone or in combination with other bacteria, to be overwhelmingly the chief organism present. No lesion definitely pathognomonic of measles was found.

American Journal of Psychiatry, New York

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- Intelligence and Socialization F. L. Wells Boston—p. 1265
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Brain Potential Rhythms in Case Showing Self Induced Apparent Trance State M. M. Thomson T. W. Forbes and M. Marjorie Bolles New York—p. 1313
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The Case of Floyd Dell Study in Psychology of Adolescence L. J. Bragman Binghamton N. Y.—p. 1401
Influence of Carbon Dioxide in Combating Effect of Oxygen Deficiency on Psychic Processes with Remarks on Fundamental Relationship Between Psychic and Physiologic Reactions E. Gellhorn Chicago—p. 1415
Correlation of Oxygen Deprivation with Intelligence Constitution and Blood Pressure S. H. Kraines Chicago—p. 1435

American Journal of Public Health, New York

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- Pneumonia and Tuberculosis Among Industrial Workers and Their Dependents C. H. Kibbey Birmingham Ala—p. 555
Nomenclature for Colon Group R. S. Breed Geneva N. Y., and J. F. Norton Kalamazoo Mich—p. 560
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*Relapsing Alternating Peripheral Facial Paralysis P. Viole Los Angeles—p. 351
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*Cause of Dizziness in Head Injuries Vestibular Test Study in Sixty Six Patients M. A. Glaser Los Angeles—p. 387
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Adenoids and Immunity H. B. Lemere Beverly Hills Calif—p. 498
Etymology of Saddle Nose Preliminary Report M. M. Wolfe Philadelphia—p. 504

Relapsing Alternating Peripheral Facial Paralysis—His observations in two cases lead Viole to agree with Tumarkin that the presence of pain at the onset of a facial palsy and the disturbance of taste are of great prognostic significance. In the first instance the patient did not complain of either of these symptoms and recovery apparently is complete. These two symptoms were definitely present in the second case reported, and there is still noticeable residual involvement. The phenomenon of synkinesis, as described by Tumarkin, plainly exists in the second patient. Disturbance of the facial nerve also undoubtedly influences the act of deglutition, as is demonstrated in the latter case. The premonition of onset experienced by the first patient, the author believes, is of interest and probably has existed in other instances. These two cases of relapsing alternating peripheral facial paralysis are presented mainly because similar cases must be of more frequent occurrence than is evident by the scarcity of reported instances in the literature.

Cause of Dizziness in Head Injuries—Glaser analyzed sixty-six cases of dizziness from a series of 325 cases of head injury in order to determine the cause of dizziness in head injuries and the value of vestibular tests as a diagnostic adjunct, as well as the ability of the patients to prognosticate the duration of dizziness. The vestibular tests are of no value in determining either the type of dizziness or the presence or absence of dizziness encountered in these patients, nor by them can the duration of dizziness be prognosticated. They do, however, in certain cases, reveal the presence of pathologic change within the brain and thus corroborate, to a degree, the truth of the patient's story with regard to a head injury. In this manner they are indirectly of value in eliminating the malingerer. It is quite evident that the common types of dizziness associated with head injuries are not dependent on definite vestibular lesions, instead, it is likely that they are due to an entirely different mechanism possibly transient cerebral vasomotor disturbances. Encephalograms and vestibular tests, performed on four patients, both demonstrated pathologic changes in the central part of the brain. In two of these patients dizziness was entirely absent. Vestibular tests performed in

sixty-six cases revealed subjective symptoms in 80 per cent, objective neurologic signs in 21 per cent and vestibular abnormalities in 76 per cent. Objective signs were thus demonstrated more frequently by vestibular examination than by clinical neurology. Though no distinct vestibular complex was associated with head injuries, there were certain predominant observations. Normal vestibular responses may indicate either an undamaged brain or a brain evidencing pathologic change which has not involved the vestibular pathways. Lesions of the end organ signify peripheral involvement of the vestibular fibers, while central lesions indicate pathologic changes either directly present or adjacent to the central vestibular pathways.

Archives of Internal Medicine, Chicago

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- Diagnosis of Congenital Cystic Disease of the Lung S G Schenck, Brooklyn—p 1
- *Cause of Death in Tularemia L Foshay Cincinnati—p 22
- Pulmonary Infarction Complicating Severe Disease of Mitral Valve H B Levine and P D White Boston—p 39
- *Monocytic Leukemia Cutaneous Manifestations of Naegeli and Schilling Types Hemocytologic Differentiation H Montgomery and C H Watkins Rochester Minn—p 51
- Alterations in Serum Protein as Index of Hepatic Failure E F Foley, R W Keeton, A B Kendrick and D Darling Chicago—p 64
- Acute Uranium Nephrosis Mechanism of the Glycosuria A T Milborat and H J Deuel Jr New York—p 77
- Carcinoma of the Islands of Langerhans with Hypoglycemia and Hyperinsulinism R W Cragg Marshelle H Power Rochester, Minn and M C Lindem Salt Lake City—p 88
- *Medicinal Treatment of Angina Pectoris J E F Riseman and M G Brown Boston—p 100
- Normoglycemic Glycosuria Differentiated from Other Benign Glycosurias and Diabetes Mellitus Florence H Smith and K A Smith Chicago—p 119
- Sickle Cell Anemia in the White Race Improvement in Two Cases Following Splenectomy R L Haden and F D Evans Cleveland—p 133
- Clinical Symptoms of Chronic Gastritis Observations on Thirty Five Selected Cases R Schindler Marie Ortmyer and J F Renshaw Chicago—p 143
- Effect on Electroencephalogram of Certain Drugs Which Influence Nervous Activity F A Gibbs E L Gibbs and W G Lennox Boston—p 154
- Bright's Disease Review of Recent Literature W S McCann Rochester N Y—p 167

Cause of Death in Tularemia—Foshay's experience and a study of case records indicate that the chief cause of death attributable to tularemia alone is septicemia due to *Bacterium tularensis*. Pneumonia that originates from the primary bacteremia does not become associated with fatalities unless septicemia supervenes. At least 70 per cent of the cases of tularemic pneumonia do not result in death. In a small number of cases, probably much smaller than the proportion in this series indicates, the primary bacteremia is septicemia from the onset and causes a rapidly fatal termination in from four to ten days. These unfortunate persons have apparently no natural resistance to the infection. The septicemia that causes most fatalities originates from a second invasion of the blood stream. Tularemia is especially dangerous to persons with preexisting coronary heart disease. Death may occur in such cases from coronary occlusion or acute myocardial failure during the initial acute phase or during convalescence. The surviving patient may suffer attacks of angina pectoris, coronary occlusion and heart block for years after recovery from tularemia. The third week of infection is the most dangerous period and most deaths occur on the sixteenth day of illness. It is estimated that four of every five deaths from tularemia could have been prevented by the early administration of serum therapy.

Monocytic Leukemia—Montgomery and Watkins make a distinction between monocytic leukemia of the Naegeli and that of the Schilling type on the basis of the hemocytologic pictures. Either type may be of primary autochthonous cutaneous origin. The type of cutaneous manifestations of either condition may be specific or nonspecific and may vary from discrete necrotic nodules or purpuric lesions to generalized exfoliative dermatitis. A distinctive histopathologic picture of monocytic leukemia of the Schilling type may be observed on examination of the skin, corresponding to the hemocytologic picture. Occasionally, myelogenous leukemia may terminate as monocytic leukemia of the Naegeli type or lymphatic leukemia may result in monocytic leukemia (Schilling) and still later again present the blood pictures of both conditions. Monocytic

leukemia of the Schilling type (leukemic reticulo-endotheliosis) may assume an acute or chronic form, and even aleukemic reticulosis may be encountered. The cutaneous as well as the general clinical, pathologic and hemocytologic observations should be correlated in a given case in order to arrive at a correct diagnosis. A prolonged period of observation may be necessary before it is possible to ascertain the type of lymphoblastoma that will eventuate.

Drug Therapy in Angina Pectoris—Riseman and Brown investigated the use of fifteen different drugs in the treatment of twenty-six patients with angina pectoris. Each drug was given several times a day for at least a week before its effect was evaluated. The patient's estimation of therapeutic benefit indicated that all the drugs were approximately equal in value. Placebos were just as often beneficial as other medicaments. The exercise tolerance test revealed that patients whose treatment consisted of lactose, sodium bicarbonate, potassium iodide or tissue extract were unable to perform any more work than was possible without medication. Glyceryl trinitrate given before work was undertaken prevented attacks and enabled many patients to do considerably more work. Thus prophylactic effect was often of relatively short duration, but attacks were prevented for as long as an hour in many cases. Such patients could be rendered completely free from attacks in daily life by taking glyceryl trinitrate at hourly intervals. For all practical purposes small doses ($\frac{1}{1000}$ grain or 0.1 mg) were as valuable as larger doses and were attended by little discomfort. One half of the patients were benefited by either aminophylline or quinine sulfate. Theophylline calcium salicylate, erythrol tetranitrate and atropine sulfate were often of value occasionally they benefited patients not helped by either aminophylline or quinine sulfate. Codeine sulfate and phenobarbital rarely enabled the patient to do more work before pain developed, but these sedatives appeared to be of aid as an adjunct in the treatment of the patient. Digitalis was rarely of value and frequently caused a striking increase in anginal attacks.

Archives of Pathology, Chicago

24 1134 (July) 1937

- Cytology of Ovarian Tumors R C Page and W C MacCarty Rochester Minn—p 1
- Influence of Dusts on Tuberculous Infection Susceptibility of Subcutaneous Lesions Produced by Dusts to Infection by Tubercle Bacilli Injected Intravenously A J Vorwald Saranac Lake N Y and A Landau Capetown South Africa—p 8
- *Boeck's Sarcoid Report of Six Cases in Which Autopsies Were Made D A Nickerson Boston—p 19
- Hyperplasia of Parathyroid Glands Secondary to Renal Insufficiency Report of Case A A Nelson Minneapolis—p 30
- *Talcum Powder Granuloma R Fienberg Boston—p 36
- Pathologic Changes in Tissues of Dog Following Injections of Rattle snake Venom H N Taube and H E Essex Rochester Minn—p 43
- Mechanism of Inflammation V Menkin Boston—p 65

Boeck's Sarcoid—Nickerson believes that in his six cases, in which necropsies were made the lesions were found for the first time in the myocardium, endocardium, pancreas, testis and vertebral and femoral marrow. Lesions were found in the spleen in five cases, with definite splenomegaly in four, and in the lungs in four cases. In differentiating sarcoid from tuberculosis, especially the miliary form the following points are of assistance: 1 Caseation should never be present. In none of the lesions of sarcoid are any neutrophilic polymorphonuclear leukocytes seen, an observation one would expect in an early caseating tubercle. 2 The giant cells are different from those seen in tuberculosis. They show moderate variation in size, are usually much larger and contain many more nuclei which are evenly distributed throughout the cell and are seldom arranged in the elliptic manner typical of tuberculous giant cells. 3 Lesions in tissues other than the lungs do not contain carbon pigment. 4 In the liver the lesions are most numerous in the portal tracts with only a few in the midzones of the lobules. In miliary tuberculosis the reverse is true. 5 With silver impregnation, a delicate reticulum is always present in the lesion. In tuberculosis this is destroyed by the onset of caseation. 6 No evidence of tuberculosis is found anywhere in the body. Giant cells may occur in all stages of the disease. The amount of collagen present seems to be a more accurate index of the activity of the infection. In the only case in which a

minimal amount was present, death was apparently due to this disease, an occurrence suggesting that an increase indicates a healing reaction. The presence of increased amounts of collagen indicates a healing reaction. Sarcoid-like lesions are composed of small irregular foci of elliptic macrophages with occasional areas of fibrosis and rare giant cells or lymphocyte infiltration, differing from true sarcoid in that they lack the smooth outline and cellular infiltration of the latter. While they may thus be distinguished their significance and possible relationship are not yet entirely clear.

Talcum Powder Granuloma—Fienberg presents two cases of granuloma caused by anisotropic crystals shown to be talc (magnesium silicate). Three cases are described of similar lesions in which the crystals were morphologically similar to talc crystals. Lesions similar to those found in these cases were produced in mice by talc. An analysis of the cases revealed the diagnostic errors caused by talc crystal granuloma under varied circumstances. The value of examination of suggestive sections under crossed Nicol prisms is stressed. The indiscriminate use of talcum powder in the operating room may produce granulomatous lesions.

Canadian Medical Association Journal, Montreal

37 1104 (July) 1937

- Prevention of Silicosis by Metallic Aluminum I Preliminary Report J J Denny W D Robson Schumacher Ont and D A Irwin Toronto—p 1
- Hyperparathyroidism Two Cases G S Fahrni Winnipeg Manit—p 11
- Minute Oxyphil Adenoma of Parathyroid Associated with Calcium Deposits in the Kidney B Chown Winnipeg Manit—p 16
- Prevention of Poison Ivy Dermatitis by Intramuscular Injection of Rhodogen (Rhus Toxicodendron Oleo Antigen) A H W Caulfeild Toronto—p 18
- Experimental Gas Embolism II Factors Other Than Air as Cause of Death in Some Cases Diagnosed Air Embolism B C Coles H F Richardson and G E Hall Toronto—p 24
- Quartan Malaria Transmitted by Transfusion E McCulloch Toronto—p 26
- Some Changing Views About Edema and Diuresis H A Christian Boston—p 29
- Plea for Conservatism in Use of Cesarean Section L J Harris Toronto—p 32
- *Essential Unsaturated Fatty Acids in Relief of Common Cold E M Boyd and W F Connell Kingston Ont—p 38
- Peroral Endoscopy Observations in 200 Cases of Foreign Bodies A D McCannell Minot N D—p 42
- Experimental and Clinical Studies on Adrenal Insufficiency R A Clegg horn E W McHenry G A McVicar and D W Overend Toronto—p 48
- Insulin as Cause of Hypeus H C Jamieson Edmonton Alta—p 52
- Subacute Bacterial Endocarditis with Brain Abscess Case D L Mendel and M Sabil Montreal—p 53
- Leukemoid Blood Picture in Tuberculosis E S Mills and S R Townsend Montreal—p 56
- Study of Epidemic of Ringworm of Extremities in Orphan's Home B Usber and D S Mitchell Montreal—p 60

Fatty Acids in Relief of the Common Cold—Following a control period of seven weeks, beginning January 1, during which colds were recorded, Boyd and Connell gave 15 minims (1 cc) of purified linoleic and linolenic acids (vitamin F) daily to forty-one medical students for a further seven weeks, while sixty-five others served as controls. Vitamin F reduced the average incidence of colds by 64 per cent and the average duration by 78 per cent there being at the same time little appreciable difference in the incidence and duration of the untreated group. Of the treated group 71 per cent responded favorably and 29 per cent showed no relief. Unpleasant reactions occurred in one third of the treated cases, diarrhea, nausea and vomiting being the chief side effects, but most of these were temporary and disappeared when the substance was taken with, rather than between meals.

Delaware State Medical Journal, Wilmington

9 119 140 (June) 1937

- *Obstetric Anesthesia and Analgesia Their Effect on Third Stage of Labor T L Montgomery Philadelphia—p 119

Procedure in Third Stage of Labor—Montgomery considers the following a conservative and safe procedure in the third stage of labor. 1 The fetus having been delivered for instance by low forceps and episiotomy, the anesthetic is at once stopped. 2 The uterus is palpated and then entrusted to

a nurse, and the episiotomy is inspected to see that there is no large vessel bleeding. 3 Mucus is removed from the fetal air passages and resuscitation attended to. 4 In the meantime a half ampule of solution of posterior pituitary is given to the patient and the nurse reports on the condition of the uterus. 5 The baby's eyes are treated, the cord is dressed and the child is taken to the nursery. 6 The uterus is palpated and, when the typical signs of placental separation occur, the placenta is expressed. An ampule of an active ergot product is given deeply by hypodermic. 7 The uterus is massaged and held until it is consistently hard and only then entrusted to the nurse again. If bleeding is excessive, it is packed at once. 8 The placenta is examined and its completeness ascertained. 9 Precise inquiry is made as to the pulse, rate and volume and the condition of the patient. If the report is favorable, immediate repair of the birth canal is decided on. If it is not completely favorable, the repair is postponed six or eight days or even two or three months. 10 If conditions permit of repair, anesthesia is reestablished, the parts are thoroughly reprepared, the operator's gloves (and gown too, if necessary) are changed, and the repair is performed in good light, with good exposure, and with the same care as a gynecologic perineorrhaphy. 11 The operation completed, the parts are dressed, the uterus is palpated, the pulse tested and the baby examined. 12 After dressing, the operator reexamines the mother and the baby and does not leave until an hour has passed. Such a routine ensures the recognition and prompt treatment of shock and the immediate arrest of hemorrhage. It has served the author well in many a difficult situation. The third stage of labor and the placental separation merit the most careful attention of the operator and are not to be complicated by continuing anesthesia and attempting to suture extensive episiotomies or lacerations while waiting for their completion. Labor should be completed, the patient made sure of and the damage repaired.

Journal of Experimental Medicine, New York

66 1132 (July) 1937

- Infectious Myxomatosis of Rabbits Preparation of Elementary Bodies and Studies of Serologically Active Materials Associated with It C A T M Rivers and S M Ward New York—p 1
- Influence of Host Factors on Neuro-Invasiveness of Vesicular Stomatitis Virus I Effect of Age on Invasion of the Brain by Virus Instilled in the Nose A B Sabin and P K Olitsky New York—p 12
- Id II Effect of Age on Invasion of Peripheral and Central Nervous Systems by Virus Injected into Leg Muscles or the Eye A B Sabin and P K Olitsky New York—p 35
- Properties of Causative Agent of Chicken Tumor XIII Sedimentation of Tumor Agent and Separation from Associated Inhibitor A Clad New York—p 59
- *Lymph Nodes as Source of Neutralizing Principle for Vaccinia P D McMaster and J G Kidd New York—p 73
- Mechanism of Lysis of Pneumococci by Freezing and Thawing Bile and Other Agents R J Dubos New York—p 101
- Effect of Bacteriolytic Enzyme of Pneumococcus on Antigenicity of Encapsulated Pneumococci R J Dubos New York—p 113
- Propagation of Rabies Virus in Tissue Culture L T Webster and Anna D Clow New York—p 125

Source of Neutralizing Principle for Vaccinia—McMaster and Kidd aver that their data prove that the regional lymph nodes elaborate an antiviral principle when virus is brought to them by way of the lymphatics from the injected ear of the rabbit and that this is demonstrable within four days after the inoculation of virus. The experiments indicate that it could probably be demonstrated even after a shorter time, following an injection of virus in the ear were better testing methods utilized, as for example if protective substances and virus were separated by filtration or by electrophoresis. The antiviral principle was present in greater concentration in the extract of the lymph nodes of the virus injected side than in the undiluted blood serum procured at the same time, and in far greater concentration than in the serum diluted equally with the node extract. The possibility would seem to have been excluded that an antiviral principle developing in the injected ear or elsewhere in the body accumulated in the lymph nodes, thus accounting for the condition found. The control injections of typhoid vaccine inflamed both the injected ear and the nodes, draining it, but no antiviral principle was ever found in either until long after their appearance in the nodes of the virus injected side. The antiviral principle developed first in the nodes. The circumstances were much like those of natural infection and like those of artificial vaccination. The immune

following clinical vaccination may well be of lymph node origin in great part. The relative amounts of antiviral principle present in the various organs or body fluids change much with the lapsed time after virus infection. The results in any individual case may depend largely on the port of entry of the virus, on the quantity entering and on whether it spreads rapidly or is retained by one tissue or organ.

Journal of Immunology, Baltimore

32 421 500 (June) 1937

- Preparation of Type Specific Carbohydrates of Gonococci W A Casper, New York—p 421
Apparent Antigenicity of Plastein E W Florsdorf S Mudd and Esther W Florsdorf Philadelphia—p 441
Immunization of Rabbits with Inactive Vaccine Virus H Bernkopf and I J Kligler Jerusalem Palestine—p 451
Chemical and Immunologic Studies of Pneumococcus IV Ultrafiltration in Preparation of Type I II, III and Atypical Polysaccharides A Wadsworth and Rachel Brown Albany, N Y—p 467
Low Temperature Ball Mill for Liberation of Labile Cellular Products S Mudd C H Shaw E J Czarnetzky and E W Florsdorf Philadelphia—p 483

Journal of Urology, Baltimore

38 1144 (July) 1937

- Radiosensitive Kidney Tumors B S Barringer New York—p 1
Partial Resections of Kidney Report of Six Cases and Review of Literature A E Goldstein and B S Abeshouse Baltimore—p 15
Heminephrectomy Its Indications and Limitations E Hess Erie, Pa—p 43
Unilateral Multicystic Kidney in an Infant K D Lynch and R F Thompson, El Paso Texas—p 58
Postcaval Ureter H E Shih, Peiping China—p 61
Unusual Ureteral Anomaly Discussion of Embryology H A R Kreutzmann San Francisco—p 67
Perivesical Abscess with Rupture into Bladder Secondary to Intestinal-Intestinal Fistula (Sigmoido-Ileal) Case Report H A Fowler, Washington D C—p 74
Sacrococcygeal Chordoma Report of Unusual Case with Especial Reference to X-Ray Finding. I E Nash and N F Laskey New York—p 81
Chorio-Epithelioma of Testis Report of Case Showing Extensive Metastasis T J Kirwin New York—p 91
Urethral Injury from Using Metal Covered Bakelite Sheath in Transurethral Prostatic Resection M L Boyd Atlanta Ga—p 100
Nonparasitic Chyluria E G Wakefield and G Thompson Rochester Minn—p 102
*Introduction of Avertin as Relaxing Agent in Manipulative Removal of Urethral Calculi W D Jarman and W W Scott Rochester, N Y—p 111
Nature of Urinary Calculi J D Berke New York—p 118
New Cystometer Devised to Minimize Present Difficulties D W MacKenzie and S Beck Montreal—p 131
Hemostatic Bag Catheter One Piece Latex Rubber Structure for Control of Bleeding and Constant Drainage Following Prostatic Resection F E B Foley St Paul—p 134
Self Retaining Bag Catheter for Use as Indwelling Catheter for Constant Drainage of Bladder F E B Foley St Paul—p 140

Tribrom-Ethanol as Relaxing Agent in Removal of Calculi—Jarman and Scott employed the following technic in twenty-seven patients. After admission to the hospital the patients are placed on sodium acid phosphate and methenamine even though infection is absent. Fluids are forced and medication given, if necessary, to relieve the pain. A number 5 F ureteral catheter, when possible, is passed by the obstruction to the kidney. This ensures good drainage and protects the kidney. After this bougies or catheters of such size and number as the obstructed ureter will permit are passed to the kidney. The patient is returned to the ward with instructions to drain the catheters in a sterile urinal for forty-eight hours. At the end of this time the patient is brought to the clinic for the tribrom-ethanol injection. This solution is prepared freshly and aseptically, by dissolving 1 Gm of tribrom-ethanol crystals in 50 cc of warm sterile, distilled water. This 2 per cent solution is then injected, while warm, directly through the indwelling catheter into the kidney pelvis, the amount injected being determined by the pain produced from moderate distention of the pelvis. The catheter is then plugged and the patient requested to sit upright in order to facilitate the passage of some of the solution down along the ureter. This is allowed to remain in contact with the pelvis and ureter approximately fifteen minutes. Then the instruments are withdrawn, at which time they are slowly twisted and more solution is injected directly into the lumen of the ureter. The patient is then instructed to void in the erect posture. In three instances the obstruction due to

stone was so marked that with the patients prepared for cystoscopy in the usual manner it was impossible to pass a catheter beyond the calculus. After the rectal administration of tribrom-ethanol as a basal anesthetic to each of these patients three instruments were easily passed beyond the calculus. With this method the calculus was recovered in twenty-five instances (92.5 per cent). In thirteen instances (48.1 per cent) the stone was recovered as soon as the patient voided.

Maine Medical Journal, Portland

28 159 186 (July) 1937

- The General Practitioner's Responsibilities in Cases of Malignant Disease of Sigmoid and Rectum E H Bennett Lubec—p 161
Thyroid Disease H L Robinson Bangor—p 164
Pain in the Kidney Region A Riley Boston—p 167

Military Surgeon, Washington, D C

81 180 (July) 1937

- Medical Aspects of Italo Ethiopian War (Oct 3 1935 May 9 1936) A Castellani—p 1
The Oldest Hospital in America The Hospital of Jesus of Nazareth in the City of Mexico Established in 1524 It Is Still in Use E E Hume—p 17
Gas Gangrene in Civil Surgery F A Collier and W S Perham—p 27
Review of 100 Amputations H P Timberlake—p 39
The Social Worker's Contribution to Effective Treatment Faith Senille Lauer—p 43
Military Reading as a Hobby N G Long—p 48
Gunshot Injury of Eyes Report of Case W W Hendricks—p 52

Minnesota Medicine, St Paul

20 411 484 (July) 1937

- Medical Service for All Americans N B Van Etten New York—p 411
Suggested Methods of Improving the Health of the American People The Program of the Children's Bureau Martha M Eliot Washington D C—p 418
Antenatal Treatment of Prenatal Syphilis R A Vonderlehr and Audrey Goss Morgan Washington, D C—p 423
Common Type of Emotional Problem Encountered Among College Students E M de Berry Minneapolis—p 427
Plea Against Defeatism in Malignancy Report of Some Favorable Cases A Schwytzer St Paul—p 434
Version and Breech Extraction R T Ia Vake Minneapolis—p 442
Obstetric Analgesia Preliminary Report of New Method F E Kliman and E M Lazard Los Angeles—p 444
Incidence of Tuberculosis and the Deep Chest S A Weisman Minneapolis—p 450

New England Journal of Medicine, Boston

217 144 (July 1) 1937

- Endometrioma of Female Genital Organs F A Pemberton Boston—p 1
Endometriosis as Cause of Acute Intestinal Obstruction J J Hepburn Boston—p 6
*Endometriosis of Colon and Rectum with Intestinal Obstruction R B Cattell Boston—p 9
Failure of Para Aminobenzenesulfonamide Therapy in Urinary Tract Infections Due to Group D (Lancefield) Beta Hemolytic Streptococci Eleanor A Bliss and P H Long Baltimore—p 18
Alterations of Cerebrospinal Fluid Subsequent to Pneumo-Encephalography R S Schwab and T J C von Storch Boston—p 21
Specialization in Medicine Subject for Undergraduate Planning II Cabot Rochester Minn—p 24

Endometriosis of Colon and Rectum—Among 104 patients with endometriosis who have been treated at the Lally Clinic, seventeen have had involvement of the sigmoid colon or rectum (16.3 per cent). Cattell divides these cases of endometriosis into three groups, which are based on the extent of the involvement of the intestine and the indications for treatment: (1) endometriosis of the rectovaginal septum, (2) endometriosis involving the serosal and muscular coat of the intestine owing to its juxtaposition to a generalized endometriosis in the ovaries tubes or uterus and (3) endometriosis involving the entire intestinal wall. All three groups may show obstructive symptoms, although in the third the obstruction is more marked and is more readily confused with carcinoma. In patients with rectovaginal involvement a biopsy to establish the diagnosis should precede the abdominal operation. If the rectovaginal involvement is extensive and is producing a severe obstruction a bilateral oophorectomy is indicated, with or without colostomy. Colostomy, if done, is temporary and can be closed after a few months. The treatment of the cases with involvement of the rectosigmoid and rectum due to extensive endometriosis in the pelvis is radical so far as the uterus, tubes

and ovaries are concerned. The author has felt it advisable to remove the endometrial cysts encroaching on the lumen of the intestine, as well as the ovaries, although the dissection of the cyst on the intestine is likely to be tedious and time consuming if one is to avoid injury to the intestine. No resection of the intestine was performed nor was a colostomy necessary in this group of eight patients. The treatment of discrete implants involving all layers of the sigmoid is a more difficult problem, owing to their infrequent occurrence and their similarity to carcinoma. All four patients in this group (3) were operated on because of intestinal obstruction. One patient was submitted to an abdominoperineal resection because of a diagnosis of carcinoma (the ovaries were not removed), two had a modified Mikulicz type of local resection since their condition was suspected of being endometriosis at the time of operation (the ovaries were removed in one) and the fourth patient had a bilateral oophorectomy without resection of the intestine. In a more recent case in which a solid tumor of the cecum was found, a frozen section diagnosis of endometriosis was of value. In this patient there was no obstruction, so bilateral oophorectomy was done and the cecal tumor was left in situ. In the presence of an intestinal obstruction that is not severe, it seems safe to remove the ovaries without resecting the intestine if the diagnosis of endometriosis is confirmed by frozen section. Resection should be carried out in patients in whom carcinoma cannot be excluded. If the diagnosis is not certain and resection is performed, and if examination of the resected specimen shows that the lesion is an endometrial implant, the ovaries should be removed. The results of the surgical treatment of endometriosis are and should be satisfactory. There has been no operative or subsequent mortality in the seventeen cases in which intestinal involvement was present. Of the five patients in the first group three have no remaining tumor, one has no symptoms although a small mass remains and the fifth patient was treated after biopsy by x-ray therapy and is unimproved. In group 2, five patients are free of symptoms, but, in spite of removal of both ovaries, barium sulfate enemas show narrowing and spasm of the intestine. All the patients in group 3 are well. Of the three patients who had a resection, one developed acute abdominal symptoms that suggested intestinal obstruction three months after operation. These subsided without operative intervention and the patient has subsequently remained well for more than two years.

Northwest Medicine, Seattle

36 225 258 (July) 1937

- Relationship Between Fibroids and Carcinoma of Uterus F H Falls Chicago—p 225
Roentgen Rays in Treatment of Nonmalignant Conditions J M Hilton Klamath Falls Ore—p 229
Chronic Undermining Burrowing Ulcer of Abdominal Wall Case Report B P Mullen Seattle—p 232
Management of Postoperative Distention Evaluation of Nasal Catheter Suction Siphon Drainage B Davis Seattle—p 234
Controversial Triad of Digestive Field Gallbladder Disease Peptic Ulcer Colitis T R Brown Baltimore—p 237
Simplified Technic for Circumcision Without Use of Sutures J B Jacobs Seattle—p 246
Subconjunctival Injection of Pregel's Iodine in Ocular Infections C D F Jensen Seattle—p 247
Femoral Arteriovenous Aneurysm Report of Case J F Scott Yakima Wash—p 248

Ohio State Medical Journal, Columbus

33 601 720 (June) 1937

- Chronic Asthma Its Evolution and Management K D Figley Toledo—p 617
*Pyuria in the New Born J F Miller Newark—p 621
The X-Ray Study of the Neck S Brown and A Fine Cincinnati—p 626
Urologic Problems in Gynecology and Obstetrics W D Fullerton Cleveland—p 629
The American Disease J F Bateman Columbus—p 634
Female Sex Hormones R C Kiri New York—p 638
Protein Insufficiency of Clinical Importance in Surgery on Liver A W Oelgoetz P A Oelgoetz and J Wittekind Columbus—p 643

Pyuria in the New-Born—Miller reviews forty-seven cases of pyuria of the new-born from the literature and from the files of the Infants Hospital in Boston. Urinary examination is urged as a procedure in the explanation of symptoms of infection in the new-born and as a routine procedure in the well baby care of the new-born. The incidence of pyuria seems to be about equally divided between the males and the females, in

contrast to the disease in older children, in which the females predominate. Symptoms are not always present and when present are those of any acute infection in this age group. All cases which came to necropsy showed inflammation in the kidney substance and none in the pelvic walls. In no case could congenital anomalies of the urter be said to play a major part in the original etiology, and even in the few cases which showed stenosis and megaloureter, every indication seemed to indicate that they were secondary to the infection or incidental. The pathologic observations on these patients seem to match observations made by Helmholtz on rabbits infected by the hematogenous route, that pyuria in the new-born is a so called descending infection, most probably hematogenous in the majority of cases. The most important consideration in treatment is to promote a diuresis, and the most effective method is to give fluid by mouth and dextrose solution intravenously in rather large quantities if there is vomiting, new-born babies seem to have little resistance to *Bacillus coli*, indicating transfusions. This should be given intravenously, since the best clinical results in infections of the new-born are obtained in this manner. If the patient survives the neonatal period and the pyuria persists, the same considerations hold for investigation and treatment as in any baby with pyuria of comparable age.

Psychoanalytic Quarterly, Albany, N Y

6 139 276 (April) 1937

- Configurations in Play Clinical Notes E Homburger New Haven Conn—p 139
Don Quixote and Don Quixotism Helene Deutsch Boston—p 215
Resolution of Traffic Phobia in Conversations Between Father and Son L S Kubie New York—p 225
Psychoanalysis Topologic Psychology and Experimental Psychopathology J F Brown Lawrence Kan—p 227
One-Sided Sketch of Jonathan Swift I F G Duff London England—p 238

Public Health Reports, Washington, D C

52 819 872 (June 25) 1937

- Purification and Precipitation of Erythrogenic Factor of Scarlet Fever Streptococcus Toxin and Its Antigenic Value M V Velde—p 819
Typhoid Vaccine Technic of Its Preparation at the Army Medical School R L Holt and A P Hitchens—p 829

52 873 912 (July 2) 1937

- *Studies on Trichinosis IV The Role of the Garbage-Fed Hog in the Production of Human Trichinosis M C Hall—p 873
Low Temperature Ball Mill for Liberation of Labile Cellular Products S Mudd C H Shaw E J Czarnetsky and E W Flossdorf—p 887

Trichinosis and the Garbage-Fed Hog—Hall considers the role of the garbage-fed hog in the production of human trichinosis. The common occurrence of pork scraps, including those not adequately cooked or processed as to kill trichinae, in garbage and swill, and the eating of such scraps by large numbers of swine, are well established facts. There are, usually, approximately from thirty to forty million hogs slaughtered annually in the United States, and the scraps of pork from these millions of hogs are trimmed out in butcher shops, hotels, homes and elsewhere for various reasons. Between one and five of every 100 of these discards, on an average, will contain live trichinae. The feeding to swine of such scraps, as constituents of garbage or swill, constitutes a dependable, large-scale, year-round source of trichinae for swine. Garbage-fed swine have trichinae between three and five times as frequently as do grain-fed swine and hence are specially important as sources of human trichinosis. The garbage-feeding industry, as ordinarily carried on, is dangerous to the health of man and livestock, and often economically unsound.

Southwestern Medicine, Phoenix, Ariz

21 187 224 (June) 1937

- Our Problems G W Jones Clovis N M—p 187
Ectopic Pregnancy Analysis of Thirty Seven Cases and Review of 2118 Cases H H Varner and L Green Jr El Paso Texas—p 191
Management of Intractable Asthma C S Kibler Tucson Ariz—p 196
The Newer General Anesthetics Vinyl Ether Evipal Pentothal—p 206
Cyclopropane B Herzberg Phoenix Ariz—p 206
Chronic Urticaria from Bacterial Proteins (?) Cure by L. C. of Sero-ized Vaccine Case Report O H Brown Phoenix Ariz—p 210
Dermatitis Inaugurated by Neosarsphenamine Continued by Ford Case Report O H Brown Phoenix Ariz—p 211

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Dermatology and Syphilis, London

49 263 292 (June) 1937

- *Mechanism of Herpes Zoster and Its Relation to Chickenpox E S Stern—p 263
Dermatomyositis: Report of Acute Case with Commentary E Pearl Grettton Watson—p 272
Some Notes on Treatment of Epithelioma with Radon J H T Davies—p 279

Relation of Herpes Zoster to Chickenpox—During the last six years, among a daily average total of 2,050 patients there have been thirty-one cases of herpes zoster in the hospital with which Stern is connected, giving an annual incidence of 25 per thousand. The scars and history of a previous attack, five years and twenty-four years before, were found in two cases. The second attack in the first case was so slight that it would not in the ordinary way have come under medical observation, and that in the second case subsequently caused chickenpox in another patient. During these six years all cases of herpes zoster were referred to the author and have received special attention. Five persons were affected with chickenpox, in none of them could a possible source of infection be found, except that four had been in contact with herpes zoster. The approximate incubation periods were fifteen (twice), seventeen and nineteen days, respectively. The eruption of herpes zoster is caused by infection passing from the sensory ganglion down the course of the sensory nerve to the skin. Herpes zoster and chickenpox affect the same areas of skin with equal frequency.

British Journal of Urology, London

9 101 214 (June) 1937

- Suppurations of Renal Parenchyma G de Illyes—p 101
Tuberculosis of Epididymis: Four Cases of Urinary Fistula Following Orchidectomy J G V Bell—p 114
Granuloma of Urinary Bladder R Paschalis—p 125
Cystometry: Studies in Bladder Function No VI: Critical Review with Especial Reference to Microcystometry and Sphincterometry I Simons—p 132

British Medical Journal, London

1 1189 1240 (June 12) 1937

- Outbreak of Milk Borne Scarlet Fever and Tonsillitis in Doncaster R Watson—p 1189
Adrenal Cortex: Its Supposed Functions and Suggested Uses of Cortical Extracts W N Kemp—p 1194
*Chronic Agranulocytosis Successfully Treated with Liver C R Das Gupta and L J Wits—p 1197
Cancer of Esophagus Treated by Deep X-Ray Therapy (Symptom Free Nearly Two Years) H Tilley—p 1199
*Oral Administration of Estrin to Premature Babies Mabel F Potter—p 1201
Vaccine Treatment of Measles A A Cunningham—p 1202

Chronic Agranulocytosis Successfully Treated with Liver—Das Gupta and Wits state that a man who had suffered for five years from an unexplained iridocyclitis was discovered during the course of a routine investigation to have a mild chronic agranulocytosis. Sternal puncture revealed arrest of maturation of the myelocytes in the bone marrow. The patient had taken aminopyrine and gold in the past, but no clear evidence of sensitivity to either of these drugs was obtained. There was no response to pyrimidine nucleotides or to pentnucleotide, but on treatment with intramuscular liver extract the white cells returned to normal levels and the bone marrow was restored to normal. The blood has remained normal without further treatment, but the iridocyclitis has not improved greatly.

Oral Administration of Estrogen to Premature Babies—Since about September 1936 according to Potter, estrogen (progyon) has been used orally for premature infants at the Bristol Maternity Hospital. The dose found satisfactory was 500 international units twice daily. A double dose was dissolved in 2 drachms (8 cc.) of warm (not hot) water and 1 drachm (4 cc.) given as a dose. Since estrogen has been used, none of the eleven premature babies born at the hospital to whom it was administered have died. One sick infant, a boy, was benefited by the preparation. The baby weighed

7 pounds (3,175 Gm) at birth, was fed artificially, developed gastro-enteritis and his weight fell to 4 pounds 14 ounces (2,210 Gm) at two weeks. At this stage estrogen was added to the other treatment and the baby eventually did well, gaining half a pound (225 Gm) weekly and he weighed 12½ pounds (5,670 Gm) at 4½ months.

Journal of Tropical Medicine and Hygiene, London

40 137 148 (June 15) 1937

- Technic of Blood Transfusion: Description of Improved Continuous Flow Instrument and Needles M DeBakey—p 137
Infectivity to Man of Strain of Trypanosoma Rhodesiense Maintained in Sheep Note J F Corson—p 141

Lancet, London

1 1445 1504 (June 19) 1937

- Change in the Age of Mortality from Diphtheria R M F Picken—p 1445
Massive Spontaneous Intraperitoneal Hemorrhage J Bruce—p 1451
Diaphysectomy in Acute Osteomyelitis A L d'Abreu—p 1454
Mediastinal Ganglioneuroblastoma F D Hart and P O Elison—p 1458

Medical Journal of Australia, Sydney

1 811 852 (May 29) 1937

- *Weil's Disease in Brisbane D W Johnson H E Brown and E H Derrick—p 811
Contemporary Neurosurgical Practice G Phillips—p 819
Hepatic Necrosis W S Laurie—p 825
Practical Methods of Maintaining Muscular Tone in Pregnancy Phyllis D Cilento—p 828

Weil's Disease in Brisbane—Johnson and his co-workers make a distinction between Weil's disease by restricting this term to the classic type caused by *Leptospira icterohaemorrhagiae* and use the inclusive term leptospirosis for the leptospiral infections generally. Three cases of classic Weil's disease occurring in Brisbane are reported, one of which was fatal. The first patient was a sewer worker who was infected in 1935. His illness was clinically typical, but pathologic confirmation of the diagnosis was not forthcoming at the time. Reinvestigation of the case seventeen months later showed that the patient's serum still contained, to a diagnostic titer, agglutinins against *Leptospira icterohaemorrhagiae*. The second patient, although he became ill and died in Brisbane, had left North Queensland, where leptospirosis is endemic, six days previously. Serologic reactions show that the infecting *Leptospira* was closely allied to, and probably identical with, the *Leptospira* of classic Weil's disease. The third patient was a sewer worker. His illness was typical, and the diagnosis was confirmed by the isolation of leptospirae from the blood and by their detection in the urine, as well as by agglutination tests. Both the first and the third patient became ill while working in the same sewer, but at an interval of seventeen months. In a series of eighty-five wild rats examined in Brisbane in 1936, two were found to be carriers of leptospirae. In a second series of 100 rats examined in March 1937, six were found to be carriers of leptospirae. The two strains of leptospirae isolated from rats in 1936 were found to correspond serologically with the Wynberg strain of *Leptospira icterohaemorrhagiae*. The human strain isolated, while in general similar to the other, showed some relationship also to an Andaman strain.

Japanese Journal of Obstetrics & Gynecology, Kyoto

20 217 336 (May) 1937

- Gaseous Properties of Umbilical Blood of Normal and Asphyxiated New Born: Further Studies on Gases in Umbilical Blood I M Noguchi—p 218
Hydrogen Ion Concentration of Umbilical Blood of Normal and Asphyxiated New Born: Id II M Noguchi—p 248
Mechanism of Radiotherapy: Parts II, III and IV Y Konnami—p 267
Are Sexual Hormones Excreted by Sweat Glands? J Kosakae S Okamoto and T Kosuge—p 279
Direct Influence of Hormone of Anterior Lobe of Hypophysis on Uterine Movements of the Rabbit H Fujimori T Hiegami and M Yoshimura—p 284
Malignant Tumors and Acid Base Equilibrium: Parts IV to VIII T Kageyama—p 291
Malignant Tumors and Syphilis: Parts I to VI J Taira—p 314
Simultaneous Application of X Rays in Operation with Laparotomy Okabayashi—p 331

Archives des Maladies de l'Appareil Digestif, Paris

27 585 696 (June) 1937

Calcified Hydatid Cysts of Liver M Loeper and Jacqueline Brouet
Sainton—p 585Clinical and Biologic Study of Case of Pancreatic Lithiasis Lehon
Manceaux Fabregoule and Dupouy—p 614*Tuberculosis of Third Portion of Duodenum Consideration of a Case
J Grossman L Adlersberg and I Telemann—p 621

Tuberculosis of Duodenum—Grossman and his associates give the history of a man aged 32 who was hospitalized on account of periumbilical pains nausea severe attacks of vomiting, anorexia and emaciation. The patient was subjected to a thorough examination to several tests and to a roentgenologic examination of the stomach. The condition was finally diagnosed as stenosis of the third portion of the duodenum. In the course of the operation to which the patient was subjected a transmesocolic superior gastrojejunal anastomosis was made. However, he died on the day following the operation. The authors describe the necropsy and the microscopic aspects of the tuberculous lesions. On the basis of their macroscopic and microscopic observations they give as the diagnosis ulcerous duodenal tuberculosis following probably tuberculosis of the mesenteric and retroperitoneal lymph nodes, produced by lymphogenic metastasis or by contiguity. The existence of a cicatrized and sclerotic pulmonary focus speaks against the direct production of the duodenal lesion, for the pulmonary focus, not being an open one the swallowing of infected sputum cannot be incriminated. The transmission by the blood stream must likewise be rejected because of the absence of foci in other visceral organs and the extension of the bacillary lesions in the immediate surroundings of the duodenum. After citing two possible modes of lymphatic transmission of duodenal tuberculosis the authors point out that in view of the fact that the bronchial lymph nodes are not involved the primary focus was probably not in the lung and that because of the intensity of the bacillary process in the region of the mesenteric lymph nodes the primary infection must have been in this region.

Bulletin de l'Academie de Medecine, Paris

117 685 750 (June 22) 1937

Can Tularemia Become Endemic in France? Measures to Be Taken
to Prevent Such an Eventuality M E Brumpt—p 691Treatment of Initial Period of Tuberculosis in Children R Debre
and M Lelong—p 700*New Rat Bite Fever A Lemierre J Reilly A Laporte and M
Morin—p 705

New Rat-Bite Fever—Lemierre and his associates call attention to a rat-bite fever that is distinct from sodoku. It is not a spirochetosis but a septicemia, the specific agent of which is a bacterium. They report the history of a man, aged 40, who was bitten by a rat on the dorsal surface of the right index finger. Four days later he had chills and attacks of vomiting and his temperature increased to 104 F. The febrile state persisted for a month and a half. The fever was of the intermittent quotidian type. The elevation of the temperature in the evening was usually preceded by chills and the nocturnal defervescence by profuse sweating. Several days after the onset of the disease, severe articular pains appeared which involved nearly all the joints but particularly the left elbow and wrist. A hydrarthrosis of the left knee supervened after a month, but it disappeared rapidly following a puncture. Moreover, almost from the beginning the patient complained of sore throat and painful swallowing. The diagnosis of sodoku which at first was thought of was abandoned in view of the clinical aspects, the negative results of the inoculations in mice and guinea-pigs and the failure of the arsphenamine treatment. Intravenous injections of sodium salicylate were likewise without effect. Two bacteriologic blood cultures were made one on the nineteenth, the other on the twenty-ninth day. The second disclosed in the aerobic milieu *Streptobacillus moniliformis* in pure culture. The authors review the literature about this micro-organism particularly the experimental studies conducted by Levaditi and his collaborators. Then after citing other cases of rat-bite fever from the literature they give their attention to the question of the frequency with which *Streptobacillus moniliformis* occurs in rats. They review studies conducted by Strange-

ways and describe their own investigation, which corroborated the results obtained by Strangeways, namely, that *Streptobacillus moniliformis* is a part of the buccopharyngeal bacterial flora of normal rats.

Journal de Medecine de Lyon

18 373 396 (July 5) 1937

Intracranial Arterial Aneurysms L Bourrat P Girard and P Moreau
—p 373*Use of Methenamine in Treatment of Korsakoff's Psychoses A
Brunerie and P Moutel—p 389

Methenamine in Treatment of Korsakoff's Psychoses—Brunerie and Moutel tried the intravenous injection of large doses of methenamine in patients with Korsakoff's psychosis. Their object was to counteract the polynephritic symptoms and to influence the liver. They report eight cases in which methenamine was administered intravenously by means of ampules of 10 cc, containing 0.25 or 0.5 of methenamine. The injections were given daily, their total number being twelve or twenty. As a result, the polynephritic symptoms were greatly improved, the enlarged liver decreased rapidly in size, the appetite increased, the diarrheas disappeared and, parallel with these improvements, a considerable amelioration in the mental disorder was observable.

Journal de Médecine de Paris

57 530 546 (July 1) 1937

*Otic Phenomenon as Precursory Sign of Measles M Bessaloff—
p 535

Otic Phenomenon as Precursory Sign of Measles—Bessaloff directs attention to an otic sign which he observed in a number of patients who later developed measles. When called to see a child with fever, he has made it a general practice to examine the ears carefully. In doing so he found that in those with latent measles, during the period of the invasion of the disease an otic phenomenon was observable, namely, redness of one or of both tympanic membranes. This redness persists without aggravation as long as does the febrile condition. During this period the author noted also, in nearly all cases, symptoms of nasopharyngeal catarrh. With the appearance of the exanthem, which coincides with the fall in the temperature the changes in the tympanic membrane lessens. A rose coloration remains for about twelve hours, then it disappears like the catarrhal symptoms. The author reports nine cases which illustrate the various stages of the phenomenon.

Presse Medicale, Paris

45 971 986 (June 30) 1937

*Pains Provoked by Excitation of Central Termination of Great Symp-
thetic Cardiac and Pulmonary Pains in Course of Splanchnicotomies
R Leriche—p 971Pathogenesis and Pathologic Physiology of Renal Dwarfism and Con-
nected Syndromes R Debre J Marie and M L Jammet—p 971

Some Problems of Suprarenal Physiopathology G Marron—p 94

Hemiplegias by Thrombosis of Internal Carotid E Moniz Almeida
Lima and R de Lacerda—p 977Staphylococic Osteomyelitis of the Long Bones and Typhoid P
Morrou—p 980

Cardiac and Pulmonary Pains in Course of Splanchnicotomies—After outlining this method of sympathectomy Leriche describes two cases. The first patient undergoing splanchnicotomy under spinal anesthesia, complained of severe pain in the heart when the left splanchnic nerve was not yet completely cut. Following procaine hydrochloride infiltration the pain ceased immediately and the section could be completed. Several days later, in cutting the right splanchnic nerve of another patient, also under spinal anesthesia, the patient complained of severe pain in the right lung. Here again infiltration of the central end arrested the pain and the section could be completed without further complaint from the patient. In two other cases the section on the left side caused sudden cardiac pain. The author thinks that the fact that the pain appeared at the moment of resection indicates that it can have no other explanation than that it is the result of an excitation of the centripetal fibers, and the instantaneous results of the administration of procaine do not contradict this. From then on the author always resorted to infiltration before cutting even when the operation was performed under general anesthesia.

trying to explain these pains, he points out that one can hardly assume a direct connection or a simple centripetal phenomenon. The only plausible hypothesis is a vasoconstrictor reflex, which acts at the level of the heart and lung and elicits the pain. In view of the strict localization and unilaterality, an intermediate epinephrine effect cannot be assumed, since this would have produced more diffuse effects. One must therefore ask oneself whether normally the central termination of the great sympathetic may not produce sympathetic vasomotor phenomena. Evidently this has to be verified experimentally. But the author thinks that the facts must be accepted for the present. He shows further that they are of interest in connection with certain pathologic phenomena. He calls attention to the appearance of anginose crises in connection with meals. These are usually explained as the result of a mechanical action on the heart, of the compression of the diaphragm by a distended stomach, without thinking that the patient with angina pectoris eats little, that the stomach is filled from above and not from below up, and that the air filled pocket is hardly capable of counteracting the normal diaphragmatic tonicity. The author considers it more reasonable to assume a nervous phenomenon or a circulatory reflex. Moreover, if splanchnic excitation can have a pulmonary repercussion, it may be assumed also that the same excitation can be carried into the abdominal region.

Pediatrics, Naples

45 481 576 (June 1) 1937

- Pulmonary Tuberculosis in Infants. M. Miraglia del Giudice—p. 481
*Glycemia and Ketonemia Following Epinephrine Injection in Infants. Nora Andreis—p. 497
Serie Adenitis Cases. D. Marani Bernardo—p. 521
Hemilateral Scleroderma in Child Aged 4 Years. Case. A. Barcaglia—p. 533

Glycemia and Ketonemia Following Epinephrine Injections.—Andreis made determinations of the glycemia and ketonemia following an intramuscular injection of 0.3 mg. of a 1:1,000 solution of epinephrine in forty-five infants, both normal and suffering from certain diseases with or without involvement of the liver functions. As a control for the efficacy of epinephrine, the behavior of the leukocytes during the reaction was followed. The author found that glycemia, ketonemia and the leukocytes do not follow parallel curves. Oxibutyric acid increases more than preformed acetone and diacetic acid. The reaction of glycemia and ketonemia in normal infants is slight, reaches the peak within the first half hour following the injection, and returns to normal in an hour and a half. Acetonuria does not appear or, if it does, it is slight. The reaction is intense in infants who have ketonemia before the test, as well as in those suffering from nutritional disorders and diseases of the respiratory tract. Generally the peak of the reaction is reached in an hour or an hour and a half after the injection and then glycemia and ketonemia return to normal. Acetonuria, which is related to the intensity of the glycemic and ketonemic reaction, appears in most of the patients but not all who have a retarded intense reaction. The highest figure of ketonemia following an intramuscular injection of epinephrine in normal infants is 577 mg. per hundred cubic centimeters of blood. The total ketonemia and glycemia after injection of epinephrine in infants suffering from nutritional and respiratory diseases are, respectively, 31.19 and 0.32 mg. per hundred cubic centimeters of blood. The spontaneous ketonemia that is present in infants with a fasting stomach is not related to the function of the liver. The author concludes that the intense and prolonged increase of glycemia and ketonemia after an injection of epinephrine shows insufficiency of the liver and that the epinephrine test is of diagnostic value.

Rinascenza Medica, Naples

14 329 364 (May 31) 1937

- *Roentgen Therapy of Inguinal Lymphogranuloma. C. Guarini—p. 335
Pick's Syndrome. Case. C. Mole—p. 339
Treatment of Grave Chronic Malaria. P. Corsonello—p. 343

Roentgen Treatment of Inguinal Lymphogranuloma.—Guarini advises repeated roentgen irradiations in small doses in the treatment of subacute inguinal lymphogranuloma. He gives the irradiations with a current of 180 kilovolts, 3 milliamperes, a focal distance of 40 centimeters and a filter of 5 mm. of lead and 2 mm. of aluminum, through fields of 10 by 15 cm.,

which receive one third of the erythema dose, that is, 250 or 300 roentgens, during each treatment. The irradiations are given at intervals of four or five days. The number of irradiations depends on the evolution of the disease when the roentgen treatment begins to be administered and the local reaction to the irradiations. As a rule from four to twelve complete the number of treatments. The most favorable results are obtained when the treatment is given early. The treatment is harmless and the disease is controlled more rapidly than with other treatments. The fear of the formation of a larger number of adhesions when the latter are already formed is not justified. The author has resorted to the treatment in eleven cases. Two patients discontinued the treatment. The remaining nine patients obtained complete cure of the disease, which has been verified several years after completion of the treatment.

Prensa Medica Argentina, Buenos Aires

24 1285 1330 (June 30) 1937

- Surgery in Cancer of Left Colon. Clinical Surgical and Anatomic Study. A. Ceballos and H. Taubenschlag—p. 1285
*Intraspinal Alcohol Treatment. J. J. Spangenberg, L. Munst and F. Guagnini—p. 1298
Physiopathologic and Anatomic Knowledge Indispensable for Clinical Interpretation of Goster. D. Brachetto-Brian—p. 1308
Subchronic Parotitis with Uveal Complications of Heerfordt's Type. C. Weskamp and E. Adrogo—p. 1317
Unexpected Delivery. Medical Testimony in Case. E. Lopez Balcari and J. Delpiano—p. 1320

Intraspinal Alcohol Treatment.—According to Spangenberg and his collaborators, the intraspinal injections of alcohol in the treatment of peripheral neuralgia are dangerous. The injected alcohol may cause muscular atrophy and degeneration of the cells, sphincter disturbances, impotence, muscular hypotony and difficulty in walking. The authors' statement is supported by the results of experiments and by those obtained in a group of seven patients. Microscopic studies of the spinal cord, spinal ganglions and nerve roots of rabbits which were given intraspinal injections of absolute alcohol showed processes of neurolysis, lymphocytic infiltration and degeneration of the nerve tissues. The patients were treated for sciatic neuralgia, obliterating arteritis with incipient gangrene, tabetic radiculitis and pleuropulmonary cancer. In all cases the alcohol injections were administered with the patient in the lateral position on the normal side, with the buttocks or the cephalic part of the thorax elevated, in relation to the thorax. The dose varies from 0.25 to 1 cc. of pure alcohol and is injected slowly. It may be repeated fifteen or twenty days after the first injection if necessary. In five cases the results of the treatment were transient, in one case the type and intensity of pain did not change and in one the treatment controlled pain definitely, as has been verified two years after discontinuation of the treatment. There were no complications in the case in which the pain was not modified. In the remaining six cases, disorders such as muscular atrophy and hypotony, impotence and sphincteric and ambulatory disturbances took place. The authors believe that intraspinal alcohol treatment may be resorted to only in case of inoperable cancer of the rectum, colon, prostate, testicle, uterus and lumbosacral column.

Semana Medica, Buenos Aires

44 160 (July 1) 1937 Partial Index

- Hans Finsterer's Excluding Resection of Duodenal Ulcers. Modified Technique of D. Del Valle Finocchetto and Parlavichio. M. L. Insua—p. 1
Primary Genital Tuberculosis of Neck of Uterus. P. Figueroa Casas and L. A. Belizan—p. 14
Intradermal Reaction with Finzi Exotuberculin. C. Floriani—p. 22
*Nephropexy. Therapeutic Value. H. D. Berri—p. 23
Familial Hereditary, Primary Amenorrhea. A. Aguilar—p. 29

Value of Nephropexy.—Berri considers nephropexy of value in the treatment of renal ptosis when the operation follows definite indications, which are the presence of renal pain or of urinary disturbances. The diagnosis of renal ptosis is made by pyelography and excretion urography. Patients suffering from renal ptosis uncomplicated by renal pain or urinary disorders obtain satisfactory results from the use of an elastic abdominal belt without resorting to an operation. The failures of nephropexy depend on a defective technique, especially in fixing the kidney in a low situation, or using nonabsorbable suture material, or else on the presence of chronic appendicitis.

The coexistence of the latter points to the advisability of doing an appendectomy during nephropexy. The technic of Salleras for nephropexy gives the best results. It consists, in short, of making an incision from the tenth rib and the sacrolumbar tissues to the superior anterior iliac spine, freeing the kidney and upper part of the ureter from nearby adhesions of muscular and conjunctive tissues and then fixing the kidney in the proper situation. In cases of bilateral renal ptosis the operation is done only on the painful side. The author reports satisfactory results with the technic in twenty-two cases. In all cases the results of the operation, as to the correction of the position of the kidney, were verified by pyelography.

Munchener medizinische Wochenschrift, Munich

84 1001 1040 (June 25) 1937 Partial Index

Contributions of University of Göttingen to Development of Anatomy and Physiology. M. Voit—p. 1001

*Cholesterol Metabolism in Glycogen Storage Disease. H. Beumer—p. 1007

Influence of Saponins on Viosterol Calcification and Sex Cycle. E. Frey—p. 1009

Modern Therapeutic Problems in Psychiatry. G. Ewald—p. 1019

*Determination of Time of Death on Basis of External Inspection and Examination of Corpse. B. Mueller—p. 1021

Cholesterol Metabolism in Glycogen Storage Disease

—Beumer reports the clinical history of a boy in whom glycogenosis was complicated by xanthomatosis. The cholesterol content of the serum was greatly increased and was not influenced by a diet with a high or with a greatly restricted cholesterol and fat content. The cutaneous manifestations and the hepatic swelling were not influenced during the three months period when the patient was on a diet that was free from cholesterol and from fat. From these observations the author concludes that the xanthomatosis, which existed in addition to the glycogenosis, was not dependent on alimentary influences but rather was caused by an endocrine disturbance in the cholesterol metabolism. This suggests that the hypercholesteremia existing in uncomplicated glycogenosis is likewise due to endocrine factors.

Determination of Time of Death—Mueller says that a practitioner, even though he may not need to give expert testimony on the question of how long a body has been dead, should at least know what factors deserve attention so that he may record them for future reference, should he be the first physician called to see the body. Discussing the inspection of the eyes, the author points out that Tonelli believes that during the first twenty-four hours after death the pupil can readily be deformed by pressing with the finger on the bulb, but that this is no longer possible if more time has elapsed. The condition of the cornea is more important for practical purposes. Twenty-four hours after death it begins to be turbid as the result of drying. However, if the eyes of the cadaver are open, this drying process will begin much earlier (about one and three quarters hours after death). It is therefore important that the physician report whether the eyes of the cadaver were open or closed. In cadavers that have been in the water, it should be remembered that light eyes may assume a brownish color (after twenty-four hours has elapsed). This is important not only for the determination of the time of death but also for the identification. The author questions the often repeated statement that the beard still grows after death, pointing out that this growth is only apparent and due to the fact that the turgor of the skin decreases, the hair becoming more prominent as a result. Further he discusses the death spots, which may appear at both sides of the neck thirty minutes after death. Such spots at the side of the neck are often erroneously regarded as pressure points and as an indication of strangling. The physician should try to determine whether these spots can be pressed away. If similar obliterated reddish spots appear gradually on other parts of the cadaver, the spots at the neck may be regarded as ordinary death spots. If strangling has actually taken place, subcutaneous hemorrhages result which cannot be pressed away. A mere hyperemia that may result from strangling disappears rapidly on the cadaver, even if it was quite noticeable during life. The death spots pale in response to pressure at first, but later (twenty-four hours or longer after death) they no longer do so. The behavior of the spots should be carefully tested in this respect. In examining the skin of

the patient, the hair may be found to stand up (goose flesh formation). This does not necessarily indicate that the person was greatly alarmed but may be the effect of cold to which the cadaver was exposed after death. The facial expression of the cadaver is of no importance, since the musculature relaxes after death. Rigor mortis may develop instantaneously, but this is rare. Usually it begins at the temporomaxillary joint, from one to two hours after death and progresses downward and it disappears again in the reverse order after from forty eight to sixty hours (depending on the outside temperature). Whereas the cooling of the skin of the cadaver is not sufficiently uniform to be of definite value, the cooling of the internal organs is slower and has more regularity. In this connection the author stresses the importance of measuring the rectal temperature.

Zeitschrift für Kinderheilkunde, Berlin

58 685 808 (June 3) 1937 Partial Index

Familial Diffuse Cerebral Sclerosis in Early Childhood. Flora Ebelberg—p. 702

*Peculiarities of Distribution of Salt and Water in Organism of Nurlings. E. Kerpel-Fronius—p. 726

Three Forms of Klippel-Feil's Syndrome. Their Differentiation and Accompanying Nervous Symptoms. J. R. Dreyfus—p. 739

Circumscribed Calcinosis (Calcinus Gout) and Sclerodactylia. Dumas. Childhood. J. Brock—p. 751

Constitutional Pathology and Progressive Muscular Dystrophy. H. Gunther—p. 757

*Significance of Cutaneous Manifestations in Acute Articular Rheumatism. E. Traub—p. 769

*Question of Hypersplenism. W. Schmidt—p. 790

Distribution of Salt and Water in Nursing—Kerpel-Fronius shows that the higher chloride, sodium and water contents as well as the lower protein, rest nitrogen and potassium contents of the muscles of new-born infants are the manifestation of a water distribution in the muscles which differs from that of adults. The total water content of the muscles for each gram of protein decreases considerably during the time of growth. This dehydration, however, does not signify a decrease in the water combination of the protein, for the quantity of the cell water per gram of protein remains practically constant. The dehydration of the muscles is exclusively at the expense of the interstitial water. The muscles of the new born have a water distribution much like that existing during edema in adults. The comparatively large amount of interstitial water in the organism of nurslings probably plays a part in the hydro liability of nurslings.

Cutaneous Manifestations in Acute Articular Rheumatism—Traub shows that the allergic factors which were discovered to play a part in acute articular rheumatism give new etiologic significance to symptoms accompanying it. By interpreting the local rheumatic manifestations as allergic hyperergic tissue reactions, it is no longer important whether rheumatism is an infectious disease by itself. According to Rossle, various organisms and different ports of entry may produce allergizing diseases, the decisive factor being the affinity of toxins to certain tissues. Considered from this point of view, rheumatism is similar to syphilis and tuberculosis, for these too are infectious, make the involved organism allergic and cause a complicated interrelation between hypersensitivity (hyperergy) and subsensitivity (immunity). In all these disorders the causal organism produces a primary lesion in some part of the organism and at the same time causes sensitization. This primary stage is followed by a secondary one, which in the case of rheumatism, as in tuberculosis and syphilis, is characterized by great sensitivity to toxins and a tendency to inflammations. In case of new attacks by the antigen, the already hyperergic organism reacts with general reactions and multiple local allergic-hyperergic inflammations. The similarity of rheumatism to syphilis and tuberculosis is demonstrated also by the appearance of cutaneous manifestations during the secondary stage. Annular erythema and rheumatic urticaria can be explained as toxic-allergic efflorescences, and nodose rheumatism as a peripheral hyperergic inflammation in a sensitized organism is symptomatologically and prognostically related to them. The author cites observations in several cases which prove that the peripheral manifestations accompanying similar clinical processes and that for this reason their relationship must be considered probable. Annular erythema, rheumatic urticaria and nodose rheumatism accompany a generalization of the

rheumatic infection and usually appear when the cardiac values, the nervous system or the serous membranes become involved. All three processes have common relations to fluctuations in the allergy of the organism and, as indicators of the generalization of the process, they have considerable prognostic significance.

Hypersplenism—Schmidt reports the histories of a girl, aged 10, and a boy, aged 14, both of whom had severe anemia with leukopenia and thrombopenia. Since the usual therapeutic methods failed to produce the desired effects, the enlarged spleens were removed. The splenectomy was followed by a noticeable improvement in the anemic condition and by an increase in the leukocytes and the platelets. The most noteworthy aspect of the two spleens was their size. In the girl it weighed 260 Gm, in the boy 950 Gm, when the normal weights would have been 70 and 85 Gm, respectively. After describing the histologic aspects of the extirpated spleens, the author cites Heilmeyer's report about patients in whom anemia was accompanied by splenic enlargement and by morphologic changes and reduced resistance in the erythrocytes. On the basis of these observations, Heilmeyer assumed the existence of a primary splenic disease for which blood destruction is characteristic and which he designates as hemolytic hypersplenism. The author points out that the two described cases cannot be identified with Heilmeyer's hemolytic hypersplenism, because neither the shape nor the resistance of the erythrocytes was changed and there were no signs of increased blood destruction in the spleen. Nevertheless he regards the disorders in the reported cases as hypersplenism, reasoning that if it did not produce anemia by destruction it might produce it by exerting an inhibiting effect on the blood formation in the bone marrow. He points out that Naegeli regards hypersplenism in this light by ascribing the inhibiting action to the endothelium of the splenic sinuses. Kretz is of the same opinion and M. B. Schmidt talks of a 'depressor hypersplenism'. The connection between spleen and bone marrow supposedly takes place by way of the blood stream, by means of a substance that is formed in the endothelium of the splenic sinuses. After pointing out that it is difficult to furnish the direct proof of such a function of the endothelium of the splenic sinuses, the author discusses whether the sinus hyperplasia in the second reported case was accompanied by an increased function. He reaches the conclusion that in this case the anemia probably was caused by the hyperplasia of the splenic sinuses, the favorable effect of the splenectomy as well as some literature reports seemingly justifying this conclusion, but he does not consider generalizations permissible, pointing out that the first case and other reports indicate the involvement of many other factors, some of which are still unknown.

Zeitschrift für klinische Medizin, Berlin

132 283-422 (June 9) 1937 Partial Index

- Hypophysis and Hypertension W. Bergfeld and H. Meessen—p. 283
*Purpura with Hemophilia-like Temporary Disturbance in Coagulation W. Tschopp—p. 293
Auto Oscillations of Normal Lung G. Landes—p. 308
Investigations on Water Economy Comparison of Hemoglobin Content and Quantity of Urine in Volhard's and Kauffmann's Tests K. Brucke—p. 331
Iodine Metabolism in Diseases of Thyroid L. Scheffer—p. 343
*Circulatory Complications in Diabetes Mellitus P. Radnai and R. Weisz—p. 355
Determination of Value and Healthfulness of Various Rye Breads on Basis of Their Capacity to Stimulate Salivary and Gastric Secretion G. Lemmel—p. 367

Purpura with Hemophilia-like Disturbance in Coagulation—Tschopp's report is a contribution to the symptomatology of atypical diseases of the blood. He describes the history of a woman who has been under his observation for years. She presented the clinical aspects of purpura, which however, was complicated by a disturbance in the blood coagulation like that existing in hemophilia. Otherwise the blood was normal. In the course of time the retardation of the coagulation disappeared and the coagulation values became normal. On the basis of this history the symptoms of hemorrhagic diatheses and of hemophilia are discussed and especial attention is given to the question of hemophilia in women. This problem has not been definitely solved as yet. The author shows that the occurrence of hemophilia in women has not been definitely demonstrated nor can it be absolutely excluded. The case

reported in this paper can be classified in none of the known groups of hemorrhagic diathesis. It has been designated as purpura with temporary hemophilia-like disturbance in the coagulation, possibly as a temporary thrombomase deficiency of unknown origin.

Circulatory Complications of Diabetes Mellitus—Radnai and Weisz direct attention to the circulatory complications of diabetes mellitus. Their observations were made in 400 cases. Electrocardiographic tests were made in 260 of these and it was found that 40 per cent showed changes. Cardiac decompensation was discovered in 20 per cent, anginose conditions in 10 per cent, vascular changes of the fundus oculi in 30 per cent and peripheral arteriosclerosis in 8 per cent. It was observed that the electrocardiographic changes as well as the appearance of cardiac disorders is primarily dependent on the age of the patient and secondly on the height of the blood sugar. Insulin therapy or the quantity of insulin seems to be of no importance in the development of cardiac disorders. It was impossible to prove that diabetes mellitus is a causal factor in hypertension. The cardiac disturbances of diabetic patients are not caused by the hypertension that may exist but rather by the metabolic disorder that accelerates and increases the development of vascular changes. Besides the age of the patient it is chiefly the blood sugar value and the duration of the metabolic disorder that influence the development of cardiac disorders. The degenerative processes in the fundus oculi are the result of the metabolic disturbance. Their development too, aside from the age of the patient, is dependent chiefly on the height of the blood sugar and the glycosuria. The author emphasizes that a thorough clinical examination of a diabetic patient requires not only an examination of the urine and the blood but also an inspection of the retina and an electrocardiographic test. In case of pains in the extremities an oscilometric examination is necessary. Oscilometric changes and the appearance of symptoms of peripheral arteriosclerosis are dependent on the age of the patient and on the duration of the metabolic disorder. If the blood sugar is unusually high cardiac and retinal disturbances predominate but peripheral arteriosclerosis appears generally in those persons in whom the metabolic disorder is one of long standing but in whom the blood sugar is comparatively low so that insulin is given either in small doses or not at all.

Wiener Archiv für innere Medizin, Vienna

30 301-406 (June 30) 1937 Partial Index

- *Action of Ether Anesthesia Evipan Anesthesia (Sodium Salt of N Methyl Cyclo-Hexenyl Methyl Barbituric Acid) and Lumbar Anesthesia on Blood Sugar A. Atnan and E. Fenz—p. 301
Disappearance of Glycosuria in Diabetes Mellitus as Result of Amyloid Degeneration of Kidneys A. Sattler—p. 313
Mikulicz Disease as Systemic Disease of Salivary Glands Berta Aschner—p. 327
Studies on Problem of Serum Bilirubin R. Teufel—p. 337
*Automatic and Extrasystolic Manifestation of Original Stimuli of Identical Periodicity Clinical Aspects of Heterotopic Stimulus C. Bloch—p. 365
Acquired Hemolytic Icterus After Malaria K. Tschilow—p. 401

Action on Blood Sugar of Various Anesthetics—In order to determine how anesthetics influence the sugar metabolism Atnan and Fenz studied the blood sugar curve before, during and after various types of anesthesia in nondiabetic and in diabetic patients. The types of anesthesia investigated were ether anesthesia, intravenous anesthesia and spinal anesthesia. It was found that the intravenously induced anesthesia influences the blood sugar only slightly so that it may be employed in diabetic patients without special precautions. In comparing the effects exerted on the blood sugar by spinal and ether anesthetics, the authors found that after spinal anesthesia the increase is much less than after ether anesthesia. However, the increase in the blood sugar lasted longer (from six to twenty-four hours) after spinal than after ether anesthesia. In a mild case of diabetes, the increase in blood sugar was less noticeable than in normal persons. The authors conclude that spinal anesthesia is not contraindicated in diabetes mellitus.

Aspect of Heterotopic Stimulus Formation—Bloch analyzes the electrocardiograms of two patients which demonstrate in what manner impulses of the same heterotopic stimulus may become manifest as extrasystoles as well as in the form of automatic beats. In the first case regular blockage of the

emissions of a rapid heterotopism led to slow automatism. If the impulses are emitted in their actual stimulus periodicity, there develop (if it takes place after an automatic beat) apparent extrasystoles or (if it is the period of a compulsory stimulus formation after a transmission beat) real extrasystoles. In the second case an automatic period is twice as long as the coupling (the period of compulsory stimulus formation) of neighboring extrasystoles, identical in form, which are bound to transmissions. The automatic period develops by emission blockage of a rapid heterotopism, the periodic length of which represents the coupling of the extrasystole. In both cases automatic and extrasystolic beats can be traced not only to a common stimulus former but also to a stimulus formation process of identical rhythm, which in case of regular emission blockage of its stimuli produces automatic beats, and in case of emission blockage produces extrasystoles.

Wiener klinische Wochenschrift, Vienna

50 1019 1050 (July 9) 1937 Partial Index

Clinical Aspects and Therapy of Cancer of Colon H Finsterer—p 1019

*Total Thyroidectomy in Treatment of Cardiac and Vascular Diseases That Are Refractory to Medicinal Treatment R Singer—p 1025

Use of Echolics and Their Dangers H Heidler—p 1029

Significance of Sports Within Psychotherapy O Kauders—p 1032

*Influence of Malarial Therapy on Histopathologic Skin Process in Progressive Muscular Dystrophy A Rottmann—p 1037

Ectomy of Tonsils by Means of Short Wave Coagulation V Frühwald and L H Stiebeck—p 1038

Total Thyroidectomy in Cardiac and Vascular Diseases—Following a review of the literature, Singer reports the experiences with total thyroidectomy in cardiac and vascular diseases made at a Viennese hospital. He describes and discusses several cases of cardiac and vascular diseases in which thyroidectomy proved helpful and reaches the conclusion that it is indicated in cardiac defects and hypertension with chronic decompensation, in which digitalis or strophanthin have little or no effect. Especially suited for thyroidectomy are cases of refractory dyspnea, for of all the symptoms of decompensation dyspnea is most promptly counteracted by thyroidectomy. This explains the success of thyroidectomy in the cases of severe dyspneic emphysema. The operation is indicated also in refractory angina pectoris and finally in obliterating endarteritis. If the success of thyroidectomy is at least partly due to a reduction in the oxygen requirements, it is to be expected that those cases promise the best surgical results which have an increased basal metabolism before the intervention. The author advises that patients whose metabolism shows minus values should be excluded from total thyroidectomy. The lowest metabolic rate at which thyroidectomy was done at his hospital was plus 16. After pointing out that the operation probably exerts its favorable effect by relieving the circulation (through the reduction in the process of oxidation) and by thus enabling the circulatory organs to respond more readily to medicinal treatment, the author admits that the method still has certain defects, which are connected with the totality of the thyroidectomy. In order to exclude these, his clinic is now investigating to what extent the subtotal resection of the thyroid might produce the same therapeutic effects without resulting in the slight myxedematous complications. That these complications are slight is proved by the fact that at the author's clinic it has never been necessary to administer thyroid preparations. To be sure, in some of the thyroidectomized patients mild myxedematous symptoms appeared, such as swelling of the lids, dry exfoliating skin and falling out of the hair. However, these manifestations usually disappeared again spontaneously after one or two months.

Malarial Therapy in Progressive Muscular Dystrophy

—After reviewing a previous report on malarial therapy of progressive muscular dystrophy in which he had demonstrated that, at the onset and during progressive exacerbations of the dystrophy, malarial therapy promises favorable results whereas in late cases it may arrest the disease process and induce a favorable general condition, Rottmann describes his studies on the histologic changes produced by the malarial therapy. He says that it was tried in muscular dystrophy because of its activating effect on the defense powers of the organism. He reports histologic studies in three cases in three different stages. The histologic studies on the skin were made before and after the

therapy. They reveal an anatomic regression of the chronic infiltrative process and are a further proof that vaccination malaria exerts a specific action on the tissues.

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*Diagnostic and Prognostic Value of Electrocardiogram in Heart Disease During Diphtheria E Szczeklik—p 549

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Value of Electrocardiogram During Diphtheria

Szczeklik states that the electrocardiogram during the course of diphtheria has been of great value for the estimation of the condition of the heart muscle. He has taken electrocardiograms of sixty patients forty children ranging in age from 6 months to 10 years, and twenty adults. Antitoxin had been administered and general treatment instituted in all cases. Five lethal cases from heart failure showed, at necropsy, degenerative changes of the heart muscle. The changes which have been observed in the electrocardiogram could be divided into two groups: disorders of the heart muscle and disorders of the circulation. In conclusion he says that 1 Diphtheria may cause damage to the heart muscle and the conduction system, as well as to the irrigation system, the damage being mostly done to the muscle. The damage to the irrigation system is rarer and usually complicated with damage to the conduction system of the heart muscle. 2 The changes in the electrocardiogram showing heart muscle damage may appear on the third day of the disease. The histopathologic changes of the heart in fatal cases are often those of degeneration of the muscle, and more rarely those due to blood extravasation and hypotaxis. The latter may appear on the eighth day of the disease and was observed in one case of the series. 3 In lethal outcome during the course of toxemic diphtheria attributed to the heart itself there were found some typical changes in the electrocardiogram and, histopathologically, in the system of heart conduction. Changes in the heart muscle itself as the cause of death have been found to be rarer. 4 The electrocardiographic changes observed consisted of tachycardia, slowing of circulation and arrhythmia, and even extrasystolic arrhythmia, which, however, do not always result in death.

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Completely Irregular Heart Action or Auricular Fibrillation F Saltzman—p 295

Bacteriologic and Serologic Observations During Cerebrospinal Meningitis Epidemic T Paakalen—p 313

*Irreversible Allergic Changes in Blood Vessels Glomerulonephritis Periarthritis Nodosa and Rheumatic Arteritis C Ehrström—p 337

Blood Transfusion in Gastric Hemorrhages H E Blomquist—p 339

Allergy and Changes in Blood Vessels—Ehrström says that experimental and clinical investigations during recent years seem to show that the blood vessel changes in diffuse glomerulonephritis, periarthritis nodosa and rheumatic arteritis represent different forms of allergic manifestations in immunization processes in the organism. The fact that allergic factors have been demonstrated on the occurrence of blood vessel changes in malignant hypertonia, eclampsia of pregnancy and atypical verrucous endocarditis indicates how unlike the anatomopathologic and clinical picture may be, depending on the course of the allergic reaction. In glomerulonephritis, periarthritis nodosa and rheumatic arteritis, in which the allergic reaction leads to irreversible changes, bacterial products, mostly from hemolytic streptococci, act as the antigen. In the literature, cases of periarthritis nodosa on an allergic basis are mentioned in which the antigen was of nonbacterial kind (among other things pollen). The author describes a case of allergy to foodstuffs in which administration of the antigen—cheese milk and eggs—caused violent shock, followed by fever, symptoms, from the joints and kidneys and bilateral pleuritis.

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CERTAIN SIGNIFICANT ASPECTS OF CHILDHOOD TUBERCULOSIS

CHAIRMAN'S ADDRESS

RALPH M TYSON, M D
PHILADELPHIA

No other communicable disease equals tuberculosis in the taking of human lives. It probably exceeds all other diseases in individual and social importance, not so much from what it does to the child during the first infection but because of what it means to that individual during and after adolescence, when reinfection occurs. In a paper such as this it is impossible to consider all the many problems of childhood tuberculosis. A few of these problems will be discussed. The pathology of a first infection and the source of most reinfections are more clearly understood now than ever before. Just what constitutes resistance to the infection and how an individual develops immunity are controversial subjects at present. Early diagnostic signs are very indefinite and frequently missed, until there is evidence of extension of the disease. Much has been accomplished with regard to the cure of the disease, but more needs to be done along the line of prevention. Special attention needs to be given to preventing reinfections. It is because of these significant aspects of tuberculosis that I have selected this subject for my address as chairman of the Section on Pediatrics. I do so without any claim for original work or ideas regarding tuberculosis. It is merely an attempt to summarize the ideas of others and to emphasize these few particular phases of the condition. I want to stress especially the need for a more general use of the tuberculin test in order that the first infection cases can be found and the patient guarded against reinfection. A survey of the pediatric cases admitted to our children's ward during the past five years shows an incidence of positive Mantoux tests of 20 per cent.

EARLY PATHOLOGY

At the present time it is believed that most tuberculous infections are air borne and gain entrance into the human body by way of the pulmonary structures. Pasteurization and boiling of milk have practically eliminated the gastro-intestinal tract as a portal of entry.

After the tubercle bacilli are inhaled, they usually lodge in that part of the respiratory tract which is free from cilia, that is, the terminal bronchioles and alveoli. These organisms act very similarly to particles of dust and are, to a large extent, inert foreign substances which fail to produce any obvious clinical signs or symptoms.

However, according to Fried, the respiratory epithelium of these areas so involved responds within a very few minutes. The response is a change in the epithelial cells and is essentially an intra-alveolar lesion. Some of the tubercle bacilli remain entrapped exclusively within the intra-alveolar lesions. Others of these organisms, however, are carried by phagocytic cells through the walls of the air sacs, along lymphatic channels, and usually lodge in the regionally located lymph nodes. Undoubtedly in some cases the organisms are immured for life in these various areas of the lung tissue.

The size of the dose of the infecting organisms and the multiplicity of its repetition and the amount of the local tissue resistance are all determining factors in the spread of the disease. Wherever the organisms lodge they form the typical miliary tubercles and may proceed through the several stages of fibrosis, calcification or dissemination. Because in the young child the lymph channels are almost completely uninterrupted, tubercle bacilli are more apt to pass rapidly toward regional and distant lymph nodes. The lymph nodes themselves in the young child are poor filters, hence some of the organisms pass through them and may eventually reach the blood stream for generalized distribution of the infection. The less pervious pulmonary lymphatic system of the adult causes arrest of the bacilli out in the lung and the tuberculous focus develops at the point of this arrest.

This early pathologic condition is commonly spoken of as a primary complex and consists of the area of first penetration of the pulmonary structures, the lymphangitis along the pathways, and the lymph adenitis. The dissolution of the lipoid capsule of the tubercle bacillus permits of the liberation of tuberculo-protein. It is with the liberation of this substance that the tissues of the patient are sensitized and clinical symptoms are more apt to be recognized. Positive tuberculin tests may be secured at the end of this period, which may have lasted from three to six weeks. This early pathologic condition constitutes the first chapter in the life history of the organism in the human body and is frequently spoken of as a tuberculous infection rather than a tuberculous disease. The distinction is hardly justifiable. The time between the primary and reinfection types of tuberculosis may extend from a few months to many years. Usually the first chapter in this history ends with securing a positive tuberculin test, without palpably evident clinical, pathologic or x-ray changes. Clinical signs are most indefinite during this period.

One of the most animated controversies in tuberculosis work has been over the origin of reinfection, whether endogenous or exogenous in nature. A post-primary clinical tuberculosis constitutes the second chapter in the history of the disease. During this stage there is usually definite clinical, pathologic and x-ray evidence of reinfection and expansion. Evidence is

accumulating which seems to show that reinfections are the result of an exacerbation of a primary infection caused by the rupture of a lymph node or parenchymal tubercle into a new lymph node, a bronchus, the blood or lymph streams. Such endogenous reinfections resulting from softening of caseous nodules, the enormous reproduction of bacilli in the several forms of their development, and their subsequent rupture, have been emphasized by Long as the key problem in tuberculosis.

The best known stage of tuberculosis represents the third chapter in its life history. This is the very active stage of the disease and most often occurs when the child is no longer a child. It is known to exist in the very young infant and may involve nearly any organ of the body.

RESISTANCE AND IMMUNITY

What happens to the young child infected for the first time by the tubercle bacillus depends on a number of factors. Very probably the greatest of all is the degree of natural immunity of the child's own tissues first involved. The degree of acquired immunity which the localization sets up and the amount of allergic tissue hypersusceptibility resulting from this first localization are important points.

The relatively higher incidence of deaths from tuberculosis among young infants than in following age groups has given rise to the idea that babies resist the disease more poorly than older children and adults do. There is some question about the interpretation of that statement. A small infant has less opportunity of evading repeated and massive doses of living bacilli than does the older child and adult. Very probably it is the repetition of infections of young infants that has much to do with their supposedly increased susceptibility to the organisms. Their uninterrupted lymphatic channels permit a wider spread of tubercle bacilli. The more massive and widespread the dose received by the infant, the greater the amount of tuberculo-protein liberated when the bacilli disintegrate.

One cannot, however, entirely eliminate the influence of personal and public hygiene on the effects of tuberculosis. It has been known that native Indians, Negroes, the epileptic and the schizophrenic seem to be more susceptible to tuberculosis than other individuals. The question as to whether it is racial and connected with certain genetic properties or a matter of poor personal hygiene is not definitely proved. Undoubtedly poor hygiene plays a very important part in resistance to the tubercle bacillus. Resistance, however, is something which no one can estimate with any definiteness, and yet the degree of resistance to tuberculous toxins determines in a large measure the result of treatment. Whether the resistance of some patients and the lack of resistance of other patients is due to the quality of certain tissue cells and fluids on the one hand, or to the lack of these certain qualities, on the other, is a matter that is difficult to state. There is no doubt that there is a specific resistance to tuberculosis and no two children have this quality in the same degree.

The question of whether the primary infection is an asset or a liability is contested very earnestly by several groups of workers. Those who feel that it is an asset lean toward the belief that the use of the BCG vaccine is justifiable. Several of these investigators with cows, calves, guinea-pigs and rabbits state that those animals which have been given the vaccine and after a certain length of time are given virulent doses

of tubercle bacilli have certain resistance to throw off the reinfection, provided they develop a positive tuberculin test, while those animals which have a negative tuberculin test and are given virulent tubercle bacilli usually die within sixty days. Stewart, Myers and others believe that a negative Mantoux test is superior to a positive reaction from the standpoint of resistance to infection. They believe that any nonallergic, uncontaminated person occupies a more advantageous position than is possessed by an allergic person, so far as future experiences with the tubercle bacilli are concerned.

EARLY DIAGNOSTIC SIGNS

It is the hope of all who deal with children that a diagnosis of tuberculosis might be made during the first chapter of the life history of the tubercle bacillus. It has only been recently that these early diagnoses have been made as emphasized by Wallgren. Because of the importance of this particular phase of our problem, it seems well to have a definite diagnostic plan that will lead us to proper conclusions.

Exposure—A history of exposure and the finding of an active tuberculous lesion in a parent or other individual who comes in contact with children makes the problem a simple one. Such a history is not always available, however, and other means must be used.

Weight Curve—The weight curve of the child is not always a reliable guide. This is especially true of the small infant. It has been the experience of many to see a young infant with an active tuberculous infection continue to gain in weight during the early part of that condition. Due consideration must be given to stationary or perhaps loss of weight without any obvious cause.

General Condition—A change in the general condition of the child, with the appearance of such indefinite symptoms as irritability, fretfulness, fatigue and lack of appetite, are helpful diagnostic points. It must be remembered, however, that these symptoms may be due to many other causes.

Fever—Elevation of temperature, while not specific by any means, should always be regarded with suspicion. So far as is known at present there is no specific temperature curve associated with tuberculosis. When no adequate cause for the elevation of temperature can be elicited by careful physical examination, suspicion should always be directed toward the possibility of tuberculosis.

Later Signs—When a tuberculous infection has gone through the first chapter and reinfections have occurred, with resulting increase in toxemia, there are sometimes left indefinite but helpful diagnostic marks on the child. I refer particularly to the rather lusterless eye, the heavy long eyelashes, pouty lips, dry skin and hair, and hypertrichosis. These changes are evidence of toxemia of the disease.

Tuberculin Tests—Tuberculin tests should be made in all suspected cases, particularly if one or more of the aforementioned circumstances exists. The intradermal or Mantoux test, beginning with 1:10,000 dilution and repeating with ascending doses, will show allergic response within three to six weeks after the primary infection has occurred. It has been the experience of most physicians that this is an extremely valuable test and perhaps should be performed on all children who come under our care.

Serial X-Ray Studies—Serial x-ray studies of the chest have helped greatly from the diagnostic standpoint and are of far more value than a single x-ray

study Such diagnostic aid should be used whenever positive skin tests are obtained It is very difficult for the roentgenologist to tell positively whether the shadows found on a film of a certain infant's chest are due to tuberculosis or to some other pulmonary infection

Gastric Lavage—Comment is frequently heard as to the inability of small infants to raise sputum into the mouth Most of the time it reaches only the pharynx and is immediately swallowed If gastric lavage is done the first thing in the morning and careful study made of sediment so secured, tubercle bacilli in the positive cases are fairly frequently found Such laboratory evidence may be found even in the early cases Similar studies made on the stools of infants will occasionally reveal the organisms

Sedimentation Index—The sedimentation index of the blood tells us that an infection is present but does not particularly indicate tuberculosis It probably gives an idea as to the degree of activity of the infection

Skin Rashes—The appearance of erythema nodosum on the extremities and back of a young child should always arouse suspicion of tuberculosis While not appearing in all cases, it is recognized in a certain percentage Erythema nodosum may be caused by a number of other conditions

PREVENTION

The most efficacious procedure in preventing tuberculosis in infants and children is to keep them from coming in contact with open cases of the disease This appeals as the most logical method at our command today The so-called healed adult case may be a source of contamination It seems particularly valuable to prevent children from being born of tuberculous parents Neither man nor woman has a right to marry when actively ill with the disease, because under such circumstances children born of such parents usually have to live with them and constant exposure results Under such circumstances the securing of a healthy foster mother to care for the child in her own home will help to prevent contamination of the infant The tuberculous mother should not nurse her baby, and all close contact with the child should be avoided

The work with the BCG vaccine and reports so far available indicate the possibility that the prevention of tuberculosis by this method is probably desirable when one or the other of the parents has the disease In the present state of our knowledge it does not seem wise to recommend that this vaccine be used as a routine for all children, regardless of whether there is tuberculosis in the home or not The BCG vaccine does sensitize tissue and renders the child allergic to further contact with the tuberculo-protein It also causes a body to harbor living tubercle bacilli which may later on in life become active and virulent There are not sufficient data at the present time to determine the validity of this last statement

Tuberculosis developing as a result of the use of infected milk is becoming more rare The inspection and tuberculin testing of dairy cattle and the pasteurizing or boiling of all milk have done much to prevent the spread of bovine tuberculosis

Certain diseases have been accused of lowering the resistance of the child to such an extent that such children are more apt to develop tuberculosis or, if

they have it, to have reinfections occur Whether there is any specific relationship of measles, whooping cough and other diseases to the lessened resistance of children to tuberculosis or not has not been definitely shown It might be stated that the prevention of these diseases would help in preserving the natural resistance of the child

It seems that the full elimination of tuberculosis will depend to a large extent on finding out the ones that are already infected Active physical examination of all children attending school must become universal if such a hope is to be realized This examination in most instances will fail to show definite signs of early tuberculosis in the child's chest, so it will be necessary to include the tuberculin testing of all school children and serial x-ray studies of their chests for all positive reactors

A study of mortality records shows the increasing death rate from tuberculosis in children during adolescence and shortly thereafter The study also shows the increasing number of girls so infected During this time a great many children are anemic and underfed and going through changes in their endocrine glands and constantly being stimulated to a great variety of activities, thereby interfering with adequate rest There would appear to be some relationship between the development of the sexual functions and resistance to tuberculosis Animal experimentation seems to corroborate this idea In animals it seems that the removal of the gonads increases resistance to the disease

The greatest danger of tuberculosis in the weak, anemic or underfed child comes with the approach of and during adolescence Preventive work in this group is particularly deficient Long hours in badly ventilated class rooms and college lecture halls, and in stores and work rooms, together with a lack of recreation, irregular meals of poor quality and insufficient quantity and insanitary living in general are mainly responsible for the spread of tuberculosis in the adolescent The pediatrician might do well if he extended the age limit of his patients to include adolescents rather than the arbitrary twelve year limit

It was hoped, when it was discovered that vitamin D increased calcification in the body if given in therapeutic doses, that it might be used in aiding the body to calcify and thereby heal tuberculous infections There are not sufficient data at the present time to decide whether such a circumstance does happen Recent studies of vitamin C show that apparently an individual who has tuberculosis needs and retains more vitamin C in his body than an uninfected person Reasoning the other way, it might be stated that adequate amounts of vitamin C should be a part of every person's dietary

Infant feeding has become pretty well established, so that the dietary needs of children are better understood today than ever before The influence of maintaining optimum nutrition for every child, hoping thereby to increase resistance not only to tuberculosis but to all diseases, is a form of prevention that is frequently overlooked To secure optimum nutrition, good hygiene with adequate fresh air and sunshine is necessary The particular value of adequate rest is frequently overlooked in our care of children It is difficult to restrict activities of the growing child, but undoubtedly sufficient rest for each individual child will help materially in the prevention of tuberculosis

255 South Seventeenth Street

THE DEGREE AND PREVALENCE OF VITAMIN A DEFICIENCY IN ADULTS

WITH A NOTE ON ITS EXPERIMENTAL PRODUCTION IN HUMAN BEINGS

HAROLD JEGHERS, M.D.

BOSTON

The changing status of the vitamin deficiencies in this country is well shown by recent publications¹ emphasizing the rarity of the fully developed, classic diseases and the frequency of the milder deficiencies. This is particularly true with regard to vitamin A deficiency. In a preliminary report, the present knowledge concerning the biochemical and physiologic aspects of vitamin A, the clinical and pathologic aspects of vitamin A deficiency, the mechanism of night blindness and methods of detecting mild degrees of deficiency were reviewed.² The present study deals chiefly with personal observations, and reference will be made to but a few pertinent papers. Complete bibliographies are available elsewhere.³

PROCEDURE

The material forming the major portion of this paper was obtained from a study of the students of Boston University School of Medicine. Each student received a test on the biophotometer,⁵ and those with very low readings were rechecked before receiving therapy or else the result was confirmed with Edmund's test charts and photometric glasses. All tests on the biophotometer were performed in a dark room. The technic described by Jeans and his associates was followed.⁴ Each student received ten minutes' dark adaptation as a control, three minutes' exposure to bright light and ten minutes' additional dark adaptation, with five readings taken at two and one-half minute intervals. Edmund's test⁶ was done in a specially prepared room with black walls.

One hundred and sixty-two students were tested. The entire freshman class of sixty students was studied as a required exercise in biochemistry and physiology. The rest were selected at random from the remaining classes. Eleven students were eliminated because they had been taking concentrates of vitamin A. An elaborate dietary and general history was obtained from each subject and careful search made for objective and subjective manifestations of vitamin A deficiency. The fifty-five students found to have subnormal dark adaptation were treated and the results observed.

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Owing to lack of space, this article has been abbreviated for publication in THE JOURNAL. The complete article appears in the authors' reprints.

From the Fifth (Boston University) Medical Service, Boston City Hospital, and the Department of Medicine, Boston University School of Medicine.

Read before the Section on Practice of Medicine at the Eighty-Eighth Annual Session of the American Medical Association, Atlantic City, N. J., June 11, 1937.

1 Youmans, J. B. The Present Status of Vitamin Deficiencies in Practice. *J. A. M. A.* 108:1520 (Jan. 2) 1937. Blackfan, K. D. Progress in the Early Recognition of Vitamin Deficiency States. *New England J. Med.* 215:1159-1162 (Dec. 17) 1936.

2 Jeghers, Harold. Night Blindness as a Criterion of Vitamin A Deficiency. Review of the Literature with Preliminary Observations of the Degree and Prevalence of Vitamin A Deficiency Among Adults in Both Health and Disease. *Ann. Int. Med.* 10:1304-1334 (March) 1937.

3 Frandsen, Helga. Hemeralopia as an Early Criterion of A. Avitaminosis and Clinical Symptoms and Treatment of This Disease. *Acta ophth. supp.* 4:1160, 1935. Jeghers.

4 The biophotometer is manufactured by the Frober-Faybor Company, Cleveland.

5 The material for Edmund's test was obtained by communicating with Dr. Carsten Edmund, Copenhagen, Denmark.

RESULTS

What constitutes normal dark adaptation is at present not entirely settled. Rather than say that one photometer reading represented vitamin A deficiency and another showed its absence, an entirely new approach was made to the problem. The fifty students showing the best dark adaptation were compared with the fifty students showing the poorest. Those with values falling in between these two groups were eliminated from the final analysis. For convenience of discussion in this paper the two groups will henceforth be called the normal and the subnormal group, respectively.

The dark adaptation curves obtained for the fifty normal subjects all fell within the limits of the shaded area, as shown in chart 1. The dark adaptation curves obtained for twenty-five of the fifty subnormal subjects

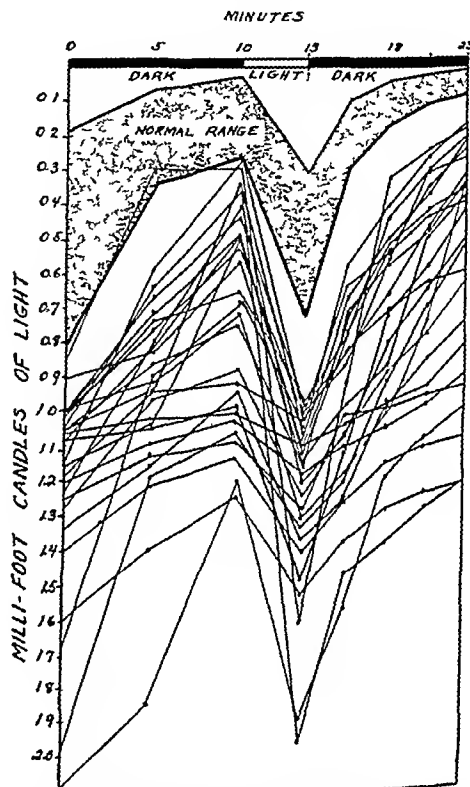


Chart 1—The twenty-five lowest dark adaptation curves. The other twenty-five low curves ranged between these and normal values. The fifty highest curves all fell within the shaded area.

are individually plotted in chart 1. Only the lowest curves are given. The twenty-five not shown ranged in value between these and the normal curves.

General information concerning the two groups is shown in table 1. There were forty-five men and five women in the subnormal group, essentially the same distribution as that in the normal group. Seventy-four per cent of the normal students ate at home, while only 16 per cent ate in restaurants and 10 per cent cooked meals in their living quarters. There was a noticeable difference in the subnormal group, the majority eating away from home, 32 per cent frequenting restaurants and 26 per cent cooking in their living quarters. Of this group, only 42 per cent lived and ate at home. The normal students who ate in restaurants spent \$7 a week per person, in contrast to \$5.50 spent by the subnormal group. The normal students who cooked in their living quarters spent an average of \$4.20 per week, in contrast to only \$2.80 spent by the deficient group.

A meal was considered complete when it included all the items commonly served. For example, doughnuts and coffee or rolls and coffee were not considered a complete breakfast. A sandwich and soda or sandwich and coffee were not considered an adequate noon meal. In the normal group, 32 per cent received three full meals daily and 68 per cent received two complete meals. Lunch in this group was the weak meal, but it was commonly brought from home and proved to be more substantial and varied than the sandwiches purchased in neighborhood lunch rooms by the subnormal group. No person in the normal group received less than two adequate meals daily. In striking contrast, 60 per cent of the subnormal group ate but one substantial meal daily. These students invariably had coffee with toast, rolls or doughnuts for breakfast, a sandwich or two for lunch at noon and a complete meal at night. Thirty-six per cent had two complete meals and only 4 per cent had three adequate meals.

The clinical data are summarized in table 2. The average number of colds per year in the two groups was two and one-tenth and two and two-tenths, essentially the same. However, in the normal subjects the colds lasted five and one-half days on an average, as contrasted to seven and four-tenths days for the subnormal subjects. Eleven of the normal group were sick in bed for an average of four and three-tenths days. The sicknesses included common colds, grip and one case of streptococcic sore throat. In the subnormal group, sixteen were sick in bed for an average of eight and five-tenths days, and the illnesses were distinctly more serious, including, besides common colds and grip, four cases of streptococcic sore throat, two of sinusitis, one of otitis media and one of colitis. In several of these cases the diet was adequate and the infections were probably responsible for producing the vitamin A deficiency. Thirteen of the normal group had chronic focalized infections, which were, however, all mild and included pyorrhea, dental abscesses, catarrhal postnasal drip, granular pharyngitis and, in one case, tonsillitis. The nineteen subnormal subjects with chronic infections, on the other hand, had more serious conditions, which included two cases of repeated furunculosis, one of chronic otitis media, two of colitis, three of purulent sinusitis and two of tonsillitis.

Evidence of specific manifestations of vitamin A deficiency proved to be most instructive. In the normal group, no one complained of night blindness. One student, with a severe refractive error, had photophobia, which, however, showed no change with vitamin A therapy. Two students (men) had mild dryness of the skin, probably unrelated to deficiency disease.

In marked contrast were the manifestations of vitamin A deficiency in the fifty students with subnormal dark adaptation. Twenty-seven were clinically aware that they adapted poorly in the dark, in other words, they had definite night blindness sufficient to be recognized without resorting to a photometer test. They noticed it particularly while driving an automobile at night, on entering a darkened theater, while observing fluoroscopic examinations, while trying to play golf at dusk and because of inability to recognize friends on the street in a dim light.

It is not generally appreciated that persons with night blindness may find it hard to adapt to bright illumination as well as to dim illumination. This causes photophobia and was present to some degree in fifteen of the subnormal group.

Three students showed dryness (xerosis) of the conjunctivae, especially when the eyelids were held open

for a minute or two. It was so mild as to be readily overlooked unless specifically kept in mind. Examination should be with oblique illumination. This observation was considered most important. All textbooks stress xerophthalmia as a leading sign of the deficiency. Actually, mild xerosis cannot be photographed. The illustrations usually shown in textbooks are reproductions of Bitot's spots and severe xerophthalmia, which have the appearance of frost on a window pane. This condition represents not simple dryness but opacity, thickening and keratinization of the conjunctivae. It was not seen in any case of deficiency studied to date and, judging by reports in the literature, must be very rare in adults in this country. The three students with

TABLE 1—*Eating Habits of Fifty Persons with Normal Dark Adaptation Contrasted with Those of Fifty Persons with Subnormal Dark Adaptation*

	Normal Group	Subnormal Group
Men	45 90%	44 88%
Women	5 10%	6 12%
Persons eating at home	37 74%	21 42%
Persons eating at restaurants	8 16%	16 32%
Persons cooking and eating in living quarters	5 10%	13 26%
Average weekly amount spent by persons eating in restaurants	\$7 00	\$5 50
Average weekly amount spent by persons cooking and eating in living quarters	\$4 20	\$2 80
Persons eating three complete meals daily	16 32%	2 4%
Persons eating two complete meals daily	34 68%	18 36%
Persons eating one complete meal daily	0 0%	30 60%

TABLE 2—*Clinical Data on Fifty Persons with Normal Dark Adaptation Contrasted with Data on Fifty Persons with Subnormal Dark Adaptation*

	Normal Group	Subnormal Group
Average number of colds per year	2.1	2.2
Average duration of each cold	5.5 days	7.4 days
Persons sick in bed during preceding year	11	16
Average period in bed per sickness	4.3 days	8.5 days
Persons with		
Focalized chronic infection	13	19
Subjective night blindness	0	27
Photophobia	1	16
Dryness of conjunctivae	0	3
Burning of eyes	0	3
Blepharitis	0	2
Dryness of skin	2	15
Hyperkeratosis follicularis	0	2
Itching of skin	0	3
Acne	2	2
Average international units of vitamin A obtained daily from food eaten	5,500	2,445

dryness of the conjunctivae complained of burning sensations of the eyes. Two had noticeable blepharitis, and the lids were edematous.

Fifteen of the subnormal group had dryness of the skin which was generalized and occasionally rough. In a few cases it was very annoying, and much cream and lotion was used in an attempt to soften the skin. Six students noted that the dryness disappeared each summer while they were home and ate adequately, only to reappear again a few months after their return to school. In three cases, generalized itching was troublesome. Two students had noticeable hyperkeratosis of the hair follicles.

The following case histories are given to illustrate examples of the severe, moderate and mild deficiencies of vitamin A.

CASE 1—A third year medical student, aged 25, while regularly testing members of his class was found to be night blind. There had been no serious illness since childhood. At the age of 19, while in college, he began to notice a progressive difficulty in driving an automobile at night. The glare of headlights was dazzling, and the road edge pedestrians and signs

were barely seen. After an accident he had his eyes examined. No pathologic condition could be demonstrated, visual acuity was normal, and his trouble was diagnosed as eyestrain from studying. After a month's vacation, night driving was resumed. Shortly afterward he injured a pedestrian and gave up night driving but continued to drive extensively during the daytime. Another feature of interest was his inability to play golf in the early evening although his friends could readily do so.

TABLE 3—International Units of Vitamin A per Ounce of Food*

Food	Reported Values	Average Values Assumed for Convenience of Calculation
Bread and cereals		
Cereals	0-40	20
Whole wheat bread	?	50
White bread	0	0
Yellow corn meal	198-236	200
Macaroni	0	0
Rice	?	10
Rye bread	0	0
Meats		
Pork (lean salt)	0	0
Average lean meat	?	5
Liver	2,860-3,920	3,000
Kidneys	210-323	250
Bacon	7	5
Fish		
Clams	8	10
Lean fish	0-3	2
Fish roe	1-175	1,000
Salmon	28-224	100
Fruits and nuts		
Apples	21	20
Apricots (dried)	300	300
Bananas	79-140	100
Berries	10-78	50
Cantaloup	126-190	100
Grapefruit	6	5
Lemons	?	100
Oranges	26-108	100
Peaches	2-392	200
Pears	5	5
Prunes	770-800	800
Watermelon	35-39	35
Dairy products		
Butter (per pat)	50-500	100
Cheese	42-1,960	1,000
Cream	294	300
Fresh milk	31-98	50
Evaporated milk	196	200
Lard	0-2	0
Eggs	770-1,100	1,000
Vegetables		
Broccoli	176	200
Brussels sprouts	118-133	100
Cabbage	14-24	20
Carrots (raw)	940-2,630	1,000
Cauliflower	19-21	20
Celery (white)	0-6	5
Asparagus	50-275	150
String beans	140-392	200
Navy beans	21	20
Lima beans	0	0
Beets	0-7	5
Lettuce	49-1,960	500
Onions	0	0
Peas	245-392	200
Green peppers	245-398	300
Turnips	7	5
Yellow potatoes	119-1,960	500
White potatoes	10-14	10
Sauerkraut	7	5
Squash	780	700
Tomatoes	237-590	400
Spinach	2,500-9,800	3,000
Olive oil	14	10
Cottonseed oil	6-39	25

* These values were obtained from Eddy, Walter H. and Dalldorf, Gilbert. The Avitaminoses, Baltimore, Williams & Wilkins Company, 1937, and are reproduced by permission. The average values were assumed for convenience in calculating the vitamin A content of the 100 diets studied for this paper.

When he entered a darkened theater, it was necessary for the usher or a friend to lead him to a seat. Otherwise, from ten to fifteen minutes' adaptation was required before he could find his way down the aisle. Bright lights were as annoying as his inability to see well in dim light. In two further examinations the eyes were reported as normal. The student finally decided that it was normal for him to adapt poorly in the dark and ceased further quest for medical aid.

His general health remained fair. Accompanying the night blindness there had been progressively increasing dryness of the skin. About one year before he had noticed for the first time roughness of the skin due to enlarged hair follicles, more

marked on his back and on the extensor surfaces of his extremities. This persisted but did not increase. Examination revealed a dry scalp and dry skin, with moderate hyperkeratosis follicularis. The conjunctivae showed mild dryness (xerosis) but no Bitot's spots. There was definite blepharitis.

The results of the initial and follow-up photometer tests are shown in chart 2. The diet was of interest. Since leaving home seven years before, he had constantly observed the following regimen. Breakfast consisted of black coffee and doughnuts. Two meat sandwiches, coffee and dessert constituted lunch. Dinner consisted of meat, white bread, white potatoes, dessert, coffee and a small portion of vegetable. One pat of butter was taken with the evening meal. No milk, fruit, spinach, carrots, ice cream, liver or cheese had been eaten for years. The evening vegetable was either string beans, lima beans, beets, peas or corn. This choice was one of habit and not of financial necessity. The diet was calculated to supply less than 1,000 units of vitamin A daily. Treatment consisted of the administration of 25,000 units of vitamin A daily in the form of halibut liver oil concentrates and the addition of milk, butter, fresh fruits and vegetables to the diet. Remarkable changes followed. Subjective improvement in the night blindness was noted within ten days. After five weeks the skin had returned to normal texture. There was a feeling of general well being that had not been experienced for years. Within two months dark adaptation was entirely normal. The subject could now drive at night with ease, walk into a theater and find his way to a seat at once, and for the first time appreciate a fluoroscopic examination.

This case represents the classic fully developed picture of vitamin A deficiency. One senior had a practically identical story. This degree of deficiency was seen also in a girl college student aged 17 (trying to reduce), an accountant aged 31, a housewife aged 29 (trying to reduce) and a welfare worker aged 30. All these persons made a similar recovery.

CASE 2—A senior student, aged 27, was first observed during a routine test. Dark adaptation was moderately poor. He rarely drove at night because of the glare of headlights and his inability to see the road. On entering a theater he had to wait several minutes before attempting to find a seat. No detail could be seen during a fluoroscopic examination unless from twenty to thirty minutes was allowed for adaptation. There was moderate dryness of the skin but no hyperkeratosis. Xerosis of the conjunctivae was absent. These symptoms had been noted for several years. The dietary history was illuminating. Breakfast consisted of coffee and pie, lunch, of coffee and sandwiches. The patient ate his dinner at home. There were many idiosyncrasies in connection with food. Tomatoes once a week and apples were the only source of carotene. No milk, butter or cheese was taken. One egg a week and a serving of liver a month were eaten. Bread, meat and spaghetti constituted the bulk of the food consumed. This diet was estimated to supply about 1,300 international units of vitamin A daily.

The initial and follow-up photometer tests are shown in chart 3. Treatment with 30,000 units of vitamin A daily resulted in return of dark adaptation to normal within three months and complete subjective relief of the dry skin and night blindness.

This subject was typical of those who showed moderately severe night blindness, with or without mild dryness of the skin, but no evidence of hyperkeratosis or xerosis. About twenty students could be considered to fall into this category.

The average daily intake of vitamin A for each student was calculated. The values given in table 3 were utilized; they represent international units of vitamin A per ounce of food with the exception of the value for butter, which is measured in pats.⁸ To simplify calculations, average values in round number were assumed for each food. When the range given varied greatly (i.e., spinach, from 2,500 to 9,800),

⁸ Eddy, Walter H. and Dalldorf, Gilbert. The Avitaminoses. Baltimore, Williams & Wilkins Company, 1937, pp. 316-321.

a lower value was chosen. This was done so that the complete results would represent minimal rather than optimal intakes. However, since this study represents chiefly winter eating habits, the values are probably close to the actual amount of vitamin A consumed.

It was fairly easy to obtain accurate dietary histories from these students. Some cooperated by keeping food

being noticeable in most cases until after from four to ten weeks of treatment. Eleven of the fifteen subjects with dry skin regained normal skin texture, in the two cases of hyperkeratosis the condition disappeared entirely. The other four subjects with dry skin were still under treatment. Itching was relieved in each case. At the time of writing this paper, thirty-six students had regained normal adaptation, nine had improved and five were waiting to be retested.

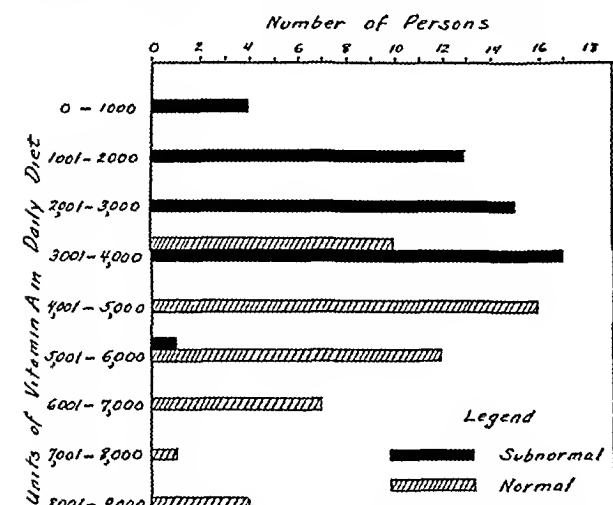


Chart 5—International units of vitamin A consumed daily in diet by fifty persons with normal and fifty persons with subnormal dark adaptation

diaries. The results obtained are plotted graphically in chart 5. The normal group had a daily average intake of 5,560 international units of vitamin A, with a range from 3,300 to 9,000 units. The subnormal group averaged 2,445 units daily, with values ranging from 900 to 4,000 units except for one student with a value of 5,500 units. The exact distribution of these figures is well shown in chart 5. Except in one case there was no overlapping of the normal and subnormal group except in the range of from 3,001 to 4,000 units daily, which contained seventeen subnormal and ten normal subjects.

Further analysis of the dietary histories is shown in table 4. The total amount of each type of food rich in vitamin A consumed by each group was calculated. From these figures, the average for the normal and for the subnormal subject were obtained. Members of the normal group consumed from two to three times as much of each of these foods as those of the subnormal group. The exact figures are listed in table 4.

TREATMENT OF VITAMIN A DEFICIENCY

All the students with subnormal dark adaptation were treated. Capsules of carotene in oil⁹ were given to ten students, the rest receiving capsules of halibut liver oil concentrates¹⁰. A variety of doses was tried. The best results were secured when 70,000 units of vitamin A was taken orally for two weeks, followed by 25,000 units daily until the dark adaptation became normal. In other words, massive doses are given at first to replenish rapidly the depleted storage of vitamin A in the body.

The therapeutic results were striking. Subjective night blindness was relieved in every severe case the shortest time being one week and the longest five months. The photophobia usually improved at the same time. The changes in the skin were much slower, not

COMMENT

The analysis of these results allows several interesting and important conclusions to be formed. The study offers additional evidence of the reliability of subnormal dark adaptation as an indirect measure of vitamin A deficiency. More important, however, was the demonstration of the frequency of clinically detectable vitamin A deficiency. Of the entire student group of 162, approximately 35 per cent showed photometric evidence of vitamin A deficiency, while 12 per cent showed clinical evidence. Each of the students with severe subjective symptoms had seen one or more physicians. The eyes were always found to be normal, or refractive errors were corrected.

In most cases, the factors responsible for producing the deficiency had been operative for months, and in many, for years. The folly of the prolonged substitution of a sandwich, roll or doughnuts for one or more complete meals is evident. The eating habits of these students were no different from those of numerous other adults in all walks of life. It is obvious that many adults are entirely ignorant of food values or of what constitutes an adequate diet.

The worst diet likely to be chosen by an American will probably contain at least 800 or 1,000 units of vitamin A daily. This means that absolute deficiency is rarely seen. In each of the severe cases herein

TABLE 4—Consumption of Foods Rich in Vitamin A by Fifty Persons with Normal and Fifty Persons with Subnormal Dark Adaptation

	Normal		Subnormal	
	Total for Group	Average for Individual	Total for Group	Average for Individual
Pats of butter per day	225	4.5	163	3.3
Servings of cheese per week	127	2.5	46	0.9
Number of eggs per week	304	6.1	118	2.4
Glasses of milk per day	166	3.3	38	0.7
Servings of liver per month	126	2.5	60	1.2
Servings of vegetables per day	66	1.3	40	0.8
Servings of lettuce per week	161	3.2	31	0.6
Servings of spinach per month	262	5.2	83	1.7
Servings of carrots per month	298	5.9	108	2.2
Servings of tomatoes per week	176	3.5	77	1.5
Servings of fruit per week	310	6.2	165	3.3
Servings of apricots per week	7	0.1	0	0.0
Servings of prunes per week	20	0.4	11	0.2

reported, the symptoms (night blindness, photophobia and dry skin) had persisted for years, progressing but slowly until a stationary level seemed to be reached. Xerosis was either absent or so mild as to be readily overlooked. Even in the worst cases, the night blindness was not entirely incapacitating. Usually, because of the slow development, its presence was not noticed unless the performance of some unusual act in the dark was required.

DAILY REQUIREMENT OF VITAMIN A FOR ADULTS

For many reasons the exact daily requirement of vitamin A by human beings has not been determined. Foods vary in vitamin A content with regard to season, storage, dehydration, oxidation and method of cooking.

⁹ The Carotene was supplied by the S. M. A. Corporation, Cleveland.
¹⁰ The halibut liver oil capsules were supplied by Parke Davis & Co., Detroit.

Individuals probably vary with regard to absorption, storage, conversion and destruction of vitamin A and carotene. In spite of these obstacles certain estimates are available, but they vary widely.

Harris¹¹ placed the minimal daily requirement at 1,000 units (U S P). This seems a very low figure. Stuebeling¹² set from 4,200 to 5,600 international units as the daily requirement of adults. Rose¹³ suggested an allowance of 140 international units per hundred calories for adults who have stopped growing. Growing children should be allowed twice this amount. Cameron¹⁴ advised an optimal intake of 5,000 units or over a day. Funk and Dubin¹⁵ placed the optimal requirement for adults at 8,000. Many of these values are purely estimates based on clinical impressions.

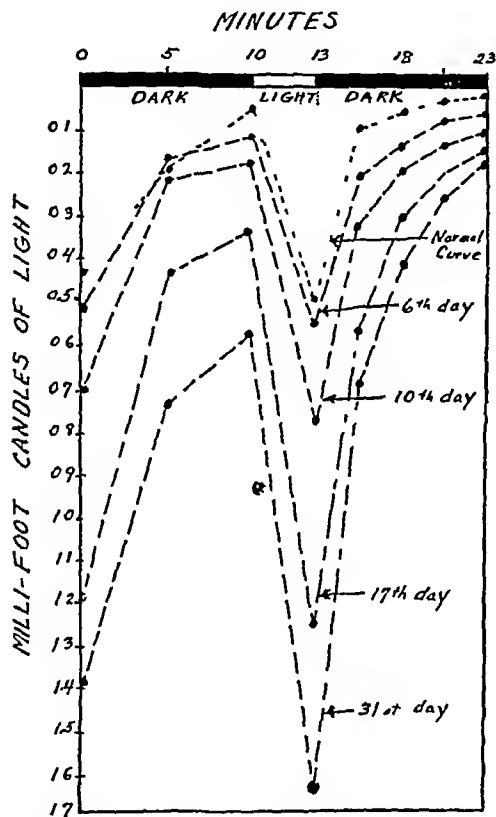


Chart 6—Progressive changes in dark adaptation curve of subject living on experimental diet containing 200 units daily of vitamin A

Using normal dark adaptation as an index of normal vitamin A metabolism allows another approach to the problem. With one exception (a subject with sinusitis) every student who consumed over 4,000 international units of vitamin A daily had normal dark adaptation. This amount probably represents close to the minimal daily requirement of healthy adults. To secure optimal benefits it would perhaps be best to allow a 50 per cent increase in this value.

Many factors, however, may influence the utilization of vitamin A. These must be kept in mind and the minimal requirement regulated accordingly.

Unfortunately, the influence of each of these factors is but poorly understood, and quantitative measurements are almost completely lacking. The Committee on Nutrition of the League of Nations suggested a daily intake of 8,700 international units of vitamin A for the pregnant and the nursing woman.¹⁶ In a study of forty-four pregnant women in the antepartum clinic of the outpatient department of the Massachusetts Memorial Hospital, it was found that only three had normal dark adaptation. Less than 10 per cent had a diet containing over 7,000 units of vitamin A daily.

That infection influences the metabolism of vitamin A has been suggested repeatedly. In the present study, the deficient group had more numerous and more serious infections than the normal group. In a special study, eight older children with active rheumatic fever were observed.¹⁷ Although they had been receiving between 5,000 and 10,000 units of vitamin A daily, each showed subnormal dark adaptation.

RELATION OF VITAMIN A DEFICIENCY TO AUTOMOBILE DRIVING AT NIGHT

Aside from its purely medical aspects, vitamin A deficiency will probably prove of great importance from the practical and legal points of view. That night blindness due to vitamin A deficiency interferes with driving an automobile was pointed out in an earlier report.¹⁸ At that time but two clearcut instances had been noted. Since then (a period of eight months) twenty-one additional persons have been seen who demonstrated this fact. Three were almost entirely unable to drive at night, six rarely did so and the remainder drove but disliked to. Cases 1 and 2 in this paper are representative. Five accidents involving such persons had been directly attributable to this symptom. In all cases proper therapy completely restored normal dark adaptation and eliminated night blindness. Several of these persons are now driving at night for the first time in years.

The complaints of these hemeralopes fell into two categories. They were easily dazzled and temporarily blinded by headlights from other automobiles. Lights which would annoy a normal person but slightly were able to deplete the low store of visual purple in the retinal rod cells. The incomplete and unduly slow regeneration of this phototropic substance left them temporarily with only cone vision or, in other words, blind for dim illumination. They experienced little difficulty while driving on artificially illuminated city streets, because cone function could be utilized. The major difficulties were experienced on dark country roads. Long drives were unduly fatiguing at night. Aside from being bothered by the dazzle of lights, these people saw the road, road edge, markers and pedestrians with great difficulty. This was particularly true after they passed an oncoming car. It is interesting to note that in no case had the correct diagnosis been made. This subject is discussed in detail elsewhere.^{18a}

EXPERIMENTAL PRODUCTION OF VITAMIN A DEFICIENCY IN HUMAN BEINGS

Practically all the work dealing with the experimental production of vitamin A deficiency has been limited to laboratory animals. It is obvious that the use of animals

11 Harris L J. A Program for Nutrition Surveys. *Lancet* 1: 966 968 (April 25) 1936.

12 Stuebeling H. quoted by Eddy and Dalldorf. *The Avitaminoses* p 18.

13 Rose Mary S. quoted by Eddy and Dalldorf. *The Avitaminoses* p 19.

14 Cameron Hazel C. Effect of Vitamin A upon Incidence and Severity of Colds Among Students. *J Am Dietet A* 11: 189 204 (Sept.) 1935.

15 Funk Casimir and Dubin H E. *Vitamin and Mineral Therapy* New York: U S Vitamin Corporation 1936.

16 Quoted by Funk and Dubin. *Vitamins and Mineral Therapy* p 21.

17 These children were studied at the House of the Good Samaritans, Boston, through the cooperation of Dr J M Faulkner.

18 Jeghers Harold. Night Blindness Due to Vitamin A Deficiency. A Consideration of Its Importance in Traffic Problems. *New Eng J Med* 216: 5156 (Jan 14) 1937.

18a Jeghers Harold and De Silva H R. Night Blindness and Glare Blindness Due to Vitamin A Deficiency. An Important Cause of Automobile Accidents. *New England J Med* to be published.

is not desirable for the analysis of minor manifestations of this deficiency, in view of the subjective character of many of the manifestations

The following experiment was tried, not to gather conclusive evidence but to outline the technic of producing vitamin A deficiency in human beings for experimental purposes

A healthy man (the writer), aged 32, was used. There had been no serious sickness since childhood. A mild infection of the upper part of the respiratory tract had been present for three days in November 1936. The diet had always been adequate, and photometer tests at intervals for the preceding two years had shown normal dark adaptation in every instance. In addition, 10,000 units of carotene and 17,000 units of vitamin A had been ingested daily for three months prior to the experiment. It was felt that under such circumstances the stores of carotene and vitamin A in the body were at their peak.

The diet used to produce a pure vitamin A deficiency is shown in table 5. The vitamin A content is listed as international units per ounce of food. Such a selection of foods readily supplied an adequate number of calories and sufficient protein, carbohydrate and fat. In addition, 25 mg of cevitamic acid, 200 Sherman units of vitamin B₁ and 100 Sherman units of vitamin B in the form of brewers' yeast, and 40 grains (0.26 Gm) of calcium lactate were taken daily. Exposure outdoors on sunny days was considered sufficient to supply an adequate amount of vitamin D.

Sufficient food was eaten to satisfy hunger. The diet proved not unpalatable. It could have been enormously improved by the use on bread of a "spread" which was free from vitamin A. Fluids consisted of water and black coffee. At each meal the number of vitamin A units consumed was calculated. The intake averaged 200 units daily.

The experiment was started on March 29, 1937. Readings were obtained daily on the biophotometer and weekly by Edmund's test. The results are plotted in chart 6. On the sixth day the first photometric impairment of dark adaptation was noted. Afterward there was a steady and progressive decrease in the ability to adapt in darkness. Representative figures obtained on the tenth, seventeenth and thirty-first days are shown in chart 6.

Definite subjective night blindness was noted late in the fourth week and particularly during the fifth week. This was searched for while the subject was driving at night, entering a darkened theater and observing fluoroscopic examinations and by means of prearranged tests at home. Comparisons were made with persons with normal adaptation. This degree of night blindness would easily have been overlooked had it come on slowly and spontaneously and persisted for a long time. Accompanying the night blindness was mild photophobia, especially noticeable while the subject was driving an automobile at night.

On the thirty-first day the skin was still smooth and the eyes free from burning and there was no xerosis. At 12 o'clock noon, 80,000 units of vitamin A was taken orally, and at 12:30 a normal dinner was consumed. At 2 p.m. a photometer reading was taken and showed marked improvement. Readings were taken at twenty-four hour intervals, and 100,000 units of vitamin A was consumed daily. Within three days dark adaptation had returned to normal and the subjective night blindness and photophobia were relieved. The photometer readings obtained during the recovery phase are plotted in chart 7.

Certain conclusions can be drawn from this experiment. Moore,¹⁰ by correlating the survival period of rats on a diet free from vitamin A with the reserve of vitamin A stored in the rat's liver, and comparing the latter with the reserves stored in human livers, was able to conclude that a human being could live for six months on a diet completely free from vitamin A. However, this is the survival period. It is obvious from the experiment reported in this paper that the store of vitamin A could keep the visual purple mechanism at

peak efficiency for only one week and could not protect against subjective symptoms for more than three weeks. Incidentally, the diet used supplied 200 units daily. The worst diet encountered in clinical practice yielded 900 units of vitamin A daily. One can conclude that clinically important vitamin A deficiency is produced only after months or years of a deficient diet.

SUMMARY AND CONCLUSIONS

Vitamin A deficiency is common in adults and varies from a photometrically detectable phase to the complete clinical syndrome. In a group of medical students, 35 per cent had low photometer readings and 12 per cent had clinical manifestations of the deficiency. The chief manifestations, in the order of their frequency, were night blindness, photophobia, dry skin, dry conjunctivae, blepharitis and follicular hyperkeratosis. The factors producing the deficiency were analyzed and showed that the skipping of meals and poor choice of foods were chiefly responsible. After dietary analyses it was concluded that 4,000 international units of vitamin A daily represent the minimal requirement for a healthy adult. Infections were more numerous and severe among the deficient students. Further evidence that it is dangerous for the hemeralope to drive an automobile at night was obtained. Photometric evidence of night blindness appeared in six days and subjective evidence in five weeks after the production of a pure vitamin A deficiency in an experimental subject. Night blindness preceded gross epithelial changes.

Boston City Hospital

ABSTRACT OF DISCUSSION

DR M. A. BLANKENHORN, Cincinnati. I concur in the main with the conclusions and commend the method the speaker has just described. I have practiced somewhat the same technic in studying a few patients with marked nutritional disturbance. I have found severe night blindness, as recorded by this technic, which disappeared after treatment with vitamin concentrates. I was unable to correlate this night blindness with complaint, because the patients were not aware of blindness. I am sure that there may be difficulties of vision due to errors in diet and the patient not be aware of it. I did, however, find a number of such patients who were night blind who did not have dryness of the skin. So I am certain that one cannot correlate at present these two stigmas of vitamin A deficiency. The ophthalmologists have criticized this work because they believe not enough is known of the threshold of light perception. Ophthalmologists have made questionnaires of the complaint of night blindness and they do not find much blindness, but most of their studies made on the perception of light deal with thresholds of light so low that they fall outside the realm of testing such as Dr Jeghers has done. So I think this particular work here presented will withstand critical inspection by any one. It is true that health surveys have been made of children in large groups reporting defects of light perception which fall within the range which the ophthalmologists criticize. Dr Jeghers did a wise thing here. He threw out of his consideration most of the cases that fell in this doubtful realm. He did a very safe thing from the nutritionist's point of view, also he compared the fifty highest in the class with the fifty lowest and discarded the midgroup. A good bit of the health testing that the ophthalmologists criticize falls in this class with slight impairment of light perception. Dr Jeghers has wisely disregarded that group in this study. I should like to ask Dr Jeghers whether he finds marked and rapid fluctuation of the light threshold when testing normal persons. I have been studying a few persons whom I considered normal who fluctuated rapidly from day to day. If I were to apply rigid rules, I would say that today they are deficient and tomorrow they are all right, regardless of medication or diet. Does he find such variation? If so, how does he explain it? From seeing a few patients with severe nutritional disturbances, I get an impression that night blindness may come and

19 Moore, Thomas. VIII. Vitamin A and Carotene. VIII. The Vitamin A Reserve of the Adult Human Being in Health and Disease. *Biochem J.* 31: 155-164 (Jan.) 1937.

go rapidly and that a great deal more must be learned about the physiology of vitamin A before many clinical problems can be intelligently handled.

DR. JOHN B. YOUNG, Nashville, Tenn. Dr. Jeghers' paper is an important contribution in the field of dietary deficiencies. My associates and I can report observations similar to Dr. Jeghers. Using the same type of photometer, we detected a subnormal dark adaptation in half of fifty clinic patients, many of whose diets were suspected of being inadequate. A similar defect was found in eleven of fifty-four supposedly normal subjects whose diets were presumed to be adequate. All showed a return to normal vision when they received adequate treatment. The dietary study of Dr. Jeghers' subjects indicates clearly a deficient or borderline intake of vitamin A in the group with hemeralopia. However, such group statistics are often confusing to the physician dealing with the individual patient. He is apt to complain that while his patient shows signs of the disease the diet appears to be adequate. However, deficiencies occur as the result of one or more of three causes: (1) deficient supply, (2) imperfect absorption or utilization, (3) an increased demand. Insufficient knowledge of the latter two and failure to appreciate quantitative relationships will explain many discrepancies. With reference to the first of Dr. Jeghers' case reports referred to as a classic example of the fully developed picture of vitamin A deficiency, it must be emphasized that the description should be interpreted in the light of current ideas of this deficiency. Difficulty in driving a car at night, dryness of the skin, roughened hair follicles and slight dryness of the conjunctivae did not constitute the picture of fully developed vitamin A deficiency in even the recent past. The difference in time required by the vision, on the one hand, and the skin and other epithelial surfaces on the other, to respond to treatment is of practical importance. The former, which requires only an adequate supply of vitamin A, can be restored quickly. The latter, which involves a slow process of anatomic repair, takes much longer and treatment in cases of vitamin A deficiency should be continued long after the visual abnormality has been corrected. It should be pointed out that vitamin A is not the only substance involved in the process of regeneration of visual purple. It is brought about by a series of complex chemical reactions. Glutamine, for example, affects markedly the glycolytic activity of retinal tissue and theoretically disturbances in some of these other mechanisms may at times be involved rather than the supply of vitamin A. From a practical point of view, however, this seems very unlikely, except in rare instances, and the effect of treatment will serve in most cases to confirm the diagnosis.

DR. M. G. WOHL, Philadelphia. Full blown cases of deficiency diseases are rare in this country, especially is this true of xerophthalmia. In 1926 I had the opportunity to review this subject and was able at that time to collect from the American literature only two cases of xerophthalmia that developed on account of incorrect diet. In connection with a study of avitaminosis in diabetes, I described an instance in which a school teacher, aged 32, acquired xerophthalmia in the course of diabetes. Since then three additional cases of xerophthalmia have been reported in the American literature. In the wards of the Philadelphia General Hospital, the clientele of which is made up of the poorer classes of the community, fully developed cases of deficiency diseases, with perhaps the exception of pellagra and scurvy, are a great rarity. This at least has been my experience in the work for the past five years. Dr. Jeghers is to be congratulated on producing a pure vitamin A deficiency in an otherwise healthy adult, for dietary deficiency is more complicated in the human being than in the laboratory animal, and avitaminosis is frequently of the multiple type, as our patient who presented clinical and post-mortem signs of xerophthalmia and beriberi. It is to be remembered that in addition to the hypovitaminosis such patients suffer from general undernutrition, and the same may apply also in experimental avitaminosis. In our experience with induced avitaminosis in animals we frequently had difficulty in evaluating postmortem observations as to how much was to be attributed to pure avitaminosis and how much to undernutrition. I should like to ask Dr. Jeghers what his experience has been with the photometer for dark adaptation in patients

with hypometabolism. I have reference to the thin hypothyroid patients with dry, scaly skin, who present many features unlike those shown on the screen by Dr. Jeghers. It would be of interest to know what the basal metabolic rate was in his group of cases.

DR. HAROLD J. JEGHERS, Boston. The test is a subjective one, and for that reason the most satisfactory results are obtained when intelligent persons are studied. There may be a definite fluctuation even in the normal group. It was discovered that a slight drop in the curve of normal persons resulted if the testing was done late in the day. Really low values may be obtained if a person has remained up all night. After a night's rest the test would again be normal. No systematic study was made of cases of hyperthyroidism. Experimentally it has been shown that the thyroid gland influences vitamin A metabolism. The large number of low curves was a surprise to me. The first reaction was that we weren't doing the test right or that something else was wrong. Particularly early in the study, many of these students had two three or four tests apiece on consecutive days, usually with similar results. In addition, many were checked by the more difficult, but much more objective, method of Edmund. There was a close correlation between these two methods of testing for vitamin A deficiency. The prompt clinical response to therapy, the fact that the speed of response varied with the dosage of vitamin A and the consistent changes in the dark adaptation curves speak in favor of the specific nature of the test as a measure of vitamin A deficiency. The duration of the colds in these students was determined by the questionnaire method. I am unable to explain why it was shorter than in the group studied by Drs. Spies and Shibley.

VOLATILE SOLVENTS AS A PROBLEM IN INDUSTRIAL MEDICINE

W. J. McCONNELL, M.D.

Assistant Medical Director, Metropolitan Life Insurance Company
NEW YORK

The increasing prominence of volatile solvents in modern industrial processes emphasizes the need of early recognition of any toxic action on exposed workers which, if recognized, may lead to corrective measures being adopted. Within the past few years the number of newly perfected solvents has steadily mounted, until today well in excess of 300 are in common use, contrasted with a bare half dozen used twenty years ago. One or more of the solvents are used in ever increasing quantity and variety in nearly every manufacturing industry today either as a solvent or as a diluent. They are employed as cleaning or degreasing agents, in lacquer coatings, in dyes and cement as plasticizers, and as solvents of cellulose and gums of various kinds in a myriad of synthetic finishing materials.

The volatile solvent vapors enter the body chiefly through the respiratory passages, but appreciable quantities may either be ingested or absorbed through the intact skin. When toxic substances are inhaled, they pass into the general circulation and are distributed to the heart and to the central nervous system with a rapidity second only to that seen when they are injected directly into the veins. They can produce either a general toxic action without harm to the respiratory tract or a mixed effect, being generally toxic and locally irritant. A few irrespirable vapors act so violently in

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Owing to lack of space this article has been abbreviated for publication in THE JOURNAL by the omission of a table giving the classification of industrial solvents. The complete article appears in the 20th reprint.

the upper respiratory tract and lungs that their general toxic effects are secondary considerations

The absorption of vapors through the alveolar wall is accomplished by the process of diffusion, which depends on a difference in the partial pressures of the gases contained in the blood and in the inhaled air—a physiologic fact of great importance when it comes to the consideration of first aid treatment. As long as the partial pressure of the vapor in the lungs is greater than that in the blood, absorption will continue. Hence the first and most essential step in acute poisoning is the removal of the victim from the polluted atmosphere. Equally important and essential, taking precedence over any and all other measures or drugs when natural respiration has been affected, is the application of manual artificial respiration.

Substances ingested, if they do not set up sufficient irritation to cause vomiting, may be absorbed by the intestine in varying amounts, depending on their properties and their reaction with the material of the digestive tract. A large portion of the absorbed substance passes into the portal circulation and may be satisfactorily handled by the liver.

Some of the more toxic fat soluble vapors are absorbed through the intact skin. Dermatitis may be set up by the continual handling of almost any of them, either because of their fat solvent properties or because of sensitivity, natural or acquired. Many of them may also affect the eyes and any optic neuritis or paralysis in workers exposed should give rise to investigation.

It is characteristic of the quick drying lacquers that the solvent which is their vehicle evaporates with great rapidity and hence may produce a high concentration of the vapors in a confined space. The increasing use of a spray gun in applying finishes to large surfaces has greatly increased the hazard of toxic vapors in many processes. Dip and flow methods also involve the use of large quantities of solvents.

With few exceptions all volatile solvents, if inhaled in sufficient concentration for a sufficient length of time, are detrimental to health, although their early effects on the body frequently go unrecognized or are regarded as minor ailments of no consequence, because of inadequate knowledge of their physiologic properties. The concentration of vapor solvents in the air breathed depends on their volatility, which, in turn, is often dependent on their temperature and the effectiveness of ventilating equipment.

While the responsibility of finding satisfactory solutions of these new problems created by the use of solvents lies primarily in the field of industrial medicine, more knowledge of these poisons is desirable among general practitioners who see the slighter forms of poisoning. The failure to diagnose industrial poisoning is well illustrated by Lejeune,¹ a general practitioner himself, who discusses twenty-nine cases of poisoning by tetrachlorethane, benzene, benzine and trichlorethylene, which he has treated in his practice during the last few years. Thirteen of these patients had previously consulted other doctors and in twelve of the cases no diagnosis of poisoning had been made.

HYDROCARBONS

Of the various groups of solvents encountered, perhaps the most important to the physician are the chlori-

nated compounds, because of their anesthetic and poisonous action. The member of this group with which we are all familiar is chloroform. Although chloroform possesses high solvent powers, it does not find wide application in industry because of its well known anesthetic properties. Carbon tetrachloride is perhaps the most widely used solvent of this group. It is very much like chloroform but is more toxic and is used extensively as a cleaning fluid and in fire extinguishers. It has been used medically as a vermifuge in hookworm disease. Its narcotic effects are less marked than those of chloroform, but its effects on the liver, heart and kidneys are much more rapid. Carbon tetrachloride, together with other members of the group, also has a marked effect on the nervous system, probably because these are lipid solvents. There are changes in the blood in the direction of a leukocytosis, but these do not dominate the picture as they do in hydrocarbons of the benzene ring group. The effects on the heart are very important in cases of acute poisoning, because, in addition to acting as a heart depressant, there is a tendency to cause fibrillation. This means that stimulants, such as epinephrine, are a dangerous first aid measure in resuscitating persons overcome by these vapors.

Trichlorethylene is the least inflammable of the group and, because of its solvent action in fats and oils, it is used as a thinner for coatings and varnishes and as a solvent for rubber, replacing carbon tetrachloride in many instances. It is also claimed to be a less poisonous substance, but increasing evidence shows it to be far from innocuous. Reports of 284 cases of poisoning with twenty-four deaths have been collected by Stuber.² While not so damaging to the body organs, it is a profound nerve poison. It has been suggested, however, that the impurities present are responsible for its poisonous properties.

Dichlorethylene is severely toxic. Severe cases of poisoning have been reported in men who were coating the interior of beer vats, using a lacquer containing this solvent. Autopsies on men overcome by its vapors showed an excess of fat in the blood suggesting death from embolism rather than asphyxiation. Perchloroethylene causes a severe and rapid narcosis.

Tetrachlorethylene is a relatively new solvent and is less narcotic than the majority, although symptoms of drowsiness, headache, giddiness and a narrowing of the visual field have been reported from repeated daily inhalations.

Tetrachlorethane is the most poisonous of the chlorinated hydrocarbons. In acute poisoning the symptoms develop rapidly. The condition is characterized by acute yellow atrophy of the liver, jaundice, and fatty changes in other viscera especially the heart, and death frequently results. In chronic cases the blood changes are marked, leading to secondary anemia, hemoglobinuria and hemolysis. Emaciation and even jaundice may follow.

A toxic amblyopia, or an optic neuritis, has been noted by several observers in the case of exposure to chlorinated hydrocarbons. Some of this group decompose when heated and undergo chemical changes. Chloroform, dichlorethylene, ethyl dichloride, and carbon tetrachloride are oxidized to carbon oxychloride or phosgene.

¹ Lejeune E. The Frequency of Industrial Poisonings Seen in General Medical Practice. *Schweiz med Wchnschr* 66 914 917 (Sept 15) 1940 941 (Sept 26) 1936 abstr. *Bull Hyg* 12 16 (Jan) 1937

² Stuber A. *Arch f Gewerbepath u Gewerbhyg* 2 398 (July 27) 1931

Chlorinated naphthalene products used, among other ways, as a form of wax in insulating, have been clearly shown to cause severe skin troubles and have been suspected of causing fatal cases of yellow atrophy of the liver. It is interesting that these substances appear relatively harmless when cold, but when heated, despite the fact that they do not decompose or liberate chlorine and hydrochloric acid, the vapors cause acne more or less characteristic of chlorine acne.

Of the other groups of coal tar hydrocarbons, those of the aromatic series are the most important from the point of view of toxicity. The principal effect of this group of narcotics is on the hematopoietic system.

Benzene (benzol), one of the most volatile of the group, is a solvent for cellulose, gums, resins, fats and oils. Its use as a diluent in paints and lacquers and in paint removers is disappearing because of its dangerous toxic effects.

Toluene and xylene, the higher homologues of benzene, are perhaps just as toxic but are less dangerous under ordinary circumstances because they are less volatile. These, too, are gradually being replaced by the apparently less toxic hydrogenated naphthas.

High concentrations of benzene are rapidly fatal. Exposures to moderate concentrations cause symptoms similar to alcoholic intoxication at first but are followed by symptoms of progressive depression with possible parkinsonian syndrome. Repeated exposures to small concentrations of benzene cause gastro-intestinal disturbances, headaches, vertigo, gingivitis and frequently nosebleeds, and small hemorrhages of the gums and conjunctiva. Purpura may be noticed and sometimes uncontrollable hemorrhages occur, particularly if there is any surgery done. The blood undergoes important changes as a result of destruction of the blood-forming organs. Anemia and, later, leukopenia with special reference to the granular polynuclears are seen. Fatty degeneration of the blood vessels, heart, liver and kidneys frequently follows.

It may be of interest to recall that recently considerable evidence has been produced to the effect that therapeutic drugs derived from the benzene ring—such as aminopyrine—may be the cause of an agranulocytosis in susceptible individuals. Once these blood changes have taken place, they are, in the present state of our knowledge, very apt to be irreversible.

The finding of a red blood count under 4,000,000 or a white blood count under 5,000 on repeated observation, accompanied by the symptoms indicated and a history of sufficient exposure, should be considered diagnostic of chronic benzene poisoning.

Yant and Schrenk's³ method for determining increased organic sulfate in the urine is probably the best indication of benzene exposure and absorption.

Naphthalene is somewhat similar to benzene. It has a less pungent odor and probably is less toxic. Naphthalene has been suspected by a number of observers as a cause of cataract.

Among the derivatives of the hydrocarbons, carbon disulfide deserves special mention because of its varied effects on the body following repeated exposure to small concentrations. Concentrations of from 300 to 400 parts per million in the air for several hours are thought to be possibly toxic. Carbon disulfide is used chiefly in the rubber and artificial silk industry.

Chronic poisoning is characterized by persistent headache, somnolence during the day, and weakness of the limbs. Carbon disulfide is extremely damaging to the nervous system, causing polyneuritis, visual disturbances, tremors, mental confusion, severe psychosis and ataxia. An important characteristic of this poison is its effect on the higher nerve centers. Anemia is not uncommon, with occasional changes in the red blood cells and, rarely, a leukocytosis. Not only is it damaging to the eyes, but the disappearance of the corneal reflexes is said to be an early sign of poisoning. However, Wiley, Hueper, and von Oettingen⁴ quote Rodemacher as recommending the carbon disulfide level in the blood as the best indication of incipient carbon disulfide poisoning.

Petroleum hydrocarbons, which are often confused with the coal tar derivatives because of the similarity in names (benzine, naphtha) are all familiar solvents which have a mildly anesthetic action. The higher concentrations cause headache, dizziness, blurred vision and even loss of consciousness. Any chronic blood damage from this group is controversial and, if found, probably points to the advisability of looking for some other exposure or cause, particularly the admixture of one of the more dangerous types of solvents in the substance handled. Like all the other solvents, these can readily cause a dermatitis.

Turpentine vapors have a direct action on the skin, causing reddening and not infrequently an obstinate eczema. The inhalation of heavy fumes of turpentine induce symptoms of a mild narcotic poisoning. Nephritis has been reported from prolonged exposure.

PHENOL COMPOUNDS

Cyclohexanol (hexalin, adronol, anol or sexol) is a hydrogenated phenol used in pyroxylin lacquers. It is not very volatile, and it evaporates much more slowly than other solvents. It is narcotic and may cause poisoning if inhaled. From animal experiments, it is thought to paralyze the central nervous system and to be more toxic than benzene, though not as dangerous on account of its low volatility. No cases of poisoning in man are on record.

A very dangerous substance which may be used in plasticizers is orthotricresyl phosphate. This is the poison which was identified some years ago as the cause of an epidemic of "jake paralysis" from drinking boot leg jamaica ginger. These men have never completely recovered. Usually, in solvents the para and meta trisyl phosphates are used, and these do not appear to have the peculiar action of the ortho compounds, according to Hamilton.⁵

ALCOHOLS AND THEIR ETHERS

The alcohols are perhaps the most widely used of the various classes of solvents. As a group they are narcotic and injurious to the nervous system. Ethyl alcohol is used for research and analytic work in educational and industrial laboratories and is employed for many scientific and medical needs. It is a solvent for gums, resins and many organic and inorganic compounds. Methanol is used largely in the manufacture of pyroxylin plastics, varnishes, textile soaps and wood

⁴ Wiley F. W., Hueper W. C. and von Oettingen W. F. On the Toxic Effects of Low Concentrations of Carbon Disulfide. *J. Ind. Hyg. & Toxicol.* 18: 733 (Dec.) 1936.

⁵ Hamilton Alice. Recent Changes in the Painter's Trade Bell. *J. Division of Labor Standards U. S. Department of Labor Washington D. C.* 1936, p. 59.

³ Yant W. P., Schrenk H. H., Sayers R. R., Horvath A. A. and Reinhardt W. H. Urine Sulfate Determinations as a Measure of Benzene Exposure. *J. Indust. Hyg. & Toxicol.* 18: 69 (Jan.) 1936.

stains, as well as in extraction processes. One of its most important uses is in the manufacture of formaldehyde. Isopropyl alcohol is used as a substitute for ethyl alcohol, mainly in perfumes and high grade toilet preparations. It is claimed to be an effective germicide and is used in lotions, liniments, liquid soaps and antiseptic solutions. Normal butyl alcohol is the most popular and widely used of the higher alcohol group. Large quantities enter into the manufacture of nitrocellulose lacquer.

Generally speaking, the toxicity of the alcohols increases with the molecular weight, but the decreased solubility and volatility of the higher alcohols partially offset the danger of exposure to concentrated vapors. The exception to this rule is methyl alcohol, which may be produced synthetically or by distillation of wood. It is a powerful nerve poison which specifically affects the optic nerves and may result in blindness and death. Owing to its slow oxidizing action in the body, its effects are cumulative, and severe poisoning may result from continued exposure to even small concentrations, without any early warning symptoms. Experimentally, it has been shown to cause poisoning through skin absorption.

Although amyl alcohol and fusel oil are more toxic when taken by mouth than any other way, they play a minor role in industrial poisonings. Butyl alcohol produces liver and kidney damage in animals exposed to its vapors.

Tertiary alcohols are more toxic than secondary alcohols, and primary alcohols are the least toxic. Isoalcohols are usually less narcotic than the corresponding normal alcohols. A most interesting case of toxic encephalopathy has been reported, however, in a woman who used a mixture of solvents containing 3 per cent dimethyl phthalate, 3 per cent cellosolve and 74 per cent isopropyl alcohol in "fusing" collars with a hot iron.⁶

A larger group of newer solvents which is rapidly coming into greater prominence is the alcohol-ethers, or oxides, and the furfurals. Often these may be compounded with phthalic acid, oxalic acid or formic acid, thereby introducing the possibility of a second toxic agent. Our knowledge of this group is largely based on animal experimentation, though a number of cases of industrial poisoning have been reported. As a group, they are narcotic or anesthetic, and some of them are known to be toxic in the higher concentrations, but there is little information concerning their chronic effects or the maximum permissible concentration.

Diethylene dioxide (dioxan), also used as a lacquer solvent, is irritating and unpleasant, and these effects were thought to constitute a sufficient warning that concentrations were approaching the danger point. In England, however, five deaths were recorded as being due to the fumes of dioxan, with severe inflammation of the liver and kidneys.

ESTERS, KETONES, GLYCOLS AND THEIR ETHERS, AND FURFURALS

Esters, ketones, glycols and their ethers, and furfurals constitute probably the most important group of solvents for nitrocellulose and cellulose acetate. All are narcotic in sufficiently heavy concentrations and in proportion to their volatilities. Although fatal accidents are very rare, evidence is beginning to appear pointing to their physiologic effects as being more dangerous

than they were formerly considered. Reference to a reported death in one man from the inhalation of amyl acetate and another from the inhalation of ethyl acetate is made by A. V. St. George.⁷ In the former, edema of the glottis and diffuse irritation of the respiratory and gastro-intestinal tract were the chief pathologic changes, and in the latter there was a marked congestion of the viscera and the eyes, almost entirely liquid blood in the vessels, petechia-like hemorrhages throughout the serous cavities and mucous membranes, and a pungent odor on opening the body.

Amyl acetate is readily recognized by its sweet, sickening odor, and it is generally known as "banana oil." Its vapors cause irritation of the throat, burning of the eyes, vertigo, drowsiness and gastric irritation. In experimental animals the inhalation of amyl acetate produces chronic inflammatory changes in the respiratory system, parenchymatous degeneration of the kidneys, and fatty livers. The blood shows a moderate leukocytosis with a secondary anemia.

Methyl, ethyl, propyl and butyl acetate are other members of the ester group of solvents. Methyl acetate is sometimes used as a substitute for acetone, but it is not widely used, because of its acid reaction with water. Ethyl and butyl acetates are the most widely used of all the solvents of nitrocellulose.

Of the ketone group of solvents, acetone is probably the most widely used, and it is one of the most powerful solvents known. The impurities present depend on the method of manufacture and are no doubt responsible for some of the toxic symptoms that are encountered. Its narcotic action in animals is more pronounced than that of chloroform. The examination of the blood after continued inhalation shows a destruction of the red cells and hemoglobin. It does not appear to produce chronic tissue damage as long as the vapor concentrations are low, even though exposure is prolonged.

Several ketones of higher molecular weight have been recommended as good solvents for nitrocellulose, but they have little or no effect on cellulose acetate. The more important members of this group are methyl-propyl ketone, or pentanone, and methyl-butyl ketone, or hexanone. Their acute effects on guinea-pigs were studied by Yant and his colleagues,⁸ who report that death results from a state of narcosis rather than from the irritation of the lungs. All fatalities occurred during the exposure. Men momentarily exposed to approximately 13 and 5 per cent of pentanone vapor and to 1.23 and 2 per cent hexanone vapor complained of irritation of the eyes and nasal passages and of a characteristic strong odor.

Of the glycols and their ethers, the mono-ethyl ether of ethylene glycol, or "cellosolve," is the most important solvent of this class. It is a stable liquid and it is used as a solvent for nitrocellulose and resins, and it offers the advantage over most other solvents of similar boiling point in being nearly odorless. The acute physiologic response of guinea-pigs to air containing its vapor was determined by Waite, Patty and Yant,⁹ who found

7 St. George, A. V. The Pathology of the Newer Commercial Solvents. *Am J Clin Path* 7: 69 (Jan.) 1937.

8 Schrenk, H. H., Yant, W. P. and Patty, F. A. Acute Response of Guinea Pigs to Vapors of Some New Commercial Organic Compounds. I. Hexanone (Methyl Butyl Ketone). *Pub Health Rep* 51: 624 (May 15) 1936. Acute Response of Guinea Pigs to Vapors of Some New Commercial Organic Compounds. II. Pentanone (Methyl Propyl Ketone). *Ibid* 51: 392 (April 3) 1936.

9 Waite, C. P., Patty, F. A. and Yant, W. P. Acute Response of Guinea Pigs to Vapors of Some New Commercial Organic Compounds. III. Cellosolve (Monoethyl Ether of Ethylene Glycol). *Pub Health Rep* 45: 1459 (June 27) 1930.

6 Donley, Dorothy E. Toxic Encephalopathy and Volatile Solvents in Industry. *J Indust Hyg & Toxicol* 18: 571 (Oct.) 1936.

the cause of death, in the animals who died twenty-four hours after exposure, to be congestion and edema of the lungs, and in animals dying three days after exposure, to be bronchopneumonia. Two of the investigators who breathed 0.6 per cent cellosolve vapors for a few seconds reported the atmosphere to be irritating to the eyes and to have a very disagreeable odor. They thought that the odor and the irritation were sufficiently disagreeable to make one desire to avoid a like exposure.

Furfurals are excellent solvents and are used considerably in industry. The vapors are irritating and are very damaging to the eyesight of some persons.

SUMMARY

An estimation of the extent of any health hazard resulting from solvents and mixtures of solvents can be reached only after careful analysis of individual circumstances.

The mere knowledge that volatile solvents are used in certain industrial processes does not justify the conclusion that all illnesses among the working personnel may be attributed to exposure to these substances. Solvent vapors can be, and frequently are, confined within a closed system or are prevented, by proper exhaust equipment, from escaping into the plant atmosphere. In doubtful instances the diagnosis of industrial intoxications through inhalation should be further confirmed by chemical analyses of the air breathed. Such analyses are also essential in determining the efficiency of measures instituted to prevent the diffusion of these vapors into the breathing zone of the workers.

The difficulties encountered in determining the concentration of vapors in the plant atmosphere are many. In the first place, distinction must be made between vapor concentrations associated with plant operations and those resulting from accidents and irregularities in operation. Under normal operations they may be present in the air in very low concentrations, which may require special technics in collecting air samples and selective methods of analysis. When two or more solvents are present in the air in combinations at the same time, it is frequently impossible, by existing methods of chemical analysis, to identify and estimate individual components, although they can be differentiated and estimated as groups. Benzene and its homologues may be detected by a rather intricate colorimetric method, while carbon disulfide must be estimated by microtitration after absorption in an alcoholic potash solution. The chlorinated hydrocarbons may be determined by a combustion method in which the liberated hydrogen chloride is absorbed. Other groups, such as the alcohols, esters, ethers and ketones, may be determined or estimated by various analytic methods. When two or more members of a group are present, it is usually impossible to separate them and the results of the analysis must be recorded on the basis of the more toxic material. When a mixture, such as a lacquer thinner which may contain methyl and ethyl alcohol, acetone, benzene, ethyl and amyl acetate and butyl cellosolve, is under consideration, the problem becomes involved. It then becomes necessary to use a method that will determine the total amount of solvent vapor present. This may be done quantitatively by freezing out the vapors with liquid air, by absorption with activated charcoal or silica gel, by a carefully calibrated interferometer, or by a combustible gas indicator that will indicate the presence of all inflammable solvents present. Many of these methods of analyses, however, are far from sat-

isfactory and considerable research work must be conducted before the analyst and the industrial hygienist will feel confident of the results.

The recognition of industrial poisoning from the inhalation of volatile solvents is generally quite difficult. Acute and fatal poisonings do occur, but usually under circumstances that disclose the responsible agent.

The detection of volatile solvents in the body after death from an acute poisoning is possible for all substances having a boiling point below that of water by the micro methods of Gettler¹⁰ and others. This method depends on condensation of the material in tubes immersed in freezing mixtures. In the living or in those who have lived a few days before death from poisoning, these small amounts cannot be detected. Examination of the urine is revealing in some cases, and examination of the blood tells the story of cumulative exposures in others. Nothing much is known regarding the detection of halogenated hydrocarbons, but with brominated compounds there will be some bromine in the urine, and it is possible with chlorinated hydrocarbons that organic chlorides may prove to be indicative of absorption.

Industrial poisoning, however, is characteristically chronic in form. The worker's health is gradually impaired by repeated small inhalations of the solvent material, and evidence of toxemia may not arise for several years. Although solvents do not accumulate in the body, as does lead for example, there does occur an accumulation of effects from repeated daily inhalations. Seldom do these exert their influence on a single organ. Changes usually are found in the blood, kidneys, liver, heart, nervous system and other organs.

The clinical picture and symptomatology may be similar for many solvents and a diagnosis frequently must depend on a correlation with the chemical analysis of the air breathed and evidence revealed by the examination of the blood and the urine.

The prevention of poisoning by inhalation is dependent entirely on the measures employed against the diffusion of vapors into the plant atmosphere. There is no single measure of control that is applicable to all operations. A combination of measures usually must be employed to insure success. These include the substitution of harmless or less harmful solvents for harmful ones, the segregation of vapor-producing operations, enclosure of processes which confines the vapor, mechanical methods including local exhausts applied either above or below the processes according as the vapors to be entrapped and removed are lighter or heavier than air and increased general ventilation to insure rapid changes of air, personal protective device, instruction of workers regarding the hazard, and competent medical supervision.

Personal protective devices frequently offer inadequate protection. Respirators should be used only in an emergency or when the exposure is intermittent and should be of such a type that the worker breathes air from an uncontaminated source. Skin absorption can best be prevented by cleanliness of body and clothing. The absorption of vapors through the intact skin, especially if spilled or absorbed in the clothing, must be borne in mind. This is particularly true of the fat soluble solvents.

1 Madison Avenue

¹⁰ Gettler, A. O. and Siegal, Henry. Isolation from Human Tissue of Easily Volatile Organic Liquids and Their Identification. *Arch. Path.* 15: 208 (Feb.) 1935.

ABSTRACT OF DISCUSSION

DR HENRY FIELD SMYTH, Philadelphia As chairman of the Industrial Hygiene Section of the American Public Health Association, I have abstracted more than 400 papers on volatile solvents during the past three years. Out of 322 papers, 122 discussed benzene 108 chlorinated hydrocarbons, thirty-seven petroleum products, twenty-nine alcohol esters or ethers, and twenty-six carbon disulfide. 1,714 cases of injury from carbon disulfide were reported, 375 from chlorinated hydrocarbons, 323 from benzene and derivatives 186 from petroleum products, twenty-seven from formaldehyde and eight from alcohol. Forty-three fatalities mentioned in these papers have been attributed to chlorinated hydrocarbons, twenty-five to formaldehyde, sixteen to petroleum products, twelve to benzene or derivatives, six to carbon disulfide, and one each to alcohol and turpentine. And, by the way, there is no volatile solvent much mentioned in the literature which some one at some time has not drunk in search of a "kick." As chlorinated hydrocarbons have created a great deal of interest recently, I have considered those separately, with 108 papers reviewed, fifty-seven of them devoted to carbon tetrachloride, twenty-one to trichlorethylene seven to chloroform, four to chlorobenzene and nineteen scattered or referring to mixed solvents. Of the cases of injury from chlorinated hydrocarbons reported, trichlorethylene leads the list with 299, carbon tetrachloride follows with sixty-five, methyl chloride five, tetrachlorethane three, ethylene dichloride and chlorobenzene one each, and mixed solvents one. I am opposed to the practice of selling any of these chlorinated hydrocarbons for dry cleaning in gallon packages to the consumer, no matter how they are labeled, for the labels are not read or understood. One reads time and again of a housewife who buys a gallon and washes half a dozen dresses in a small room, hanging them up to dry while she goes on working. She does everything possible to assure that she be poisoned and she too often is. If the materials were sold to the consumer in pint containers, these regrettable accidents would happen less frequently and much prejudice against these really useful materials would be avoided.

DR LEON LEWIS, Newark, N. J. I should like to ask Dr McConnell about the toxicity of common household insect sprays and about the actual toxicity of glycols, particularly ethylene glycol and diethylene glycol.

DR WILLIAM THAU, Boston I should like to ask Dr McConnell how certain poisoning with many of the drugs he cited can be prevented. It is known that in the hospitals, the operating rooms and particularly in the laboratories, volatile solvents such as ether, chloroform, solution of formaldehyde, xylene and many dyes are almost constantly handled by the technical staff. Sometimes tragic results, for instance an optic atrophy, can be cured, if it is not too late. But how can one prevent such ill effects while one is always exposed to the action of these solvents?

DR HAROLD B. WOOD, Harrisburg, Pa. There is a large amount of spraying done where fruit trees grow, and I should like to ask Dr McConnell whether he has taken that into consideration.

DR MILLARD KNOWLTON, Hartford, Conn. I should like to ask how many of these volatile solvents are known to be carcinogenic in character. Does the increase in the use of volatile solvents account for the increase in lung cancer?

DR ZOLTON T. WIRTSCHAFER, Cleveland I should like to ask the author whether he agrees with Dr Smyth in the statement that he does not believe that oxidation of carbon tetrachloride goes on in the body. I believe that it goes on in the lung following exposure. I believe that carbon tetrachloride gives off phosgene in small amounts in the lung. Graham, in his experimental work about twenty years ago, demonstrated the presence of hydrochloric acid in the lungs and liver of animals after exposure to carbon tetrachloride. The acid was a further oxidation product of carbon tetrachloride. The reaction undoubtedly is $\text{CCl}_4 + \text{H}_2\text{O} \rightleftharpoons \text{COCl}_2 + 2\text{HCl}$. Hence phosgene is an important factor in the pathogenesis of carbon tetrachloride intoxication.

DR R. R. SAYERS, Washington, D. C. One thing that has been done that might be emphasized is the labeling as carried out by cooperation with the manufacturers in advance of the

law. That does not prevent the hazards, as Dr Smyth has called to our attention, but it does give the physician and others competent an opportunity to advise the users of the hazards to which they are exposed. At the present time all halogenated hydrocarbons are being properly labeled when they contain 15 per cent or more of a volatile halogenated hydrocarbon and whether it is chlorinated bromide, iodine or fluorine. Fire extinguishers are being labeled showing that they contain carbon tetrachloride in excess of 15 per cent—that is when they do. This does not apply to the very small packages, but it does apply to all packages of 15 ounces or more, as a matter of fact, even those small packages of carbon tetrachloride in the ten cent stores are so labeled. Many of the other toxic volatile solvents are also labeled as to the toxic substances they contain. I should like to emphasize another fact that Dr McConnell called to our attention, that most of these volatile organic hydrocarbons are toxic if breathed in sufficient concentration but that they may be used with proper precautions. The outstanding precaution is to keep the man from breathing it by a closed process, having good exhaust equipment, good general ventilation and personal protection.

DR C. P. MCCORD, Detroit Dr McConnell referred to organic silicon compounds. I believe he made some mention of organic silicates. We in Detroit are in the midst of a study of that group of solvents. At the present time we have just completed a study on ethyl silicate. We anticipated that there might be some toxicity from ethyl silicate analogous to silica. Much to our surprise, we found an enormous toxicity from ethyl silicate which apparently is unrelated to the toxicity now associated with silica. We have introduced the ethyl silicate into small animals intraperitoneally, intravenously and orally and have applied it to the skin. When so small a quantity of ethyl silicate as 0.02 cc per hundred grams of animal weight is introduced intravenously, the animal dies within five minutes. The point of action is limited to the capillaries of the lung tissue, with slight involvement of the capillaries of the heart. Within five minutes there is hemorrhage into the lung sacs with some rupture of the lung sacs, and rupture of the capillaries of the lung, and apparently death is due, in the case of rabbits to air aspirated through the ruptured air sacs leading to air emboli. It appears that connected with silicon compounds there are other toxicities apart from the action of silica, and in the group of organic solvents in the organic silicon group there appears to be a new and interesting field, of which ethyl silicate appears to be an outstanding item.

DR W. J. McCONNELL, New York Some very interesting problems have been brought up in the discussion. I am particularly interested in the evidence which has been produced recently from the possibility of oxidation of carbon tetrachloride in the lungs, that is, the reduction of the carbon tetrachloride in the oxyhydrochloric acid and phosgene. The evidence produced certainly appears to be logical and the evidence as presented in some of the recent literature seems very convincing. Naturally, there is great possibility of the formation of phosgene particularly when carbon tetrachloride is sprayed on hot metal and when fire extinguishers are used in confined spaces. The cancer-producing properties of chlorinated compounds present an interesting subject and the doctor who asked that question will be interested in an exhibit in the preventive hygiene section which demonstrates some skin cancers in mice. I suggest that those interested see the exhibit and the action on the skin of some of these compounds. Regarding insecticides and fruit sprays I believe that all of these may be said to be toxic. Of course in these sprays the chief toxic substances are the nicotine and lead arsenate compounds. Of the glycols, ethylene glycol or 'cellosolve' is the most widely used. It is a stable liquid and an excellent solvent for nitrocellulose and resins. The Bureau of Mines has made a study of this solvent using animals for the exposure although two of the investigators also exposed themselves to low concentrations. The cause of death in the animals was due to congestion and edema of the lungs. The men themselves found it to be rather irritating and complained of a disagreeable odor. Regarding the preventive measures, particularly in hospitals where the smaller quantities of various solvents are used I feel that the danger of toxic exposure under those conditions usually results from spilling the substance. The quantities used in hospitals and in labora-

tory work are fairly small, but there is a possibility, where solvents in quart bottles or gallon jugs are standing around on laboratory desks, of their being knocked over and broken. I think that the chief caution is to use them in smaller quantities and in metal containers equipped with stoppers that will not come off if the containers are knocked over, so that the material will not spill. The real preventive measure is to prevent the dissemination of the fumes, either by local exhaust systems and good general ventilation, or by using these substances in closed systems. The latter methods are more applicable to industrial processes than to preventive measures for small quantities used in hospitals.

EVALUATION BY CONTROLLED SERIES OF VAGINAL TRICHOMONIASIS THERAPIES

H. CLOSE HESSELTINE, M.D.

CHICAGO

Vaginal trichomoniasis is one of the very common gynecologic clinical entities, and yet, in spite of numerous American and European publications in the last one and one-half decades, controversies continue unabated, especially on the subject of therapy. There are considerable differences also in the criteria employed to diagnose cures. Today the drastic scrubbing procedures have been almost replaced by a dry technic, with the patient self-administering much of the treatment. The type of vehicle, nature of the medicaments and method of treatment are too divergent and unrelated to review at this time. Because too few controls have been established, the favorable reports of many preparations have yet to be properly confirmed. Notable exceptions are the reports of Bland and Rakoff¹ and Pattysen.² Consequently, it was deemed wise to observe the therapeutic effect of three arsenical, one silver picrate and two lactose preparations and their respective controls on obstetric and gynecologic patients. The importance of prophylactic, as well as curative, therapy is emphasized. Only the lack of clinical material has restricted the scope of this study.

A small number of the regular clinic personnel treated the patients in accordance with a prescribed routine and with the assignment of control cases. So far as was feasible, the regular (or special) preparations and the control materials were coded. Such safeguards may eliminate, perhaps, some of the otherwise unavoidable experimental errors of observation and thus aid materially in pointing out the merits of procedures and preparations.

PROCEDURE

The therapeutic agents were studied primarily for their curative effect. Cervical erosion, urethritis and other associated inflammatory lesions were treated by appropriate means only when such lesions were obvious. Examinations of the urinary and intestinal tracts were not made as a matter of routine, nor were the husbands of all the patients available for examination. However, a special study for foci of infection was undertaken when patients did not respond to the therapeutic agent in question. Special periods at the clinic were allotted,

and the patients were treated as often as possible by the same physician. This centralization favored proper supervision of patients, clinic physicians and technic of treatment. The results obtained under these conditions should indicate significantly the value of the preparations and procedures in question.

The five supposedly active medicaments were acetarsone (Merck), acetarsone (Winthrop), carbarsone (Lilly), silver picrate (Wyeth) and lactose with citric acid or kaolin. The control patients received the preparation minus the supposed active medicament, i. e., the vehicles alone were used. The patients were assigned in rotation, every other patient being used as a control, except in the lactose series. Unless a time interval was set by the proponent of a preparation, the Chicago Lying-in standard (Adair-Hesseltine³) was used for determining cures. To be diagnosed as cured by this standard the gynecologic patient must go through two consecutive menstrual periods without treatment, remain free from symptoms and present no clinical or laboratory evidence of the disease. The pregnant patient must fulfil these requirements over a period of two months during pregnancy or before and after parturition.

TABLE 1—Results of Acetylaminohydroxyphenylarsonic Acid* and Control† Therapy in Patients with Vaginal Trichomoniasis

	Pregnant Patients	Nonpregnant Patients		Total	
		Number	Average Weeks Treated	Uncured	Treated
Regular therapy	None	17			17
Cured		13	3		
Uncured		4	4	4 (94%)	
Control therapy	None	17			17
Cured		13	3		
Uncured		4	4	4 (24%)	
				8 (94%)	51

* Acetarsone (stovarsol).

† Materials furnished by Merck & Co.

In the accompanying tables the ages were omitted because they fell well within the limit of experimental range. All the patients were adult women. The youngest was 18 and the oldest 55.

Gellhorn⁴ reported the use of 12.5 per cent acetylaminohydroxyphenylarsonic acid (acetarsone) in equal parts of kaolin and sodium bicarbonate. His standard dose is 1 teaspoonful, which contains 7½ grains (0.5 Gm.) of the drug. The treatment is administered by a special blower two or three times a week. Douches are not permitted. He stated that six treatments should cure obstinate cases. This procedure was followed exactly throughout. The control material contained the same ratio of kaolin and sodium bicarbonate, but the acetarsone was omitted. The results were judged on a basis of four weeks' treatment, as suggested by Gellhorn.

About four years ago acetarsone in special carbohydrate material (partially hydrolyzed and partially oxidized) began gaining favor in Germany. The material for this study was dispensed entirely in tablet form. From two to four tablets were ordinarily placed about the cervix by the physician, and the patient was instructed to insert two each evening into the vagina. Office visits were once a week for the first two or three

From the Department of Obstetrics and Gynecology, the University of Chicago, and the Chicago Lying-in Hospital and Dispensary.

Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Eighty-Eighth Annual Session of the American Medical Association, Atlantic City, N. J., June 11, 1937.

¹ Bland, P. B., and Rakoff, A. E. The Investigation of a New Pentavalent Arsenical, Aldarsone, in the Treatment of Trichomonas Vaginitis. *Am. J. Obst. & Gynec.* 32: 835 (Nov.) 1936.

² Pattysen, R. A. Trichomonas vaginalis Vaginitis. A Laboratory and Clinical Study. *New York State J. Med.* 37: 41 (Jan. 1) 1937.

³ Adair, F. L., and Hesseltine, H. C. Histopathology and Treatment of Vaginitis. II. Biochemical Approach in Treatment. *Am. J. Obst. & Gynec.* 32: 1 (July) 1936. *idem* unpublished.

⁴ Gellhorn, George. The Treatment of Trichomonas Vaginitis with Acetarsone (Stovarsol). *J. A. M. A.* 100: 1765 (June 3) 1933.

times and later at longer intervals. Douches were not allowed. The number of tablets was decreased as the condition improved. The special carbohydrate material minus the acetarsone was used for the control.

Drabkin's⁵ carbarsone (*p*-carbamido-phenylarsonic acid) routine has been used only a comparatively short time. Briefly, for the first week the patient at bedtime takes a soapsuds enema, followed by a plain water enema, and then inserts into the rectum a carbarsone suppository. Immediately a soapsuds douche followed by one of plain water is taken, after which 5 grains (0.3 Gm.) of carbarsone and 5 grains of sodium bicarbonate (dissolved in 2 teaspoonfuls of water) are injected into the vagina and retained. The next morning one carbarsone suppository is inserted into the rectum and one into the vagina. This routine is repeated each night and morning for the first week. Thereafter it is decreased gradually by weekly steps. Lactic acid or vinegar douches are used as necessary and daily during menstruation. The rectal therapy is discontinued after three weeks. If the condition is not cured in one month, or if it recurs later, the routine is repeated. The control material was the same throughout but lacked the arsenical compound.

The silver picrate compound of Buxton and Shelanski⁶ required weekly visits for the insufflation of kaolin and the silver salt. The patient inserted each evening on retiring a medicated boroglyceride-gelatin suppository. The control material was free from silver picrate.

Adair and Hessestine³ reported that 95 per cent lactose and 5 per cent citric acid tablets and powder gave a high degree of success in cases of vaginal trichomoniasis. Each tablet contained about 2 Gm. of the mixture. After their value became evident, control cases were started, plain lactose tablets or equal parts of lactose and kaolin being used. From this time on each case was assigned in turn to one of the three preparations. The plain lactose perhaps serves best as the control.

RESULTS

Let it be remembered that the interpretations or comparisons of regular and control materials are only for each unit. Comparisons with other materials would be unfair because the experimental conditions were not identical or simultaneous. The study was to evaluate the influence of so-called specific materials and the influence of the vehicles on the course of the disease and not primarily to compare one so-called specific material with another. The regular, as well as the control, materials were furnished for the most part by the respective companies. These companies, unsolicited, requested the clinical trial and willingly consented to the establishment of controls.

The results of acetylaminohydroxyphenylarsonic acid (acetarsone) in 12.5 per cent concentration in sodium bicarbonate and kaolin, as recommended by Gellhorn,⁴ and its control were observed in only thirty-four patients long enough to analyze. Other patients started on the treatment did not complete the course and naturally cannot be included. Table 1 shows that four of the seventeen controls and four of the regular series were unimproved. The average periods of treatment were identical, and only gynecologic patients were used. No

untoward results or complications resulted from the use of the arsenical mixture. Certainly no particular merit was evidenced.

In table 2 the results of acetylaminohydroxyphenylarsonic acid (acetarsone) in the ten obstetric patients are shown to be excellent, but the number of patients is entirely too small. The two gynecologic groups had the same number of failures. Although there may be definite merit in the regular preparation, it is not enough

TABLE 2—Results of Acetylaminohydroxyphenylarsonic Acid* and Control† Therapy in Patients with Vaginal Trichomoniasis

	Pregnant Patients		Nonpregnant Patients		Total	
	Number	Average Weeks Treated	Number	Average Weeks Treated	Uncured	Treated
Regular therapy	5		16			21
Cured	4	3	14	10		
Uncured	0	0	2	12	2 (10%)	
Control therapy	5		13			18
Cured	5	6	11	7		
Uncured	0	0	2	8	2 (11%)	
Totals	10		29		4 (10%)	39

* Acetarsone

† Materials furnished by Winthrop Chemical Co., Inc.

better for its superiority to be established positively here. Again, eighteen and twenty-one patients, respectively, are too small a series from which to draw positive conclusions unless there is a great difference in the results. Thus, acetarsone prepared by another company did not show a pronounced specificity.

Nine cases, as summarized in table 3 (*p*-carbamido-phenylarsonic acid [carbarsone] and its control), are too few for final conclusion. These are included only because the experiment is still in progress. The procedure as outlined by Drabkin⁵ is rather detailed and time consuming, and some objection and lack of cooperation on the part of the patients were encountered. Rectal therapy is surely a prophylactic measure. It is an interesting observation that the control material has given cures in all four control patients.

TABLE 3—Results of *p*-Carbamido-Phenylarsonic Acid* and Control† Therapy in Patients with Vaginal Trichomoniasis

	Pregnant Patients	Nonpregnant Patients		Total	
		Number	Average Weeks Treated	Uncured	Treated
Regular therapy	None	5			5
Cured		5	9		
Uncured		0		0	
Control therapy	None	4			4
Cured		4	9		
Uncured		0		0	
		9		0	9

* Carbarsone

† Materials furnished by Eli Lilly & Co.

Table 4 shows that three of the twenty-two patients treated with the regular silver picrate material were unimproved while only two of the nineteen controls failed to be benefited. This apparent discrepancy in the results of the silver picrate is unimportant, since it falls well within the experimental range. Furthermore, no untoward results developed, and some of the patients did get very satisfactory results from the substance. A sufficiently large series might not only give a reversal of these results but even show an advantage for the regular silver picrate preparation.

5 Drabkin, Charles. *p*-Carbamido Phenyl Arsonic Acid in the Treatment of Trichomonas Vaginalis Vaginitis. *Am J Obst & Gynec* 33: 846 (May) 1937.

6 Buxton R. V. L. and Shelanski H. V. Trichomonas Vaginalis Vaginitis: Incidence, Diagnosis and Treatment with Silver Picrate. *Am J Obst & Gynec* 33: 842 (May) 1937.

Acetarsone (Stovarsol) Merck & Co. acetarsone Winthrop Chemical Co. Inc. carbarsone Eli Lilly & Co. silver picrate John Wyeth & Brother Inc.

The data of Adair and Hesseltine³ (table 5) show that lactose alone gave about a 2 per cent better result than did the citric acid or kaolin mixtures. There is no indication that citric acid or kaolin prolonged appreciably the period of treatment. Citric acid in 5 per cent concentration may be irritating, and apparently it did not contribute therapeutically. On the other hand, the

TABLE 4—Results of Silver Picrate and Control* Therapy in Patients with Vaginal Trichomoniasis

	Pregnant Patients		Nonpregnant Patients		Total	
	Number	Average Weeks Treated	Number	Average Weeks Treated	Uncured	Treated
Regular therapy	2		20			22
Cured	2	6	17	7		
Uncured	0	0	3	14	3 (14%)	
Control therapy	2		17			19
Cured	2	5	15	6		
Uncured	0	0	2	13	2 (10.5%)	
Totals	4		37		5 (12%)	41

* Materials furnished by John Wyeth & Brother, Inc.

kaolin mixture was associated with less watery vaginal discharge. Again the control comparisons were within the experimental range.

Table 6 shows that by pooling the data on the arsenical preparations and their respective controls little difference is revealed between them. This likewise applies to the lactose group.

COMMENT

Thus, it becomes evident that good results may be obtained with various agents in approximately 85 to 90 per cent of the patients, while the remaining 10 to 15 per cent may not remain relieved or may even fail to be improved. Even though many husbands whose wives were in the unimproved groups refused urologic examinations, three of those examined were found to have prostatic infections. Such observations have already been reported by Drummond,⁸ Cornell and Riba,⁹ Karnaky,¹⁰ Adair and Hesseltine³ and others. Allen, Jensen

TABLE 5—Results of Lactose with Citric Acid, Lactose Alone and Lactose with Kaolin in Patients with Vaginal Trichomoniasis (After Adair and Hesseltine³)

	Pregnant Patients		Nonpregnant Patients		Total	
	Number	Average Weeks Treated	Number	Average Weeks Treated	Uncured	Treated
Lactose and citric acid	11		50			66
Cured	11	9	49	8		
Uncured	0		1	14	6 (10%)	
Lactose and kaolin	0		21			21
Cured	0		19	6		
Uncured	0		2	9	2 (10%)	
Lactose (only)	4		20			24
Cured	4	8	18	6		
Uncured	0		2	9	2 (8%)	
Totals	15		96		10 (9%)	111

and Wood¹¹ have demonstrated the likelihood of foci in the urethra and bladder of some patients. Karnaky¹⁰ and others have demonstrated trichomonads in the

intestinal tract, but some controversy still exists as to whether any of these are the vaginal type. Therefore it seems that to improve the results of therapy for vaginal trichomoniasis one must not only cure the disease but eliminate the source of reinfection. Reinfection may occur so frequently and rapidly that therapy is of little aid. Hence failures may represent in part persons not having proper prophylactic care or instruction against reinfection.

The fact that vaginal mycosis did develop during or immediately after completion of therapy with silver picrate and with acetarsone indicates that the vagina was not at that time an unfavorable nidus for the fungi. This clinical observation parallels the histologic evidences that the normal vaginal epithelium in pregnancy is rich in glycogen-like material.

The biologic state of the vagina appears to be highly important. The works of Cruickshank and Sharman,¹² Plass and Oberst,¹³ Adair and Hesseltine,³ Bland and Rakoff¹⁴ and others reveal that the vaginal acidity, the glycogen-like content of the epithelium and the bacterial and cellular flora are intimately related. The normal relationship is disturbed in vaginal trichomoniasis by a

TABLE 6—Comparison of Three Arsenical Substances On Silver Picrate and Two Lactose Combinations with Their Respective Controls

Substances in Question and Controls Studied	Patients		Group Totals	
	Treated	Failed	Treated	Failed
1. Acetarsone (Merek) Control	17 17	4 (24%) 4 (24%)	43	6 (14%)
2. Acetarsone (Winthrop) Control	21 18	2 (10%) 2 (11%)		
3. Carbarsone (Lilly) Control	5 4	0 0	99	3 (3%)
4. Silver picrate (Wyeth) Control	22 19	2 (14%) 2 (11%)		
5. Lactose and citric acid Lactose and kaolin Lactose	66 21 24	6 (10%) 2 (10%) 2 (8%)	87	8 (10%)
Totals			234	27

lessening of the vaginal acidity, a decrease in the glycogen-like material and a conversion of the vaginal flora to type 2 or 3.

A plea is made for the establishment of adequate and proper controls when one makes such a study and especially before recommending new preparations to members of the profession. Certainly any ethical pharmaceutical house would endorse this attitude and would cooperate if an honest evaluation was desired. In establishing controls it is urged that one adhere strictly to a routine and assign alternate cases to the control series and employ codes for the regular and control preparations whenever possible to eliminate further unavoidable personal prejudice in observations and interpretation of the therapeutic results. Moreover, before one can state correctly that any preparation is superior to others one must have a series sufficiently large to exclude at least some of the experimental errors.

CONCLUSIONS

1. The majority of patients with vaginal trichomoniasis can be benefited by more than one therapeutic material and method.

8. Drummond, A. C. Trichomonas Infestation of the Prostate Gland. *Am J Surg* 31: 98 (Jan.) 1936.
9. Cornell, E. L. and Riba, L. W. Treatment of Trichomonas Vaginalis and Trichomonas in the Male. *Surg Gynec & Obst* 63: 511 (Oct.) 1936.
10. Karnaky, K. J. Trichomonas Vaginalis and Monilia Albicans as Causes of Leukorrhea. *South W J* 28: 793 (Sept.) 1935.
11. Allen, E. D., Jensen, L. B. and Wood, I. H. Clinical and Bacteriologic Observations in Trichomonas Vaginitis. *Am J Obst & Gynec* 30: 565 (Oct.) 1935.

12. Cruickshank, R. and Sharman, A. The Biology of the Vaginal Flora in the Human Subject. *J Obst & Gynaec Brit Emp* 41: 190 (1934).
13. Plass, E. D. and Oberst, F. W. The Hydrogen Ion Concentration of Human Vaginal Discharge. *Am J Obst & Gynec* 22: 11 (1936).
14. Bland, P. B. and Rakoff, A. E. Some Bacteriologic Aspects of Trichomonas Vaginalis Vaginitis. *Rev Vida Nueva* 37 (May) 1936.

2 Probably in from 8 to 15 per cent of the cases of vaginal trichomoniasis particular care should be taken to eliminate foci of infection from the patient's rectum or urethra and bladder, or from the husband's urethra and prostate, and perhaps from other sources still undetermined

3 The physiologic restoration of the vagina is apparently of paramount importance in accomplishing cures

4 An adequate and proper control should be employed in the evaluation of the merits of any procedure or preparation

5848 Drexel Avenue

ABSTRACT OF DISCUSSION

DR A E RAKOFF, Philadelphia Interesting as are the uniformly high percentage of cures obtained by the various methods, my attention was attracted by the almost equally good results in the control series, treated with relatively inert substances such as kaolin. This is not in accord with my experience since only 10 per cent of a group treated by kaolin insufflations alone responded permanently, although almost all were temporarily relieved. It is notable that the drugs employed were all in a dry form. It is the present consensus that "dry antiseptics" affords the most successful basis for elimination of the flagellates. Two preparations were insoluble pentavalent arsenicals, acetarsone and carbarsone. Dr Bland and I made a study of these drugs plus a related soluble derivative, sodium-methylene-sulfon amino-hydroxy-phenyl-arsenate. The latter was more effective clinically and in vitro. Dr Hessel-tine pointed out that a plan of treatment based on the associated pathologic conditions is frequently more important than the choice of an antiseptic. Thus the realization that organisms are harbored in surrounding structures may mean the difference between cure and recurrence. In my experience the urethra and para-urethral structures are the most common offenders, since trichomonads are frequently found here. I am persuaded that a few organisms harbored in the cervix may also be the source of recurrences. The male is probably a source of reinfestation in a small group of cases. I found the organisms in about 6 per cent of a group of men. The anterior urethra was much more commonly the seat of infestation than was the prostate gland. The intestinal tract is rarely if ever the source of vaginal infestation. Evidence indicates that the vaginal and intestinal trichomonads are morphologically and culturally distinct and that in this climate intestinal infestation is relatively uncommon. Experimental inoculations with the intestinal forms were unsuccessful, whereas I have produced the infestation with vaginal trichomonads. Administration of toxic drugs by mouth or bowel to eliminate an intestinal infestation whose existence is not first proved is hardly justifiable yet many patients are treated in this fashion. Examination of the vaginal bacteria affords a reliable indication of progress during the course of treatment. Doderlein's bacilli tend to become reestablished with the disappearance of the trichomonads. Lactose or lactic acid douches are sometimes helpful in favoring this return after preliminary chemotherapy.

DR H CLOSE HESSELTINE, Chicago I have not been able to confirm Dr Rakoff's observations of finding trichomonads in the cervix, although others agree with this statement. Might not these flagellates be due to contamination by the vaginal discharge? Dr Curtis has just reminded me that one should be very cautious as to what one considers cures. I agree heartily with his views. Cures can be established in part by repeated examination over a sufficient time. I used the words "uncured" and "cured" to simplify tables perhaps that is incorrect. I have reviewed the cases becoming positive after intervals of two months following menstruation and I believe it is very probable that some of these may represent reinfection rather than recurrence or exacerbation. May not these reinfections be comparable to colds? A patient may have a cold one month and again in a few weeks. Would this be a new cold or does it mean that the patient is more susceptible to colds? I feel that the same rules apply here. Until more is known about the sources of spread some of our problems will remain unsettled. The problem of therapy is yet unsettled also.

INTENSIVE CASE FINDING WORK IN TUBERCULOSIS

HENRY F VAUGHAN, DR PH
AND

BRUCE H DOUGLAS, MD

DETROIT

There has been a definite reduction in the death rate from tuberculosis in the United States, the rate now being less than one-third that which obtained at the turn of the century. However, the combat with this age-old foe of mankind has by no means been completed. Although displaced by heart disease, cancer and pneumonia at the summit of the causes of death (for all ages), in the very prime of life (from 20 to 35 years) tuberculosis still ranks first as a cause of death. There are not less than 500,000 sufferers from this disease in the United States at the present moment. Let us not be lulled into any false sense of security from past accomplishment, let us attack this disease with the same vigorous attitude with which we confront small-pox or diphtheria. Health departments have been prone to accept the crumbs from monies spent for social betterment. We have been too reticent in a fight in which modern tools are at our disposal. Possessing knowledge, we are derelict in our duty when we fail to use every artifice and ingenuity in winning and maintaining public confidence and support, which alone can provide the wherewithal to deal intelligently with a pestilential disease.

How can so many health officers remain complacent knowing full well that more than 80 per cent of all tuberculosis cases reported to health departments are already in an advanced stage? How successfully could we maintain our warfare against diphtheria and small-pox if four out of five cases were officially reported to the health department only shortly before death? Why not apply the same reasonable procedures in epidemiology to tuberculosis as we daily employ in our attack on other communicable diseases?

We can all agree that the local health officer should play a commanding part in the fight against tuberculosis even though he may not have every detail as a function of his department. It is his responsibility to see that a program of prevention is carefully planned and executed. The school health service, the hospital care of patients, the health education program, and many other essentials may be carried on by voluntary agencies or other public agencies not a part of the health department. In every instance, however, the health officer must assume responsibility for the community program. He must be a planner, a coordinator, and take full authority and responsibility to see that the various units, organizations and individuals function smoothly in their respective fields. The ideal condition demands the establishment on a full time basis of an efficient local health service, the employment of a well trained public health administrator assisted by the essential technical personnel and blessed with reasonable financial support. A tuberculosis program cannot be successful without the cooperation of all agencies concerned with health education and the active participation of the medical profession, individually and collectively.

No intelligent progress can be made in combating an enemy unless we know his whereabouts and in the case

From the Detroit Department of Health.
Read before the Section on Preventive and Industrial Medicine and Public Health at the Eighty-Eighth Annual Session of the American Medical Association, Atlantic City, N. J., June 10, 1937.

of tuberculosis we know the location of but a small percentage of the sources of infection—the true spreaders of disease. Are case finding facilities adequate when less than one out of every five reported cases are minimal? For each annual death from tuberculosis there should be from five to ten known living patients. To find these hidden sources of infection requires active and continuous application of case finding service in those geographic areas and in those fractions of the population in which tuberculosis is known to be most prevalent.

Health departments have done reasonably well in providing clinic facilities, dispensaries, medical and nursing service and, in most communities, an examination of school children in the danger age. Some progress has been made in providing hospital and sanatorium care. As a whole, adequate facilities do not exist for the isolation of the infectious case and for the prompt and efficient treatment of the early case. Some communities, however, have increased hospital facilities until they have two or more available beds for each annual death from tuberculosis. In an industrial city this seems to be the minimum standard compatible with adequate treatment.

Briefly stated, the task in tuberculosis control is, first, to find the minimal case and, second, to isolate the infectious case, preferably in a hospital or sanatorium, unless this can be done under suitable home conditions. In any event the open case must be taken out of circulation and cared for under conditions that will permit the employment of collapse therapy. The failure of any program that does not begin to operate until the patient is aware of symptoms has been stressed many times and was well summarized recently by Potter¹. This author states that "64 per cent of patients consult a physician within three months after the appearance of symptoms and in 76 per cent of these a positive diagnosis was made by the family physician within three months after the first visit of the patient." In spite of this relatively prompt action on the part of patient and physician after symptoms had appeared, this author found that 84 per cent of the cases were diagnosed as advanced tuberculosis, 14 per cent were moderately advanced, and only 2 per cent were minimal. Obviously, under these circumstances it is impossible to establish an adequate control policy.

When health departments first undertook to protect children against diphtheria, school clinics were organized, for here large numbers could be readily reached. There was no difficulty encountered in securing the protection of as many as 70 per cent of such children. The prevalence of diphtheria, however, did not materially decrease until the preventive program was advanced to include the protection of the preschool child and infant, for it is among these children that most of the deaths would occur. There is no need of expending effort and money after the damage has been done. Likewise with tuberculosis, we must step up our program so as to find and serve the minimal case.

To do this involves the more effective utilization of facilities which usually are available or can readily be made available in every community. Money may be lacking, however, with state and federal assistance, this handicap can be overcome. As a matter of fact, from the point of view of economics, it must be overcome. In one large midwestern county, two and one-half million dollars of public money is being spent annually

to hospitalize tuberculosis cases. This cares for 2,500 hospital beds—more than twice the annual number of deaths. In the past few years only 13 per cent of cases reported to the health department by the family physician were minimal. When, to this is added the follow up of contacts and school examinations by the health department, the percentage of minimal cases is raised to 20. There are but few American communities which report as high a percentage of early cases. Four out of five cases are already either moderately or far advanced. The average period of hospitalization for the early case is from eight to nine months. The advanced and far advanced case requires twice that period of hospitalization. It is at once apparent that by increasing the percentage of minimal from 20 to 50 the hospital load would be proportionately reduced and the community would save more than a million dollars in annual hospital bills. In other words, much if not all of the money being spent for hospitalization should never be spent. There should be no cause for its expenditure. Finding the early case will reduce the hospital load and expense and save money. The diversion of a fraction of this saving in hospital bills to adequate case finding facilities would be good economy.

By and large, the public is not moved when health workers talk about tuberculosis as a communicable disease caused by a bacillus discovered by Robert Koch in 1882—a disease which is preventable. These facts are fairly well known to the 20 per cent of the population who are health minded. The rest do not care under any circumstances, unless it can be shown in a rather spectacular manner that they are directly involved in the hazard. Health officers must be rather startling in their statements to the public. Be spectacular but not sinful. Do not merely talk about the dangers of tuberculosis but tell the people that we are dealing with a murderer, that we are death fighters engaged in a deadly combat with a vicious foe. Be impressive but not untruthful. Borrow some of the dynamics of the commercial advertiser but do not stoop to false statements. No one may be interested in saving human lives, in reducing the death rate from tuberculosis, in expanding the life span or even in bettering the happiness of our fellow beings, but every one is interested in saving tax money. Spending \$200,000 to save a million dollars annually is impressive. It was on that basis that Detroit so effectively sold its tuberculosis case-finding program that not one word of objection was offered from any source.

Fortunately, in public health work we build our programs on acceptable facts that come to us from the research institutes and centers of learning. We do not deal with philosophical hypotheses, we are concerned with truths that emanate from scientific laboratories. Granted that at times it is difficult to evaluate the effectiveness of a given control procedure, such as a four week isolation period for scarlet fever or the use of the alum picric acid spray for contacts to polio myelitis, but study and experience generally result in reasonable practice. In the case of tuberculosis we have the facts. We know its mode of transmission, that it cannot be controlled by a case-finding program based on symptomatology, that through health education we must arouse an interest on the part of the individual in order that he will seek early medical advice, that we must have the facilities with which to provide the essential services such as diagnosis and hospital care. Correlate this knowledge with the basic statistical facts, with the economic advantage to the community, present your

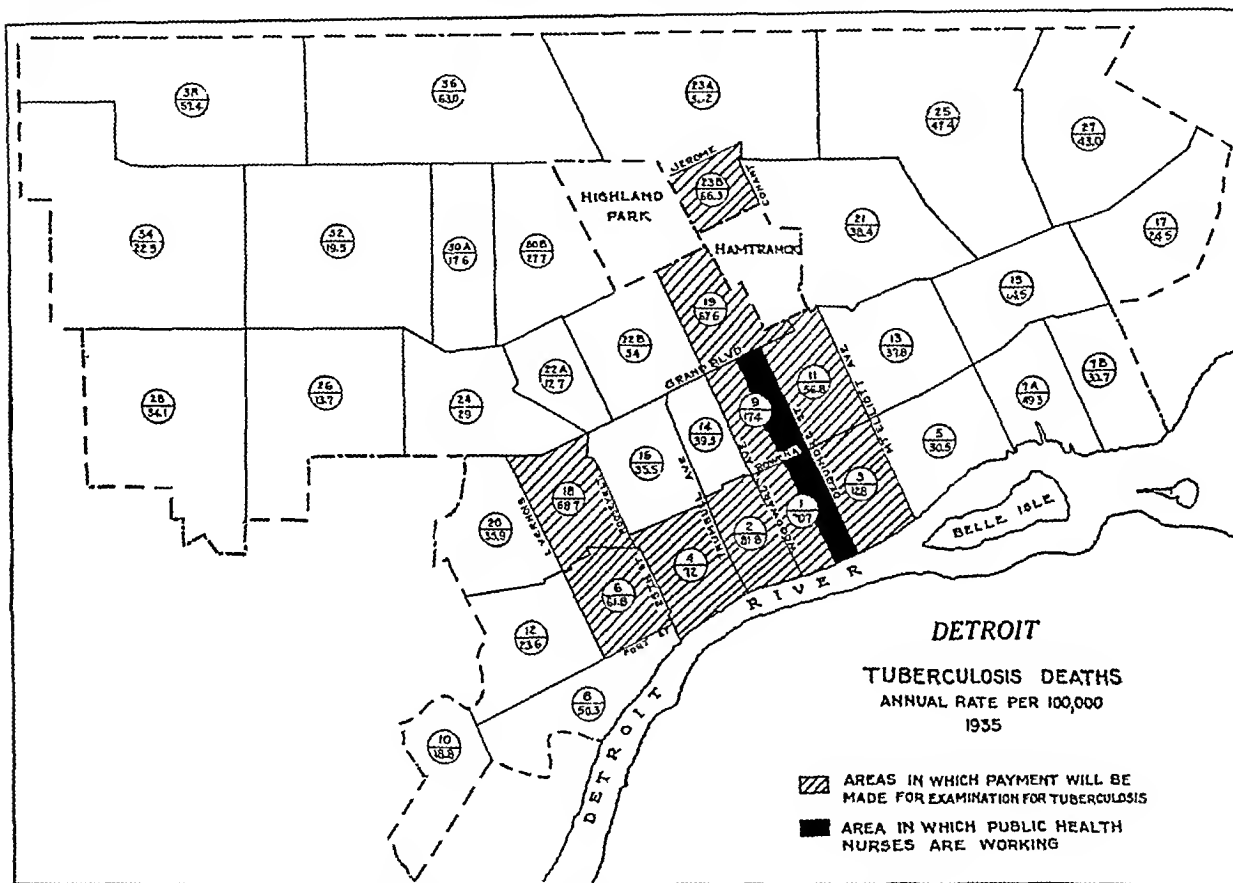
¹ Potter, B. P. The Problem of Tuberculosis. J. A. M. A. 108: 1585 (May 8) 1937.

story through the most influential educational channels in your community, then public opinion will demand reasonable financial support for your program

Concerning the situation in Detroit, an author of national repute wrote a book, the book was read by the owner and editor of a leading newspaper which had long supported public health progress. This resulted in a series of meetings between physicians, educators, business men, manufacturers, newspaper men, public health men and women, and representatives of the public. Out of these sessions grew a program based on a common interest of all in the eradication of tuberculosis. A series of twelve first-page newspaper stories was prepared and published so as to synchronize with

modern technics of preventive medicine—the tuberculin test, the x-ray examination, he will become a very potent factor in the discovery of minimal tuberculosis

Fortunately, in Detroit we have been able to develop our tuberculosis program on the strong foundation of medical participation established in 1928 in our diphtheria prevention work. It will be recalled that since that year all protective treatments have been given by physicians chosen by the family under a plan developed jointly by the Wayne County Medical Society and the Detroit Department of Health, which assures the individual that he will receive the type of service to which he is entitled, at reasonable cost or at no cost if he is financially embarrassed. At the same time the physi-



Map showing areas of high tuberculosis mortality in which intensive case finding work is carried on

radio dramatization. The community was told about the folly of spending public funds for the care of end results in tuberculosis. It was urged that a relatively small sum be spent for prevention. The appeal was reasonable, results were immediate, an additional million dollars was added to the budget of the health department to be used during the next five years to improve case-finding facilities. With the wherewithal at hand, the challenge had to be met.

Most health officers will agree with the statement that the family physician should practice preventive as well as curative medicine in his own office. After all, it is the family medical counselor who sees the early departures from normal health, both physical and mental. It is he who must be prepared to diagnose the early case of tuberculosis. As long as he considers this a disease diagnosed by such symptoms as fever, loss of weight and appetite, night sweats and possibly hemorrhage, he will be of no assistance, but place in his hands the

physician is assured of compensation either from the patient or from the department of health. During the first two years of the diphtheria program the health department paid for two thirds of the services, not because so many people were indigent but because there were many persons who had not learned that diphtheria prevention is a purchasable commodity as essential to the child as food, fuel, clothing or shelter. During the last two years the health department has paid for but 20 per cent of the diphtheria protective treatments known to have been administered. This indicates that the layman has not only learned the value of the service but now appreciates that it should be purchased from the family physician. There has been no decrease in the percentage of children protected during these nine years. The percentage of school children given the protective treatments has remained at a constant level of 70, the percentage of preschool children protected has increased from 30 to more than 60, and it is known

that during the past two years not less than 52 per cent of infants born in the city have been given the protective treatments by the time they have reached the age of 18 months.

Before the inauguration of this program the medical profession was prepared with regard both to the administrative details of the program itself and, what is more important, to the technic of the services that were to be rendered. The same type of approach has been applied to the tuberculosis program, and so important has become this phase of the work that a director of medical relations was appointed several months ago. He gives full time to the problem of seeing that the rank and file of physicians are conversant with the type of service which they are to render. Instead of dealing with a relatively small group of clinic physicians, we are dealing with a large group of cooperating physicians functioning through their own offices. These, in fact, become subhealth centers for the community, from which constantly flows an ever increasing volume of preventive work. The cooperation of physicians

health nurse, fortified with a favorable attitude toward medical participation, has been found an invaluable ally in promoting individual health instruction. It is through her constant contact with families in the home that results are obtained.

In Detroit a determined effort is now being made to find the minimal case of tuberculosis and to provide adequate medical and hospital care for such cases. In 1936 many conferences were held with influential citizens, death fighters, publicists and educators, preparatory to the launching in November of that year of a drive to supplement the conventional services which are common to most modern health departments.

Step by step the entire medical profession was kept informed of the plans, postgraduate conferences were renewed, newspaper articles were featured, radio dramatization was emphasized. Beginning at that time and on each succeeding Wednesday evening a thirty minute broadcast has been given in the auditorium of the Detroit News Radio Station WWJ. The broadcasting auditorium, with a seating capacity for 340, has

been used by the medical profession and other interested groups not only for the radio program but for addresses by distinguished professional men. To a preview, attended by the Surgeon General of the United States Public Health Service, were invited the physicians, that they might see and criticize in advance of formal presentation to the public. Physicians throughout the city urged their patients to read the newspaper articles and tune in on the radio. Agreements were signed by 800 physicians, who thus consented to cooperate with the county medical society and the department of health in this endeavor to discover tuberculosis in its earliest stage. In every instance the public has been urged to seek the advice and service of the family physician, but where there is no physician of choice, a list of cooperating phy-

sicians has been prepared and distributed to the public health nurses. The entire city has been divided into thirty-five areas and there is a list for each district.

When, in the judgment of the cooperating physician the family cannot pay for the tuberculin test or the x-ray examination, the health department provides through its budget a fee of one dollar for the tuberculin test, including the reading of the result. Also for those who give a positive tuberculin test, arrangements are made for referring the patient to one of a group of cooperating roentgenologists, this list being restricted to those who specialize in this field. Again, if financial embarrassment prevents payment for this service, the health department compensates the roentgenologist at the rate of three dollars for each flat plate examination, including a report to the family physician. The family physician again receives an additional dollar for consultation and advice to the patient. Thus it will be seen that for each individual with a negative tuberculin test the cost to the health department is one dollar. For the positive reactor the cost may be five dollars.

That portion of the program which involves the x-ray examination is under the supervision of the Detroit Roentgen Ray Society cooperating with the medi-

Block No 5-435 1		Address 949 Osborne		Dates of Visits 2-23-37		Purse Castle	
Floor 2 front rear X		Family Physician		Select d Physician J J Tucker		Address 5205 Hastings	
Name	Age	Color	Birthplace	Mr	Mr	Mr	Mr
				Det	R	Dish	SP
1 Goolsky, Walter	49	C	Baxter, Tenn.	2	1		
2 " Amie	40	C	Cockville, Tenn.	2	1		
3 " Walter	17	C	" "	2	1		
4 " Anna Lee	15	C	" "	2	1		
5 " Sarah Eliz	13	C	" "	2	1		
6 " Wm	4	C	Ypsilanti, Mich	2	1		
7							
8							
9							
10							
11							
12							
Contact	Spec t	Spec Area x	Other	T B Census A Card		1937	
				Detroit Department of Health TB-0601			

Tuberculosis census card, on which are recorded pertinent facts regarding the family unit residing in an area of high tuberculosis mortality.

involves the establishment of postgraduate or refresher courses. These have now been maintained for the past nine years. The health department has an adequate appropriation included in its budget for the support of this postgraduate service. Those physicians who are not wont to attend medical meetings are visited in their own offices. There is every assurance that the program and its technics are thoroughly understood.

The facts, the money and the prepared professional group being at hand the next undertaking is to present the story to the public in such a manner as will result in service for those portions of the population in need of it. The mere presentation of facts is not sufficient, the individual must be stimulated to action, a change in behavior must be established so that he will seek service from his physician. This demands the pooling of all the interests in health education. Every individual and agency, from the family physician and dentist to the teacher, the newspaper editor and the preacher, must be integrated into the program. The tools of health education are too well known to demand elaboration. Health departments are accustomed to employ popular education which includes all means of utilizing the printed and the spoken word. The well trained public

cal society and the department of health. When the examining physician does not provide an x-ray service in his own office, it is agreed that such cases be referred to one of a group of cooperating roentgenologists limited to specialists in this field. In turn, the Roentgen Ray Society has appointed a committee, to which is referred all doubtful and positive films taken either by physicians or by special roentgenologists, and the committee's final judgment is submitted to the examining physician.

In order that there may be provided some measurement of the success of the program, records are essential. Each physician has been provided with a card which he may keep in his own office and in addition to that there are three cards which are mailed to the health department. These double postcards can be sealed and thus avoid any embarrassment by the accidental disclosing of confidential information. The postage on the cards is paid by the department of health and the cards are mailed to the department of health irrespective of whether the patient pays or the physician bills the health department. There are individual report cards for the tuberculin test, the x-ray examination and the final consultation.

Following the special newspaper stories and radio dramas, in December 1936 the city council authorized the department of health to add approximately \$200,000 per annum to its annual budget to be used exclusively for tuberculosis case-finding work. The new appropriations provide for the employment of forty-five additional public health nurses (the total number of health department nurses July 1, 1937, is 430), twelve new stenographers and statistical clerks, two new health educators (to be added to the staff of nine), \$40,000 for tuberculin tests, \$40,000 for x-ray examinations, \$3,000 for postgraduate medical conferences, and miscellaneous items for transportation, maintenance, printing and postage. This program anticipates the supplemental expenditure of a million dollars during the next five years.

In January 1937 the personnel for the new work was engaged and underwent a period of training. By February 1, public health nurses began a house-to-house canvass in areas of high mortality. Even before the start of the field work, as a result of the newspaper and radio publicity, 2,000 tuberculin tests had been recorded by the cooperating physicians. Since February 1 (and prior to May 21) there had been recorded with the health department 33,367 tuberculin tests, of which 7,472, or 22 per cent, were positive. Of this group 5,122, or 69 per cent had completed the x-ray study and in the latter group there had been discovered 242 new active cases of tuberculosis. This means that about 0.75 per cent of the persons examined (at all ages) was found to have active tuberculosis. Of particular significance is the fact that 43 per cent of these new cases of tuberculosis have been classified as minimal.

While it is true that there are many danger spots in tuberculosis, it was decided in the present program to limit the intensive case-finding effort to three definite undertakings. Into every physician's practice come persons with a history and appearance that suggest tuberculosis. They may be considered the suspects for whom an examination is indicated as a possible means of revealing suggested signs of this disease. The tuberculin test will generally establish the presence or absence of infection with the tubercle bacilli. This followed with an x-ray examination of the chest of the

positive reactor, will reveal in detail much that cannot be detected by physical examination alone. Then a special search should be made of the contacts to the active case of adult type tuberculosis. Household contacts come under immediate suspicion on two accounts—first, if the person already found has a positive sputum one or more of the other members of the household may have acquired tuberculosis from him, second, if the person already found does not have positive sputum, one of the other members of the household may be the source of infection and should therefore be detected. There are certain groups in the community who may be regarded in almost the same light as household contacts such, for instance as residents in those districts of the city in which the tuberculosis mortality is high. These areas should be well known to the health department and information regarding them should be made available to all cooperating physicians. Thus the immediate objective has been to reach these three groups: first, those in the practice of the physician whom they suspect of being tuberculous, second, household contacts of definitely diagnosed cases, and, third, persons residing in areas in which the mortality from tuberculosis is excessively high.

TUBERCULIN TEST REPORT	
Name <u>Hawkins, Mary</u>	Age <u>32</u>
Address <u>28731 Westminister</u>	Sex <u>F</u>
Contact <input checked="" type="checkbox"/> Suspect <input type="checkbox"/> Special District <input type="checkbox"/>	
Tuberculin Test <input checked="" type="checkbox"/> Positive <input type="checkbox"/> Negative	
If positive to be X-rayed by <u>Dr. F. H. Kemmer</u>	
Patient can pay <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Signed <u>M. C. Redfern</u> J. D.	
Date <u>4-14-37</u> Address <u>385 St. Theresa St.</u>	
Then the physician charges this service to the City the patient or his parent or guardian in the case of a minor must sign that he cannot afford to pay	
Signature of Patient or Parent <u>Mary Hawkins</u>	
To be mailed to Detroit Department of Health by Private Physician	

Card on which the physician reports the tuberculin test to the health department. Somewhat similar cards are used to report x-ray examinations and final consultation.

While it is granted that there are other important groups, such as school children of a selected age or grade, employees in industrial plants, food handlers, prenatal cases, diabetic patients and those who are recovering from acute infections, it was deemed advisable to undertake the case-finding work first in those groups in which the largest number of suspects and cases would be likely to be found. Within two months after the inauguration of the intensive educational work by the public health nurses in the visited group of families in the area of high mortality, 30 per cent of the Negroes (including all ages) had gone to their physician and reports had come through to the health department on the results of the tuberculin tests. Proportionately, only one-third as many white persons had responded, that is, 10 per cent of the members of the families visited. It is believed that these results obtained in the brief period of two months show a most encouraging response.

SUMMARY

It may be said that the control of tuberculosis is by no means an accomplished fact, it is especially unsound to permit the continued financial burden on our communities due to tuberculosis when the facts concerning its control are so complete, the facts should be pre-

sented to the public and the necessary financial support obtained, the habits of persons should be changed so that they will seek medical advice at a time when an early diagnosis can be made, the required diagnostic service can be provided by a group of qualified cooperating physicians serving through their own offices under a plan which functions through the organized community, especially the medical society and the health department

3919 John R Street

ABSTRACT OF DISCUSSION

DR ESMOND R LONG, Philadelphia The Detroit plan is now well known and it is apparent from the report of Drs Vaughan and Douglas that even within the short time since its inauguration it has already achieved a definite measure of success. The authors have brought out two important facts: (1) that the majority of cases of tuberculosis are in an advanced state when first detected and (2) that the disease is almost symptomless in the minimal stage when its detection would most readily be followed by cure. No program for the control of tuberculosis is adequate if it fails to take account of the fact that the disease is so nearly symptomless at its onset. What is commonly called its onset, the symptom complex characterized by a cough, fever and night sweats, is not the onset but a stage of active progression. Because of these facts, the usual methods of private medical practice are not sufficient. The patient will not seek the physician, because he is not aware that anything is wrong, therefore the physician must seek him. The problem is complicated by various questions of economics, medical ethics and relationships between the practicing medical profession and the official departments of health. Since, however, in the last analysis, our function as physicians is the preservation of health in the population, some way must be found to cut through all such complications. The Detroit plan seems to have been eminently successful in its dual task of case finding and harmony of medical relationship. Case finding, largely through the intensive educational campaign carried on by the National Tuberculosis Association during the last fifteen years, has become the prime objective of tuberculosis divisions of health departments. I think most of us would reverse the order of preference as given by Vaughan and Douglas and say first isolate the infectious case and, second, find the minimal cases. Basic standards exist for determining fairly closely the number of open cases in any large community. They are in the proportion of about three to each annual death from tuberculosis. We actually know and have some sort of supervision over about half of the open cases in the country today. A quick and successful campaign to find the other half will rapidly cut down the supply of new cases, which may be thought of as a yearly crop sown by the old cases. Few would quarrel with the selection of three fields for intensive case finding as given by Vaughan and Douglas, however, sooner or later we must attack the problem of tuberculosis in industry. Notable success has attended case finding campaigns in the schools and colleges, but the age period is too early to reach the bulk of tuberculosis cases. The work of the medical staff of the Metropolitan Life Insurance Company furnishes a model for what might be done for later ages. Statistics show a concentration of tuberculosis in the unskilled trades.

DR HAVEN EMERSON, New York Some of the best lessons in the field of public health are presented by this report of the Detroit method. The tuberculosis problem remains now, as it always has been, in the office of the private practitioner, and this method of putting on him the responsibility of finding infected persons, as well as finding sick persons, is a logical step. Finding one case of tuberculosis by the making of 111 tuberculin tests is, to my mind, an inexpensive undertaking for any health department. For every 111 intradermal tuberculin tests, one case of the disease has been found in Detroit, and of the cases found, 44 per cent are minimal. Every person in the community has a right to know whether he or she is infected with either tuberculosis or syphilis and, if infected, what was the source of the infection. Widespread use of the Wassermann and Kahn tests and of the tuberculin test is begin-

ning to give a scientific measurement of the prevalence of infection, and the oftener these tests are made the nearer we are likely to get to the source of infection. If we can discover infection in the preschool child, we shall be just twenty years ahead of the time when the adult in industry develops the disease. Whatever may be done to discover young adults sick with tuberculosis in industrial life, there remains the job of finding the child as soon as practicable after it has been infected. When an attempt is made to trace the source of infection in a person of 25 who develops open tuberculosis in industry, there are so many uncertain factors of family and other contacts that one is baffled by time and circumstance. The lesson that Vaughan and Douglas have offered is that it is possible to save on the cost of treatment by heavy investment in the discovery of infection. I believe that economy as well as self-interest points directly to the following of the Detroit method, and that the best message that can be given to the members of the American Medical Association is that every physician should persuade his patients to be intelligently curious about their infection with the tubercle bacillus or freedom from it and, if they prove to be infected, to be unsatisfied until the probable source of their infection is traced.

DR E R HAYHURST, Columbus, Ohio For many years tuberculosis was the leading cause of death among the gainfully employed. It stands second to heart disease today. The papers presented in this section have emphasized tuberculosis in relation to the Negro, to industry and to fatigue, but thus far it has not been possible to evaluate industrial fatigue. The physiologists may some day evolve a method of detecting fatigue and of separating its manifestations from those of other conditions, following which there may be a measuring stick for industrial fatigue. While not dismissing the great importance of infection and cross-infection, I think the relation of tuberculosis to fatigue is very prominent. Another factor which is notable with industrial workers is that they do not know or appreciate protective diets, and they are beset with a confusing commercialized propaganda regarding diet. There is a tremendous field here for education which might be worked out by such a scheme as Detroit is using to build better resistance in the industrial population.

DR J I LINDE, New Haven, Conn Having practiced pediatrics more than twenty years, I should like to make some statements. One is that the authors have recognized the fact that the private physician is the backbone of public health. I don't know who made that statement, but they have recognized that. The second is that Vaughan and Douglas have given to the private physicians the kind of state medicine they like.

DR A E JAFFIN, Jersey City, N J I am sure we all feel that the ideal arrangement would be for every physician to become a public health officer, at least as far as tuberculosis is concerned. In the northern part of New Jersey, where I have had the opportunity for twenty-odd years of being connected with tuberculosis clinics, we have faced that problem. Do the authors expect to get the majority of doctors actively and continuously interested in cooperating as they wish them to? Can the public be expected to remain health conscious long enough to be retested with tuberculin or roentgenographed more or less regularly when necessary? Those who are negative this year may not be negative next year. Will there be a repetition of this more or less constant survey? How is the teen-age problem met in Detroit, particularly in the high school group? We felt that the most rapid approach for the sake of the greatest good would be a survey of the teen age by testing our high school children in Jersey City, some 17,500. After getting consents from 90 per cent, we did 15,000 tests and all those which were positive to tuberculin were roentgenographed by the rapid paper method. The films are now being read. In this undertaking we had the cooperation of the county medical society. A number of men volunteered to take the necessary training to qualify them for testing. They were paid out of funds provided by the Tuberculosis League from Christmas seal sales while the county and city paid for the films. Some thirty-six men responded for this work. Less than 10 per cent of the county physicians volunteered or showed an active interest in this undertaking—a rather small percentage. We found great difficulty in getting members c

our county society sufficiently interested in undertaking this Detroit plan, and I was very much interested in hearing what Vaughan and Douglas had to say. What will the solution of the problem be so far as the teen-age children are concerned, in whom I feel lies the most fertile soil for the early recognition of the future cases of active pulmonary tuberculosis?

DR. L. M. ROHR, Brooklyn. In Williamsburg-Greenpoint we have tackled this tuberculosis problem in a very different way because of a very small budget, 51 cents per capita. We haven't obtained the wonderful cooperation Vaughan and Douglas speak about. We have organized a Chest Consultation Service. We invite the private physician to use our tuberculosis service as his own. We give his patient a complete physical examination, x-ray service, fluoroscopic service and sputum examination. The examination is confidential, and he receives a confidential communication by mail. The county medical society utilizes and approves this method. We use the county society to notify the physician that this service is available, and it is surprising the great number of cases that are sent to us. Ten per cent of the cases referred to the Chest Consultation Service are found to show some stage of tuberculosis, and about 15 per cent of those cases are in the minimal stages. The private physician still needs much education. We are therefore using our tuberculosis services as teaching centers. Our tuberculosis clinics are now open to groups of physicians, six or eight at a time. We give them about three months' intensive instruction, and then to some of the most satisfactory we offer clinical positions in the health department. Through that interest in tuberculosis work in the borough of Brooklyn we have been able to organize the Brooklyn Thoracic Society. We are doing all sorts of things to interest the private practitioner in our work and to get the cases early. The authors present a very fine, utopian picture for the private practitioner. We have in a small measure made the private practitioner's office a health center. In Williamsburg-Greenpoint Health District, we found that only about 40 per cent of the children had been immunized against diphtheria. Through the efforts of the Kings County Society we interested the private practitioners of the district, and in 1935 the private practitioners of the district immunized 13,000 children. Our death rate became nil in 1936. Our case rate was down to 46. Previously it had been 130 cases, with four deaths.

DR. HENRY F. VAUGHAN, Detroit. May I say to Dr. Rohr I do not believe there is any city but that must do something of this character, irrespective of whether one is spending 51 cents or a dollar per capita. The money must be found somewhere, otherwise large sums of money will continue to be wasted in the end results of tuberculosis. In answer to Dr. Long I wish to state that, being a public health man, I think we need to find the minimal case first. We have an Industrial Hygiene Division, under the able direction of Dr. C. P. McCord, and the industrial program is operating in cooperation with this tuberculosis case-finding program. But let us not lose sight of the fact that everybody in Detroit is interested in industry. We have nothing there but industry, and the most economical thing we could do was to deal with the hot spots, readily isolated from the rest, where most of the tuberculosis would be found. I could list twelve or fourteen different classes of persons who need special attention, prenatal cases, the diabetic, persons recovering from some acute infectious disease, industrial workers, the food handlers and children of the teen age. These are all important. We took the three classes (1) contacts, (2) suspicious cases and (3) individuals residing in areas of high mortality as being the most productive of new cases of tuberculosis and the most rapid way of isolating the infectious case from the community. We should have emphasized, as we did in the complete paper, that there is nothing in the program which detracts from our usual conventional procedures. This program is not a substitute for what the health department has been doing for years. We are still tuberculin testing annually 20,000 school children through the local tuberculosis association. The clinics are being operated and are used for teaching purposes. We must have such teaching facilities or we could not provide instruction for cooperating physicians so in this respect our plan is the same type of program referred to by Dr. Rohr as existing in New York.

I feel that the evidence brought forth by our diphtheria program shows that the interest of the physician can be continuous, and as for the interest of the public, as a matter of fact, only 18 per cent of the diphtheria immunizations are being paid for by the health department. This indicates the willingness of the public to cooperate, and the constant increase in the number of children immunized at the susceptible age would indicate likewise. As far as the physicians are concerned, there is no question about their wholehearted cooperation.

SYPHILIS IN RELATION TO THE PREVENTION OF BLINDNESS

A STUDY OF 100,000 CASE RECORDS

CONRAD BERENS, M.D.

AND

JACOB A. GOLDBERG, PH.D.

NEW YORK

According to recent statistics,¹ syphilis accounted for 53 per cent of the blindness among 2,702 children in schools for the blind. This study indicated that syphilis is probably responsible also for a large proportion of the blindness now classified as congenital or hereditary. Other investigators² have determined that blindness among pupils in schools for the blind and among persons applying for pensions for the blind is attributable to syphilis in percentages varying from 34 to 15. Cowan and Sinclair³ reported that among 6,000 applicants for pensions for the blind in Pennsylvania, 566 eyes, or 94 per cent, were affected with syphilis. In a recent communication, however, Cowan⁴ stated that this estimate is low because it represents merely the cases in which the examiner stated that syphilis was an etiologic factor, whereas, to cite only one source of possible error, many cases of interstitial keratitis were etiologically undiagnosed.

A number of studies relative to the incidence of syphilis among patients suffering from various types of eye diseases have been made. Authoritative data have been presented to indicate the seriousness of syphilis as an etiologic factor in such diseases. However, information is not available from the study of a large series of cases concerning practices in the diagnosis, treatment and follow-up of patients who have syphilis or who may acquire syphilitic eye lesions. These practices include routine serologic tests for syphilis, follow-up of patients with eye disease who have positive Wassermann reactions, examination of immediate relatives, especially husbands, wives and children, of patients with evidence of syphilis, and the use of accepted methods of treating syphilitic eye diseases or eye diseases complicated by syphilis. This study was prompted by the desire to obtain such data so that the number of cases of blindness and marked diminution of vision among persons who have acquired or congenital syphilis might be reduced.

ORGANIZATION OF THE STUDY

To carry out this investigation, a special Committee on the Study of Syphilis and Eye Diseases was organized.

Read before the Section on Ophthalmology at the Eighty-Eighth Annual Session of the American Medical Association, Atlantic City, N. J., June 9, 1937.

¹ Berens, Conrad, Kerby, C. Edith and McKay, Evelyn C. The Causes of Blindness in Children. Their Relation to Preventive Ophthalmology. J. A. M. A. 105: 1949 (Dec. 14) 1935.

² Lamb, H. D. Causes of Blindness in Youth. J. Missouri M. A. 23: 101 (March) 1926. Discussion 1926 Conference of the National Society for the Prevention of Blindness.

³ Cowan, Alfred and Sinclair, S. M. Causes of Blindness in Pennsylvania from the Medical and Social Aspects. Tr. Sect. Ophth. A. M. A. 1936, p. 74.

⁴ Cowan, Alfred. Personal communication to the authors, April 30, 1937.

ized as a subcommittee of the Social Hygiene Committee of the New York Tuberculosis and Health Association.⁵ The major objectives of the Committee on Syphilis and Eye Diseases were the following: (1) to obtain accurate diagnoses of syphilitic eye diseases, (2) to evaluate routine Wassermann or simi-

Survey Form

I Case No	Age	W () N () S () M () W () D ()
II Hospital Patient	Clinic Patient	Both
III Personal History		Date Admitted
Syphilis	Genital Lesions	Skin Lesions
Treatment	Where	Ulcers
How Many Courses		Began
Under Treatment at Present?		Drugs
Stillbirths?		
IV Family History		
(a) Syphilis in Father	Mother	Patient's Children
(b) History of Locomotor Ataxia		Dementia Paralytica
(c) Cause of Death of Father		Mother
(d) Brothers		Sisters
(e) Children		
V Clinic Findings		
Tabes Dorsalis (Locomotor Ataxia)	()	Dementia Paralytica
(General) Paralysis of Insane	()	Taboparesis
vascular Syphilis	()	Congenital Syphilis
Other	()	Gumma
VI Laboratory		
Wassermann	()	Kahn
Spinal Fluid	Colloidal Gold	Neg ()
Dark Field	Neg ()	Pos ()
Other Serologic Tests		
VII Syphilitic Manifestations in Eye		
Iritis	()	Iridocyclitis
Choroiditis	()	Optic Atrophy
Argyll Robertson Pupil	()	Any Ophthalmoplegia
Other	()	Interstitial
VIII Diagnosis	On Admission	On Discharge
IX Follow-up		
(a) For Eye		
(b) For Syphilis		
X Disposition of Case		
(a) Treated in Hospital Clinic	()	Department
(b) Referred to		
XI Result of Syphilis Treatment on Eye Condition		
(a) Improvement	()	(b) No Improvement
(c) Remarks		
XII Summary		

lar serologic tests on patients with eye disease, (3) to determine minimum social service and follow-up requirements, (4) to help in establishing standards for procedures at eye clinics and (5) to standardize the treatment of syphilitic eye diseases.

In the pursuit of these studies, certain working objectives were set up. These were as follows: (1) to study the method in which records are kept at various eye clinics in New York City, with special reference to syphilis and complications involving the eyes, (2) to analyze the material recorded in the clinical records, (3) to determine whether the serologic tests for syphilis and other laboratory tests are routine measures in cases of eye diseases that may be caused by syphilis, (4) to evaluate the procedures followed in caring for patients with eye disease who have positive Wassermann reactions, (5) to learn whether clinics utilize sufficient follow-up personnel in such cases and (6) to collect the statistical material necessary to determine the percentage of the various eye diseases which may be caused by syphilis.

METHOD OF STUDY

In carrying out this study of syphilis and eye diseases, the records of five important eye institutions in New York City were analyzed and tabulated. The total number of records studied was over 100,000. Records of patients were examined in order that we might obtain the following information: (1) personal history in relation to syphilis, (2) family history, (3) clinical observations, (4) laboratory observations, (5) syphilitic manifestations of the eye, (6) diagnosis, both on admission and on discharge, (7) social

service and follow-up for the eye condition and for the syphilitic condition, (8) disposition of the case, and (9) effect of syphilitic treatment on the eye condition.

The records were found to be incomplete as well as inaccurate. In 1923 a special study⁶ of the medical histories of ten representative ophthalmologic institutions in New York City also demonstrated serious deficiencies in the records. The history was recorded in only 55 per cent, a tentative or final diagnosis in 68 per cent, the treatment in 76 per cent, the vision in 78 per cent, the refraction in 45 per cent and examination of the muscles in 0.44 per cent.

In seeking data on syphilitic manifestations in the eye from a study of 100,000 records, we placed special emphasis on cases in which the following diagnoses⁷ were indicated: (1) iritis, (2) iridocyclitis, (3) retinitis, (4) optic neuritis, (5) choroiditis, (6) optic atrophy, (7) ophthalmoplegia, (8) Argyll Robertson pupil and (9) interstitial keratitis, as well as other diseases. A special form was prepared for this study.

RESULTS OF THE STUDY OF 100,000 CASE RECORDS

The summary of approximately 100,000 case records shows that a total of 5,969 patients, or about 6 per cent, presented diagnoses which were classified by the special Committee on the Study of Syphilis and Eye Diseases as possibly having syphilis as an etiologic factor. However, of the 2,237, or 37.5 per cent, who were given Wassermann tests, 444, or 19.9 per cent, had positive reactions.

Since the method of keeping records varied widely in the five institutions studied, only the most general conclusions may be drawn. The results of the study may be stated briefly in the order of their appearance on the survey form.

Personal Histories.—The personal histories were inaccurate, with meager information concerning syphilitic lesions and the amount of antisyphilitic treatment that patients received. However, our study shows that the full term stillborn children of the patients numbered forty, and the premature stillborn children nine (table 1).

Family Histories.—The family histories furnished inadequate information regarding the presence of syphilis in other members of the patient's family. Also,

TABLE 1—Family and Personal History of Patients Who Had Syphilitic Eye Lesions

	Number of Patients
Full term stillborn children of patients	40
Premature stillborn children of patients	9
Premature stillborn children of patients' mothers	7
Premature stillborn children of patients' wives	5
Full term stillborn children of patients' mothers	2
Full term stillborn children of patients' wives	9
Syphilis in entire family	1
Syphilitic insanity in patients' family	13
Syphilitic deaths in patients' family	

evidence of neurosyphilis, for example, tabes dorsalis or dementia paralytica, was not recorded in a sufficient number of cases. The statistics in table 1 indicate that the wives and mothers of syphilitic patients gave birth to thirty-four full term stillborn children. Premature stillborn children were recorded in these families twelve times, syphilitic insanity twice and death attributable

⁶ Berens, Conrad and Sturges, G. E. Case Records in Ophthalmological Clinics. Arch. Ophth. 5:2, 259 (May) 1923.
⁷ Tabulation of diagnoses was made after consultation with an advisory committee representing the National Society for the Prevention of Blindness, the American Social Hygiene Association and the Committee on Syphilis and Eye Diseases.

⁵ Members of the subcommittee are Drs. John H. Dunnington, Henry R. Skeel, Francis W. Shine, Jacob A. Goldberg (secretary) and Conrad Berens (chairman).

to syphilis thirteen times. Table 1 likewise shows that syphilis was present in the entire family in twelve instances. When these observations are considered in relation to the estimate of Lewis⁸ that from 50 to 75 per cent of the syphilitic children born of infected women acquire serious diseases of the eye and the statement of Holloway⁹ that sooner or later definite ocular evidence of syphilis is apparent in 75 per cent of congenitally syphilitic persons, syphilis assumes greater significance as a factor in blindness.

The great importance of the treatment of syphilitic pregnant women was stressed by Paley,¹⁰ who studied 617 women who were treated with neoarsphenamine and bismuth compound during pregnancy. The results showed that adequate antisyphilitic therapy during pregnancy greatly reduces the number of living syphilitic babies, miscarriages and stillbirths and the infant mortality in the first two months of life. It was definitely proved that antisyphilitic therapy during pregnancy is effective regardless of the duration of syphilis in the mother. The effect of syphilis in the father was also determined, and the statistics showed that when the father also was syphilitic the incidence of syphilis in the children was higher.

One of us¹¹ made a study of 653 pregnant women in seven antepartum clinics in New York City. Only 22.5 per cent were treated before the fifth month of pregnancy. The antisyphilitic treatments administered were possibly too few in number, as 36.7 per cent of the women were given five treatments or less and 56.3 per cent nine treatments or less. In the cases in which complete records were available, there were 426 normal births and forty-five fetal deaths. The early treatment of prenatal syphilis will undoubtedly result in saving lives, in reducing various manifestations of late syphilis, especially blindness, and in preventing congenital syphilis from affecting many children.

General Physical Examinations in Patients with Syphilitic Eye Lesions.—Although there were practically no records of clinical observations in two institutions, it is noteworthy that a summary of the records of the remaining three institutions shows that meningovascular syphilis was present in twelve cases, congenital syphilis in fifty-one, tertiary syphilis in twenty-four, tabes dorsalis in fifteen, secondary syphilis in nine and primary syphilis in nine. Seven patients gave evidence of cerebrospinal syphilis. If more general physical examinations had been recorded, the relationship of cause and effect between syphilis and eye diseases could have been more completely studied.

Laboratory Examinations.—The record of Wassermann tests made on patients who were classified as having eye lesions probably of syphilitic origin indicates that only 2,237 (37.5 per cent) were given the benefit of a serologic test for syphilis. Of this number 444, or 19.9 per cent, were found to have positive Wassermann reactions (table 2).

Syphilitic Manifestations in the Eye.—Data regarding the diagnosis and examination of the eye lesions were often inaccurate and insufficient. However, in our study the largest percentages of positive Wassermann reactions were recorded for patients with the following diagnoses: interstitial keratitis, 53.8 per cent, kerato-

iritis, 50 per cent, Argyll Robertson pupil, 41.7 per cent, optic neuritis and papillitis, 20 per cent, iritis and iridocyclitis, 15.4 per cent, uveitis, 14.2 per cent, and choroiditis, 12.4 per cent.

Serologic tests for syphilis, even in cases in which the eye disease listed was most likely to be etiologically related to syphilis, were not made as a matter of routine in any of the five clinics studied. The percentage of serologic examinations varied from 22.6 to 78.8 for the group of eye diseases in which syphilis might be the cause. In one clinic only 51.6 per cent of the patients with interstitial keratitis were given a Wasser-

TABLE 2—Summary of Eye Diseases with Possible Syphilitic Involvement

Diagnosis	Total Cases	Wassermann Tests Made		Positive Wassermann Reactions	
		Total	%	Total	%
Iritis	876	583	43.7	59	1.4
Iridocyclitis	332	110	28.8	17	15.5
Retinitis	558	210	35.6	22	10.5
Pigmentosa	166	69	41.6	6	8.7
Hemorrhagic	60	12	18.5		
Neuro	30	15	50.0	5	33.3
Chorio	421	187	44.4	26	10.9
Proliferans	8	2	25.0		
Circinate	3	2	66.7		
Albescens	20	2	8.0	2	100.0
Choroiditis	513	169	32.9	21	12.4
Keratitis	411	133	32.4	31	23.3
Interstitial	245	173	70.6	93	53.8
Punctate	30	6	18.2	1	16.7
Dendritic	86	1	2.8		
Marginal	101	15	9.9	1	6.7
Sclerosing	29	5	17.2	1	20.0
Phlyctenular	38	7	18.4	3	42.0
Bulbous	11	3	27.3		
Facicular	4	3	75.0		
Vascular	1				
Profunda	20	2	8.0		
Hypopyon	20	2	8.0	1	50.0
Herpetic	10	2	20.0		
Conjunctivitis	28	0	21.4	1	10.7
Lattice	1				
Iritis	20	16	64.0	8	50.0
Ophthalmoplegia	62	20	32.3	7	3.0
Paralysis (not specified)	96	21	21.0	3	14.3
Third nerve	14	8	57.1	3	37.5
Superior rectus	45	16	35.0	2	12.5
Inferior rectus	41	20	66.7	6	20.0
Left lateral rectus	41	12	29.3	3	25.0
Right lateral rectus	23	9	39.1	3	33.3
Facial paralysis (Bell's palsy)	5	4	80.0	1	25.0
Argyll Robertson pupil	17	12	70.6	5	41.7
Optic atrophy	569	258	50.6	72	21.0
Optic neuritis and papillitis	93	50	53.8	10	20.0
Retinobulbar neuritis	89	33	37.1	3	9.1
Uveitis	161	113	70.2	16	14.2
Hyalitis	10	1	10.0	1	100.0
Cyclitis	20	3	15.0		
Cytosis	20	3	15.0		
Papilledema	20	14	70.0	3	21.4
Episcleritis	60	17	28.3	1	5.9
Cellulitis (orbit)	22	51	22.7	7	13.7
Total	5,069	2,237	37.5	444*	19.0

* This total does not include twelve cases in which no diagnosis was given.

mann test. In the clinic presenting the second highest record of serologic tests, 100 per cent of the patients with interstitial keratitis were tested serologically. Of patients with optic atrophy 94.7 per cent had Wassermann tests. The record for serologic examinations in cases of chorioretinitis was 92.6 per cent, in cases of retinitis 90.9 per cent and in cases of iritis 87.8 per cent. In the clinic which achieved the highest total percentage of serologic testing, 78.8 per cent of all patients with eye disease of probable syphilitic origin were given serologic tests for syphilis.

Gratiot¹² expressed the opinion that Wassermann tests should be made in all cases of disease of the eye in which syphilis may be a causative factor. He reported a positive Wassermann reaction in 20 per cent of the cases of disease of the cornea, in about 38 per cent of the cases of iritis and in thirty-one of forty-

⁸ Lewis, Park. Interstitial Keratitis a Modern Anachronism. *Am J Ophth* 17: 444 (May) 1934.

⁹ Holloway, T. B. Why Have Ocular Diseases. *Am Health Cong Series* Vol. 4.

¹⁰ Paley, S. S. Syphilis in Pregnancy. *New York State J Med* 37: 585 (March 15) 1937.

¹¹ Goldberg, J. A. Prevention of Congenital Syphilis. *New York State J Med* 34: 290 (April 1) 1934.

¹² Gratiot, H. B. Routine Wassermann Tests in Ophthalmology. *J Iowa M Soc* 13: 186 (May) 1923.

three cases of primary atrophy of the optic nerve, in ten of which the condition was congenital

In table 3 the number of positive and negative Wassermann reactions in the families of the syphilitic patients under consideration is recorded. Though these data are incomplete, they are at least suggestive of the conditions existing in the families of syphilitic patients.

Social Service and Follow-Up—The lack of recorded data rendered it impossible for us to analyze completely the social service and follow-up system. For example, in one institution, in which 145 patients had positive Wassermann reactions, there was no record of a follow-up service in 132 cases. In another institution, with 134 patients, no follow-up was recorded in fifty cases. In still another, with forty-one patients, no follow-up was recorded in fifteen cases. In the institution presenting the best record only eighteen of 100 patients had not been followed up.

TABLE 3—Wassermann Reactions in Families of Syphilitic Patients

	Positive	Negative
Fathers	26	18
Mothers	59	17
Children	16	8
Sisters	18	3
Brothers	20	4
Husbands or wives	21	6
Total	160	56

TABLE 4—Social Service and Follow-up Work in Cases of Eye Disease—Disposition of Patients with Positive Wassermann Reactions

	Clinic					Totals
	1	2	3	4	5	
Under treatment		48		47	6	101
Discharged		1				4
Failed to attend		5		14		19
No record	86	23	20	9	26	164
Referred to other hospitals	33	22	11	3	4	73
Referred to department of hospitals			2	5		7
Referred to department of health	14	33	6	3		56
Referred to private physician	12	1	2	5		20
Transferred to state hospital				3		3
Died cause, syphilis		1		8		9
						436

Although the importance of social service in relation to syphilis in eye clinics has long been stressed,¹³ the financial support necessary to provide for this service is not available to all institutions. The problem is economic as well as social. The contribution toward effective prevention of syphilis of only a fraction of the money now expended on the support of syphilitic persons would markedly decrease the number of syphilitic tragedies which terminate in blindness. The institution of adequate social service and active follow-up work in all hospitals and clinics would insure completion of treatment so that complications involving the eyes which might result in blindness could be prevented.

SUMMARY

We have pointed out that, although the importance of syphilis in the causation of certain eye diseases is recognized, little information is available from a study of a large series of cases concerning clinical practices regarding the diagnosis, treatment and follow-up of patients who have eye lesions that may be caused by syphilis or who have relatives who may be syphilitic.

These data are important if better methods of attacking the problem of syphilis and preventing blindness are to be instituted.

Approximately 6 per cent of the 100,000 patients in the five institutions were reported as having eye lesions which might have syphilis as an etiologic factor. Data in relation to the personal histories, family histories and previous medical histories were generally inaccurate and insufficient. However, in spite of this, our study revealed that the full term stillborn children of these patients numbered forty and the premature stillborn children nine. It was found that in twelve instances syphilis affected the entire family and that thirteen deaths in the patients' families had been caused by syphilis. It was also shown that wives and mothers of syphilitic patients had given birth to thirty-four full term stillborn children and twelve premature stillborn children.

Previous medical histories and clinical observations in cases of syphilitic disease were inadequate, for congenital syphilis was recorded in only fifty-one cases and tertiary syphilis in twenty-four, while tabes dorsalis was observed in fifteen. Only 37.5 per cent of the patients in whom syphilis may have been an etiologic factor were given the benefit of serologic tests. Approximately 20 per cent of the Wassermann reactions in these cases were positive. Serologic tests were not made as a matter of routine in any of the clinics on the patients who had eye lesions that were considered to be of syphilitic origin. The percentage of serologic examinations made varied from 22.6 to 78.8.

It is cause for serious consideration that in one clinic only 51.6 per cent of the patients with interstitial keratitis were subjected to Wassermann tests. This is particularly important in view of the fact that 53.8 per cent of the entire group of patients with interstitial keratitis had positive Wassermann reactions and that 50 per cent of those with kerato-iritis showed positive reactions. The next highest percentage of positive Wassermann reactions, 41.7, was recorded for patients with Argyll Robertson pupils. It is important that 14.2 per cent of those with uveitis and 15.4 per cent of those with iritis and iridocyclitis had positive reactions. As would be expected, the percentage of positive reactions in the group with choroiditis was lower, only 12.4. It is most unfortunate that more Wassermann tests are not made in families of syphilitic patients because, although only 216 tests were made, 160 of the reactions were positive. The highest percentage occurred in mothers, approximately 37.

The great importance of the treatment of pregnant women has been clearly demonstrated by Paley,¹⁰ who showed that adequate antisyphilitic therapy during pregnancy greatly reduces the number of living syphilitic babies, miscarriages and stillbirths, as well as the infant mortality in the first two months of life.

One of the most serious failures in several of the clinics, from the standpoint of the prevention of blindness, was in the social service and follow-up work. Only thirteen of 145 patients with positive Wassermann reactions were followed up in one clinic. No doubt the financial factor is an important cause for the failure to provide social service and follow-up work. However, after long study of this subject,¹⁴ it is our conviction

¹³ Carvill, Maud and Derbr, George S. Interstitial Keratitis. Tr. Sect. Ophth. A. M. A. 1925, p. 260. Berens, Conrad and Taylor, M. K. Social Service and Follow up in Ophthalmology. Hosp. Soc. Serv. 16, 89 (Aug.) 1927.

¹⁴ Taylor, M. K. and Berens, Conrad. The Importance of Social Service and Clinic Management in Ophthalmological Clinics. New York State J. Med. 28, 1470 (Dec. 15) 1928. Berens, Conrad, How, C. Adequate Medical Social Service Be Provided in Eye Clinics. Hosp. Soc. Serv. 22, 275 (Oct.) 1930. The Importance of Social Service in Follow up in Preventing Blindness. Sight Saving Rev. 2, 83 (Jan.) 1932. What Can an Organization for the Blind Do in Preventing Blindness? Ibid. 3, 186 (Sept.) 1933. Berens and Taylor.

that much of the blame must be borne by physicians for their lack of interest in or lack of complete understanding of the importance of this work

CONCLUSIONS AND RECOMMENDATIONS

A study of 100,000 records shows that 5,969 patients (approximately 6 per cent) had eye lesions which may have had syphilis as an etiologic factor. However, in many cases the diagnoses were omitted from records and the clinical observations were so incomplete that accurate diagnoses could not be made.

From this study of syphilis in five eye institutions, the following conclusions and recommendations seem justified:

1 The personal histories, although inaccurate and lacking in detail, showed that the patients with syphilitic eye lesions gave birth to forty-nine stillborn children. In order that more of these valuable data may be obtained, it is recommended that personal histories be more accurate and detailed, special emphasis being placed on the history of syphilis, genital lesions, cutaneous lesions and ulcers and on the exact amount of treatment received and where such treatment was given.

2 The family histories were inaccurate but the small group recorded showed that the relatives of patients had forty-six stillborn children, that syphilis affected the entire family in twelve instances and that there were two cases of syphilitic insanity and thirteen syphilitic deaths in the patients' families. It is recommended that the family histories of patients with eye lesions which may be caused by syphilis include data regarding syphilis in the father, mother, children and other relatives. A record should also be made of a history of dementia paralytica, tabes dorsalis and other syphilitic nervous diseases. It is important to record the cause of death of members of the patient's immediate family.

3 The clinical, medical and neurologic data were most incomplete, as congenital syphilis was recorded in only fifty-one cases, meningovascular syphilis in twelve, tertiary syphilis in twenty-four, tabes dorsalis in fifteen, secondary syphilis in nine, primary syphilis in nine and cerebrospinal syphilis in seven. It is recommended that more careful attention be given to the medical and neurologic data in cases of syphilitic eye diseases.

4 Laboratory examinations showed that Wassermann tests were made in only 2,237 (37.5 per cent) of the 5,969 cases in which the diagnosis was an eye disease of possible syphilitic origin. Of the patients tested, 444, or 19.9 per cent, had positive reactions. It is recommended that a Wassermann test be performed on all patients with eye lesions possibly syphilitic.

5 The data regarding diagnosis and examination of the eye lesion were often inaccurate and insufficient. It is recommended that greater care be exercised in recording the exact diagnosis on admission and discharge from a hospital or clinic.

6 The social service and follow-up work in relation to the eye disease and to syphilis showed an appalling lack of thoroughness. Although all the institutions had social service departments, only a small percentage of the patients with positive Wassermann reactions were followed up. In one institution, only thirteen patients of 145 were rendered this service. Therefore, it is recommended that all patients with positive Wassermann reactions who have syphilitic eye lesions be followed up and that a study of the patients' relatives also be instituted.

7 The great importance of social service work in the prevention of unnecessary blindness is evident from this

study, but recorded data were incomplete. It is recommended therefore that the social service data indicate the reference of the patient to other hospitals or clinics or to a physician and the final discharge.

8 Notes on progress often failed to indicate the result of antisyphilitic treatment from the point of view of the eye or from the serologic standpoint. Therefore, it is recommended that these data be more complete.

If much unnecessary blindness caused by syphilis is to be prevented, the recommendations embodied in this study must not only be considered seriously but must be carried out in a systematic manner in hospitals and clinics. Especial attention must be given to the follow-up of individual patients and their families.

35 East Seventieth Street

ABSTRACT OF DISCUSSION

DR E. V. L. BROWN, Chicago. These records are characterized by the writers of this paper as inadequate and inaccurate. Some 6,000 cases of the 100,000 were diagnosed as syphilitic, but a Wassermann test had been made in less than half. Notes concerning the primary, secondary and tertiary nature of the syphilis present were lacking in 97 per cent of the cases, and histories of syphilis in the patient or his family were lacking in 98 per cent. Eye examinations were likewise often inaccurate and insufficient. Interstitial keratitis was diagnosed in 240 cases, yet the fact that the Wassermann reaction was positive in only 54 per cent of them leads one to suspect that there were actually only about 150 real cases of interstitial cases in the group, because Igersteiner gives the Wassermann reaction as positive in 91.9 per cent. The conclusion is hard to escape that a large number of the cases of interstitial keratitis were diagnosed by these dispensaries when they were not interstitial keratitis at all. There is no reason to believe that the rest of the work was any better, and the records cannot by any stretch of the imagination be considered as a contribution to our knowledge of the subject of syphilis in relation to the eye as given in the title of the paper. This is not the fault of the authors, who apparently recognized this fully and placed a goodly part of the blame on the lack of funds for social service. Four or five clinics had social service but it was spread out pretty thin, for although it was supposed to cover matters of attendance, treatment, discharge and reference to other hospitals, to the department of health, to the department of hospitals, to a state hospital or to a private physician to record syphilis as a cause of death, even a single such note was found recorded in only 8 per cent of the cases. In one line the authors do get at the heart of the matter for they say "much of the blame must be borne by the physicians." But they offer no remedy or suggestion of any kind. In my opinion the reason for poor records is to be found in the widespread failure to recognize the dispensary as the crux, the heart, of the eye clinic, and the failure of the chief of service and, in particular, the head of the department to spend a minimum of three fourths of his time in the dispensary and secondly to give a good three fourths of the eye surgery to attending men of middle rank on the staff. Too often he takes it all himself or gives it to the intern in unnecessary amount. If the competent and hard-working men in the middle rank of the staff are properly worked with and rewarded, they will do good work and make good records. If they are not given proper consideration, there will not be good work, good records or any other good activity in the dispensary. The condition is countrywide, worldwide. Every one knows the London, Paris, Vienna, Chicago, Boston clinics. It is certainly not peculiar to eye work. This paper makes the situation clear.

DR JOHN GREEN, St. Louis. This study shows that about 6,000 patients had ocular conditions which might have been caused by syphilis. It is therefore rather startling to note that only 2,237, or 37.5 per cent of these patients were investigated serologically and that positive reactions were obtained in only 444 or 19.9 per cent. The inference may be drawn that the clinicians did not think it worth while to have the Wassermann test made unless the clinical evidence pointed very strongly to

syphilis as the etiologic factor. The investigation disclosed many glaring defects which are probably common to clinical services throughout the country—incomplete and inaccurate personal and family histories, meager information on lesions and treatment, and entirely inadequate social service and follow up. The authors quote Lewis and Holloway, who believe that from 50 to 75 per cent of syphilitic children develop serious diseases of the eye. This estimate is, in my opinion, quite accurate. From 1916 to 1919 I made a study of 100 syphilitic children from the pediatric clinic of the Washington University Dispensary and the wards of the St. Louis Children's Hospital. It is believed that these 100 cases fairly represent the types of hereditary syphilis seen in a pediatric service and that the number and kinds of ocular complications are what might be expected in such a group. The clinical diagnosis was confirmed in every case by at least a two plus blood Wassermann reaction. Seventy-four of these children presented definite pathologic conditions in one or more of the ocular tissues or some derangement of ocular function. As adequate treatment of syphilitic women will almost certainly result in the birth of healthy babies, the means are at hand to eradicate all syphilitic eye diseases in infants and children. By this one means alone the incidence of blindness due to syphilis would be reduced 50 per cent. To designate an eye disease as having a syphilitic origin in every case in which the serologic reaction is positive is a grave mistake, but it is equally reprehensible to neglect to have a blood Wassermann test made in certain cases in which the clinical manifestations do not certainly indicate syphilis. It is indeed amazing that in the ocular disease that almost invariably has a syphilitic basis, namely, interstitial keratitis, a positive Wassermann reaction should have been found in only 53.8 per cent. This percentage is so much at variance with ophthalmologic opinion that, with rare exceptions, interstitial keratitis occurring in children is of syphilitic origin that it must point to the neglect of the serologic test in too large a number of cases of this disease.

DR. LOUIS LEHRFELD, Philadelphia. A survey on syphilitic optic atrophy has just been completed at the Wills Hospital, Philadelphia. A statistical investigation was made of 600 cases of syphilis affecting the optic nerve during a ten year period. The objective of the survey was to find out what happens to the eyesight of syphilitic patients who already show signs of involvement of the nervous system, and to ascertain how effective present methods of treatment might be. The most important conclusion of the survey is that the present day treatment of syphilitic patients having optic nerve involvement is entirely unsatisfactory so far as improvement of vision is concerned. The only appreciable difference among the treated and the nontreated patients with syphilis who have optic nerve degeneration is that the nontreated patients became blind in five years while the treated patients became blind in eight years. Of a group of 350 patients, 250 were white and 100 Negroes. The preponderance of syphilitic optic atrophy among the white patients compared with the Negroes, in whom syphilis is five times more prevalent, may be a basis for suspecting that present methods of treatment may precipitate early optic atrophy, while those who are lax in receiving treatment, particularly Negroes, are less likely to develop optic atrophy. There is no doubt in my mind that early treatment of syphilis affecting the ocular structures should be instituted to save sight. There is also no doubt in my mind that the present methods of using arsenicals must be revised if we wish to reduce the percentage of blindness from syphilitic optic atrophy. At the present moment the best method of preventing blindness from syphilis is to prevent the disease itself and not to place full reliance on the treatment of the disease.

MR. LEWIS H. CARRIS, New York. Though I can't discuss this paper from the scientific standpoint, on behalf of the National Society for the Prevention of Blindness, I am grateful to this organization for presenting this subject. Two things seem to me to be clearly shown: first, the need for improvement in the clinical service and second, the importance of the social service follow-up work, in which we have been concerned. It is gratifying to note the progress being made in public health teaching with regard to the prevention and early treatment of syphilis. By getting at the heart of this problem eventually there should be few cases that need the eye physician's help.

DR. CONRAD BERENS, New York. Dr. Brown's discussion, particularly his statement with regard to social service, is interesting. I feel that social service is exceedingly important and believe that more social service is needed. For example, in one institution in New York which has an eye and ear service, one, two and at times three workers care for 6000 new admissions a year. Therefore, little time can be devoted to the careful study of any particular group of eye patients. As a matter of fact this amount of social service work does not effectively and efficiently take care of our glaucoma patients alone. I agree with Dr. Brown that this paper is not a contribution to the study of syphilis except possibly as it relates to the prevention of blindness. Dr. Brown mentioned what I consider a vital point—the question of the importance of the clinic in the prevention of blindness. Those associated with the National Society for the Prevention of Blindness have long believed the clinic to be one of the most important factors in the prevention of blindness movement. I agree with Lehigh that we must not think so much of how to treat the disease, particularly disease of the optic nerve, but if we can only prevent the disease from developing we then can say that we are fulfilling our most important function as ophthalmologists. Dr. Green has raised another important point. He makes a point of having the cases studied by one particular physician in each clinic. We are coming more and more to the realization that if we hope to have efficient service in treating certain eye diseases, for example, glaucoma, syphilis and tuberculosis of the eye, we must develop certain physicians in our clinics who will more efficiently and scientifically care for these particular cases. Moreover, we must have adequate social service work in conjunction with this specialized medical work.

THE INCIDENCE OF OPERATIONS FOR GOITER IN SOUTHERN MICHIGAN

EFFECT OF IODIZED SALT AFTER TWELVE YEARS'
GENERAL USE

ROY D. McCLURE, M.D.
DETROIT

There is no need to discuss here the now well known deleterious effect of a diet deficient in iodine. To Marine and his associates for their scientific discoveries, their stimulation of other workers and the dissemination of this newer knowledge is due all credit. Plummer, too, should be mentioned in any clinical talk on thyroid and iodine, as he scientifically demonstrated the early marked improvement, temporary though it may be, of patients with hyperthyroid disease from iodine administration.

Michigan lies in the center of the Great Lakes endemic goiter belt, one of the large, though not the most severe, endemic goiter areas. In these great areas both food and drinking water are known to be deficient in iodine. This deficiency in iodine is not observed uniformly throughout the so-called goiter belt. At Mount Clemens, Mich., 26 per cent of the children had enlarged thyroids, while at Romeo, Mich., 12 miles distant, 75 per cent of the children had enlarged thyroids. Both of these towns are within 30 miles of Detroit. The water supply at Mount Clemens was found to contain 25 parts of iodine per billion, while at Romeo the water supply contained not a trace of iodine in 50 liters. This variation in iodine content can undoubtedly be taken as an indication that iodine percentages must vary in water and foods throughout goiter areas as well as throughout the world, just as do other soluble salts commonly found in water and food. One might surmise that the process of washing soluble

From the Department of Surgery, Henry Ford Hospital.
Read before the annual meeting of the American Association for the Study of Goiter, Detroit, June 16, 1937.

salts out of the earth's surface down into the ocean goes steadily on and that endemic goiter areas are probably increasing in size through the centuries, just as the farmer's soil is depleted of valuable elements by his crops unless they are regularly replaced by the proper fertilizers

EXPERIENCE IN MICHIGAN

Almost thirteen years has passed since the introduction of salt containing iodine and it is now possible to check on the results of its use. Through cooperation of the Michigan State Medical Society, the state board of health, Dr O P Kimball and the salt manufacturers, iodized salt was introduced in 1924 through the grocery stores without any legislation. Wide publicity of this effort was obtained at that time through letters from the state board of health to school children, parents and various organizations. In the clinic of the Henry Ford Hospital we had been treating, as had others, for a number of years previous to 1924, nontoxic diffuse goiter (simple colloid) in children with sodium iodide tablets with such uniformly good results and no ill effects that we believed in the probable efficacy of iodized salt distributed in this manner if it was universally adopted by the consuming public.

Iodized salt in Michigan contains 0.01 per cent of sodium iodide. The committee from the pediatric section of the state society, of which I am now a member, recommended that the use of this iodized salt alone should preclude the administration of any other form of iodine and that, to be effective, it should be used for cooking as well as for table use. The salt producers estimated that each inhabitant of Michigan on the average consumed between 5 and 6 pounds of salt a year, whereas other estimates placed the consumption at 8 pounds a year for each individual. The committee accepted the 8 pounds a year as a safe average. This would give the average consumer about 1 mg of sodium iodide daily.

Letters received from the largest salt distributors in Michigan show that, from 1930 to 1935 inclusive, about 85 per cent of all the salt sold was iodized salt as compared to 15 per cent of plain free running salt.

For a few years after the publicity in this matter our patients knew when asked if they were or were not using iodized salt. Today without publicity the average citizen does not know, as a rule, whether he is or is not using iodized salt. The danger today is that

without publicity a decreasing use of iodized salt may result. However, the largest salt distributors and grocery men have been our staunch allies in putting across this public health job without any law being enacted.

In Detroit today, owing mainly to the lack of publicity a decreasing amount of iodized salt is being sold by some grocers. This is partly due to the slightly higher cost of iodized salt. With this decreased sale

of iodized salt there is an increasing amount of enlarged thyroids among school children as well as in operating rooms.

In 1927 in our clinic there was a gradually increasing number of goiter patients coming to operation in spite of or perhaps because of the introduction of iodized salt. The large majority of the cases were of toxic nodular goiter and I¹ reported the results at that time. The rising curve of operations and the goiter death rate curve in Detroit suggested that the iodine might be harmful and that the earlier experience in Switzerland and in France which resulted in giving up the use of iodine was correct. However, the iodized salt sales were under such headway that there could be no discouraging its use.

During the next few years the number of goiter operations in our clinic fell off so rapidly in spite of an increasing total number of all operations that I was led to ask the seven largest hospitals in southern Michigan for their statistics. These included University Hospital, Ann Arbor, Harper, Grace, Henry Ford and Receiving hospitals, Detroit, and Blodgett Memorial and Butterworth hospitals, Grand Rapids. Their figures have been during the years freely given to us and curves plotted of each of these and then a composite curve made.

This curve shows exactly the same results that we were having in our clinic. In the seven hospitals there were only 591 goiter operations in 1933 as compared to 1,452 such operations in 1927, while the total number of all operations during the depression years dropped, a 60 per cent drop in goiter surgery compared to 17 per cent drop in all surgical operations.

It has been suggested that the decrease in the amount of goiter might be due to the depression diets, but a study of our curves show that the decline in the number of goiters started four years before the depression peak and has remained down with the return of prosperity as the total number of all operations was rising.

The yearly death rate from goiter supplied to us through the courtesy of the Detroit Board of Health suggests too that there was some harmful effect the first few years after the introduction of iodized salt (chart 3). It should be noticed that the death rate is lower than before the introduction of iodized salt for the greatly increased (doubled) population of Detroit in the eighteen years shown.

In 1924, 35 per cent of all the Detroit school children showed enlargement of the thyroid gland.² In 1932 only about 1 per cent had any such enlargement. McClendon,³ from the draft board statistics has shown

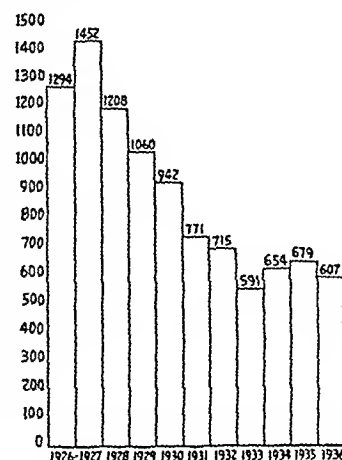


Chart 2—Total thyroidectomies in the same seven hospitals 1926-1937

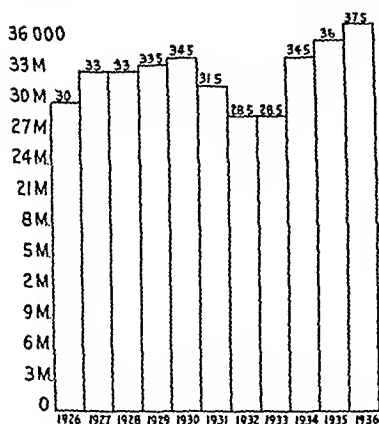


Chart 1—Total operations in seven Michigan hospitals 1926-1937

1 McClure R D Experience with the Thyroid Problem in a Detroit Clinic Ann Surg 85 333 334 (March) 1927

2 Kimball O P The Prevention of Goiter in Detroit and Cleveland J A M A 97 1877 1879 (Dec 13) 1931

3 McClendon J F and Williams Agnes Simple Goiter as Result of Iodine Deficiency J A M A 80 690 691 (March 3) 1933 McClendon J F and Hathaway I C Inverse Relation Between Iodine in Food and Drink and Goiter Simple and Exophthalmic Ibid 82 1668 1672 (May 24) 1924

that the incidence of exophthalmic goiter throughout the United States is proportional in every locality to the incidence of endemic goiter. These two statements have been borne out by the observations reported here. In this region since the introduction of iodized salt, coincident with the great dropping off in the number of enlarged thyroids, there has been a corresponding diminution in the number of thyroid operations for hyperplasia and adenomas of the thyroid gland.

The most striking chart presented here (chart 4) is that showing the incidence of goiter or enlarged thyroid glands in the children in Detroit schools. These examinations were conducted by Kimball and the Detroit Board of Health.

As shown in the charts, the first year after the introduction of iodized salt in Michigan the rising curve suggested a possible harmful effect, and if the iodized salt had been stopped at that time the latter striking drop in the curve would not have been observed. Kocher⁴ in 1904 had warned against the indiscriminate use of iodine because of symptoms of hyperthyroidism in the adenomatous or nodular type of goiter. Kocher⁵ in 1910 and 1911 in papers on jodbasedow told of the untoward effects of iodine in exophthalmic goiter. The very name, i.e., iodine hyperthyroidism, fixed in the minds of his followers the possible dangers of iodine in the treatment of goiter.

From Cleveland in 1926 Hartsock⁶ reported that many persons with goiter are precipitated into a state of hyperthyroidism by the use of iodized salt, but he wrote to me in August 1933 "At the present time we doubt very much if we see any cases that are of this nature, i.e., iodine hyperthyroidism."⁷ This Dr Hartsock again confirms in 1937 by letter to me.

Cowie of Ann Arbor has been especially interested, as one of the responsible committee, in investigating several cases of hyperthyroidism supposed to have been induced by the use of iodized salt. He reports "We have run down several reports of ill effects from the use of iodized salt, but in each instance we have found that the reports were fallacious."

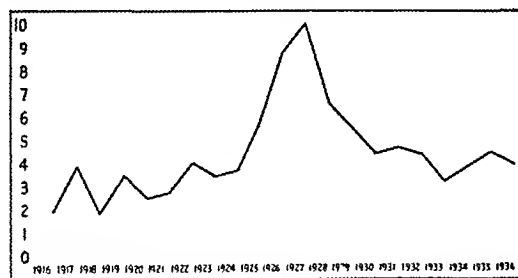


Chart 3—Yearly death rate per hundred thousand from goiter at Detroit

Jackson⁸ studied a group of 1,000 children for ten years. No case of adenomatous goiter developed, if treatment was started before these conditions were present.

- 4 Kocher Theodor Die Therapie des Kropfes Deutsche Klinik 111: 1184 1904
 5 Kocher Theodor Ueber Jodbasedow Arch f klin Chir 92: 1166 1193 1910
 6 Hartsock C L Iodized Salt in Prevention of Goiter Is It Safe Measure for General Use? J A M A 86: 1334 1338 (May 1) 1926
 7 McClure R D Thyroid Surgery in Southern Michigan as Affected by the Generalized Use of Iodized Salt J Michigan M Soc 33: 58 62 (Feb) 1934
 8 Jackson A S Etiology, Diagnosis and Treatment of Goiter J Missouri M A 30: 389 393 (Oct) 1933

Can iodine hyperthyroidism be produced in an individual with a normal thyroid with enormous doses of iodine? We believe that this does not occur. We quote reports from two large divisions of syphilis where patients receive huge doses of iodine. Dr J E Moore of the Division of Syphilis of the Department of Medicine at the Johns Hopkins Hospital reports to me that they have records of over 20,000 patients treated with large doses of iodides with no record of a patient developing iodine hyperthyroidism. Dr Frank Menagh

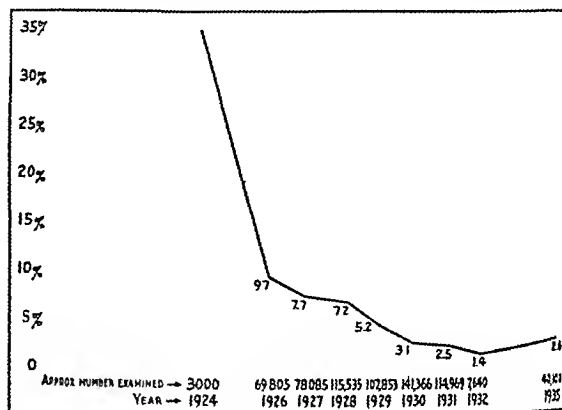


Chart 4—Incidence of goiter in Detroit schools (Dr O P Kimball)

of the Henry Ford Hospital reports to me that among 6,000 cases of syphilis treated with large doses of iodides there was only one patient who presented symptoms suggestive of iodine hyperthyroidism and this was very questionable. These patients in our syphilis clinic were, of course, living in an endemic goiter region, so many had mild simple goiter.

Marine and Kimball⁹ reported "The administration of any salt or iodine in any manner completely protects the remaining thyroid against compensatory hyperplasia."

COMMENT

In view of our striking results we are led to believe that perhaps some of the goiters that we are now seeing may be due to a disturbed iodine metabolism. It might seem that the patient was taking by mouth sufficient iodine to prevent the thyroid enlargement. However, in our area it may happen that the patient does not like salt with his food or may have a prejudice against iodized salt. Then, too, as in a goiter belt the iodine content of the water varies as it does in nongoitrous areas, in a small locality the more closely confined persons in that area may have a diet deficient in iodine.

In 1928 Marine¹⁰ reported "As a result of the numerous studies of the relation of iodine to the thyroid gland our present views regarding the cause of goiter assume that it is a compensatory hypertrophy of the thyroid depending on a relative or absolute deficiency of iodine. This deficiency of iodine may be due to (1) factors which bring about an abnormally low intake of iodine, (2) factors which interfere with the absorption or utilization of an otherwise adequate intake, (3) factors which increase the needs of the body for the iodine containing hormone." The chief factor under 1 is the lack of iodine in the food and water supply. Factors under 2 are not so well known although there have been recent papers on this subject.

- 9 Marine David and Kimball O P Prevention of Simple Goiter Man J A M A 77: 1068 (Oct 1) 1921
 10 Marine David Chemistry in Medicine New York Chemical Foundation Inc 1928 p 272

Under 3 it is well known that the thyroid is prone to enlarge at puberty, at menstruation, during pregnancies and sometimes in cases of malnutrition and with infections

It would appear that iodine metabolism is very closely related to the problem of thyroid dysfunction¹¹

CONCLUSIONS

1 There is no doubt that there is a deficiency of iodine in the diet of the inhabitants of Michigan. To combat this it is safe and sound in some way to add more than enough iodine to the diet. In Michigan iodized salt has been chosen at the present time as the most practical way.

2 Iodized salt as used in Michigan did at first apparently increase the number of thyroid operations.

3 The increase occurred in the nodular goiter or adenoma group, and we believe the iodized salt may have activated a group of patients with quiescent adenomas, producing toxic goiter symptoms.

4 The increase reached its peak in the second year after the introduction of iodized salt.

5 An increase in the death rate from goiter as shown by the board of health statistics reached its peak in the second year after the introduction of iodized salt.

6 There was no increase in hyperthyroidism excepting in the nodular goiter or adenoma group.

7 The number of operations for toxic diffuse and toxic nodular goiter has rapidly and steadily decreased after the apex of the second year excepting for a slight increase during the last three years.

8 The incidence of endemic goiter or enlarged thyroid has been reduced almost to nil since iodized salt has been so widely used.

9 We now see no cases which show the slightest ill effects from the use of iodized salt.

10 Toxic nodular goiter and toxic diffuse goiter are less apt to occur when there has been no previous enlargement of the thyroid (endemic goiter), at least this would seem a safe conclusion based on our experience.

11 As the publicity concerning the necessity for the use of iodized salt has fallen off, the sales of iodized salt have decreased until today one of the larger retail dealers in Detroit sells only about 50 per cent of iodized salt. Others range in sales up to 75 per cent, while the average is 75 per cent.¹² Our charts, reproduced here, show the result of this delinquency by a slight rise in the number of goiters in our school children and in our operating rooms. To combat this slump, either continued publicity must be given to this subject or should a law be passed making it mandatory for grocers to sell only iodized salt?

¹¹ Curtis G. M. Iodine Relationships of Thyroid Disease. *Surg. Gynec. & Obst.* 62: 365-372 (Feb. [No. 2A] 1936). Watson E. M. Iodine Tolerance Test for Investigation of Thyroid Function. *Endocrinology* 20: 358 (May) 1936.

¹² June 15, 1937, large grocery stores of Detroit report their per centage of iodized salt sales in 1937 as follows: G. I. MacMillan 75, Lee & Cady 70, Edward Wallace & Son 50, Neff Bros. 80, Hamilton Grocery Market 85.

Booked for a Fall—Some doctors have the conception that a medical library is a place where some one can be found who will prepare a list of references with which to embellish their compositions. Some organizations even advertise that they will for proper remuneration look up the literature of a given subject so that writing may be made easy. Writing is not easy and cannot be made so by any known short cuts and who ventures on such, even has his natural gifts of expression, is booked for a fall—Cushing Harvey. *Consecratio Medici and Other Papers*. Boston, Little, Brown & Co. 1928.

Clinical Notes, Suggestions and New Instruments

CHRONIC ARACHNOIDITIS OBLITERATING THE SPINAL SUBARACHNOID SPACE

LEWELLIS F. BARKER, M.D., AND FRANK R. FORD, M.D., BALTIMORE

Though the choriomeningitis of human beings that is due to the virus of Rivers and Scott is usually a relatively mild malady ending in complete recovery—so mild indeed that it is often designated 'acute benign lymphocytic meningitis'—the case to be reported here indicates that it may sometimes be followed by a severe chronic arachnoiditis which causes widespread obliteration of the spinal subarachnoid space.

Florence A., a white woman now 37 years of age, suffered from an attack of lymphocytic meningitis in February 1936.

Aside from a trauma of the head some thirteen years earlier from which she had made a good recovery, her previous history had been uneventful.

About two weeks before her admission to the Johns Hopkins Hospital in February 1936 she lost her appetite and complained of sore throat, general sensitiveness, aching pains and fever (temperature of 103 F). She became irrational, had a convulsive seizure and since she was pregnant, was admitted to the obstetric service, where on lumbar puncture it was found that the cerebrospinal fluid contained 500 white cells, 90 per cent of which were lymphocytes. She was transferred to the Osler Medical Ward (service of Dr. W. T. Longcope) for further study and treatment. She continued to have slight fever, an abortion occurred, and bilateral parotitis developed. For a time there was doubt as to whether she was suffering from a 'mumps encephalomyelitis' or from 'benign lymphocytic meningitis associated with parotitis.' Some of the spinal fluid was sent to the Rockefeller Institute and in it the virus of lymphocytic meningitis (Rivers and Scott) was shown to be present. Cultures from Steno's ducts showed that the parotitis was due to *Staphylococcus aureus*.

When convalescence set in she seemed to do well at first, but later there was nausea, vomiting, difficulty in urination and a convulsive seizure. During the early part of the summer she gradually lost motor power in the lower half of the body and sensory disturbances developed (all modalities) from the level of the fourth thoracic segment downward. Repeated lumbar punctures were attempted but no cerebrospinal fluid could be obtained, nor did any fluid flow out when cisternal puncture was done. It was possible, however, to inject some iodized poppy-seed oil into the cisterna and on x-ray examination it was shown that this iodized oil did not trickle farther downward than the level of the fifth thoracic segment, where it underwent complete block.

In July Dr. Walter Dandy explored the lower thoracic cord removing the posterior portions of the fourth, fifth, sixth and seventh thoracic vertebrae. Below the dura was a thick fibrous mass attached to the spinal cord upward and downward throughout the whole area explored, completely obliterating the subarachnoid space in the region examined.

After recovery from this operation she walked with the aid of crutches for a time but in November she suffered from an attack of influenza, after which she found herself totally unable to move the lower extremities, she suffered from dysuria and continued to be numb from the waist downward.

At the present time (the early part of March 1937), the patient exhibits complete spastic paralysis from the level of the umbilicus downward with patellar and ankle clonus. The abdominal reflexes are absent. The bladder remains partially distended after urination. Sensory disturbances below the level of the fourth thoracic segment are marked: pain, temperature and vibratory sensations are absent, tactile stimuli yield no response between the levels of the fourth thoracic and the first lumbar and response is only slight from the first lumbar downward.

It would seem obvious that the clinical picture must be due to the severe chronic arachnoiditis with involvement of the spinal cord and posterior roots demonstrated by Dr. Dandy at his exploratory operation and it would seem most probable that this chronic arachnoiditis has been a direct sequel of the

acute lymphocytic meningitis of February 1936, which was proved to be due to the minute ultramicroscopic virus of Rivers and Scott. No case precisely like this appears as yet to have been recorded in the literature of lymphocytic meningitis, though cases of circumscribed chronic leptomeningitis causing pseudocerebral tumors were reported last year by de Martel, Guillaume and Thurel.¹

The surgical aspects of chronic arachnoiditis have been discussed by Stookey,² and the ameliorative effects of treatment by high voltage roentgen therapy have been reported by Selinsky.³

1035 North Calvert Street

Special Clinical Article

DISTURBANCE OF THE CARDIOVASCULAR SYSTEM IN NUTRITIONAL DEFICIENCY

CLINICAL LECTURE AT ATLANTIC CITY
SESSION

SOMA WEISS, M.D.

AND

ROBERT W. WILKINS, M.D.

BOSTON

In the study of the etiology of cardiovascular dysfunctions in general and of heart disease in particular, attention has been focused mainly on infectious and degenerative processes and on congenital malformations. Since cardiovascular disease is the most important cause of death, and since in life the body comes in closest contact with environment through nourishment, the interrelation between the cardiovascular system and nutrition is a problem of primary importance. It is our purpose in this communication to describe nutritional factors that are responsible for abnormal function of the cardiovascular system. McCarrison¹ sums up the nutritional origin of disease as follows: "faulty food, faulty nutrition, faulty function, faulty structure, faulty health, disease." In certain nutritional states such a sequence of changes results in disease of the heart and of the blood vessels. Our present knowledge of these matters is meager, but the available clinical observations and experimental data suggest the probable significance of the field as yet unexplored.

Both deficiencies and excesses of food can lead to disturbance of the circulation. In some instances a deficiency of a substance may become pathogenic, so far as the cardiovascular system is concerned, only when combined with an excess of another food substance. Thus the clinical manifestations of certain vitamin deficiencies are conditioned not only by the total caloric intake and the total amount of energy expended but also by the proportional intake of carbohydrate, protein and fat. Evidence is available which suggests that disturbance of the intermediary metabo-

lism, such as occurs in diabetes, can also enhance the manifestations due to unbalanced diet. Rigid separation of the morbid effects of nutritional excesses and deficiencies is therefore not always possible, as the coexistence of the two factors may be responsible for disease.

Among the nutritional excesses, increased intake of calories, as manifested by obesity, frequently exerts harmful effects on the heart and particularly on the circulation. Pronounced corpulence should be looked on, therefore, as a debilitating condition of great significance. There is no substantial experimental or clinical evidence, on the other hand, indicating that a diet disproportionately rich in vegetable or animal protein causes cardiac or vascular disease.² It has been amply demonstrated that feeding of cholesterol to certain species of animals can induce atherosclerosis or, rather, "cholesterinsteatosis," and through it heart disease.³ The significance of the cholesterol content of the diet in the causation of human arteriosclerosis, on the other hand, is not established.⁴ In diabetes a high fat diet is apparently particularly apt to cause arteriosclerosis.⁵ Excesses of water and of mineral constituents play no appreciable rôle in circulatory disturbances except through indiscriminate use in postoperative states and in patients with heart disease.

At present there is no conclusive evidence that hypervitaminosis plays a rôle in the causation of functional or structural changes in the human cardiovascular system. The arteriosclerosis induced in animals with large doses of vitamin D has nothing in common with human arteriosclerosis. The rare instances of cardiac damage attributed to vitamin D⁶ cannot be accepted as due to hypervitaminosis. It is of interest that in a case in which there was evidence of hypervitaminosis D no cardiovascular lesions were noted.⁷

NUTRITIONAL DEFICIENCIES

*Caloric Intake (Undernutrition and Inanition).—*Fasting or severe restriction of diet results in a bradycardia of from 30 to 40 per minute, a decrease of the arterial pressure and a lowering of the metabolic rate.⁸ The degree of lowered metabolism in chronic undernutrition may be out of proportion to the loss of body weight.⁹ Since the blood flow is related to the level of the oxygen consumption, undernutrition is presumably associated also with decreased blood flow and cardiac work. These circulatory changes, if maintained for a short period, may exert a beneficial effect in congestive circulatory failure caused by organic heart disease.¹⁰ Prolonged undernutrition, on the other hand

2 Freyberg R. H. Relation of Experimental Atherosclerosis to Diets Rich in Vegetable Protein, *Arch. Int. Med.* 50: 660 (April) 1937. Weiss and Minot.⁴

3 Anitschkow N. Experimental Arteriosclerosis in Animals in Arteriosclerosis. A Survey of the Problem, edited by E. V. Cowdry, New York: Macmillan Company, 1933, chapter 10, p. 271. Leary Timothy. Experimental Atherosclerosis in the Rabbit Compared with Human (Coronary) Atherosclerosis. *Arch. Path.* 17: 453 (April) 1934.

4 Weiss Soma and Minot G. R. Nutrition in Relation to Arteriosclerosis in Arteriosclerosis. A Survey of the Problem, edited by E. V. Cowdry, New York: Macmillan Company, 1933, chapter 8, p. 233.

5 Joslin E. P. Arteriosclerosis and Diabetes. *Ann. Clin. Med.* 5: 1061 (June) 1927.

6 Malmberg N. Some Histological Organic Changes After C¹² Liver Oil Medication. *Acta paediat.* 8: 364 1928. Gerlach W. Z. Frage der Vitamin D Sklerose beim Menschen. *München med. Wochenschr.* 83: 49 (Jan. 10) 1936.

7 Thatcher Lewis. Hypervitaminosis D. *Lancet* 1: 20 (Jan. 4) 1937.

8 Benedict F. G. Miles W. R. Roth P. and Smith H. M. Human Vitality and Efficiency Under Prolonged Restricted Diet. *Proc. Nat. Acad. Sci.* 280 Washington D. C. Carnegie Institution of Washington 1937.

9 Boenheim F. A Contribution to the Pathology of Malnutrition. *Acta med. Scandinavica* 84: 115 1934.

10 Proger S. H. and Magendanz Heinz. Effect of Protein Restriction on Patients with Cardiac Failure. *Arch. Int. Med.* 58: 703 (Oct.) 1936.

1 de Martel T. Guillaume J. and Thurel R. *Presse med.* 44: 563 566 (April 4) 1936.

2 Stookey Byron. Adhesive Spinal Arachnoiditis Simulating Spinal Cord Tumor. *Arch. Neurol. & Psychiat.* 17: 151 (Feb.) 1927.

3 Selinsky Herman. Disseminated Spinal Arachnoiditis. *Arch. Neurol. & Psychiat.* 33: 1262 1279 (June) 1936.

From the Thorneike Memorial Laboratory, Second and Fourth Medical Services (Harvard), Boston City Hospital and the Department of Medicine, Harvard Medical School.

Read in the Medical Division of the General Scientific Meetings at the Eighty-Eighth Annual Session of the American Medical Association, Atlantic City, N. J., June 8, 1937.

1 McCarrison Robert. Nutrition in Health and Disease. *Brit. M. J.* 2: 611 (Sept. 26) 1936.

causes unfavorable cardiac changes. Thus general wasting of the skeletal muscles is associated with similar changes in the myocardium,¹¹ and also with intracellular deposition of fat (fatty degeneration) and with decrease of interstitial fat. The extensive data available in the literature indicate that in adult animals and man chronic malnutrition results in considerable loss, from 20 to 50 per cent, in cardiac weight, while in malnourished young animals or children the loss is slight. In general the degree of loss in heart weight is somewhat less than that in total body weight.¹¹ The heart of animals and men dying as a result of chronic starvation may show reduction in the size of the myocardial fibers with changes in the cross striation and a deposition of iron-free pigment granules (brown induration). So far as is known there are no experimental or clinical studies on the response of such hearts to various types of strains. One of us has had the opportunity, however, to observe that malnourished dogs and cats brought to the laboratory are apt to respond with unexpected cardiac standstill to operative procedures and drugs, both of which are well tolerated by animals that have previously received a balanced diet.

Malnourished patients, as observed during famines, are considered poor surgical risks. The association of famines with epidemics of infectious diseases suggests lowered resistance of these patients, especially to infections. Evidence is lacking, however, to indicate that chronic undernutrition is responsible for vascular disease, including arteriosclerosis. Prolonged famines and chronic wasting diseases are not known to be associated with increased incidence of cardiovascular disease.

Proteins—The role of proteins in the maintenance of the osmotic pressure of the circulating blood is well established. Chronic protein deficiency leads to edema, which may be generalized ("nutritional edema") and which exerts a harmful effect on the circulation, particularly when it involves the lungs. In the presence of low serum proteins there is loss of fluids into the tissues and a tendency to circulatory collapse. In patients with organic heart disease, a low protein content of the blood associated with high venous and hence high capillary pressure can accentuate or precipitate pleural and peritoneal transudation and can increase the tendency to cardiac asthma and pulmonary edema.¹² In conditions associated with continuous protein loss, such as occurs in pleural or peritoneal exudates or transudates requiring repeated taps, particular effort should be made to reestablish the normal protein content of the blood by means of adequate protein in the diet.

Carbohydrates—Reduction of the blood sugar below a certain level can result in syncope, circulatory collapse and convulsions associated with a striking fall in the arterial pressure.¹³ Such states occur as a result of hyperinsulinism, caused either by overdosage or by abnormal production, as is the case in certain hyperplasias and tumors of the islands of Langerhans and other glands of internal secretion. A similar type of circulatory collapse can occur also in diabetic patients with a normal or even elevated blood sugar if it has been lowered

too abruptly from an unusually high level. In hypoglycemic shock administration of dextrose promptly reestablishes normal circulation.

Water and Salts—While the human body possesses adequate mechanisms for the maintenance of a homeostatic state against increased intake of water and salt, its protective mechanisms against loss of water or salt are poor. Hence dehydration and salt depletion occur relatively frequently, and they represent grave danger to the organism mainly through circulatory collapse and shock. Whether, in addition, water restriction can reduce the cardiac weight, and thereby produce circulatory failure, is not definitely established, although there are reports indicating that animals dying from thirst can lose from 30 to 40 per cent or more of their cardiac weight.¹⁴ The high infant mortality from diarrheal states and the decimating effects of cholera and other dehydrating infectious diseases on certain sections of the human race demonstrate the practical significance of circulatory collapse and shock of dehydration origin.¹⁴ It has been estimated that normally between 7,500 and 10,000 cc of fluid is secreted into the intestinal canal within twenty-four hours. Whereas in health the greater part of this fluid is reabsorbed, in certain pathologic conditions, particularly those associated with vomiting and diarrhea, most of it, together with its organic and inorganic constituents, may be lost. Unless corrected or counteracted by adequate supply, such a fluid and salt loss rapidly leads to a reduction of blood volume with hemoconcentration and with accumulation of toxic waste products, and, finally, to fatal collapse and shock. In diseases associated with fever, fistulous opening, as in biliary and pleural fistulas, heat exhaustion, adrenal insufficiency, or vomiting with pyloric stenosis, the adequate replacement and supply of water and salts are most effective measures in the prevention of peripheral failure of the circulation. Collapse and shock of dehydration and of "hypochloremia" may also result from the indiscriminate use of gastric or duodenal drainage with suction ("Wangensteen tube"), such as is in vogue at present in certain surgical and medical conditions, which often are already associated with a tendency to collapse and shock. We have observed instances of abdominal distention and post-operative conditions in which constant gastric suction produced the typical syndrome of dehydration and "hypochloremic" shock. The relative role of low blood chlorides in the circulatory collapse associated with vomiting and alkalosis is not clearly understood as yet. The treatment of patients with collapse caused by water and salt deficiency has been described elsewhere.¹⁵

Iron and Certain Other Nutritional "Extrinsic" Factors—Deficiency of iron and of certain protein derivatives essential for normal blood formation produces, through hypochromic or macrocytic anemia, changes in the circulation. These changes are characterized mainly by an increase in the velocity of blood flow and in the cardiac output, by a fall in the arterial pressure¹⁶ and frequently by an increase in pulse pressure. In one group of patients enlargement of the heart occurs, and at necropsy cardiac dilatation and hypertrophy may be found. While by x-ray examination the cardiac

11 Levine A E. Modern Aspects of Nutrition. The Pathology of Malnutrition. Nebraska State M J 12 134 (April) 175 (May) 209 (June) 1927.

12 Weiss Soma and Robb G P. Cardiac Asthma (Paroxysmal Dyspnea) and Failure of the Pulmonary Circulation (abstr.) Am Heart J 12 491 (Oct) 1936.

13 Weiss Soma. Syncope and Related Syndromes in Christian H A and Mackenzie James. Oxford Medicine Oxford University Press 1935 vol 2 chapter 8 p 230 (9).

14 O'Shaughnessy W B. Chemical Pathology of Cholera. Lancet 2 225 1831 1832. Atchley D W and Loeb R F. Dehydration and Medical Shock. M Clin North America 17 1379 (March) 1934.

15 Weiss Soma and Wilkins R W. Syncope, Circulatory Shock, Their Medical Significance and Their Treatment. M Clin North America 21 481 (March) 1937. Atchley D.

16 Stewart H J, Crane A F and Dietrich J F. Studies of the Circulation in Pernicious Anemia. J Clin Investigation 16 431 (May) 1937. Grunberg J.

shadow is increased in but 8 or 9 per cent of the cases presenting a hemoglobin content of from 56 to 65 per cent, it is increased in all cases in which a hemoglobin level of from 12 to 15 per cent is reached.¹⁷ The initial enlargement is to the left, and later to the right. In pernicious anemia fatty degeneration of the myocardium, accentuated around the venous ends of the capillaries, can result in the "tiger lily" appearance of the cut section. Since the introduction of liver therapy, however, such changes have become rare. The cause of cardiac enlargement in some instances of anemia remains obscure, since it cannot always be related, in our experience, either to increased work of the heart or to the degree of anemia. In only one group of anemic patients with cardiac enlargement does the size of the heart return to normal with the return of the hemoglobin to a normal level. In the remainder this enlargement is possibly caused or influenced by simultaneous deficiency of factors other than hemoglobin.

In anemia systolic murmurs over the apex and base of the heart are frequent as a result of dilatation of the heart. Rarely, in severe anemias, transient diastolic murmurs occur. With improvement they disappear long before the subsidence of systolic murmurs. Patients with severe anemia often suffer from palpitation, brought on mainly by emotions and exertion. There may also be a tendency to syncope. Rarely anemia may precipitate congestive failure, as well as angina pectoris, even without coronary disease. Finally, angina has been observed in cases of pernicious anemia during treatment, presumably the result of a sudden increase of cardiac work without simultaneous increase of cardiac strength.

Vitamins—In spite of recent advances in the chemistry and physiology of the vitamins, the role of these substances in human disease is relatively little understood. There are several reasons for the slower progress in the clinical than in the experimental field. The most significant one is that man seldom chooses his diet so that it is deficient in only one factor. The possible modifying influences of simultaneous deficiencies on the human body prevent analysis of the effects of a single deficiency under controlled conditions. Among the vitamins, deficiencies of the B complex and of vitamins C and D have been claimed to cause disturbances in the cardiovascular system.

Vitamin B Complex—Deficiency of these vitamins is related, at present, mainly to two diseases: vitamin B₁ to beriberi and B₂ to pellagra. In the United States the two diseases frequently occur in the same patient in a combined form.

Beriberi—Of all the vitamins, B₁ is the most important in relation to the heart. Beriberi has been known for centuries as a devastating disease of the rice-eating peoples of the Orient. Subsequently it was found that it occurs in as widely separated areas as South America, Africa, Labrador and the United States. In the Orient the disease has been known in its "dry" and its "wet" form. The dry form manifests itself mainly in muscle wasting and peripheral neuritis. The wet form is associated with cardiovascular disturbances and generalized edema. Although the severe dry form of beriberi usually is not associated with serious cardiovascular disturbances, moderately severe cardiovascular dysfunction may be present, and, contrariwise, moderately

severe neurologic manifestations may occur in cases of severe wet beriberi. Strenuous exertion is a dangerous aggravating factor in beriberi, and severe neuritis, by making work impossible, may protect against serious or fatal circulatory failure. From the point of view of the clinical course, mild and severe forms and acute, subacute and chronic types have been differentiated. In the acute "pernicious" type, death of cardiac origin can come with unexpected rapidity. The cardiovascular disturbances in beriberi of the Orient have been described and summarized by Shimazono¹⁸ and Wenckebach.¹⁹ The main cardiovascular manifestations are dilated heart, embryocardia, tachycardia, arterial sounds ("pistol shots"), warm skin, edema, dyspnea and circulatory collapse.

Psychic, gastro-intestinal, metabolic, hemic and bony disturbances are often present in beriberi patients, and it is not definitely known just what role deficiency of one or another substance may play in the production of these symptoms. In patients with beriberi the clinical picture is the result primarily of deficiency of vitamin B₁, but deficiency of other substances is contributory, and this should be considered in treatment.

Beriberi in the United States—The first step in the discovery of beriberi as a disease of regular occurrence in the United States was the recognition that certain types of neuritis are related to nutritional disturbances and particularly to lack of vitamin B₁.²⁰ These contributions have, in turn, raised the obvious problem that if certain types of polyneuritis are caused by deficiency of vitamin B, some of the patients should present manifestations related to the cardiovascular system, such as are observed in beriberi patients of the Orient. Our investigation then revealed that patients with nutritional and particularly with vitamin B deficiency show not only disturbances in the nervous system but also in the cardiovascular system similar to those described in the Orient.²¹ This finding lent support to the nutritional origin of alcoholic polyneuritis and of the polyneuritis of diabetes and of pregnancy.

Sporadic instances of "beriberi heart" in the United States, both in adults and in infants, have been reported before.²² A systematic study, however, revealed that beriberi with cardiovascular as well as with neurologic manifestations is of regular occurrence in the United States. One hundred and twenty such cases presenting cardiovascular manifestations were observed in the Boston City Hospital.^{21b} Thirty-five cases of this group, on which special investigations were conducted, occurred out of 5,506 medical admissions. The condition occurs, at least in a certain section of the population, more frequently than congenital heart disease or subacute bacterial endocarditis. Beriberi, however, is a far more

18 Shimazono J. B. Avitaminosis und Beriberi. Ergebn d inn Med u Kinderh 39 1 1931

19 Wenckebach K. F. Das Beriberi Herz. Berlin Julius Springer 1934

20 Shattuck G. C. The Relation of Beriberi to Polyneuritis from Other Causes. Am J Trop Med 8 539 (Nov.) 1928. Wechsler I. C. Unrecognized Cases of Deficiency Polyneuritis (Avitaminosis?). N J & Rec 131 441 (May 7) 1930. Minot G. R. Strauss M. B. Cobb Stanley. Alcoholic Polyneuritis Dietary Deficiency as a Factor in Its Production. New England J Med 208 1244 (June 15) 1933

21 (a) Weiss Soma and Wilkins R. W. The Nature of the Cardiovascular Disturbances in Vitamin Deficiency. States Tr A Am Phys 51 341 1936. (b) The Nature of the Cardiovascular Disturbances in Nutritional Deficiency States (Beriberi). Ann Int Med July 1937

22 Scott L. C. and Herrmann G. R. Beriberi (Malady of Jambes) in Louisiana with Especial Reference to Cardiac Manifestations. J A M A 90 2083 (June 30) 1928. Kepler E. J. Beriberi from a Diet of Raw Starch. ibid 85 409 (Aug 8) 1925. Richter David and Davidson H. S. Beriberi Following Drastic Voluntary Dietary Restriction. ibid 102 2000 (June 16) 1934. Wohl M. G. Avitaminosis in the Course of Diabetes Occurrence in a Case of Symptoms and Lesions of Beriberi Predominating. ibid 87 501 (Sept 4) 1926. Haas 23

17 Grunberg F. W. Ueber einige Veränderungen von Seiten des Herzgefäßsystems bei schweren Anämien. Deutsches Arch f klin Med 169 35, 1930

common disease than is indicated by the frequency of the cardiovascular manifestations, as in the majority of instances it manifests itself in neurologic disturbances only. Most of the patients observed regularly drank large amounts of alcohol. In a smaller group drug addiction, pregnancy, diabetes, gastro-intestinal disease, psychic peculiarities (food fads) and poverty played a role. The patients were usually well nourished, with caloric intake adequate or more than adequate, but with an estimated vitamin B (B_1) intake less than that indicated by Cowgill as liable to produce polyneuritis. Many of the patients also had symptoms of pellagra and a few had scurvy.

The most common cardiovascular symptoms of beriberi, in our experience, are dyspnea on exertion associated with palpitation, tachycardia and embryocardia. During improvement the tachycardia may change to bradycardia. Gallop rhythm, prominent cardiac and epigastric pulsations and bounding peripheral pulses with sounds ("pistol shots") are also frequently present. The heart may be normal in size or enlarged, and systolic and rarely diastolic murmurs may be heard. In the severe cases the dyspnea is intense and can appear with unexpected severity. Cardiac asthma (paroxysmal dyspnea) has also been observed. Signs of pulmonary congestion are frequently present, and cloudiness of the lung fields is seen on roentgenologic examination. The arterial pressure is usually normal, with a tendency to increased pulse pressure. In some cases the systolic pressure is moderately elevated during the acute stage of circulatory failure, but it returns to normal when the patient's condition improves. The veins of the neck are normal or engorged, as is confirmed by the normal or elevated venous pressures. The skin is usually warm and of normal color, at times it is cyanotic. Edema is frequently present, either diffuse or dependent, and it may be of extreme degree. The patients with severe cardiovascular manifestations are prone to develop fever and thus, in turn, aggravates failure of the circulation.

Patients incapable of exertion because of severe polyneuritis, like those described in the Orient, are less liable to have advanced circulatory failure. Contrariwise, those with mild cardiovascular symptoms may be made to have pronounced symptoms by moderate exercise.^{21a}

In five of our cases a hyperactive carotid sinus reflex was responsible for syncope. Following the administration of a diet rich in vitamin B (B_1) the hyperactive state of the carotid sinus reflex subsided and subsequently the stimulation of the sinus produced no symptoms. Sudden circulatory collapse without premonitory symptoms occurred in a few patients. Electrocardiograms taken in sixty-seven cases presenting normal blood pressures and no clinical evidence of organic heart disease disclosed abnormalities in all but five cases. The most common observation was alteration in the T waves. The hemodynamics were characterized by low vital capacity of the lungs, high venous pressure and normal arterial pressure, and by a relatively or absolutely increased velocity of blood flow with decreased peripheral utilization of arterial oxygen. The osmotic pressure of the blood usually was moderately low. There was often an increase in the bisulfite binding substances in the blood.²³

Postmortem examination in the majority of instances revealed that the weight of the heart was normal and that there was a moderate dilatation of the right ventricle. In only nine out of thirty cases was there an increase in weight and a considerable degree of dilatation of the cardiac chambers, particularly the right ventricle. The dilatation of the right ventricle was not so marked or so frequent in the group observed in Boston as in the cases studied by Wenckebach in Java. In various species of animals in which nutritional polyneuritis has been induced decreased, normal and increased cardiac size and weight have been reported.²²

The histologic changes, hydropic degeneration of the myocardial fibers, swollen collagen, perivascular "edema" and separation of the myocardial bundles were identical with those described by Wenckebach. The histologic changes, however, are not regular, nor specific to or even characteristic of beriberi. The water content of the left and right ventricles was the same in cases of beriberi as in normal persons or in patients with organic heart disease.^{21a} This suggests that the accumulated intercellular substances contain a normal amount of solids.

The symptomatology and the studies of the hemodynamics indicate that the type of cardiovascular disturbances of beriberi as observed in Boston does not form a rigid clinical syndrome. Right ventricular failure, left ventricular failure, peripheral arteriolar dilatation and increased blood flow, peripheral circulatory collapse and shock, singly or in combination, have been observed. Beriberi causes marked changes not only in the heart but also in the vascular system, hence the term "beriberi heart" is inadequate for the designation of the cardiovascular dysfunctions in this disease.

The diagnosis of beriberi cardiovascular disease is facilitated by the frequent simultaneous presence of certain noncirculatory manifestations of dietary deficiency, such as peripheral neuritis, psychosis, glossitis, diarrhea, dermatitis, anemia, hypoproteinemia, dysphagia, hoarseness, dry and irritating cough, aphonia and purpura. In the differential diagnosis the absence of recognized etiologic causes of organic heart disease and the history of an abnormal diet or intestinal dysfunction may be helpful. The combined presence of congestive failure of the circulation and a relatively or absolutely increased rate of the circulation is the most outstanding characteristic of the condition. The assured diagnosis may depend on the complete recovery of the patient after rest and vitamin B therapy.

The fact that beriberi is a disease of regular occurrence among adults in the United States now raises the question of the occurrence of this disease in infants and children. Lehnendorff and Mautner²⁴ have discussed the problem of whether the cardiac hypertrophy and dilatation sometimes observed in children is a manifestation of avitaminosis. Haas²⁵ reported the occurrence of beriberi in infants who suffered from celiac disease. Abt²⁶ has recently reviewed this subject.

It is of interest that the infantile type of beriberi in Japan²⁷ and the Philippines²⁸ occurs mainly among

24 Lehnendorff H and Mautner H. Die Coelakie Ergebn d inn Med u Kinderh 31 456 1927.

25 Haas S V. Periberi in Late Infancy. The Result of Celiac Disease. Arch Pediatr 46 467 (Aug) 1929.

26 Abt I A. The Child's Heart in Avitaminosis. Am J Dis Child 50 455 (Aug) 1935.

27 Ohta K. Zur Klinik der Sauglings Beriberi. Jahrb f Kinderh 128 1 (June) 1930.

28 Albert J. Ueber die kardiale Beriberi im Sauglingsalter. Monat chr f Kinderh 54 80 1932.

23 Wilkins R W, Taylor F H L and Weiss Soma. Bisulfite Binding Substances in the Blood in Health and in Disease. Particularly Vitamin B_1 Deficiency. Proc Soc. Exper Biol & Med 35 554 (Jan) 1937.

breast fed rather than among artificially fed babies. This suggests that beriberi and avitaminosis of the mother can have an important bearing on the nutritional state not only of the new-born but also of the nursing infant. Whether some instances of "idiopathic" cardiac hypertrophy will be explained on this basis is not known at present. This problem has not been investigated in the United States.

The response of the cardiovascular system in beriberi to treatment is not uniform. Some patients show improvement on a deficient diet when simply put to bed, others may show sudden aggravation of the symptoms or even fatal collapse when kept in bed and on a deficient or even a normal diet. From the experience so far acquired, one gains the impression that some of the patients are benefited by digitalis and diuretics. The effect of diets rich in vitamins and particularly B (B_1), of extracts rich in B_1 and of crystalline B_1 is beneficial, but the rate of improvement of different aspects of the circulation, as measured by changes in the velocity of blood flow, oxygen utilization, vital capacity of the lungs, venous pressure, edema, cardiac size and electrocardiographic complexes varies considerably. Some patients improve rapidly, and the clinical course may show a dramatic change within a week with a loss of 30 or 40 pounds (13.6 or 18 Kg.) of edema fluid. In others the improvement is slower, and recovery may take from four to six weeks. In this respect, too, these patients behave like those with beriberi in the Orient and in Labrador. In general, improvement is most rapid in patients with a severe degree of congestive failure of relatively short duration. The histologic changes in the heart indicate that prolonged dietary deficiency may lead to structural changes, and under such conditions recovery may be slow.

Following the intravenous administration of from 5 to 10 mg. of crystalline vitamin B_1 three or four times daily to patients kept during a control period on a deficient diet, the first change observed was the increased peripheral utilization of oxygen and slowing of the blood flow as a result of disappearance of the arteriolar dilatation. This occurred as early as twenty-four hours following the administration of the first dose of vitamin B_1 . Simultaneously there was symptomatic improvement and often marked diuresis. Following this there was a slow but steady rise in the vital capacity of the lungs and a decrease in cardiac size. The cardiovascular abnormalities last to disappear were those revealed by the electrocardiogram. This is in contrast to the situation in animals deficient in vitamin B_1 , in which the changes in the heart rate and in the electrocardiographic complexes may be abolished as early as within four to six hours after subcutaneous administration of 5 micrograms of crystalline B_1 .²⁹ In some patients a temporary elevation of the arterial pressure of several days' duration followed the first course of treatment with crystalline B_1 , but this change could not be repeated by a similar course when the patients were not deficient in vitamin B_1 . Administration of parenteral doses as large as from 30 to 100 mg. daily for from five to eight days, followed by oral administration of large amounts of B_1 extracts, failed to induce any detectable changes in the cardiovascular function of normal subjects or of nondeficient patients with organic heart disease or with various types of edema.

Comparative observations indicate that there is no rigid parallelism between the rate of improvement in the circulatory functions and in the nervous functions. The improvement was usually more striking, rapid and complete in the cardiovascular than in the neurologic disturbances. The only exception to this was the occasional remarkably rapid disappearance of psychosis after the administration of large amounts of vitamin B_1 . Because of the frequent presence of multiple deficiencies in beriberi, attention should be paid in the treatment to the correction also of the anemia with iron and liver extract, of the hypoproteinemia with a high protein diet and of the hemorrhagic tendency with cevitamic acid.

The Role of Alcohol—The following evidence indicates that alcohol per se is not the primary factor responsible for changes described. 1 Chronic alcoholism is an exceedingly common condition, in comparison with which beriberi is relatively rare. 2 Pharmacologic studies do not indicate that alcohol per se causes polyneuritis or cardiovascular disease. 3 Symptoms of dietary deficiency may appear long after the consumption of alcohol, particularly if prolonged gastrointestinal disturbances follow the alcoholic debauch. 4 It is known that patients with alcoholism are predisposed also to pellagra, and that they frequently have low cevitamic acid content of the blood.³⁰ It is improbable that a substance through "toxic action" should produce manifestations similar to those known to be caused by vitamins B_1 , B_2 and C. 5 Finally, polyneuritis, pellagroid lesions and cardiovascular dysfunction disappear on continuous alcohol intake provided vitamin B is administered simultaneously.³¹

On the other hand, we attribute to alcohol a secondary predisposing role in the precipitation of beriberi. Alcohol is a food substance *par excellence* in its capacity to supply the body with necessary calories but with a minimum of vitamin B. This is an ideal combination for beriberi, as high caloric and low vitamin B_1 intake, rather than general inanition, precipitates the clinical vitamin deficiency. The gastro-intestinal changes often present in chronic alcoholism³² may well interfere with the absorption or utilization of the available vitamin B_1 , while alcohol itself, a freely diffusible substance, is absorbed readily. There is also a possibility that a high intake of alcohol plays an additional predisposing rôle, similar to that of a diet rich in carbohydrate, as is common among the rice eaters. It is known that if B_1 avitaminotic animals are kept on a diet that is rich in fatty acids instead of carbohydrates, the manifestations of B_1 deficiency may be prevented.³³

The origin of the "beer heart" cannot be explained on the basis of increased intake of alcoholic fluid. This condition was described before the use of the sphygmomanometer and it has "disappeared" since the recognition of the clinical significance of arterial hypertension, hence it is probable that these instances of cardiac hypertrophy represent unrecognized cases of hypertensive heart disease. Such a careful investigator

²⁹ Zoll P. M. and Weiss Soma. Electrocardiographic Changes in Rats Deficient in Vitamin B_1 . *Proc Soc Exper Biol & Med* 35: 239 (Nov.) 1936

³⁰ Alexander Leo, Fijon Michel, Schulte P. G. and Merrill. Cevitamic Acid Content of Blood Plasma in Alcoholic Psychosis. *Arch Neurol & Psychiat* to be published

³¹ Strauss M. B. The Etiology of Alcoholic Polyneuritis. *Am J Med Sc* 189: 378 (March) 1935. Weiss and Wilkins.

³² Green J. The Absorption of Hexoses from the Upper Part of the Small Intestine in Man. *J Clin Investigation* 16: 343 (May) 1937

³³ Abderhalden E. and Wertheimer E. Beziehungen des Vitamin B Komplexes (insbesondere des Vitamins B_1) zum Kohlehydrat. *Arch f d ge Physiol* 233: 392 1933

as Hirsch³⁴ observed as early as 1899 that patients with "beer hearts" suffer from nephritis, and he suggested that beer drinking causes nephritis and this, in turn, cardiac hypertrophy

Pellagra—Patients suffering from pellagra may exhibit cardiovascular symptoms, but, in the light of present knowledge, this is attributed to the frequent association of the vitamin B₁ component in the deficiency.^{21b} There is no experimental evidence that lack of vitamin B₂ is responsible for cardiovascular disease. When pellagra occurs in its pure form the heart at postmortem examination is small or normal, owing to the frequent presence of dehydration and emaciation. Histologic changes, if present, are those of brown induration.

Vitamin C—The relation of deficiency of vitamin C to capillary fragility is established, but its role in cardiac disorders is not well understood. Experimental scurvy in animals has been observed to cause hemorrhages into and fatty degeneration of the cardiac muscle.³⁵ Rinehart³⁶ has stated that scorbutic guinea-pigs respond to intradermal infections with beta hemolytic streptococci with degenerative and proliferative changes in the heart valves and myocardium. This work has not been uniformly confirmed. In a recent study Taylor³⁷ has stated that scurvy alone produces cardiac lesions in the guinea-pig and that added infections increase neither the incidence nor the severity of the lesions. Experimental "scorbutic carditis" if allowed to become chronic results in congestive failure. In such hearts the lesions cannot be cured with the administration of cevitamic acid. Thus vitamin C can prevent such lesions but cannot cure them once the damage is done. The pathologic changes in scorbutic carditis, as found by Taylor, are those of nonspecific valvulitis, myocarditis and occasionally pericarditis. The lesions often contain gram-positive organisms, even though no organisms were injected. In the acute lesions neutrophilic leukocytes predominate, whereas in the chronic lesions endothelial cells, lymphocytes and fibroblasts are more abundant. Giant cells and vegetations are not present.

Changes in the myocardium in human scurvy have been described, but it is questionable whether such changes can be attributed to vitamin C deficiency. Darling³⁸ has described enlargement of the right side of the heart. Hift and Brull³⁹ observed acute recurrent hemorrhagic pericarditis among the scorbutic inmates of a Russian concentration camp in Siberia. Of 325 cases of scurvy, twenty-eight showed severe pericardial effusion with congestive failure of the circulation. In six the pericardial effusion was fatal. Erdheim⁴⁰ performed postmortem examinations on thirty-one Viennese children who died as a result of scurvy in

the famine year of 1918. He noted that cardiac hypertrophy and dilatation were regular manifestations in these cases and he called the hearts observed "Barlow-herz." The myocardial hypertrophy was moderate in eight, considerable in seven and "enormous" in six. Unfortunately no clinical data or histologic examinations were reported. It is mentioned that the duration of malnutrition was long and that many of the children were marantic and suffered from diarrhea. In view of the fact that osteoporosis was also present, it is probable that these children suffered from multiple deficiency, including lack of vitamins B, C and D, and that the cardiac changes were due to lack of B₁. Hess⁴¹ mentions that x-ray examination in scurvy may reveal enlargement of the heart to the right with broadening of the base at the origin of the large vessels. The histologic studies of the heart in human scurvy do not reveal the type of myocarditis described in scorbutic animals.⁴²

The relation of vitamin C deficiency to rheumatic fever and rheumatic heart disease has been extensively investigated in recent years.⁴³ These studies indicate that in rheumatic fever, as in other chronic infections due to inadequate intake and/or to increased utilization of vitamin C, the cevitamic acid of the blood is low and the body is partially depleted of its normal storage.⁴⁴ The capillary fragility of some of these patients is often increased and can be reduced by the administration of cevitamic acid.⁴⁵ Vitamin C, on the other hand, fails to influence the clinical course or reduce the incidence of recurrent attacks of rheumatic manifestations.⁴⁶ A causative relationship between vitamin C deficiency and rheumatic fever therefore does not exist. In spite of these negative correlations between rheumatic fever and vitamin C, it seems advisable, on the basis of general principles and recent experimental work,⁴⁷ to feed rheumatic patients with a balanced diet rich in vitamins, including vitamin C.

The increased vascular fragility in vitamin C deficiency may lead to well recognized, extensive hemorrhages and tissue damage. It is of interest that recent observations indicate that the level of the cevitamic acid in the blood of chronic alcoholic patients is frequently low and may reach the level observed in subclinical scurvy.³⁰ The tendency to vascular fragility may contribute to the occurrence of epidural, subdural and intracerebral ("polyencephalitis haemorrhagica Vermicke") hemorrhages so frequently observed after relatively slight or no trauma in such patients. The same factor may play a role in the hemorrhagic birth injuries.

Vitamin D—Cardiac changes with right ventricular hypertrophy in rickets occasionally have been observed. Some authors have considered these to be secondary to defects in the thoracic cage with increased pul-

34 Hirsch C. Ueber die Beziehungen zwischen dem Herzmuskel und der Korpermuskulatur und über sein Verhalten bei Herzhypertrophie, *Deutsches Arch f klin Med* 64: 597, 1899.

35 Meyer A W and McCormick L M. Studies on Scurvy. Stanford University, Calif. Stanford University Press, 1928. Bessey O A, Menten M L and King C G. Pathologic Changes in the Organs of Scorbutic Guinea Pigs. *Proc Soc. Exper Biol & Med* 31: 455 (Jan.) 1934.

36 Rinehart J F. Studies Relating Vitamin C Deficiency to Rheumatic Fever and Rheumatoid Arthritis. Experimental Clinical and General Considerations. *Rheumatic Fever Ann Int Med* 9: 586 (Nov.) 1935.

37 Taylor Stephen. Scurvy and Carditis. *Lancet* 1: 973 (April 24) 1937.

38 Darling S T. The Pathologic Minutes of Beriberi and Scurvy. *J A M A* 63: 1290 (Oct 10) 1914.

39 Hift R and Brull L. Ueber eine endemisch auftretende hamorrhagische Erkrankung des Herzbeutels. *Wien Klin Wchn chr* 30: 747, 784, 1917.

40 Erdheim J. Ueber das Barlow Herz. *Wien klin Wchn chr* 31: 1295, 1918.

41 Hess A F. Scurvy. Past and Present, Philadelphia J B Lippincott Company, 1920.

42 Salle V and Rosenberg. Ueber Skorbut. *Ergebn d inn Med u Kinderh* 19: 31, 1921.

43 Perry C B. Rheumatic Heart Disease and Vitamin C. *Lancet* 2: 426 (Aug 24) 1935. Sendroy J Jr and Schultz M P. Studies of Ascorbic Acid and Rheumatic Fever. I. Quantitative Index of Ascorbic Acid Utilization in Human Beings and Its Application to the Study of Rheumatic Fever. *J Clin Investigation* 15: 369 (July) 1936. Abbasy, Hill and Harris.⁴⁸

44 Faulkner J M. The Effect of Administration of Vitamin C on the Kettelocytes in Certain Infectious Diseases. A Preliminary Report. *New England J M* 213: 19 (July 4) 1935. Abbasy, Hill and Harris.⁴⁵

45 Schultz M P. Studies of Ascorbic Acid and Rheumatic Fever. II. Test of Prophylactic and Therapeutic Action of Ascorbic Acid. *J Clin Investigation* 15: 385 (July) 1936.

46 Abbasy M A, Hill N G and Harris J F. Vitamin Juvenile Rheumatism with Some Observations on the Vitamin in Surgical Tuberculosis. *Lancet* 2: 1413 (Dec 12) 1936.

monary resistance, but cardiac changes have been noted without alteration of the thoracic cage. Meixner⁴⁷ emphasized the fact that frequently the left ventricle is dilated and slightly hypertrophied. The usual microscopic changes, as observed by Meixner, are a slight and irregularly scattered increase in the connective tissue and a separation of the muscle fibers, changes not unlike those observed in the heart in beriberi. At present one is justified in assuming that the cardiac changes observed in rickets may be attributed to the simultaneous presence of vitamin B₁ deficiency.

COMMENT

While human cardiovascular functions may be impaired only by an excess caloric content of the diet, they may be disturbed by dietary deficiencies of several types. The body can usually eliminate disproportionate excesses of food substances effectively, but its storage capacity for certain minerals and vitamins, as well as for water, is relatively limited. The susceptibility of the body and of the cardiovascular system to deficiency depends not only on intake but also on storage and rate of utilization of the substances in question.

In order to understand clinical vitamin deficiency it is essential to appreciate that, judging from the behavior of vitamins B and C, symptoms are apt to develop when there is simultaneously present with a deficiency of these substances an elevated metabolism (caloric/vitamin ratio of Cowgill)⁴⁸. This may arise because of increased muscular activity, increased caloric intake, fever, hyperthyroidism, and the like. Under such conditions specific metabolic processes influenced by or dependent on vitamin may become disturbed and harmful chemical products may accumulate. In simple chronic undernutrition, on the other hand, because of the simultaneous and proportionate reduction of both oxidative processes and available vitamin, symptoms of any specific deficiency usually do not develop, or, if present, the symptoms are mild ("subclinical avitaminosis"). When, however, an acute strain is placed on the metabolic system of such moderately avitaminotic patients as a result of infection, fever or increased activity, the symptoms and signs of deficiency may appear with great rapidity. This is well illustrated by the behavior of chronic alcoholic patients who have contracted pneumonia or typhoid. It is also of interest that we have observed patients in whom mild manifestations of avitaminosis became temporarily aggravated when a diet rich in vitamins and calories was administered.

The proportion of the various calorigenic substances in the diet also plays a rôle in the pathogenesis of certain avitaminoses. Thus high carbohydrate or alcohol diets favor but high protein or fat diets hinder, the development of beriberi. Finally, the functional and structural states of certain organs must be taken into consideration in the etiology of the avitaminoses, as well as of the other nutritional deficiencies. Disorders of the gastro-intestinal tract causing alterations in motor and secretory functions and in absorptive capacity may so interfere with the utilization of dietary factors that deficiency may develop in the body in spite of an adequate supply by mouth.⁴⁹ Indeed, certain deficient diets may themselves produce changes

in the gastro-intestinal tract which further handicap the utilization of food substances, so that a vicious cycle is established. Severe damage to other important organs of the body can also affect the utilization of nutritional factors. Thus damage to the liver impairs the metabolism of vitamin A and protein and probably also can be responsible for other deficiency syndromes in spite of a diet suitable for a normal person. The occasional finding of cardiovascular disturbances similar to those of beriberi in patients with cirrhosis of the liver or chronic pancreatitis but who apparently have had a normal diet supports the contention that intrinsic factors, such as alteration of the function of important organs, play a role in conditioning dietary deficiencies.

The symptoms of deficiencies must not be considered as arising from a simple lack of specific nutritional substances in the organs affected. Vitamin deficiency is followed by changes in the intermediary metabolism which cause, first, "biochemical lesions," later, functional and, finally, structural lesions. These changes may progress from a state of easy reversibility to one of slow or of nonreversibility. It is for this reason that, depending on the exact nature and duration of a deficiency disease, substitution therapy may or may not lead to prompt or to complete restoration of normal functions.

In vitamin B₁ deficiency the disturbances of intermediary metabolism of carbohydrates and the resulting alterations in nervous and cardiovascular functions and structures are good examples of secondary and tertiary changes precipitated by avitaminosis. The individual variations in biochemical responses and in the accumulation of abnormal substances in deficiency states may explain some of the variations in symptoms and pathologic manifestations. The exact mechanism of the nutritional deficiencies is therefore more complex than it was first thought to be. We are now entering into the third stage of our knowledge in this field. The original "toxic theory" of nutritional disorders was recently abandoned with the discovery of the "deficiency theory." We are now beginning to realize, however, that the deficiency of a substance by altering the normal pattern of intermediary metabolic processes, may lead to a secondary accumulation of "toxic" products, as, for example, lactic acid, pyruvic acid and methylglyoxal in vitamin B₁ deficiency.⁵⁰ The symptoms and changes in the body may depend on the effect of these substances on various structures. Thus the principles of "deficiency" and "toxicity" are not mutually exclusive, but interdependent.

Recognition of the fact that nutritional imbalance frequently affects the heart, the vessels, the blood and the nervous regulatory mechanisms of the circulation, singly or in various combinations, is necessary to a proper understanding of cardiovascular physiology and disease. Only by a broad and complete consideration of all the factors involved can a correlation of symptoms with bodily changes be made and preservation or restoration of health be effected.

SUMMARY

Of the vitamins, B₁ deficiency is the most important cause of cardiovascular disturbances. Beriberi with cardiovascular dysfunction is a disease of regular occurrence in the United States. Cardiac disturbances observed in human scurvy, with the exception of

47 Meixner K. Die Erweiterung der linken Herzhöhle bei Rachitis. *Wien klin. Wchnschr.* 11:1273 (Sept. 6) 1929.

48 Cowgill G. R. The Vitamin B Requirement of Man. New Haven Conn. Yale University Press 1934.

49 Straus M. B. The Role of the Gastro-Intestinal Tract in Conditioning Deficiency Disease. The Significance of Digestion and Absorption in Pernicious Anemia, Pellagra and Alcoholic and Other Forms of Polyneuritis. *J. A. M. A.* 103:1 (July 7) 1937.

50 Peters R. A. Biochemical Lesion in Vitamin B₁ Deficiency. *Lancet* 1:1161 (May 23) 1936.

hemorrhagic pericarditis, and in rickets are usually due to coexisting vitamin B₁ deficiency

Intrinsic factors, such as the metabolic state of the organism and the functional state of various organs, particularly of the digestive organs, may be as important as the intake of extrinsic factors in conditioning clinical nutritional deficiencies

Council on Physical Therapy

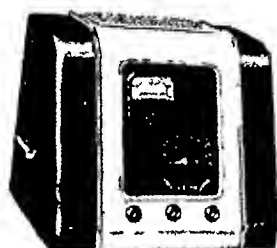
THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORTS

HOWARD A. CARTER Secretary

ALOE CSW 12 METER SHORT WAVE DIATHERM ACCEPTABLE

Manufacturer A S Aloe Company, St Louis

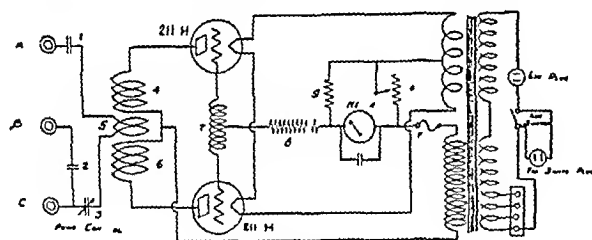
The Aloe CSW 12 Meter Short Wave Diatherm unit is intended for medical and surgical use. It is equipped for use with both pad and cuff electrodes. This semiportable unit comes in a natural wood finish with chrome ventilator grille and handles. The subcabinet has ample storage space for electrodes and equipment with two drawers and a large door beneath these.



Aloe CSW 12 Meter Short Wave Diatherm

This machine utilizes two tubes in a half-wave self-rectifying, balanced, push pull, tuned plate tuned grid, oscillatory circuit. The output circuit is inductively coupled to the plate circuit and the power output is controlled by a variable air condenser in series with one patient terminal.

The total power input is approximately 300 watts under idling conditions. Under a load test the input is about 900 watts. The output is about 400 watts. This was measured by



Schematic diagram of circuit

adjusting the supply voltage to 110 volts and using an artificial resistance load comprising two 200 watt lamps in parallel, capacitatively coupled to the patient electrodes. The coupling to the load and the output control were adjusted to give the

Averages of Six Observations

	Deep Muscle	Subcutaneous	Skin	Rectal
Initial	96.5	91.5	87.1	99.1
Final	107.0	104.1	94.9	99.4

highest output. As no acceptable means of measuring the output has as yet been proposed, this value is stated as an approximation.

The firm submitted evidence to substantiate the claims for the heating ability of the unit when applied to the thigh of a living subject. Six tests were performed on three healthy male medical students by a competent investigator. Temperature readings were taken by means of thermocouples calibrated against a thermometer standardized by the Bureau of Standards.

These readings were taken before and after twenty minute treatment periods at maximum tolerance of the subject. The skin surface temperature, as well as that of the muscle and subcutaneous tissues, was measured by hypodermic thermocouples. Investigations were made with cuffs measuring 23 1/2 by 2 1/4 inches. The average thigh circumference was 21 1/2 inches. Several thicknesses of toweling were placed between the skin and the cuffs. The latter were separated 9 inches from edge to edge. The room temperature was from 71 to 74 F and the humidity ranged from 41 to 43 per cent. The averages of the six observations are given in the accompanying table.

The unit was tried out in a clinic acceptable to the Council. In operation under actual clinical conditions, the unit rendered satisfactory service. The transformer temperature rise and the temperatures inside the cabinet taken at various levels were within the limits of safety prescribed by the Council. Burns may occur with this type of machine but are less apt to occur than with conventional diathermy and may be avoided by use of ordinary precaution.

In view of the favorable report based on the use of the cuff technique, the Council on Physical Therapy voted to include the Aloe CSW 12 Meter Short Wave Diatherm in its list of accepted devices.

COLLINS OXYFLO OPEN TOP OXYGEN TENT ACCEPTABLE

Manufacturer Warren E Collins, Inc, Boston

The Collins Oxyflo Open Top Oxygen Tent (previously known as the Burgess-Collins Oxygen Tent) is designed for use in the hospital or the home. The specifications include a tent frame, cooling chamber with six pound ice capacity, two gum rubber tent fabrics fitted with three nonflammable windows, a well balanced stand adjustable horizontally and vertically, allowing the tent to be tilted, heavy cast iron base equipped with casters, art metal finish with nickel trimmings, and it is complete with oxygen regulator and oxygen analyzer. The tent and stand weigh 45 pounds and can be dismantled for convenience in storing or for transportation to the home.

The open top tent has a neck opening approximately 5 feet from the ground at its highest point and 26 inches from the floor at its lowest accommodating anything from a baby's crib to an adult sitting up in bed. According to the firm, the open top principle makes possible an oxygen tent with several advantages. It is portable, its operating cost is modest, it is equally effective with infants or adults, and it is noiseless since no electrical connections are required to operate it. The firm claims that a 50 per cent concentration of oxygen with only a 3 or 4 liter flow may be obtained with the top of the tent open. The Council found a slightly higher flow necessary.

The unit was investigated in a clinic acceptable to the Council. The observations were started with the patient lying in a prone position. The temperature of the room was 78 F and the temperature of the inside of the tent was 75 F with a 38 per cent relative humidity. The concentration of oxygen was taken during normal breathing periods and after two minute runs of rapid (60 per minute) respirations in both prone and sitting positions. In all these observations the concentration of oxygen dropped below 50 per cent only once, and then only to 49 per cent. It went as high as 72 per cent. The flow of oxygen was regulated at 5 or 10 liters per minute. By increasing the flow, the concentration could be held well over 50 per cent during periods of rapid breathing. During these tests the temperature in the tent ranged from 68 to 74 F. The humidity rose from 42 per cent to 54 per cent. The data obtained in these observations essentially substantiated the claims of the manufacturer. The tent handled easily and operated well during the test, the patient was comfortable with no complaints of tightness at the neck and apparently there was no leakage at that point. The only disadvantage is that the person lying flat with rapid respiration can reduce the oxygen saturation, but if the rate of flow of the oxygen is increased a good concentration may be regained.

In view of the favorable report on the efficiency of the unit in actual clinical practice, the Council voted to include the Collins Oxyflo Open Top Oxygen Tent in its list of accepted devices.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, SEPTEMBER 4, 1937

THE DUKE-FINGARD METHOD IN RESPIRATORY DISEASES

The New York *World Telegram* for August 24 published, on its front page, a feature article syndicated by Science Service concerning the so-called Duke-Fingard method for the treatment of asthma, tuberculosis and other respiratory diseases. Behind this item is the rather slimy trail of an attempt to force on the medical profession a secret method of treatment, unsupported by anything resembling acceptable clinical evidence.

Readers of *Time* will perhaps remember an article published Jan. 18, 1937, which called attention to the career of David Fingard. Briefly, Mr. Fingard appears to be a chemist from Canada who came in contact years ago with the development by one J. Rudolph Duke (perhaps J. J. or just plain Rudolph) of a method of treating asthma by the inhalation of air modified by a mixture of antiseptics and oils. The method was apparently promoted with little success in California and in China. Eventually Mr. Fingard appeared in London en route, as he said, to the Soviet Republic. Finding sympathetic listeners in Great Britain, he remained there until he left for the United States in December, the government having refused him an extension of his stay. Previously he had endeavored to obtain an official trial of his method by the British government. However, Sir Kingsley Wood, Minister of Health, failed to authorize such an experiment. Attempts were made in Parliament to force an investigation, but in each instance these attempts failed. Mr. Fingard obtained in London a staunch supporter in the dowager Duchess of Suffolk and Berkshire, a daughter of the late Chicago department store executive and owner, Levi Leiter. In the development of his promotion in Great Britain another prominent factor has been Lieutenant-General Sir Harold Ben Fawcus, KCB, CMG, DSO, DCL, MP and DPH, who is director general of the British Red Cross. Quite recently Messrs. Fawcus, Fingard and

Greene arrived in the United States. They seem to have been freely introduced and in general recommended by Dr. Clarence Lieb. Because of his connection with the British Red Cross, Lieutenant-General Fawcus and Mr. Fingard were tendered a banquet by members of the American Red Cross and other official agencies. They offer as evidence of their standing photostatic copies of letters from the Red Cross with the list of guests. At present, according to Mr. Greene, Mr. Fingard is in Canada endeavoring to straighten out with officials in that country certain matters of an extralegal financial character which have caused him considerable embarrassment in some of his travels in the British empire.

Mr. Greene presents also a photostatic copy of a list of distinguished citizens of Winnipeg who have recently tendered an official luncheon to Mr. Fingard.

Now what is the remarkable discovery which has attracted such a list of notables, political, aristocratic and financial, in its support? From what can be ascertained, the method involves the use of a cabinet containing twelve trays of a liquid which is an oily brown mixture in "carefully worked out" proportions of creosote, phenol, iodine, garlic, aromatic essences and essential oils and glycerin. Air is dried by passing through a short tube into a box containing calcium chloride, which is said to "filter off dust and microbes." It is then sucked into the apparatus by a small electric fan and, after being heated to between 70 and 80 F., is driven over the twelve trays of medicaments and out into the room. The patient breathes this mixture of air and whatever it can pick up, beginning with three hours a day and going on to sixteen hours a day. It is alleged that by this method of treatment asthma is brought under control, recovery occurs in hopeless cases of tuberculosis, and patients with sinus trouble are freed of their disturbances.

In the process of British promotion an investigation was made on some patients, and the bibliography which follows is the only scientific evidence thus far available as to the merits of the treatment.

Fawcus, H. B., Greene, A. C., and Houston, J. W. A Short Account of the Duke-Fingard Treatment for Diseases of the Respiratory Passages, *Practitioner* 37:740 (Nov.) 1936.

Fraser-Harris, D. F. The Duke-Fingard Method of Medication as Applied to the Respiratory Tract, *Medical Press and Circular* 93:381 (Oct. 28) 1936.

Thornton, J. Raymond, Fraser-Harris, D. F., and Vaughan, V. St. George. The Duke-Fingard Inhalation. Some Results Obtained in Chronic Respiratory Disease, *Medical Press and Circular* 94:151 (Feb. 17) 1937.

Salen, Ernst B. Duke-Fingard Treatment of Diseases of Respiratory Tract, *Svenska Lakartidningen* 34:681 (May 7) 1937.

The method has been studied in Great Britain in 1935, 1936 and part of 1937, certainly time enough

if it possessed any real merit, to have received recognition by the British medical profession

The case reports which appear in the bibliography cited are far from convincing. The evidence in relationship to cases of asthma, tuberculosis, bronchiectasis and sinus disease is no better than that which has been published from time to time for a dozen other methods of treatment not half as fantastic. Mr Fingard refuses to reveal a quantitative formula or anything even resembling a complete qualitative formula for the compound of drugs he uses. The details regarding the process have apparently been submitted to a board of trustees and are now locked away in a safe in Great Britain. In support of their method, Mr Greene submits a number of letters from representatives of the Red Cross in various countries indicating that the Red Cross connection of Lieutenant General Fawcus is being used freely to introduce this method in various parts of the world. Inquiry at the headquarters of the American Red Cross in Washington indicates that a luncheon was tendered to Lieut Gen Sir Harold Fawcus, The Hon Sir Arthur Stanley, GBE, Mr Fingard and General Sir Hubert Gough, GCMG, KCB, KCVO, who are trustees for the Fingard treatment. The American Red Cross has said, however, that it will do nothing whatever to exploit the Duke-Fingard asthma treatment.

Here then is a method of treatment secret in character, fantastic in its administration, unsupported by any scientific evidence, promoted by a chemist and financiers whose records are far from clear, supported by letters of politicians, military officers and aristocrats. The American medical profession has established the Council on Pharmacy and Chemistry as an official body available for testing and evaluating new remedies and new methods of treatment when the investigators and the promoters are willing to state the nature of the treatment and to submit it to controlled, scientific experimentation. Obviously the British promoters of the Duke-Fingard treatment have no intention of submitting to such an investigation. Until they do so they can hardly anticipate a hearing before the critical bar of American medical opinion. Mr Greene, when he visited the headquarters of the American Medical Association in an endeavor to induce belief in the Fingard method, was kind enough to leave an outline of the proposed method of promotion which is headed with the following naive statement:

'Dear Greene: Would you be good enough to get this published in one of the American medical journals? H B Fawcus.'

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION has no intention of lending its columns to such an exploitation. Whether or not some of our commercially minded medical publications will yield to the blandishments of this pseudo-scientific embassy, as Science Service yielded, remains to be seen.

HYPOGLYCEMIC THERAPY IN TRYPANOSOMIASIS

More than fifty years ago, Pasteur and his co-workers thought that acquired immunity to specific infections might be due to the destruction of food factors in the body necessary for bacterial growth. This so-called specific exhaustion theory, however, was not substantiated. The chief objection to it was the failure to conceive of a specific antiserum capable of carrying a specific chemical deficiency to another animal.

The recent work of Schern and Artagaveitia-Allende¹ of Montevideo brings this theory from the purely historical to a stage of possible practical importance. Schern observed some thirty years ago that trypanosomes in citrated blood samples from recently infected rats retained a high degree of motility for several hours at room temperature. The motility of these parasites, however, was much more poorly retained when they were isolated from the animals in the later stages of experimental infection. The parasites thus obtained lost all motility within ten to fifteen minutes at room temperature. Further it was found that these apparently moribund trypanosomes could be revived by the addition of a small amount of normal rat serum and would remain actively motile for several hours at room temperature. The addition of certain aqueous tissue extracts, especially liver, produced the same results. From the biochemical analysis Schern and his co-workers concluded that the rejuvenation was due solely to the sugar content. Hence it became theoretically possible that the loss of motility in late stages of trypanosome infections might be due to the sugar depletion of the experimental animal. Further confirmation was obtained by subsequent studies of the sugar content of the tissues in long standing trypanosome-infected animals. Observations by the Jancsos² lent support to this view.

In an endeavor to find methods of practical therapeutic application, Schern and his co-workers found that rats could be rendered almost glycogen free by prolonged starvation. This procedure, however, did not make the rats immune to experimental trypanosomiasis, and partially starved rats usually died more quickly than the normally fed controls. Finally, these investigators tested the effect of hypoglycemia following intoxication with "synthalin"—an organic preparation once offered for the treatment of diabetes. This toxic agent causes glycosuria and polyuria with a rapid decrease in blood sugar and hepatic glycogen in rats. When it was injected in divided doses on the fifth, sixth and seventh days of experimental trypanosomiasis in rats, the parasites disappeared from the blood stream and the life of all rats was prolonged with the apparently permanent cure of about 75 per cent. When it was given prophylactically, the animals were rendered

1 Schern, Kurt and Artagaveitia-Allende, Ricardo. *Ztschr f Immunitätsforsch* 89: 21 (Sept) 1936.
2 von Jancso, N. and von Jancso, H. *Ztschr f Immunitätsforsch* 85: 81 (May) 1935.

relatively insusceptible to the experimental infection. While this hypoglycemic therapy appears to be a confirmation of the old Pasteur exhaustion theory, the effectiveness of "synthalin" may be due to other factors. Thus Schern and his co-workers found that the preparation used contains a co-enzyme, which increases the efficiency of the starch-splitting enzymes in human saliva. When added to a culture of yeast, it at first increases the rate of gas production but is followed by a complete inhibition of fermentation presumably from its effect on the sugar-splitting enzymes. A similar effect on trypanosomes is therefore a possibility.

Interesting as these observations are, their practical significance awaits further investigation and the careful analysis of the factor or factors which cause these differences in trypanosome behavior in infected rats. Certainly none of the results so far reported can as yet be interpreted in whole or in part as necessarily related to human parasitic or bacteriologic infections.

THEORIES ON THE CAUSES OF SUICIDE

Suicide and its causes are matters of general interest primarily because suicide represents a voluntary attempt to substitute an unknown state for a known one—a step frequently causing hesitation in other less radical human decisions. The general attitude toward suicide is much affected by the emotions, religion and customs of a people. Hence it has been frequently noted that the numbers of suicides, the apparent precipitating causes and the methods by which self destruction is accomplished or attempted have varied widely in different parts of the world at different periods.

Review of some of the recent studies of the subject reveals a disparity in both approach and conclusions. Thus comparison of suicides among civilized and primitive races has been reported by Zilboorg.¹ He points out that the popular reaction to the act is confused and one hears with apparently equal frequency either that it takes great courage to commit suicide or that only a coward would kill himself. That the rate of suicide increases with the development of civilization or that it is a result of some psychopathologic process and intimately connected with some form of mental disease are misconceptions, he believes. He quotes Steinmetz, who says "It seems probable from the data I have been able to collect that there is a greater propensity to suicide among savage than among civilized peoples."

According to Vorwahl,² the rate of suicide varies also in the different races. He states that before the war the suicide rate in Germany was five times that in Italy and ten times that of Spain. Gross statistics of this nature, however, are difficult to compare, since so many elements are involved, including the method and source of

compilation and the political, economic, religious or social factors, any one of which might be of more influence on the apparent suicide rate than the mere difference in race.

Pacheco³ in writing on suicide in India states that the most usual method of suicide among males there is by poisoning. Burning, poisoning, jumping from heights and drowning are common among female suicides. He further states that the causes that lead to suicide among males are financial difficulties and want of employment, and, among females, ill treatment at the hands of husbands or mothers-in-law, or loss of children. Available records indicated that more suicides occur in the hot season than in any other.

It has been believed that studies of attempted suicide might throw light on the whole problem. In the interpretation of such studies, however, it must be remembered that there is one fundamental difference between attempted suicides and actual suicides, and that is the difference between failure and success. The possibility that this diversity even may be actually so planned emphasizes the noncomparability. Hopkins⁴ carried out an investigation on 656 attempted suicides admitted to the Smithdown Road Hospital of Liverpool. His figures indicate that unsuccessful attempts occur much more commonly than successful ones. It was noted that the relative incidence in the two sexes was six males to five females but that up to the age of 25 female attempts were twice as frequent as male.

Even more recently another investigation from this angle has been reported by Moore.⁵ From Jan 1, 1915, to Jan 1, 1936, the Boston City Hospital admitted 1,147 patients who had attempted suicide. Twenty-one were dead on arrival. The outcome was known in 464 of the males and 566 of the females (there were 100 more women than men in the series). Fifty-five women, 9 per cent of the females, were successful, seventy-two men, 13 per cent of the males, succeeded. It was also noteworthy that 61 per cent of the women as against 33 per cent of the men were between the ages of 16 and 30. Records of motivation, Moore points out, are of questionable validity. Nevertheless the admitted cause in seventy-one female and twenty-seven male attempts as "domestic trouble" may possibly be significant. Seven main methods were used by each sex group, with poison by mouth and inhalation of gas leading for both. In the former, iodine by mouth was the most popular and least effective choice.

The relation of suicide to mental disease has been the subject of frequent study. Jameison⁶ recently reviewed the clinical records of 100 patients who committed suicide. The study included a diagnostic enumeration, a correlation of the intensity of desire for suicide with the

1 Zilboorg Gregory. Suicide Among Civilized and Primitive Races, *Am J Psychiat* 82: 1347 (May) 1936.
2 Vorwahl H. Erbhlichkeit, Rasenhygiene und Bevölkerungspolitik. *München med Wchnschr* 83: 767 (May 8) 1936.

3 Pacheco J N J. Suicide Indian M. *Gaz* 71: 720 (Dec) 1916.
4 Hopkins Frederick. Attempted Suicide. *An Invest*—
J Ment Sc 83: 71 (Jan) 1937.
5 Moore Merrill. Cases of Attempted Suicide in a General Hospital. *A Problem in Social and Psychologic Medicine*. *New England J Med* 217: 291 (Aug 19) 1937.
6 Jameison G R. Suicide and Mental Disease. *Arch Neurol & Psychiat* 36: 1 (July) 1936.

type of psychosis, and an analysis of the apparent motives behind the act itself. He concluded that probably many persons who commit suicide today are suffering from personality disorders. The potential suicidal patient may, however, be normal in an intellectual sense. On the controversial issue of family background, his material indicated that predisposition to return to psychologic levels of immaturity exists in certain persons.

Zilboorg,⁷ in another discussion of the subject, suggests that a mere review of the various "difficulties" which patients happen to endure cannot serve as a criterion of the causation of suicide. Such facts as a sense of inadequacy, complex family relationships and neurotic or psychotic complications are in themselves of little clinical value in the evaluation and understanding of suicide. He believes that an intimate study of the details of suicide frequently reveals the ceremonial quality of a number of self-inflicted deaths and offers psychologic links with the suicides among many primitive peoples. With most of Zilboorg's methods and conclusions, Wile⁸ takes definite issue. Wile believes that Zilboorg's psychoanalytic concepts are not to be accepted as *prima facie* evidence, especially when they lack the validity of exact statement.

It is obvious that no unity of thought yet surrounds the causes of suicide, in spite of centuries of study and speculation. It would seem to be relatively safe to believe that the causes leading to suicide are affected by different circumstances at different times. One can also accept suicide as a definitely asocial and minority phenomenon.

Current Comment

VITAMIN C AND PYORRHEA ALVEOLARIS

Pyorrhea may be one of two types: a local inflammatory disease, beginning at the gingival margin, or a diffuse atrophic disease of systemic origin. According to Boyle and his co-workers,¹ systemic pyorrhea alveolaris may be readily produced in guinea-pigs by vitamin C deficiency. Within six months after guinea-pigs have been placed on a vitamin C free diet, loosening and wandering of the teeth are demonstrable. X-ray studies of sagittal sections of the heads reveal marked rarefactions of the alveolar bone with widening of the periodontal membrane. The microscopic details are identical with those found in human periodontal disease of the atrophic type. Similar changes take place at a slower rate in guinea-pigs maintained for many months on a relatively low ascorbic acid intake. They have not yet studied the effectiveness of vitamin C therapy as a cure of experimental pyorrhea, nor has the alleged therapeutic value of tooth pastes plus massage thus far been confirmed.

⁷ Zilboorg, Gregory. Considerations on Suicide with Particular Reference to That of the Young. *Am J Orthopsychiat* 7: 15 (Jan) 1937.

⁸ Wile, Ira S. Further Considerations on Suicide. *Am J Orthopsychiat* 235 (April) 1937.

¹ Boyle, P. E., Bessey, O. A. and Wolbach, S. B. *Proc Soc Exper Biol & Med* 36: 733 (June) 1937.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ALABAMA

State Provides Drugs for Venereal Diseases—As a part of its campaign against syphilis, the state department of health will distribute without charge drugs for the treatment of venereal diseases. Heretofore this service has been available only for the treatment of indigent persons, newspapers reported.

ARKANSAS

Changes in Health Department—Dr. Arthur M. Washburn has been placed in charge of the division of communicable disease control of the state department of health, Little Rock, and Dr. Doyle W. Fulmer, Benton, of the division of malarial control, it is reported. Both physicians recently returned from Harvard University Medical School, Boston, where they took a year's graduate work on leave of absence from the state department. Dr. Washburn graduated from Rush Medical College, Chicago, in 1917 and formerly served as health officer of the city of Blytheville and Mississippi County. Dr. Fulmer graduated at the University of Arkansas School of Medicine in 1932.

CALIFORNIA

Society News—At a meeting of the Hollywood Academy of Medicine, August 19, Dr. John S. Chase spoke on "Aviation Medicine." Douglas Shearer, chief sound engineer, Metro-Goldwyn Mayer Studios, discussed the related psychophysical aspects of flying. Dr. Clarence O. Sappington, Chicago, addressed the industrial accident section of the Los Angeles County Medical Association at a joint meeting with the Casualty Insurance Adjusters' Association, August 12, on "Practical Problems in Industrial Health and Disease."

Changes in the Faculty at University of California—Announcement is made of the following promotions on the faculty at the University of California Medical School, San Francisco, among others, effective July 1:

Dr. Ottwell W. Jones, Jr. to be associate professor of surgery.
Drs. Paul Campiche, Thomas F. Mullen, Mary F. Montgomery and Robertson Ward, assistant clinical professors of surgery.
Dr. Leon Goldman, assistant professor of surgery.
Dr. Dorothy A. Wood, associate clinical professor of anesthesiology.
Dr. Clark M. Johnson, associate clinical professor of urology.
Dr. Francis J. Rochex, assistant clinical professor of medicine.
Dr. Isabella H. Perry, assistant professor of pathology.
Dr. Warren D. Horner, associate clinical professor of ophthalmology.

The title of Dr. Albert J. Houston has been changed from clinical professor to clinical professor emeritus of otorhinolaryngology, and that of Dr. Herbert C. Moffitt from clinical professor to clinical professor emeritus of medicine.

CONNECTICUT

Annual Clinical Congress of State Society—The annual clinical congress of the Connecticut State Medical Society will be held at New Haven, September 21-23. The following speakers will appear on the program among others:

Dr. Francis C. Grant, Philadelphia. Treatment of Cranial Trauma.
Dr. Joseph Earle Moore, Baltimore. Treatment of Early Syphilis.
Dr. Robert H. Aldrich, Boston. Treatment of Burns with a Compound of Aniline Dyes.
Dr. Frederick C. Irving, Boston. The Place of Cesarean Section.
Dr. Isidor S. Ravdin, Philadelphia. Surgical Diseases of the Extrahepatic Bile Ducts.
Dr. William B. Castle, Boston. Treatment of Various Types of Anemias.
Dr. Emil Novak, Baltimore. Treatment of the Menopause.
Dr. Maurice Lenz, New York. Clinical Experience with the Use of Radium and X-Rays in the Treatment of Cancer.
Dr. Oskar Dietheim, New York. Treatment of Psychoneurotic Disorders.
Dr. Arthur Steindler, Iowa City. Fracture Deformity of the Upper Extremities—Wrist and Forearm.
Dr. Claude S. Beck, Cleveland. The Treatment of Coronary Sclerosis and Angina Pectoris by Grafting a New Blood Supply to the Heart.
Dr. Warfield T. Longcope, Baltimore. Some Problems in Relation to Bright's Disease.

There will be symposiums, clinics and panel discussions. Wednesday the section on anesthesia will meet with the American Society of Anesthetists with the following speakers: Dr. Henry S. Ruth, Philadelphia. Problems in Resuscitation. Louis S. Goodman, New Haven. The Chemical Moderation of Nerve Stimuli. Paul M. Wood, New York. Modern Anesthesia for Upper Abdominal Surgery. Meyer Saklad, Provi-

dence R I, "A Method for the Collection and Analysis of Anesthetic and Surgical Statistics" The Connecticut Medical Examiners' Association will meet during the congress and Dr Robert P Knapp, Manchester will address the Connecticut Public Health Association on 'Progress of Industrial Medicine'

FLORIDA

District Meetings—The first annual meeting of the North-east Committee District (C) of the Florida Medical Association will be held at St Augustine, September 23, at the Munson Hotel. Dr Charles C Grace, president, St Johns County Medical Society, will give the address of welcome. Other speakers will include Drs Samuel R Norris, Jacksonville, on "Some Complications of Labor", Thomas M Palmer, Jacksonville, "Congenital Osseous Syphilis," and Hugh West, DeLand, "Anomalies of Intestinal Rotation and Report of a Case." The first annual meeting of the Southeast Committee District (F) was held at Miami, September 3, in the Columbus Hotel, with the Dade County Medical Society acting as host. Among the speakers were Drs Lloyd J Netto, West Palm Beach, "Ectopic Pregnancy", Kenneth Phillips, Miami, "Resume of Fever Therapy," and Shaler A Richardson, Jacksonville, "The Treatment of Retinal Detachment."

ILLINOIS

Personal—Dr Amos W Ball, Rushville, was guest of honor at a dinner given by the Rushville Rotary Club, August 10, to celebrate his completion of fifty years in the practice of medicine. He was presented with a Rotary pin. Speakers included Drs Everett P Coleman, Canton, counselor of the fourth district of the state medical society, Don W Deal, Springfield, Perry H Stoops, Ipava, Henry O Munson and Frederick D Culbertson. Dr Ball graduated in 1886 from Missouri Medical College, St Louis.

Advisory Board to Division for Handicapped Children—Fifteen persons have been named by the governor to a newly created advisory board of the division for handicapped children, state department of public welfare. Dr Paul H Harmon is director of the division and members of the committee include Drs Henry B Thomas, Edward L Compere, Philip Lewin, Julius H Hess, Edwin W Ryerson, Robert A Black, Philip H Kreuscher, all of Chicago, Frank J Jirka, state health director, Gerald M Cline, Bloomington, Fred S Etherton, Carbondale, Roland L Green, Peoria, Harold M Camp, Monmouth, Charles S Skaggs, East St Louis, Miss Mable Dunlap, Moline, and Mark Penney, state board of vocational rehabilitation, Springfield.

INDIANA

Personal—The completion of fifty years in the practice of medicine was observed by Drs Robert E Trout, Oaktown, Simon P Schroeder, Nashville, Ill, and Isaac H Doolittle, South Bend, at a joint celebration at Dr Trout's home in Oaktown, July 4-5. Dr Edith M B Schuman, Bloomington, has been appointed assistant physician at Indiana University, succeeding Dr Margaret A T Owen, who will enter private practice.

New Cancer Clinic—The Indianapolis City Hospital, Indianapolis, has received a gift of \$100,000 to establish and endow a cancer clinic. Edwin L Patrick, president and secretary of the C B Cones & Son Manufacturing Company, is the donor. The clinic will be named Patrick Hall in memory of his wife, the late Mrs Kathryn Cones Patrick, and her father and mother, newspapers announced. Complete equipment for the treatment of cancer, including x-ray machines and radium, will be provided and accommodations for twenty-two patients will be available. Dr Charles W Myers is superintendent of the hospital.

IOWA

Norman Baker Fined—One Day in Jail—Norman G Baker, operator of the Baker Hospital and identified with alleged cancer cures was fined \$1,000 and sentenced to one day in the Muscatine County Jail, Muscatine, by Judge D V Jackson in district court, August 14 following his plea of guilty to an indictment charging him with practicing medicine without a license, according to the Davenport Democrat. The plea was entered through Baker's attorney, J F Devitt and the indictment was returned by a Muscatine County grand jury Sept 30, 1935. The one day jail term will be served concurrently with a similar sentence imposed by the state supreme court when Baker was found guilty of contempt for violating, through the fiction of a lease of the Baker Hospital to Dr Johnson L Statler and others, an order enjoining him from practicing medicine in Iowa (THE JOURNAL July 31, p 375).

KANSAS

Election of Medical Board—Dr Oliver S Rich, Wichita, was recently elected president of the Kansas State Board of Registration and Examination and Dr John F Hassig, Kansas City, was chosen secretary. The latter succeeds Dr Charles H Ewing, Larned, who served in the position from January 1931 to July 1937, he is no longer a member of the board. All matters pertaining to medical registration should be addressed to Dr Hassig, 804 Huron Building, Kansas City. Other members of the board are Drs Henry E Haskins, Kingman, James E Henshall, Osborne, Mirl C Ruble, Parsons, and Frederick S Hawes, Russell.

KENTUCKY

Society News—Dr Edward C Rosenow, Rochester, Minn., addressed the Southwestern Kentucky Medical Society at its quarterly meeting in Arlington, August 10, on infantile paralysis. Drs James Vernon Pace, Paducah, and George W Payne, Bardwell, spoke on "Appendicitis in Childhood" and "Chronic Nephritis" respectively. Dr Irvin Abell, Louisville, President-Elect of the American Medical Association, was the guest of honor at the quarterly meeting of the Muldraugh Hill Medical Society, Elizabethtown, August 12. Dr Francis M Massie, Lexington, addressed the Bourbon County Medical Society, Paris, August 19, on empyema. Dr John Y Harper, Jenkins, addressed the Letcher County Medical Society at a recent meeting in Jenkins on "Fractures of the Femur and Their Treatment."

MAINE

Personal—Dr Herbert R Kobes, Augusta, has been placed in charge of a maternal and child health program to be carried out by the state department of health with social security funds.

Society News—At the annual meeting of the Maine Medical-Legal Society at Belgrade Lakes, June 22, the following officers were elected: Drs John G Towne, Waterville, president, Oscar F Larson, Machias, vice president, George L Pratt, Farmington, secretary, and William Holt, Portland, treasurer.

MARYLAND

Semiannual Meeting of Medical and Surgical Faculty—The semiannual meeting of the Medical and Surgical Faculty of the State of Maryland will be held at the Washington County Hospital, Hagerstown, September 27. According to the preliminary program, Dr Samuel F Marshall, Boston, will discuss "Surgical Indications for and Surgical Treatment of Peptic Ulcer," and Dr Frank H Lahey, Boston, "Diagnosis and Management of Thyroid Disease." Dinner will be at the Alexander Hotel in the evening.

New Syphilis Clinic—The Baltimore city health department opened a new clinic for the diagnosis and treatment of congenital syphilis at 1516 Madison Avenue recently. The new service has been established for babies born of infected mothers in families that are unable to afford the services of a private physician. The clinic will be under the joint supervision of the bureaus of venereal diseases and child hygiene so that the children will receive the benefits of pediatric advice as well as of diagnostic and treatment service for syphilis.

MICHIGAN

New Health Districts—Alger and Schoolcraft counties have organized a joint district health department and selected Dr Ervin J Brenner, East Jordan, as health officer. He will have headquarters at Manistique. Ontonagon and Baraga counties have planned a similar organization, with Dr Clifford C. Corkill, Fennville as director. Headquarters will be at L'Anse.

Changes in the Faculty—At a recent meeting of the board of regents of the University of Michigan, Ann Arbor, the following promotions on the staff of the medical school were announced:

Henry C Eckstein, Ph D to be associate professor.
Dr Ralph G Smith, associate professor of pharmacology.
Dr John L Law, assistant professor of pediatrics and infectious diseases.

Dr Jacob Sacks, assistant professor of pharmacology.
Testimonial to Physician—Dr Leo G Christian, Lansing, chairman of the legislative committee of the Michigan State Medical Society, was honored by the Ingham County Medical Society at its meeting in July for his work in bringing about the passage of the basic science law. A resolution was unanimously adopted expressing the society's appreciation, and a Tiffany watch was presented to him. In addition the society dedicated its July bulletin to him.

State Society Officers Visit Counties—Officers and councilors of the Michigan State Medical Society made a tour of the county medical societies of the Upper Peninsula during August and 'state society meetings' were regular features of the programs of the various units. The following schedule was announced:

Chippewa Mackinac at Sault Ste Marie August 17
Luce and Schoolcraft at Blaney August 17
Marquette Alger at Marquette August 18
Upper Peninsula Medical Society annual meeting at Houghton August 19-20
Ontonagon at Ontonagon August 23
Gogebic at Ironwood August 23
Dickinson Iron at Crystal Falls August 24
Menominee at Menominee August 25
Delta at Escanaba August 25

MINNESOTA

Dr Meyerding on Leave of Absence—Dr Edward A. Meyerding, St. Paul, secretary of the Minnesota State Medical Association since 1924 has been granted a year's leave of absence without pay, beginning September 1. Mr. R. R. Rosell, now field secretary, has been appointed executive secretary of the association. Dr. Meyerding will remain as executive secretary of the Minnesota Public Health Association. In a statement to members of the association it was explained that the pressure of work with the two organizations made it necessary for Dr. Meyerding to ask to be relieved of the medical secretaryship for a year.

"Divine Healer" Fined—A. C. Martin pleaded guilty in the district court at Shakopee to the charge of practicing medicine without a license and was sentenced to pay a fine of \$200 and costs or serve one year in the McLeod County jail. He paid the fine. For some time Martin had been making weekly trips to Brownston, where he had a hotel room for the reception of patients. He also operated in Pine City and Arlington. He is listed in the Minneapolis city directory as a 'healer' residing at 1916 Hennepin Avenue. He prescribed alum, boric acid and iodized salt dissolved in water and applied externally to the neck and throat for goiter; he also suggested and furnished 'gland tablets' to be taken internally. According to the state board of medical examiners he also applied some massage. He admitted that he had never studied medicine but stated that he had been a farmer and a traveling salesman.

MISSOURI

New Psychopathic Institute—Plans for a new \$1,000,000 city psychopathic institute in St. Louis, named in honor of the late Dr. Malcolm A. Bliss have been announced. The new building will be six stories tall and occupy the block north of City Hospital, bounded by Grattan Street, Park Avenue and Dillon and Carroll streets. It will accommodate 185 patients, with 142 beds for white patients and forty-three for Negroes. The site cost about \$109,000 and funds for the entire project came from a 1934 bond issue and a PWA grant, newspapers reported. The institute will be primarily for the study of new and borderline cases; the latter to be segregated from the actually insane. The new building will be ready about March 1939. Dr. Bliss, in whose honor it is named, was for many years associated with the city institutions. He died in 1934.

MONTANA

Society News—Dr. E. Martin Larson, Great Falls, was elected president of the Montana Health Association at its annual meeting in Great Falls. Dr. William F. Cogswell, Helena, remains as secretary.

NEW JERSEY

Society News—The Society of Surgeons of New Jersey will hold its twenty-fifth anniversary meeting in Trenton, November 20. At a meeting of the Middlesex County Medical Society, June 16, in Metuchen speakers were Drs. Harry J. White, Metuchen, on 'Early Recognition of Pulmonary Tuberculosis'; Walter Grossman, Metuchen, 'Pulmonary Cavitation—Pathologic Types'; and Paul Geary, Plainfield, 'Treatment of Tuberculous Pulmonary Cavitation'. Dr. Earl W. Fuller, Greystone Park, will address the Bergen County Medical Society, Hackensack, September 14, on 'Mental Diseases'.

Personal—Dr. Irvin E. Deibert, Haddonfield, has been reelected president of the state board of health and E. W. Smilie, VMD, Plainsboro, has been elected vice president. Dr. David A. Kraker, Newark, was the guest of honor at a dinner July 16 given by officers of the 303d Medical Regiment, U. S. Army Reserve Corps, observing his completion of fifteen years as commander of the regiment. He

received an engraved saber as a memento. At a meeting of the Hunterdon County Medical Society, Glen Gardner, July 27, certificates of fifty years of practice and engraved golden keys were presented to Drs. Francis Asbury Apgar, Oldwick, Harry M. Harman, Frenchtown, and Edward W. Closson, Lambertville.

NEW YORK

Smallpox at Niagara—Eleven cases of smallpox occurred in Niagara Falls and the town of Niagara between June 21 and August 3. *Health Aegis* reported August 16. The cases were limited to four related households. Twenty-two known immediate contacts were vaccinated and are under strict quarantine and about 200 other persons in the immediate neighborhood affected have been vaccinated. The outbreak was believed to be sufficiently under control that visitors to Niagara Falls need have no special concern, the bulletin said.

Director of Research Appointed at Saratoga—Oskar Baudisch, PhD, recently of Stockholm, Sweden, has been appointed director of research at the Simon Baruch Research Institute for Balneology and Hydrology to be established at the state spa at Saratoga Springs. Dr. Baudisch is a native of Austria and received his doctorate at the University of Zurich, Switzerland, in 1904. From that time until 1921 he was associated with various universities in Europe. In 1921 he became research associate at Yale University, New Haven. From 1923 to 1929 was on the staff of the Rockefeller Institute for Medical Research, New York, and again was research associate at Yale from 1929 to 1933. Recently he has been research associate at the University of Stockholm, Sweden. Plans for the establishment of the research institute have not been completed.

New York City

Aid for Nurses with Tuberculosis—Nurses in Manhattan and vicinity are forming an auxiliary to Stony Wold Sanatorium, Lake Kashaqua, to provide care for nurses with tuberculosis. Stony Wold is an institution for the care and treatment of women and girls exclusively. It has a small endowment and is otherwise supported by patients, auxiliaries, donations, and endowed free beds. At present there are thirteen nurses in the sanatorium, only one of whom is paying full rates for her care. Miss Lillian Amelung, 598 Madison Avenue, is executive secretary of the auxiliary.

University News—The class of 1912 of the College of Physicians and Surgeons of Columbia University held its twenty-fifth reunion recently at a dinner in New York with Dr. Frank R. Mount, Portland, Ore., president of the class as toastmaster. It was reported that eighty-three of the eighty-six members of the class are living, all but one active in medical practice. Among other statistics it was reported that nineteen of the class are members of medical school faculties, fifteen hold federal, state or municipal medical offices. Members of the class are affiliated with 126 hospitals and are authors or co-authors of thirty-seven textbooks.

Smallpox on Ocean Liner—A liner carrying seventy-seven passengers and a crew of 128 was held in quarantine for six hours when it came into port from South America with a case of smallpox on board, August 19. Every one on board had been vaccinated by the ship's physician as soon as the disease was discovered and the patient had been isolated with a special steward to care for him. Passengers who had New York addresses or who planned to stay in New York were released with the understanding that they would be kept under surveillance by the health department during the period of incubation. Out of town passengers agreed to report to their local health officers. Members of the crew were not allowed to leave shore unless they could prove residence in New York. The smallpox patient, an 80-year-old man, was removed to the Kingston Avenue Hospital for Contagious Diseases.

City Ends Care of Mental Defectives—New York City officially discontinued the treatment of mentally defective children as a municipal function July 31 with the transfer of a group of eighteen from the Children's Reception Hospital to the Newark State School, Newark. The children were once inmates of the old New York City Children's Hospital on Randall's Island, which was razed to make way for the new Triborough Bridge. Some years ago an amendment to the state mental hygiene law laid responsibility for care of mental defectives on the state but because of inadequate facilities transfers from the city institution had to be made gradually. Since the old hospital was torn down, some of its inmates have been moved from place to place until the final group was taken over recently. The mental hygiene clinics at Bellevue and Kings County hospitals will function as application bureaus.

for the state institutions Admission of mental defectives from New York City to state institutions has averaged about 700 a year for the past five years, according to the department of hospitals

Typhoid on German Ocean Liner—Twenty-four members of a crew of 400 were suffering from typhoid when the Hamburg-American liner *Hansa* arrived in New York August 28 with 993 passengers Within a few hours the number of sick had increased to twenty-nine The ship was cleared at quarantine by the new system of radio pratique under which the ship's physician radios his belief that no quarantinable disease exists on board It was thought that the men were suffering from a form of gas poisoning from fumigants used before the vessel sailed from Hamburg, according to a statement from the steamship company Investigation by the U S Public Health Service officials at quarantine and by the New York City Health Department proved that the disease was typhoid As a result the steamship officials canceled the entire passenger list of 325 persons and returned to Germany with the sick members of the crew, an extra physician and a corps of nurses Meanwhile the city health department conducted an investigation of the passengers who arrived on the *Hansa* Those who lived in New York would be visited by physicians of the department to watch for indications of the disease, and health departments of other cities represented by the passenger list were to be notified, it was said Before the *Hansa* left on its return trip the fresh water tanks were emptied and refilled and the water was then tested by the city laboratories According to the *New York Times* the public health service officials removed the ship's physician, Dr Helmuth Paul Otto Grieshaber, from the list of physicians eligible for medical clearance by radio and the *Hansa* will henceforth be required to stop at quarantine for examination

OREGON

Associate Dean Appointed—Dr David W E Baird Jr, assistant clinical professor of medicine, University of Oregon School of Medicine, Portland, has been appointed associate dean to succeed the late Dr Harold B Myers Dr Baird graduated at Oregon in 1926

PENNSYLVANIA

Deaver Road—A street in Wyncote has recently been named Deaver Road in honor of the late Dr John B Deaver, Philadelphia The street was formerly known as Wyncote Road

District Meeting—The annual meeting of the Ninth Council District was held in Indiana, August 26 On the scientific program were the following speakers Drs Ford M Summerville, Oil City, on "Gallbladder Infections with Reference to the Pancreas and Heart", Hollister W Lyon, Punxsutawney, "Diagnosis and Treatment of Chronic Prostatism", and William J Armstrong, Butler, "Meningitis—Differential Diagnosis and Treatment" Drs Frederick M Jacob and Chauncey L Palmer, Pittsburgh chairmen respectively of the committees on public relations and public health legislation in the Medical Society of the State of Pennsylvania, discussed activities and plans of their committees

Philadelphia

Personal—Dr Anthony Sindoni Jr has been appointed chief of the diseases of metabolism at the Philadelphia General Hospital—Merkel Henry Jacobs, PhD, professor of general physiology at the University of Pennsylvania and director of the Marine Biological Laboratory at Woods Hole Mass, has resigned from the latter position according to *Science*

TEXAS

Personal—Dr Levi C Wayland Plamview, has been appointed health officer of Hale County, to succeed the late Dr Edgar F McClendon—Dr George M Decherd Austin was recently appointed health officer of Austin to succeed Dr Eugene O Chumene, who resigned

Society News—Drs Julius McIver and William H Potts Jr will address the Dallas County Medical Society September 23 on "Analgesia in Obstetrics" and Recent Advances in Our Knowledge of the Vitamins respectively—The annual meeting of the Texas Public Health Association will be held in Dallas at the Hotel Adolphus November 1-3 Sessions the first two days will be for laboratory workers food and drug officials, health officers, public health nurses and sanitarians The third day's program will be open to the general public—Drs Walter G Reddick and William Lee Hudson, Dallas,

addressed the Kaufman County Medical Society, Terrell, Ju 8, on "Types of Heart Failure and Their Treatment" and "Congenital Duodenal Bands" respectively—Dr Roy G Loveless, Slaton, addressed the Lubbock-Crosby Counties Medical Society, Lubbock, July 6, on eclampsia

WISCONSIN

State Medical Meeting at Milwaukee, September 15—The ninety-sixth annual meeting of the State Medical Society of Wisconsin will be held in Milwaukee September 15-17 at the Milwaukee Auditorium Headquarters will be at the Hotel Schroeder Guest speakers who will address general sessions will be

Dr Ralph A Kinsella St Louis Principles Governing Treatment of Severe Streptococcal Infections
Dr Eldridge L Elason Philadelphia Surgical Aspects of Indigestion
Dr Chevalier Jackson Philadelphia Indications for Bronchoscopy
Dr Emery A Rovenstine New York Anesthesia
Dr Cyrus C Sturgis Ann Arbor Mich Modern Methods of Treating Lobar Pneumonia
Dr Fredrick A Willius Rochester Minn Treatment of Diseases of the Heart
Dr Charles A Aldrich Winnetka Ill Growth and Development of Babies
Dr Edward L Cornell Chicago Abnormal Vaginal Discharges
Dr Vincent J O Connor Chicago Stone Impacted in the Lower Ureter
Dr William C Menninger Topeka the Rogers Memorial Lecture Psychological Factors in Medical and Surgical Conditions
Dr Robert M Grier Evanston Ill Pain Relief in Labor
Dr Edward T Evans Minneapolis The History and Application of New Advances in the Treatment of Fracture of the Neck of the Femur
Dr John H J Upham Columbus Ohio President American Medical Association The Heart of Middle Life

One general session will be devoted to a symposium on "The Family Physician—A Unit in Preventive Medicine," in which the speakers will be Drs Frederick C Rodda, Minneapolis, Jay Arthur Myers, Minneapolis, and Fred G Johnson Iron River At another session there will be a symposium on endocrinology presented by Drs Edward H Rynearson Rochester, Minn, and Elmer L Sevringhaus, Madison Several of the guest speakers already named will also address section meetings and participate in round table luncheon discussions In addition, the following will address various sections

Dr Owen H Wangenstein Minneapolis The Role of the Surgeon in the Treatment of Acute Pyogenic Infections
Dr Cecil S O'Brien Iowa City Conjunctivitis Diagnosis Etiology and Treatment
Dr Paul H Garvey Rochester N Y subject to be announced

Dr Logan Clendening, Kansas City, Mo, will be the speaker at the annual dinner at the Hotel Schroeder, Thursday evening on "The Great Centers of Medical Thought in the Past" A new feature of the meeting is a "health exhibit," prepared by the council on scientific work for inspection by the public

GENERAL

Western Ophthalmological Meeting—The fourth annual meeting of the Western Ophthalmological Society was held in Denver, July 22-23, with the following speakers, among others

Dr Roderic P O Connor San Francisco Principles of Ocular Surgery
Dr Edwin M Nehrer Salt Lake City Utah presidential address Aniridia in Five Generations
Dr Maurice E Marcove Denver Origin and Significance of Detachment Bands in the Crystalline Lens
Dr Georgiana M Dvorak Theobald Oak Park Ill Radium in Treatment of Chalazion
Dr Edward Jackson Denver Mechanics of Cataract Extraction

At an evening session July 22 the speakers included Dr Edward H Cary, Dallas, Texas, on "Did Clinical Specialization Anticipate Scientific Medicine?"

Prevalence of Infantile Paralysis—The U S Public Health Service reported that 492 cases of infantile paralysis had been reported during the week ended August 21 compared with 455 the preceding week and an average of 303 for this season, according to the *New York Times*—Three deaths have occurred in Buffalo, where eighteen cases have been reported since August 14—Newspapers report that Illinois and Chicago have the largest number of cases at any time in twenty years, 221 cases in the state this year compared with ninety-five for the corresponding period of 1936 and sixty-eight in Chicago from August 1 to 22, compared with ten in the same period of 1936—Opening of schools was delayed a week in Omaha because of sixty-three cases from May 1 to August 24—A general quarantine of children under 16 was imposed in Mansfield, Ohio, August 17, following the death of a young woman playground supervisor—Twenty four cases have recently been reported in Kansas City, Mo and five in Jackson County outside Kansas City

Southern Tuberculosis Meeting—The annual meeting of the Southern Tuberculosis Conference and the Southern Sanatorium Association will be held at the John Marshall Hotel

Richmond, Va., September 29-October 1 Among the features of the program will be a symposium on collapse therapy, with the following speakers Drs Richard H Overholt, Boston, Frank S Johns, Richmond, Paul A Turner, Louisville Ky, and Champneys H Holmes Atlanta, Ga Speakers in a symposium on nontuberculous lung conditions will be Drs Louis Hamman, Baltimore Leroy U Gardner, Saranac Lake N Y, and David T Smith, Durham N C Dr Overholt Dr Jay Arthur Myers Minneapolis, president of the National Tuberculosis Association, and Dr Edward J Murray Lexington, Ky, president of the Southern conference will speak at a public session Wednesday evening September 29 Dr Myers and Dr John Donnelly Charlotte, N C president of the sanatorium association, will be the speakers at a banquet Thursday evening

Deduction of Medical Expenses for Federal Income Tax Purposes.—On the last day of the first session of the Seventy-Fifth Congress, Senator Bone of the state of Washington introduced in the Senate a bill, S 2997, proposing in part to authorize individuals to deduct in the computation of their federal income taxes (1) any amounts, not exceeding \$250 actually paid during the taxable year for medical dental surgical or nursing treatment, or hospitalization of the taxpayer or his spouse or of any dependent for whom a credit is allowed under the income tax law, and (2) amounts paid during the taxable year for the funeral and burial of a taxpayer's spouse, or a dependent for whom a credit is allowed under the law with a proviso that no such deduction shall be allowable if at the time of the filing of the return the expense has been claimed as a deduction for estate-tax purposes While this bill was introduced too late for any action to have been taken with respect to it before the adjournment of the Congress it was referred to the Senate Committee on Finance and consideration may be given to it when the second session of the Congress meets either in special session or on Jan 3, 1938

American Hospital Association.—The thirty-ninth annual convention of the American Hospital Association will be held in Atlantic City September 13-17 There will be general sessions section meetings on group hospitalization, dietetics tuberculosis hospitals outpatient service, trustees activities, children's hospitals, nursing, construction, social service mechanical division of hospital operation, purchasing agents administration and public hospitals Among the speakers listed on the program are

- Dr Gilbert J Dalldorf Valhalla N Y Incorporation of Modern Knowledge of Nutrition into Institution Dietetics
- Dr Carl M Peterson hospital inspector American Medical Association Chicago Intern Training in the Small Hospital and Discussion of the Relationship of the Medical Specialty Boards to the Small Hospital
- Dr Robert E Plunkett Albany, N Y Sanatorium and Tuberculosis Hospital Survey of the American Medical Association
- Dr Samuel W Becker Chicago The Place of the Social Worker in the Medical Team
- Dr Benjamin P Potter Secaucus N J Present Day Concepts of a Tuberculosis Hospital
- Dr Arthur W Bingham East Orange N J The Role of the Hospital in Reducing Maternal Mortality
- Drs Charles P Major and Theodore S Wilder Philadelphia Ultra violet Light for Air Sterilization in a Ward for Infants
- Drs Mary K Bazemore Merton Station Pa, and William M McEadden Jr Philadelphia Prevention of Ward Infections in Children's Hospitals
- Dr Carl E Vohr St Louis Group Hospitalization from the Medical Man's Point of View
- Dr Joseph W Mountain U S Public Health Service Washington D C Financial Support of Nongovernment Hospitals as Revealed by the Recent Federal Business Census of Hospitals

A feature of the meeting will be clinical demonstrations of such procedures as isolation hospital technic superintendent's staff conference, court appearances technic of obtaining consent for necropsy and fire protection

International Radiology Congress in Chicago, September 13.—The fifth International Congress of Radiology will be held in Chicago at the Palmer House September 13-17 Preliminary to the congress there will be a reception to foreign guests given by the Chicago Roentgen Society Sunday afternoon September 12 at the Palmer House followed by group dinners Monday will be devoted to meetings of the international executive committee and the international radiological committee, an official luncheon for officers directors delegates and committees of the congress, and the official opening of the technical and scientific exhibits

The opening session will be held Monday evening Dr Arthur C Christie Washington D C will be installed as president of the congress by Dr Hans R Schinz, Zurich Switzerland president of the fourth international congress Addresses will be delivered by Drs William J Mayo Rochester Minn C Gösta Abraham Forssell Stockholm, Sweden Schinz and Christie

Each morning from 8 to 9 o'clock lecture courses will be offered with the following instructors

- Dr Henri Contard Paris Roentgen Therapy in Cancer
- Dr George W Holmes Boston Problems in Roentgenologic Diagnosis
- Dr Hermann Holthausen Hamburg Germany Fundamentals of Roentgen and Radium Therapy
- Dr Byrl R Kirklin Rochester Minn Roentgen Diagnosis in Gastro-Enterology
- Dr Edwin A Merritt Washington D C Special Problems of Radiation Therapy Relating Particularly to Treatment of Cancer of the Cervix and Cancer of the Breast
- Dr Merrill C Sosman Boston Diagnosis of Brain Lesions
- James L Weatherwax Philadelphia Elementary Physics of Radiation

These courses will be given in English and will be open to physicians other than radiologists for a small fee

General sessions will be held each morning Among the speakers will be

- Dr Forssell The Role of the Autonomus Movements of the Gastro-Intestinal Mucous Membrane in Digestion
- Dr Gian G Palmieri Bologna Italy Radiologic Evaluation of the Size and Form of the Heart
- Dr Arthur Schuller Vienna Cerebral Cystography and Cisternography
- Dr Rene Gilbert Geneva Switzerland Treatment of Hodgkin's Disease by Radiotherapy
- Sir George Lenthal Cheatle London and Dr Max Cutler Chicago Racial Variations in the Incidence of Carcinoma
- Dr Russell J Reynolds London Cineradiography by the Indirect Method
- William D Coolidge Ph D Schenectady N Y Production of X Rays of Very Short Wavelength
- Robert J Van de Graaff Ph D Cambridge Mass Production of Penetrating Radiations by Means of Electrostatic Generators
- Dr Yser Solomon Paris France Recording the Quantity of Irradiation in Roentgen and Radium Therapy in R Units

Afternoon sessions will be divided into sections Three are on roentgen diagnosis with Drs James T Case Chicago Charles A Waters Baltimore, and Frederick M Hodges Richmond Va, as chairmen Three are on radiotherapy with the following chairmen Drs Albert Soiland Los Angeles Bernard P Widmann, Philadelphia and Arthur U Desjardins Rochester, Minn Gioacchino Failla D Sc, New York will be chairman of the section on radiophysics Dr Francis Carter Wood New York, of the section on radiobiology, and Dr Norman E Titus, New York, the section on electrolgy and light therapy

The national organizations in radiology in the United States will sponsor meetings for the evenings of the congress The American College of Radiology will have a dinner and convocation Monday evening before the opening general session Tuesday evening the American Radium Society will present the Janeway Lecture to be delivered by Dr Douglas Quick New York on Carcinoma of the Larynx Wednesday evening Dr George E Pfahler, Philadelphia, will give the Caldwell Lecture of the American Roentgen Ray Society on Treatment of Carcinoma of the Breast The Radiological Society of North America will sponsor the program for Thursday evening presenting the Carman Lecture, by Dr George W Holmes Boston on The Development of Postgraduate Teaching in Radiology Friday evening there will be a banquet for the entire congress with entertainment

A feature of the congress will be the simultaneous projection of pictures and text of all papers on screens in English, French and German

In addition to Dr Christie officers of the congress include Dr Benjamin H Orndoff Chicago general secretary Drs George E Pfahler Philadelphia and James Ewing New York and William D Coolidge Ph D Schenectady honorary vice presidents Information concerning the congress may be obtained from Dr Orndoff, 2561 North Clark Street, Chicago telephone Lincoln 0724

CANADA

Poliomyelitis in Ontario.—Between 350 and 400 cases of poliomyelitis have been reported in an epidemic in Ontario within the past three weeks it was reported August 29 Two thirds of the cases and nine deaths of twenty reported for the whole province have been in Toronto and the surrounding district It was announced August 23 that schools would not reopen until September 7, instead of September 1

CORRECTION

Bismuth Subsalicylate for Flat Warts.—In Queries and Minor Notes in THE JOURNAL August 21 page 610 the dose of bismuth subsalicylate used in the treatment of flat warts by intramuscular injection was given as 15 Gm and 2 Gm which was an error The dosage should have been indicated as the same amount in grams

Foreign Letters

LONDON

(From Our Regular Correspondent)

Aug 6, 1937

Nonvenereal Syphilis

At the Royal Society of Tropical Medicine, Dr E H Hudson described a form of nonvenereal syphilis which is epidemic among the seminomad villagers of the middle Euphrates and is called bejel. Sexual promiscuity does not exist and the disease is usually acquired in childhood by contagion under the conditions in which a dirty, careless, poorly clad, closely huddled people live. Sixty per cent of adults acquire it in childhood and a majority of the remainder from children, often their own, later in life. Less than 1 per cent of adults acquire the disease in sexual intercourse. Of the adult population 75 per cent stated that they had had bejel, and that percentage gave positive serologic reactions. Surveys showed that 90 per cent were affected. That bejel is syphilis was shown by the early and late lesions, the uniform presence of an organism indistinguishable from *Spirochaeta pallida*, the positive precipitation and complement fixation reactions, and the response to treatment. Bejel resembles yaws in its nonvenereal acquisition in childhood, its community-wide dissemination, the morphology of the skin lesions, the predilection for the skin and bones, the relative escape of the eyes and the cardiovascular and nervous systems, and in the presence of gangosa, juxta-articular nodules and patchy depigmentations. Both diseases tend to disappear under civilizing influences. On the other hand, bejel resembles syphilis in its constant involvement of mucous membranes, in the alopecia, and in its extratropical location. It can be argued that the three forms of spirochetosis have an identical etiologic basis and that their differences can be explained on epidemiologic grounds if the influence of all environmental factors is known. Bejel is syphilis in its "lowest terms," the archetype of this spirochetosis. That syphilis has ceased to be a childhood disease and assumed a venereal character is not due to any tropism toward the genitalia but to the restriction of the bodily contact for its communication to sexual intercourse by the conditions of civilization. The existence of bejel is also strong proof of the identity of yaws and syphilis.

Persecuted Scientists and the Society for Their Protection

When the Academic Assistance Council was formed in 1933 to help the scientists and scholars expelled from their posts on the continent in consequence of political persecution, it was hoped that the need for such an organization would be only temporary. Unfortunately this hope has not been realized and in 1936 it was decided to continue the work of the council by means of a permanent body, the Society for the Protection of Science and Learning. The great body of the refugees come from Germany but political persecution on a much smaller scale is not unknown in some other countries—Austria, Russia, Italy, Spain and Portugal. Thus under our boasted civilization of the twentieth century it is only the smaller part of the European continent—the democratic countries of France, Netherlands, Scandinavia and Switzerland—that are free from this stain. In his book "Human History" the anatomist and anthropologist Sir Grafton Elliot Smith wrote "For the first thirty centuries of its career civilization was concerned with building up the state system. Then in the fifth century B C the Ionians opened up a new chapter in human history by removing the shackles. They showed that man was free to think." When he wrote these words some years ago Elliot Smith could not have foreseen that he would live to see the day when he could have added the postscript. This achievement of the Greeks was lost over a large part of Europe in the twentieth century.

According to the last report of the Society for the Protection of Science and Learning the total number of scientists and scholars displaced from German universities is about 1,600, of whom 70 per cent were married. Of about 800 scientists and scholars who have left Germany 464 have been permanently reestablished and 311 temporarily placed. These have been distributed in forty-three countries, of which Great Britain, with 228, and the United States take the lead. The civil war in Spain has led to the displacement of sixty scholars, who may never be able to return to their country. The society maintains a central bureau in London. It makes emergency grants to those who have secured what may become permanent employment and allots a limited number of research fellowships to those of unusual ability. It has assisted those engaged in all branches of science, but the majority are workers in medicine, chemistry, physics and economics.

The Insufficient Consumption of Milk

The desirable amount of milk in the diet of children has been given as from 1 to 2 pints daily, for nursing mothers about 2 pints, and for adults about half a pint. Our national consumption is not half that amount. An organization called the Children's Minimum Council, of which our greatest authority on diet, Sir Frederick Gowland Hopkins, is chairman and which has the support of twenty-six national organizations concerned with maternity and child welfare, has submitted to the Ministry of Health a plan for the provision of cheap milk for mothers and children under school age. The council points out that at present prices the milk for a family of three children, a mother again pregnant and a father would cost about \$3 a week—a usually impossible expenditure for a working class family. A survey was made of 587 working class households in Oxford not confined to the working class. In the families in which there were no children the weekly consumption of milk per head was 46 pints and the amount steadily diminished with the number of children until with six or more it became 185 pints. In Great Britain milk is much dearer than in any other country in northwestern Europe or in the United States. The council proposes that milk should be purchasable at 3 cents a pint for all expectant and nursing mothers and children of school age. At present it costs about 6 cents a pint, though it is sold at 11 cents a gallon for manufacturing purposes. The difference is partly due to the fact that the milk industry is a monopoly and prices are controlled by the Milk Marketing Board, a body appointed by the government. It is argued that some of this cheap milk should be diverted for the needs of mothers and children. This would involve a subsidy by the government.

Homosexuality and Divorce

In the House of Lords Lord Dawson (president of the Royal College of Surgeons) moved an amendment to the marriage bill providing that a divorce might be granted on the ground that since the marriage the respondent had been guilty of homosexuality. He said that homosexuality was now looked on as a pathologic condition. He was not at all sure that in the future it might not be regarded as a deficiency disease, and although it was true that the law must take cognizance of homosexuality and punish it in order to act as a preventive to potential offenders, the more reasonable view was being adopted gradually that it had, at any rate, one foot in the realm of disease and was not wholly in the realm of crime. For the purposes of the bill it would be entirely wrong to use any word that would confine homosexuality to one sex. It was time that there was equality of treatment between men and women. This offense was quite compatible with excellent qualities of mind and character. But such people would frustrate the purpose for which marriage existed and it would be a grave injustice to recognize any marriage in which homosexuality turned out to be existent in either one of the parties. When discovered, it ought to be a ground for divorce. The amendment was opposed by Lord

Atkin (lawyer) He did not think that these cases were of the nature of disease In his experience they were the result of wicked impulses which were susceptible of being controlled They did not appear to him to be of the nature of a permanent infirmity that was always likely to affect the married life The real answer probably at the present moment was that the subject required careful examination The amendment was defeated

\$18,000 Damages Assessed for Puerperal Fever

A woman was admitted to a cottage hospital for her confinement. After the birth of the child she was removed from the maternity ward to the general ward There she contracted puerperal fever from a woman who was found later to be suffering from this disease She brought an action for negligence against the hospital and the physician who attended her there In giving judgment Mr Justice Singleton said that the plaintiff was perfectly well when she entered the hospital and that one of its rules was that no infectious case was to be kept there The hospital authorities ought to have known that the hospital was dangerous but no warning was given to the plaintiff They failed in their duty when they placed her in a ward with a gravely suspicious case The physician was not responsible for her admission, but he had in the hospital a gravely suspicious case He ought to have isolated it in order to prevent the infection from spreading When he found that the plaintiff had been put in the same ward as that case he ought to have removed her and done everything to prevent her becoming infected He did nothing He did not protest to the matron nor did he give any warning of the danger of infection In that respect he failed in his duty to the plaintiff She was now crippled in the hips, one shoulder and one wrist No damages could compensate her for the pain and suffering which she had undergone The judge awarded \$18,000 damages against the hospital and the physician

PARIS

(From Our Regular Correspondent)

Aug 7, 1937

Osteopsathyrosis as a Familial Disorder

The symptom triad bluish color of the sclerae, bone fragility in infancy and deafness, as first described by Lobstein, in its familial and hereditary aspects, was the subject of a paper presented at the June 8 meeting of the Academie de Paris by Carriere, Delannoy and Huriez They reported the results of the study of five families, in which thirty-four of eighty-six members presented symptoms of osteopsathyrosis over a period of five generations The disease is distinctly hereditary and is directly transmitted on both the paternal and maternal sides, attacking both boys and girls It does not follow the mendelian laws The principal clinical feature is the bluish color of the sclerae, being found in thirty-three of the thirty-four cases In order, however, to make a diagnosis of osteopsathyrosis the color ought to attain a certain intensity, present a familial character and be associated in at least one member of the family with osseous or auditory stigmas Although the bone fragility is the clinical feature which most often directs attention to the presence of the syndrome, it is inconstant Only seven patients had spontaneous fractures In two of the families that were studied, such an occurrence was never found by the authors The term "glass man, as exemplified by the multiplicity of the fractures, was applicable to only five cases The possibility of fractures of the spine subsequent to slight injury has not been sufficiently taken into consideration by clinicians Bone deformity, especially of the skull, is frequent, without any history of injury Kyphoscoliosis was found in five cases In general, bone development is inadequate and such a degree of looseness of the joints as to be followed by dislocations and sprains was noted in seven cases Endocrine dysfunction was observed in all the families It has been claimed that a hypo-

parathyroidism is responsible for this syndrome, but the authors found that the calcium content of the blood was usually higher than normal, especially in patients with a history of recent fractures Hypoparathyroid grafts, according to Hansen, have not been followed by any improvement and the injection of parathyroid extract has resulted in an exaggeration of the symptoms Parathyroidectomy was performed in two severe cases So far, the blood calcium content has been lowered but it is too early to evaluate the end results Stigmas of hereditary syphilis are frequently found, hence antisyphilitic treatment should be given as a routine measure It may not have much effect on an outspoken syndrome, but it acts favorably on future generations

Diagnosis of Hydatidiform Mole

At a meeting of the Academie de medecine, Brindeau and Hinglais of Paris presented a paper in which their method of diagnosis of the early stages of malignant deciduoma *in situ*, the fifth week after the miscarriage, was described It depends on the content of gonadotropic substance in the blood serum The normal varies from 1,000 to 15,000 units per thousand cubic centimeters of serum During the development of a hydatidiform mole, as well as in pernicious vomiting of pregnancy, it rises to 100,000 units or even higher A curve was shown representing the progressive diminution of the content of gonadotropic substance in an uncomplicated case of miscarriage due to hydatidiform mole A second curve was shown to illustrate the value of the Brindeau-Hinglais method The curve dropped to 2,000 units the tenth day after the miscarriage and remained at this point until the thirty-third day The curve then showed a sharp rise on the thirty-fifth day to more than 200,000 units, indicating acute malignant changes The diagnosis was verified, following hysterectomy, and the curve approached the normal ten days after the operation Seventy-two cases of miscarriage due to hydatidiform mole were observed at the Tarnier clinic Tests at frequent intervals by this method resulted in early diagnosis, followed by hysterectomy, in eight of the seventy-two cases

Causes of Regional Variations of Natality

At the June 8 meeting of the Academie de medecine, Dr Godlewski said that the natality rate is highest in communities whose population does not vary as the result of influx of foreigners or emigration of the members of the older families Hence the natality rate does not change in the mountainous portions of France The number of births among those who have come from foreign countries since the war has been disappointing Denatality is more or less generalized here, and the few centers of supernatality do not compensate for the decrease in number of births Concomitant with the steady migration from smaller to larger centers of population, a drop in the natality rate has been noted, especially since the crisis The chief causes of the denatality are the widespread use of contraceptive measures and the increasing number of abortions, which together are responsible in some regions for a 25 per cent decrease in the natality rate Tuberculosis in young girls and venereal diseases, especially gonorrhea, play a secondary part Fortunately, the struggle against infant mortality has partially offset the denatality To combat the latter it has been proposed that financial aid should be given to every family head and a diminution of the inheritance taxes, which at present are high in France In the discussion, Dr Sireday stated that the leniency shown by both judges and juries toward professional abortionists was a great handicap to the question of having a larger number of births in France

Death of the Ophthalmologist Felix de Lapersonne

One of the leading French ophthalmologists, Prof Felix de Lapersonne, has died here at the age of 84 He succeeded Professeur Panas as head of this department in 1901 at the Faculté de medecine His clinics became popular and many

foreign specialists admired his teaching methods. During the World War he took charge of the ophthalmologic service and organized centers all over France. He was elected a fellow of the Academy of Medicine shortly after the close of the war and became its president in 1931. As one of the editorial board of the *Presse medicale*, the weekly journal with the largest circulation in France, his service in keeping up the high standard of this publication was an important contribution to medical journalism. As head of the ophthalmologic clinic of one of the largest Paris hospitals, his influence on the progress of this specialty in the training of younger men has been extensive.

French ophthalmology loses its most distinguished representative in the death of Professor de Lapersonne.

BERLIN

(From Our Regular Correspondent)

July 26, 1937

Congress of Otorhinolaryngologists

This year's Congress of German Otorhinolaryngologists met at Cassel. The main topic was "Suppurations of the Pyramidal Cells." Prof. Otto Mayer of Vienna delivered the principal lecture. In recent years, he said, scientists of all lands have given more consideration to suppurations of the pyramidal cells. These disturbances, it has been determined, can be responsible for many intracranial complications. In some cases after a thoroughgoing removal of the mastoid cells (mastoidectomy) the surgeon believes that the focus of infection has been completely done away with until he is confronted with a manifestation of these sequels. In cases that terminated fatally despite a carefully performed operation, microscopic postmortem examination of the pars petrosa of the temporal bone disclosed foci of inflammation in the areas anterior to the semicircular canal, and because of the location of these foci they had not come within the scope of the intervention. A study of pyramidal cell suppuration is of especial importance as most of the present day fatal cases of meningitis following acute otitis media are based on purulent foci in the pars petrosa. The pyramidal apex syndrome as a clinical sign of the disorder was established by Gradenigo in 1904. This syndrome is characterized by an acute otitis media followed by violent temporoparietal pain and abductor paralysis on the affected side. Investigation of the way in which the inflammation reaches the pyramidal apex from the middle ear discloses the principal etiologic factor as a more or less pronounced pneumatization of the pars petrosa. Various types of pneumatization may be differentiated. All cell tracks can lead to the apex. The following should be kept in mind with respect to pyramidal cell suppuration. It may form a circumscribed focus, spread over the entire surface of the labyrinth or lead to an abscess, which may be either closed and hence incapable of discharging into the spaces of the middle ear or open to the extent that some influx of pus into the middle ear is possible. Abscesses may also occur in various cell tracks and, finally, pyramidal cell infection may assume the character of a proliferating inflammation and run its course without much suppuration. But if the suppurative process is sufficiently active it can perforate the posterior or middle cranial fossa, the labyrinth, the carotid canal, the foramen lacerum posterius or the pharynx. It is essentially a more favorable sign if perforation takes place in the last named region forming a retropharyngeal abscess. X-ray visualization is a valuable diagnostic aid. Operative treatment is usually indicated. Cases that come early to diagnosis are treated conservatively (by paracentesis), since in these cases the prognosis is favorable. Even cases in which the suppuration is of long standing may be cured, mastoidectomy with a thoroughgoing extirpation of the cells and above all those proximate to the labyrinth is here indicated. If sup-

puration persists, radical operation should follow. Only if the foregoing safe and tried procedures fail to produce results should one look for a focus in the apex.

Professor Zange of Jena has found that pyramidal cell suppuration and related processes which appear in the region of the inner ear, in the pars petrosa or in the adjacent meningeal spaces are capable of involving numerous other cerebral nerves. Most prominent among these nervous diseases are labyrinthine-vestibular disorders, namely, disturbances of the equilibrium, which, because of their peculiar character and the preservation of peripheral irritability of the labyrinth, can today be with certainty distinguished from labyrinthine inflammations.

Some other data of interest were contributed in the discussion. Report was made of the healing of a pyramidal abscess that had erupted spontaneously into the sphenoidal sinus. Similar conditions may also heal spontaneously, especially in child patients. But, on the other hand, there are the hopeless cases, especially the rapidly advancing osteomyelites. The latter are particularly apt to prove fatal if combined with the otitis of nurslings.

The Treatment of Epidemic Meningitis

Professor Bessau, ordinarius in pediatrics at Berlin, recently discussed epidemic cerebrospinal meningitis before the Berlin Society of Pediatrics. In recent years a slight increase in the incidence has been remarked. Diagnosis is established by lumbar puncture. As to therapy, antimeningococcus serum has been unsatisfactory. On the other hand it has been noted that exanthems, as in measles, for example, exert a favorable effect on meningitis. The serum exanthem appears likewise to exert a favorable effect on the course of the disease. Bessau treated three children with antimeningococcus serum and then induced a serum sickness by means of diphtheria sheep serum. Two of the children died, the third survived with an optic atrophy. Four children were inoculated with sheep serum alone from two to three times. A definite serum sickness was thus induced in all four patients. The effect was extremely favorable. Improvement was observed before the appearance of the serum exanthem and allergic symptoms. In the case of a 5 months old nursing who had received 80 cc of sheep serum in two days, a startling improvement appeared within five days, especially as evidenced in the cerebrospinal fluid. One case in which recidivation had followed the beginning of improvement came to prompt recovery after intramuscular administration of protosil. Another child was treated with immunized blood; this blood was abstracted from the patient's father, who had been immunized with the meningococcus strain of the sick child. Bessau believes that the use of specific serum should be abandoned in favor of the artificial production of an exanthem by means of sheep serum.

Care of Nurslings and Infants

Not long ago the national minister of the interior issued regulations designed to effect more satisfactory cooperation between the health officers of particular districts and cities and the National Socialistic bureau of public welfare. The new rules stipulate that health supervision and medical advice for mothers, nurslings and young children must be regarded as a principal function of the public consultative centers maintained by local health departments. The National Socialistic public welfare bureau is to expand the work of its consultation centers within the framework of the already extant "Mother and Child" Auxiliary by a program of dietary and economic assistance. It is thought that these guiding principles will establish a suitable foundation for collaboration of the party bureau and the local boards in the fight against infant mortality. As a result welfare work among mothers and children should become more fully standardized in all parts of the country. In carrying forward this large scale program of infant welfare the local

health bureaus will make use of the existing welfare and consultation centers maintained by the central party bureau. A comprehensive, finely meshed network of consultation centers is being evolved so that in the future no mother will forego necessary visits to the physician because of too great distances between the consulting center and her home. If need arises, traveling medical consultative centers will be organized.

SWITZERLAND

(From Our Regular Correspondent)

July 15, 1937

Fertility of Parents of the Feeble-minded

Dr C Brugger has undertaken an investigation of the interrelation of hereditary endowment and fertility. He was especially anxious to apply the German criteria to a nation whose cultural, social and economic complexion differed from that of the reich. The survey material consisted of the families of (1) 611 students in the realgymnasiums, namely, secondary schools offering generalized academic courses; (2) 758 pupils in the common schools; and (3) 429 congenitally feeble-minded pupils of the special schools for backward children, all at Basel. Any pupil whose intelligence quotient was below 0.85 was classed as feeble-minded. All feeble-mindedness was considered as inherited if no proof of an exogenous production of the deficiency could be adduced. The statistical material dealt only with legitimate offspring and with families in which the eldest child had been born prior to 1926, that is, families which represented a marriage that had already endured for ten years. The children were grouped according to the year of birth: group 1 comprised all children born prior to 1911, group 2 all those born in the years from 1911 to 1920 and group 3 those born between 1921 and 1925. On this basis no further offspring could be expected from the parents of group 1 and

Average Number of Children Born to Each Couple Studied

Group	Real gymnasium Students	Common School Students	Combined	Feeble minded
1	3.2	3.4	3.3	5.7
2	2.1	2.2	2.2	3.2
3	1.7	1.7	1.7	2.3

only a few additional offspring might be anticipated from the parents of group 2. The accompanying table indicates the average number of children born to each married couple studied.

With regard to the occupation of the parents, merchants and manufacturers were most prominent (19.9 per cent) among the parents of realgymnasium students. Other callings were represented in fairly equal numbers among this parent group excepting that only 0.3 per cent were of the working class. In the parentage of group 2 (the common school students), various social classes were represented as follows: artisans 45.2 per cent, laborers 14.9, minor civil servants 14.5. The parents of the feeble-minded pupils were found to be in great measure of the employed artisan class (46.9 per cent) and of the unskilled laborer class (41.1 per cent). The representation of the minor civil servant class (4.6 per cent) and of the commercial white collar class (4.4 per cent) was much smaller and that of the independent artisans and tradespeople (2.9 per cent) even less. A further classification revealed that the differences in the number of offspring in particular social strata are much fewer than differences between the parents of normal and feeble-minded children within the same class of society. Brugger came to the conclusion that it is not the social milieu but the quality of hereditary endowment that is the decisive element in the restriction or lack of restriction of the number of offspring by a married pair.

International Congress of the Therapeutic Union

The Union Therapeutique, founded in Paris in 1934, held its first international congress at Berne recently under the presidency of Prof. Emil Bûrgi, pharmacologist of Berne. Dr. Toni Gordonoff served as secretary general. More than 400 physicians from many different countries were present. The congress was officially opened by Federal Councillor Etter on behalf of the Swiss government. Hans Horst Meyer of Vienna sent a message on "Experimentation and the Clinic," which was read by his pupil and successor E. P. Pick. Gustav von Bergmann, Berlin clinician, discussed the pathology of arteriosclerosis and Laubry of Paris read a comprehensive discussion on treatment. Max Bürger of Bonn discussed senile alterations of the aorta, and Leriche, Strasbourg surgeon, reported his investigations of surgical treatment of vascular disorders. Walther Frey, Berne clinician, discussed chemical regeneration of tissues. These exchanges of opinion amply demonstrated the need for more frequent authoritative discussions of the arteriosclerosis problem. P. Martini of Bonn, in a paper on clinical studies of the therapy of hypertension, furnished several illustrations of the prevalent attitude of reserved judgment toward much that is published with respect to vascular therapeutics. He pointed out that, if hypertension is subjected to a course of therapy from which medication with many numerous and much touted specifics is omitted but which in every other respect is correct and purposeful, the disorder will subside in the same way, within the same period of time and in equal measure as when the so-called specifics are employed. Handovsky and Goormaghtigh, both of Ghent, discussed the interesting interrelation of the thyroid body, arteriosclerosis and vitamin D.

Highly informative was the discussion of narcosis. De Quervain, the Berne surgeon, introduced this topic in a lecture which weighed the old against the new in a circumspect and helpful manner. Bouckaert of Ghent exhibited a film on the revivification of the higher centers following acute anemia. Wildbolz of Berne spoke on the operative treatment of prostatic hypertrophy. Bickel of Geneva spoke on the role of the hormones in cardiovascular therapy. Guggisberg of Berne discussed the importance of endocrine preparations, calcium and vitamin C for the medicinal therapy of functional uterine hemorrhages. Asher of Berne reported recent experiments on the pharmacodynamics of the resistance of the central nervous system to lack of oxygen. Paul Wolff of Geneva spoke on the problems of narcotism with particular reference to codeine. The program and the excellent organization caused the participants to feel that the congress had been a complete success.

Lausanne University's Jubilee

In June Lausanne University celebrated its quindicentennial. The institution traces its origin to the Akademie founded by the Bernese in the year 1537. The government of Berne which introduced the Protestant Reformation to this region envisaged a school at Lausanne wherein the promulgators of the new doctrine would receive training. During the nineteenth century the Akademie underwent a particularly drastic reorganization. Lausanne University maintains many international contacts. It is much beloved by students from Germanic Switzerland. The medical faculty is excellent. It boasts many illustrious names among its membership.

Prof. Eugen Bleuler 80 Years Old

Prof. Eugen Bleuler, former professor of psychiatry at Zurich University, recently completed his eightieth year. Especially by means of that research which found expression in his monograph (1911) on the group of disorders first designated by him the schizophrenias, Bleuler has stimulated psychiatric research and practice the world over. His textbook of psychiatry is widely used and has appeared in many editions since 1916. Bleuler is a leading representative of the so-called psychologic

trend in the treatment of mental disease, a movement which has furthered the understanding of previously incomprehensible psychic manifestations and evolved a systematized psychotherapy of the mental patient. Like his equally illustrious predecessor at Zurich, Auguste Forel, Bleuler has sought to serve medical science as a whole. In this connection his book "Autistic-Undisciplined Thought in Medicine" (1911) deserves particular mention, as this work exerted an enormous influence on the philosophy of the trained physician.

The Campaign Against Infant Morbidity and Mortality in Switzerland

The accompanying table indicates the decline in infant mortality in Switzerland. In spite of the great increase in population, child mortality has fallen to one fifth of what it was in 1876. Welfare services for both healthy and sick children have been extensively organized in recent decades. In Switzerland such service is administered by the cantonal governments. The canton of Vaud, for example, of which Lausanne is the capital, expends yearly more than 2,500,000 Swiss francs for child and

Infant Mortality in Switzerland

Year	Deaths of Children Aged from 0 to 14 Years	Total Population (in Round Numbers)
1876	23,628	2,700,000
1890	19,327	3,000,000
1900	20,495	3,300,000
1910	14,920	3,750,000
1922	8,142	3,890,000
1934	5,044	4,100,000

infant welfare services. Thus, in a population of approximately 332,000 there is a per capita expenditure of 37 Swiss francs. The Lausanne Children's Clinic is beautifully situated on high ground 600 meters above the city and thus enjoys the most favorable climatic condition obtainable. To this model institution there has recently been added a spacious new ward for nurslings, the Nestle-Saal, which is equipped with sixteen glass cubicles for isolation purposes. The clinic is under the direction of Prof. Jules Taillens.

The Inheritance of Endemic Goiter

Dr. J. Eugster of Zurich has investigated the problem of the heritability of endemic goiter by studying a small goiter-free district in comparison to regions in which the disease is endemic. Thorough investigation of family histories within the areas of endemic goiter and of persons emigrating from these areas, together with the research on 524 sets of twins, formed the basis for his investigations. He attaches special value to the significance of prolonged observations on individuals. It was established that in enzygotic twins the greatest variations in the course of the goiter appeared if discordant conditions had already been observed in this respect at birth, whereas in dizygotic twins the traits frequently consisted in various temporary manifestations of goiter by both twins of a pair.

The most important fact elicited by the investigation was that the difference between enzygotic and dizygotic twins lay within the limits of statistical error, given the same environmental surroundings. On the other hand, manifest concordance and manifest discordance followed in enzygotic and dizygotic twins with a ratio of 4 to 3. This observation had its foundation in the disparate conduct of dizygotic twins with respect to the localization and pathologic type of the goiter. Eugster concludes on the basis of his investigations that research on twins offers an additional proof of the great preponderance of environmental influence. Moreover, the results indicate that the usual question, "Is disease inheritable?" should be modified to express the question of whether and to what extent heredity is a pathogenic factor. In endemic goiter a hereditary predisposition is not to be sought in a varied suscep-

tibility within the same sex but is expressed both in the type of course assumed by the disease and in the localization and pathologic-anatomic form. A particular trait is not inherited but is rather an aggregate of reaction possibilities. The sexual predisposition at puberty may likewise be legitimately regarded as indirectly conditioned by heredity.

Prof. Otto Naegeli Has Retired

Prof. Otto Naegeli of Zurich University has retired because of ill health. Naegeli's activities are inseparably linked with the development of hematopathology and of constitutional studies. Hematologic diagnostic methods, leukemia and pseudo-leukemia are but a few of the subjects that he has discussed in his numerous contributions to the literature. Prof. Wilhelm Löffler, erstwhile director of the medical polyclinic, has been appointed to succeed Professor Naegeli.

Dr. Alfred Jaquet Is Dead

Dr. Alfred Jaquet, former professor of pharmacology, died at Basle, recently, at the age of 73. As a research scholar and as a man he had played a distinguished part within his special field and exerted influence far beyond the confines of his own university. Jaquet had received an excellent training in physiology and physiologic chemistry at Basle under Miescher and Bunge, and in pharmacology at Strasbourg under Schmiedeberg. While Jaquet was still an assistant to the last named, his discovery of a respiratory ferment in animal tissue was made, which came to be a point of departure for present day knowledge of cellular metabolism. Intensive study of the regulation of respiration in the blood led Jaquet to advance, among other things, the concept, generally applied today, of an "alkali reserve" in the blood. Further investigations undertaken with collaborators dealt with the physiologic effect of high altitudes. During his many years' service as assistant at the medical clinic, Jaquet obtained great insight into the interrelation of laboratory and clinic. An apparatus for the examination of the respiratory metabolism was invented by him and was known by his name. The metabolism of obesity, the relationship between muscular work and cardiac action, the physical therapy of circulatory disturbances are only a few of the numerous topics that have been investigated by Jaquet. He devised a recording apparatus for the venous and cardiac impulse. During his professorship in pharmacology, Jaquet kept in contact with clinical medicine—partly by consultations and partly through the sanatorium founded and directed by him. Jaquet was the author of various books, in his last, "La médecine qui guerit et la médecine qui tue" (medicine that cures and medicine that kills), he criticized unmercifully certain dangerous and uncertain medical practices.

Marriages

- EDWARD FULLER STANTON, New York, to Miss Margaret Gilmore Pendleton of Portland, Ore., June 19.
GEORGE H. STEIN, Harrisburg, Pa., to Miss Elizabeth Wheelock Doughton of Philadelphia, June 16.
WILLIAM JERVEY RAVENEL, Charleston, S. C., to Miss Kathryn Geer Martin of Anderson, June 19.
LEE RHODES REID, Norwich, Conn., to Miss Augusta Blanche Wein of Philadelphia, May 28.
JACOB HARRISON SHUFORD, Hickory, N. C., to Miss Roberta Fraley of Statesville, June 25.
WILBERT KENNETH ROGERS to Miss Mary C. Benton, both of Loris, S. C., in June.
EUGENE E. RAYMOND to Miss Marie Brady, both of Johnstown, Pa., June 26.
WILLIAM F. SEIFERT to Miss Kathleen Lewis, both of Chicago, in June.
HERMAN A. STRAUSS to Miss Jean Heller, both of Chicago, August 2.

Deaths

George H. Simmons, Editor and General Manager Emeritus of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, died September 1, in St. Luke's Hospital, Chicago. Dr. Simmons was born in Moreton, England, Jan. 2, 1852. He came to the United States in 1870 and studied at Tabor College in Iowa in 1871 and 1872 and at the University of Nebraska from 1872 to 1876. He received his M.D. degree from the Hahnemann Medical College, Chicago, in 1882 and was awarded the M.D. degree by Rush Medical College following additional study, in 1892. In 1884, previous to his study at Rush Medical College, he served in the Rotunda Hospital in Dublin. From 1884 to 1899 he practiced medicine in Lincoln, Neb. In 1896 he established the *Western Medical Review*, acting as its editor and from 1895 to 1899 he was secretary of the Nebraska State Medical Society and also secretary of the Western Surgical and Gynecological Society. During this early period of his development he gave indications of the editorial genius which was later to bring him world-wide fame. While a freshman in the University of Nebraska he won an important prize for an essay on the sheep industry. At this time he was acting editor of the *Nebraska Farmer*, assistant city editor of the *Nebraska State Journal* and field correspondent of the *Omaha Republican* and the *Kansas City Journal*. With these odd jobs he aided in paying his way through the university and the medical school, and he developed a taste for the use of printers' ink which followed him throughout his life.

In Lincoln, Neb., he became known as a leader in reform movements. At one time he led an attack to take the government of Lincoln out of the hands of the machine politicians and to restore it to the people. A resolution adopted by the chamber of commerce of Lincoln indicated the willingness of the city fathers to admit the debt of that city to Dr. George H. Simmons for much of its political cleanliness and financial soundness.

In 1899, when the Board of Trustees of the American Medical Association was in search of a secretary for the organization and an editor for its periodicals, a number of leading figures in the medical literary and political world were given consideration. They appeared before the Board of Trustees, many of them with strong endorsements. After long consideration the Board of Trustees chose Dr. George H. Simmons for the position of General Secretary, which he filled from 1899 to 1911, and of editor, which he occupied until 1924. In 1901 he became also General Manager. Before its reorganization in 1901 the American Medical Association was not a truly representative body, and the method of administration of its professional affairs and its business were, to say the least,

disorganized. When Dr. Simmons became Secretary in 1899 he initiated the movement which led to the appointment of a committee, of which Dr. J. N. McCormack of Kentucky was chairman and he secretary, to consider ways and means of reorganization. At the meeting of the Association in St. Paul in 1901 the general principles and policies outlined in the Constitution and By-Laws presented by that committee were adopted. The present plan of organization of the American Medical Association is largely due to the work of that committee.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION was established in 1883. When Dr. Simmons took over the editorial supervision and management, its total subscription list was approximately ten thousand. From that time it showed con-

tinuous improvement. Furthermore, under his leadership it became a significant weapon in the initiation and progress of great movements for the advancement of medical education and medical science. In 1901 THE JOURNAL began the annual publication of information concerning the medical schools of the country. In 1903 it undertook publication of the results of the examinations of graduates in medicine for licensure by state examining boards. The next step was the organization of the Council on Medical Education and Hospitals in 1905. At the same time the Council on Pharmacy and Chemistry was developed and in association with it the chemical laboratory and the Department of Propaganda for Reform, which eventually became the Bureau of Investigation. Thereafter came other councils and departments, which were logically an outgrowth of the developments that have been mentioned. In the field of publication THE JOURNAL was supplemented by the American Medical Directory, which was an outgrowth of the Biographic Department, the various *Archives of Internal Medicine*, *Neurology and Psychiatry*, *Dermatology* and *Syphilology* and of *Surgery*, the *American Journal of Diseases of Children* and many other publications. It occurred to Dr. Simmons to begin publication of



GEORGE H. SIMMONS, M.D.
1852-1937

a quarterly cumulative index of leading medical publications as a means of providing physicians with up to the minute references to medical periodical literature in an easily accessible form. The success of this publication was so great that it eventually was combined with the *Index Medicus* into the *Quarterly Cumulative Index Medicus Hygeia*. Too was initiated under the leadership of Dr. Simmons as General Manager.

To tell the story of the services of Dr. Simmons in the period from 1899 to 1924 is in fact, to tell the history of the American Medical Association in that period.

In 1908 he was commissioned a First Lieutenant in the Medical Reserve Corps of the United States Army, in 1917 when the United States entered the war he was made Major in the Medical Reserve Corps and served diligently in the Personnel Division. In 1921 by order of President Harding he was awarded the Distinguished Service Medal.

As an editor Dr George H Simmons was alert and fearless. His attacks on quackery and fraud in the field of medicine brought on his unwearied head and shoulders the counter-attacks of those who saw their unscrupulous exploitations exposed and their incomes discontinued. It was his policy never to reply to any of the personal attacks made on him in the course of his service. Innumerable medical writers would testify to the manner in which he devoted himself personally to the education of younger men in editorial technique. His personal writings were few, but much of what he wrote and developed appeared anonymously in the pages of *THE JOURNAL*. His published papers include, however, one on medical education and preliminary requirements, which appeared in *THE JOURNAL* in 1904, one on the American Medical Association, published in *THE JOURNAL*, June 2, 1906, one on the commercial domination of therapeutics and the movement for reform, and another under the title "What the American Medical Association Stands For." In 1914 he read a paper before the Southern Medical Association, entitled "Work of the Council on Pharmacy and Chemistry. Its Effect on Medical Progress", and as president of the Institute of Medicine of Chicago, which position he held in 1921, he read an address under the title "Medical Periodical Literature."

In 1924 he resigned as Editor and General Manager of the American Medical Association and became Editor and General Manager Emeritus. At that time a number of leaders in American medicine arranged for the painting of his portrait, which was presented to him at a testimonial banquet in Chicago on June 9, 1924. Hundreds of physicians attended, and he received messages of appreciation and congratulations from all over the world.

This, then, is briefly the record of Dr George H Simmons as an executive and administrator. His work for the American Medical Association was characterized by intelligence, unselfishness, initiative, honesty and righteousness. In his personal life he had his share of physical and mental suffering. He weathered storms of unjust criticism and false characterization of his administration. He devoted himself almost objectively and completely devoid of personal interest to the public career which he had chosen. Unquestionably he was the greatest factor in his generation in the development of the American Medical Association and the profession that it represents.

After his retirement he traveled extensively for several years. Since that time he has resided in Florida but has spent some time every other year in Great Britain and in the intervening years in Chicago, frequently coming to the headquarters office and making available to his successors the experience of years and the brilliant insight which he brought into medical problems. The medical profession of the United States owes him a debt which it could never pay and which he never wished to collect.

Richard C Norris, Philadelphia, University of Pennsylvania Department of Medicine, Philadelphia, 1887, member of the Medical Society of the State of Pennsylvania, emeritus professor of obstetrics at the Medical Surgical College, Graduate School of Medicine, University of Pennsylvania, formerly assistant professor of obstetrics at his alma mater, at various times on the staffs of the Methodist Episcopal Hospital, Philadelphia Hospital and the Preston Retreat, at one time editor of the "Atlas and Epitome of Gynecology," and author of the "American Text Book of Obstetrics", aged 73, died, June 10, in Los Angeles.

Otto Von Huffman, Mount Kisco, N. Y., Columbia University College of Physicians and Surgeons, New York, 1903, member of the American Association of Pathologists and Bacteriologists, formerly associate professor of medicine at the New York Post-Graduate Medical School, Columbia University, New York, at one time dean of the Long Island College Hospital, and member of the state board of regents examiners, University of the State of New York, on the staff of St. Luke's Hospital, aged 55, died, June 9, of coronary thrombosis.

Milton P Overholser, Harrisonville, Mo., Kansas City Medical College, 1884, past president of the Missouri State Medical Association, past president and secretary of the Cass County Medical Society, formerly councilor of the fourteenth district of Missouri, for many years member of the state board of health and of the pension board of examiners, at one time superintendent of the State Hospital, Nevada, and the State Hospital St. Joseph, aged 77, died, June 19, of carcinoma of the prostate.

Henry Marion Neale, Freeland, Pa., Jefferson Medical College or Philadelphia 1880, past president of the board of trustees and formerly on the staff of the Hazleton (Pa.) State Hospital, on the staffs of the White Haven (Pa.) Sanatorium and the Mercy Hospital Wilkes-Barre, aged 78, died, June 17, of bronchopneumonia.

Samuel Downing, Newport News, Va., Medical College of Virginia, Richmond, 1914, member of the Medical Society of Virginia, served during the World War, fellow of the American College of Surgeons, formerly represented the U. S. Public Health Service and the Veterans' Administration in his district, on the staff of the Riverside Hospital, aged 44, died, June 14, in Richmond, of carcinoma of the stomach.

Harvey Edmund Webb, Milwaukee, University of Illinois College of Medicine, Chicago, 1914, formerly secretary and treasurer of the Medical Society of Milwaukee County, fellow of the American College of Surgeons, on the surgical staff of the Johnston Emergency and St. Luke's hospitals, on the visiting staff of St. Joseph's Hospital, served during the World War, aged 52, died, June 12, of coronary occlusion.

Albert Eugene Payne, Riverhead, N. Y., New York University Medical College, New York, 1898, past president of the Suffolk County Medical Society, member of the county board of health, physician to the county jail, aged 64, on the staffs of the John T. Mather Hospital and the Southampton Hospital, where he died, June 22, of diabetes mellitus and heart disease.

Frank Wandling Hornbaker, Occoquan, Va., University College of Medicine, Richmond, 1900, member of the Medical Society of Virginia, for many years connected with the Occoquan Work House and Lorton Reformatory, aged 62, died, June 11, in the Garfield Hospital, Washington, D. C., of tumor of the bladder and diabetes mellitus.

Henry Ecroyd, Jamestown, R. I., University of Pennsylvania Department of Medicine, Philadelphia, 1883, medical examiner of the city schools and member of the town council, formerly on the staff of the Newport (R. I.) Hospital, aged 79, died, June 4, of chronic myocarditis and chronic nephritis.

William Preston Patterson, Springfield, Mo., Vanderbilt University School of Medicine, Nashville, Tenn., 1885, member of the Missouri State Medical Association, county coroner, formerly member of the school board, at one time on the staff of the Missouri Baptist Hospital, aged 75, died, June 7.

James Howard Douglass, Arkansas City, Kan., Detroit College of Medicine, 1908, member of the Kansas Medical Society, also a pharmacist, served during the World War, on the staff of the Mercy Hospital, aged 55, died, June 10, in Larned, of arteriosclerosis and cerebral hemorrhage.

Benjamin L Sheldon, Cedar Rapids, Iowa, Rush Medical College, Chicago, 1902, fellow of the American College of Surgeons, past president of the Linn County Medical Society, on the staffs of St. Luke's and Mercy hospitals, aged 59, died, June 21, of arteriosclerosis and uremia.

Howell Towles Heflin, Birmingham, Ala., University of Maryland School of Medicine, Baltimore, 1893, member of the Medical Association of Alabama, fellow of the American College of Surgeons, aged 60, died, June 18, in the Birmingham Baptist Hospital, of portal cirrhosis.

George Edward, Canton, Minn., University of Minnesota College of Medicine and Surgery, Minneapolis, 1897, member of the Minnesota State Medical Association, served during the World War, aged 65, died, June 3, in Rochester, of coronary thrombosis.

Ernest Blake Minor, Traverse City, Mich., Barnes Medical College, St. Louis, 1899, member of the Michigan State Medical Society, aged 67, died, June 12, in the University Hospital, Ann Arbor, of periappendiceal and right subdiaphragmatic abscesses.

Reuben Levi Hurst, Winnipeg, Manit., Canada, University of Toronto Faculty of Medicine, 1909, M.R.C.S., England, L.R.C.P., of London, 1912, aged 55, died, June 3, in the Winnipeg General Hospital of coronary thrombosis and diabetic gangrene.

Samuel P. Oldham, Owensboro, Ky., Louisville Medical College, 1897, member of the Associated Anesthetists of the United States and Canada, served during the World War, on the staff of the Owensboro City Hospital, aged 63, died, June 17.

John James Gelz, St. Cloud, Minn., University of Minnesota College of Medicine and Surgery, Minneapolis, 1909, fellow of the American College of Surgeons, on the staff of St. Cloud Hospital, aged 53, died, June 26, of hemochromatosis.

Thomas Francis Judge, Troy, N. Y., Albany Medical College, 1901, member of the Medical Society of the State of New York, served during the World War, formerly county coroner, aged 64, died, June 1, of carcinoma of the colon.

Martha Burdick Newby, Denver, Harvey Medical College, Chicago, 1900, aged 72, died, June 14, at the Denver General Hospital, of ruptured ulcer at the pylorus and peritonitis.

Correspondence

INJURY TO THE RECURRENT LARYNGEAL NERVE

To the Editor—In the editorial "Total Thyroidectomy for Congestive Heart Failure," appearing in *THE JOURNAL*, July 17, the following statement occurs: "Injury to the recurrent laryngeal nerve was recorded in 8.2 per cent of the cases. In no instance was it bilateral or permanent." This statement includes an opinion widely held among clinicians even though it contains a gross anatomic ambiguity as well as, by implication, a definite falsehood. According to the BNA there is no recurrent laryngeal nerve. What is meant by the customary term is the left laryngeal or recurrent nerve, as there is only one recurrent nerve in the body. The reason for this asymmetry is that in the embryologic rotation and descent of the heart from the neck into the thorax the left laryngeal nerve is caught between its origin and insertion and pulled down with it, coming to rest in a loop around the aorta. This distinction is important, as it fully explains the observation of left—and only left, except in cases of anomaly—vocal paralysis which obtains in thoracic diseases involving the mediastinum—infections, growths, aneurysms.

JOHN F. QUINLAN, M.D., San Francisco

FORTY DAYS' CONSTIPATION

To the Editor—In the Correspondence section of *THE JOURNAL*, July 10, Dr. W. K. McCandless cites a case of obstipation in which a bowel evacuation did not occur for forty days.

In Samson Wright's textbook of Applied Physiology (ed. 6, New York, Oxford University Press, 1936) there appears the following (p. 565):

A case is recorded of a man who went from June 18, 1900, to June 21, 1901, without a motion. Towards the end of that time he belched a good deal and suffered from some pain; the abdomen was distended; he felt weak and lost some weight. After the colon was cleaned out he recovered rapidly.

LOUIS GOODMAN, M.D., New Haven, Conn.

PICROTOXIN IN THE TREATMENT OF BARBITURATE POISONING

To the Editor—In their paper on picROTOXIN in the treatment of barbiturate poisoning in *THE JOURNAL*, July 31, Kline, Bigg and Whitney state: "The importance of picROTOXIN in the treatment of this patient must be weighed carefully, as recoveries do occur in severe cases when nothing more than general supportive measures are employed."

Chang and Tainter (Unusual Case of Barbiturate Poisoning with Recovery, *THE JOURNAL*, April 18, 1936, p. 1386) reported a case in which recovery occurred from the effect of 270 grains (18 Gm.) of sodium barbital, and Gwathmey (The Barbiturates. The Safe Preliminary Medication for Surgical Operations, *ibid.*, Nov. 17, 1934, p. 1536) has reported a recovery from 172 grains (11 Gm.) of ipral. I have reported a case (Paraldehyde and Other Preliminary Hypnotics, *Anal. & Inal.* 15:14 [Jan.] 1936) in which the patient recovered after taking 168 grains (11 Gm.) of sodium amital and Alexander (Narcosis Therapy in Psychoses, *Rhode Island M. J.* 19:151 [Oct.] 1936) has administered 542 grains (35 Gm.) of sodium amital in an eight day period without deleterious effect.

These figures indicate the probability of recovery in Kline, Bigg and Whitney's case in which only 45 grains (29 Gm.) of amital was ingested irrespective of the use of picROTOXIN. Barring possible individual susceptibility, the estimated 2 to 3 Gm. as the fatal dose of amital underestimates the margin of safety of the barbiturate acid group.

ALBERT H. MILLER, M.D., Providence, R. I.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

PREVENTION OF RICKETS BY SUN EXPOSURE

To the Editor—Please advise me with regard to the minimum skin surface that must be exposed to the sun in New York City during July and August and the minimum length of time for a normal 6 months baby to constitute adequate prophylaxis against rickets. Is there any variation between the white and the Negro?

HENRY LAYEN, M.D., Brooklyn

ANSWER—The simple questions here propounded are difficult to answer exactly. The simplest method of exposure of the skin surface to the sun is that practiced for many years by Rollier in Switzerland. During the late spring months when the infant can be exposed outdoors, the wrists and ankles are first exposed for short periods and gradually the arms and legs are exposed and then the trunk of the body. Tanning is the sign that ultraviolet radiation has been effective, though of course not all infants will tan, and overexposure may result in sunburn. The answer, therefore, to the minimum skin surface that must be exposed would be starting with the gradual exposure the maximum amount of skin that could be exposed without harm to the infant. As to the minimum length of time of exposure to the sun for a 6 months baby to insure adequate prophylaxis against rickets, no arbitrary answer can be given. A fair skinned child who will not tan naturally cannot be exposed as long as a dark skinned child who will tan easily. It is said that a Negro will require a longer exposure than fair skinned white children. There are many factors that interfere with the ultraviolet rays of direct sunlight in large cities: fog, haze and city smoke all tend to cut down the effective ultraviolet rays. It is also well to realize that not only the direct sunlight ("direct shine") but also the reflected light of the sun ("sky shine") possesses antirachitic power. The child in the shade receives only sky shine. When placed in the sun he receives both direct shine and sky shine. To receive all the sky shine possible there must be no obstruction between the child and the dome of the sky. Therefore a child on a narrow street cannot possibly receive as much sky shine as a child in an open park or on an open roof or balcony. Direct shine, as well as sky shine, is greatest in the middle of the day. Both can produce tan, and the dust and smoke of cities—like-wise clouds and fog—will cut down or completely eliminate the ultraviolet rays in each. From experience with a group of infant welfare babies for whom only direct exposure to the sun was relied on as prophylaxis against rickets during the summer months, it was found that nearly 50 per cent of the babies showed clinical signs of rickets in September. In cities in the temperate zone such as New York, it would seem advisable, if possible, to supplement the sunlight with small amounts of additional antirachitic agents in order positively to prevent the development of rickets.

DEAFNESS IN EARLY CHILDHOOD

To the Editor—In the past two years four cases of deafness in early childhood have come to my attention. The oldest patient was 4½ years of age; the youngest 17 months. I am unable to find much information on diagnosis or treatment. Please inform me as to methods of diagnosis. Also can you tell me how early in life the sense of hearing develops?

M.D., Colorado

ANSWER—The diagnosis of deafness depends on tests, most of them subjective in character and hence fallible. The accuracy of the test is dependent on the age of the person; his intelligence; his interest and his self interest. In very young children the diagnosis of deafness is difficult because it is often impossible to obtain cooperation. In the case of very young children the first thought one should have in an instance in which a child does not begin to speak at the proper time is that the child may be deaf. Most persons are mute because they were born with a profound hearing disturbance and hence have not learned to speak, or they became deaf at such an early age that they forgot what speech they had acquired. It is true that there are cases of mutism primary in character wherein the person has good hearing but these are exceedingly rare and for the present discussion need not be considered. Further, some children do not learn to speak because they are backward mentally. Here a pediatrician or child psychologist can demon-

strate the mental retardation in other ways. Such a child for instance in addition to other things does not learn to feed itself or to perform those other duties which normal children of that age are capable of performing.

There are a number of objective tests that will determine the presence of hearing in infants and very young children among these one highly recommended consists of striking a c-4 (4096 double vibration) fork very loudly behind the patient and observing whether he blinks (oculopalpebral reflex). A positive result means that the patient can hear the high tones and therefore has no deafness of the cochlear or perceptive type. This test is not infallible. There are variations of this test, instead of looking for blinking one observes whether the pupils dilate.

The sense of hearing is probably fully present at birth.

NONSPECIFIC URETHRITIS DURING INFLUENZA

To the Editor—Can a nonspecific urethritis with hematuria frequency urgency and dysuria arise from influenza? A married man aged 52 whose general health was good had had no serious illness since 1917 when he was taken with a sudden attack of chills. He was treated by a competent physician who diagnosed influenza. It required five weeks convalescence for complete recovery in 1917. The present illness began with fatigue for about two weeks then headache and rhinitis. December 28 he became very weak with headache and went to bed. An hour later he felt a little better. His wife uses a diaphragm. Coitus at this time caused pain at the glans. He had headache and a fever of 102 F. Shortly after ward he got up to telephone and the cooling off in the ball white telephoning he believes caused a chill. This chill became so violent that his bed shook. After taking hot milk and brandy he vomited. This broke the chill and perspiration started. Two hours after he took to bed the family doctor called. He was taken to the hospital in an ambulance. He remained there five days and several attacks of chills were controlled by febrifuge medication. On the second day in the hospital the backache grew worse and there was an annoying ticklish sensation in the perineal urethra but no discharge however there were frequency and urgency about every three hours. He used the urinal from the ward next door. He was urged to drink much water and this increased the frequency. On the third day out of the hospital eight days after the acute onset he injected into the urethra a very hot solution of strong potassium permanganate which he thought would stop the ticklish sensation as well as the urgency and frequency. A few hours afterward he passed blood in the urine and urgency became worse than before and in addition he now felt pain at the end of urination. Frightened he consulted a urologist. The urologist found nothing alarming by rectal examination. A preparation containing oil of santal was ordered. The pain was almost at once relieved and in three days the bleeding stopped. The frequency urgency and dysuria also abated within a week. The second week after consulting the urologist he was put on alkalis. Ten days after the administration of oil of santal he went out on a hike caught cold and passed blood again with frequency and urgency. Oil of santal relieved the symptoms again but coagulated blood was now passed and in four days a small epididymitis formed on the right side there was no pain but the testicle was tender. The patient tells me that the urologist gave him a prostatic massage two days prior to the swelling of the right testicle and he wants to know if the massage may not have started the epididymitis. He comes to me thinking I shall be a bit less rough in examination. I cannot claim any expert knowledge and do not know what else to prescribe than rest suspensory oil of santal and a mild diet. I advised also hot baths several times daily. In addition to the foregoing questions please answer the following. The prostate is very slightly enlarged but soft in consistency and the gentlest manipulation produces a profuse bloody discharge by way of the urethra. Is this a nonspecific case of urethritis? Laboratory examination of several smears failed to show any typical cocci but many pus cells were seen in one specimen. What is the best treatment in a case of this kind? Bacilli with clubbed ends were reported in one specimen. What is their significance? Is it safe to do any manipulation such as prostatic massage and emptying of the seminal vesicles? The patient passed clotted blood until a short time ago when he had coitus after which blood ceased to come. Does this indicate that intercourse should be interdicted? Can coitus normally performed be regarded traumatic? He cannot remain entirely off his feet. What is the next best thing to tell him? M D New York

ANSWER—It has been shown that, in many cases of respiratory infection cocci may be found in the urine without giving evidence of any infection in the genito-urinary tract. With a lowered resistance or in the presence of virulent bacteria the prostate gland and urethra not infrequently become actively infected and are the cause of urinary symptoms such as are here described. It may be difficult to identify the infecting organism in a case of this kind. Infection with *Neisseria gonorrhoeae* should of course be excluded in every case without regard to the previous history. This is best done by culture of the urethral or prostatic secretion even though the gram stain may be negative. The bacilli with clubbed ends in the secretion are probably due to secondary contamination and are of no clinical significance.

The treatment of infections of this kind consists largely of rest. Exercise coitus or hard work should be strictly forbidden. Medication other than oil of santal is not of much value. The application of heat by sitz baths or rectal Elliott treatment should be tried. Prostatic mass age is contraindicated

in the acute stages of the disease, particularly as long as there is hematuria following massage. After the acute stage has subsided, massage may be cautiously employed at intervals of a week, with gradually increasing pressure and frequency. Injections of any kind into the urethra would be contraindicated until the acute stage has passed and should then be employed only under the guidance of a specialist.

SEBORRHEIC DERMATITIS OF EYELIDS

To the Editor—I would appreciate information on the therapy of a seborrheic dermatitis involving the upper eyelids in a woman aged 17 years. The blood the urine and the rest of the examination are normal with the exception of an endocervicitis (with leukorrhea) and an acneiform eruption on the face and rest of the body. The patient receives pills of ferrous carbonate for an anemia which she had when I first saw her. The cervix is to be treated by electrocoagulation (with a short wave diathermy machine). She is getting close range ultraviolet therapy to the acneiform lesions (to the point of scaling). I have regulated her diet to exclude large amounts of fats and carbohydrates. In addition, she receives lotio alba treatment to the body lesions after the face is freed by boric acid compresses twice daily to the affected areas. Would the following remedies suggested for the treatment of seborrheic dermatitis of the scalp cause ocular injury should some trickle into the eye?

	Gm or Oz
R Salicylic acid	1 0
Ammoniated mercury	2 0
Rose water ointment	to 30 0
	Gm. or Oz.
R Mercury bichloride	0 01
Chloral hydrate	8 00
Spirit of formic acid	15 00
Castor oil	0 50
Alcohol (80%)	180 00
Oil of bergamot	enough to perfume

I would appreciate prescriptions containing ingredients that will not injure the eyes. M D Illinois

ANSWER—The ointment can be used on the eyelids without any fear of ill results. The lotion, while unobjectionable for the scalp, is likely to be rather strong for the eyelid. The trouble is not so much with any one of the ingredients as with the fact that 80 per cent alcohol is too strong for application near the eye. If one leaves out the castor oil and the bergamot oil, which while useful on the scalp are not needed on the eyelid, one can dilute the preparation with 4 parts of water which would possibly lessen the therapeutic value but also the liability to produce disagreeable irritation in the eye, should some inadvertently enter the conjunctiva.

TOXICITY OF TRICHLOROETHYLENE

To the Editor—The following information is desired concerning the use of trichloroethylene: 1 Toxic effects because of its use in industry as a degreasing agent. 2 Skin reaction resulting from a defatting process. 3 Toxic properties when inhaled. 4 The safe exposure to workmen in parts per million. 5 Safeguards if any against overconcentration in air. Please mention available literature.

HAROLD M JAMES M D Dayton Ohio

ANSWER—Publications descriptive of the toxicology of trichloroethylene have now become so voluminous as to prohibit listing in this department. An apt presentation on trichloroethylene may be found in Hamilton's "Industrial Toxicology" (New York, Harper & Brothers 1934) which will provide extensive literature materials. The specific questions presented are now briefly answered.

1 When trichloroethylene is used as a degreasing agent there arise no peculiar manifestations as to toxicity, setting this apart from others giving rise to vapors. In this use trichloroethylene is often kept boiling and in open tanks. Evaporation is prevented in marked degree by coils of piping around the tank periphery, through which cold water is circulated. This protection is far from perfect. Workers are prone to lift baskets of articles submerged in trichloroethylene for degreasing prior to complete draining and drying. Qualitative tests for trichloroethylene vapors will be positive anywhere in a workroom in which an open type degreaser is in use. The toxic problem becomes one of inhalation.

2 No specific property is possessed by trichloroethylene setting it apart from other skin defatting agents of equal potency. Exposed skins may become dry, scaly, fissured papillated and at times infected. However, there is some reason to believe that trichloroethylene may produce systemic disease following absorption by the skin.

3 Although trichloroethylene is chemically closely related to carbon tetrachloride manifestations after exposure may be quite dissimilar. Gross exposure through the inhalation route may lead to active narcosis. This agent has been proposed as a

surgical anesthetic because of its narcotic action, but unfortunate results militate against its use. While the action of carbon tetrachloride is principally on the liver, respiratory tract, gastrointestinal system and kidneys, trichlorethylene stands out as affecting the central nervous system, particularly the cranial nerves. The fifth and optic nerves are apparently vulnerable to an exquisite degree. Psychic disturbances are well known, hysteria is common, trichlorethylene addiction is well established, personality changes take place. Minor effects include headache, dizziness, loss of appetite, tachycardia, vomiting and loss of weight.

4 The upper limit of safe use is perhaps not above 200 parts per million and 100 parts per million is accepted by some as the threshold of danger. If exposure is a matter of hours, lower limits should be enforced.

5 The chief safeguard in avoiding danger from this substance is to limit its use to completely enclosed systems, such as in dry cleaning. This vapor is measured quantitatively only with difficulty. No less every use of trichlorethylene in appreciable amounts should be associated with adequate testing so that the threshold of danger is never reached. Fortunately, the cost of this excellent solvent is so high as to necessitate conditions of use that are unfavorable to evaporation losses of great extent.

DIAGNOSIS AND TREATMENT OF LEAD POISONING

To the Editor—I was recently consulted by a man, aged 27, who complained of pain in the feet and knees and weakness of the legs. The patient dated the onset of the symptoms to August 1933. At this time he had some pain in the right thigh and testicle and because he feared this might be due to a previous gonorrheal urethritis he consulted a highly competent urologist and was assured that there was no remaining gonorrheal infection. The patient's history disclosed that he had had progressive weakness of the legs with pain at times in the feet and ankles. During the three weeks prior to consulting me he had developed pain in the legs. In August 1936 he had suffered a moderately severe gastro-intestinal upset and from that time until the present had complained of vague epigastric pains that were not related to food intake. There had been increasing constipation and for about three months he had been regularly taking liquid petrolatum. For the same length of time the patient had not been sleeping well and had complained of a metallic taste in the mouth. In the last two years there had been a weight loss of about 12 pounds (5.4 Kg.). For about ten years the patient had been employed in a local newspaper office where his work was limited to the preparation of lead plates for the advertising cuts and he was each day exposed to the fumes of molten lead. Physical examination revealed that he was 5 feet 6 inches (168 cm.) tall and weighed 130 pounds (59 Kg.). He appeared slightly anemic. The teeth appeared quite normal; there was no evidence of a lead line on the gums. The heart, lungs and abdomen were entirely normal. The genitalia showed only slight tenderness of the right epididymis. The extremities appeared normal. There was slight pain on full motion of the knees and ankles but there were no evidences of arthritic changes and no history of swelling or redness of the joints; however, a diagnosis of infectious arthritis had been previously made by another physician. There were some sensory nerve changes and slight pain over the course of each sciatic nerve. The blood count showed a hemoglobin of 90 per cent, erythrocytes 4,760,000, leukocytes 8,900, differential count normal. Smears were examined in three laboratories and none of these showed any basophilic stippling of the red blood cells. Urinalysis was entirely negative. A tentative diagnosis of subacute lead intoxication was made and a twenty-four hour urine specimen which was analyzed for lead showed 0.198 mg. of lead. The patient was put on a low calcium high phosphorus diet. In addition he is receiving 4 Gm. of sodium phosphate, 3 Gm. of ammonium chloride and 15 cc. of 50 per cent magnesium sulfate daily. Naturally the patient is not at present working. 1 In your opinion is this diagnosis correct? 2 Should this patient eventually return to his previous work, what prognosis is to be offered concerning the return of the symptoms in the same or increased form? 3 In such a case when the symptoms are subacute would it be more advisable to attempt to fix the lead rapidly than to attempt to delead the patient as I have done?

M D, Indiana

ANSWER—1 So protean are the manifestations of the action of lead on the human body that it is sometimes quite impossible to make a diagnosis without reservation. In the present instance the quantity of lead mentioned suggests the reasonableness of a diagnosis of lead poisoning but the making of quantitative determinations of lead in the urine is fraught with difficulty and frequently associated with error. In an earlier day, the making and manipulation of lead type and cuts was a rather prolific source of lead poisoning. Lately, lead poisoning has distinctly lessened in newspaper and other printing plants. A desideratum for the diagnosis of lead poisoning is the quantitative determination of lead in the atmosphere at the work place. Epididymitis as a manifestation of lead poisoning is known but is a rarity.

2 If the patient recovers to the point that he is able to work, the most practical step that may be taken is to remove further exposure at the work point and then permit him to resume duties. The prognosis as to recurrence of lead poisoning, if, in fact, such disease has existed primarily depends on the elimination of future exposure. It is possible, but unlikely,

that recurrences of lead poisoning might arise from lead already present in the body. On the assumption that it has been several months since the last exposure, this becomes improbable.

3 At the present time there exists distinct controversy as to the respective merits of attempting to delead patients on the one hand and entirely avoiding deleading or fixing of the lead on the other. Unless the patient can be placed under a hospital regimen deleading probably should not be attempted. Left alone, spontaneous elimination of lead will take place to some extent.

FATIGUE WITH LOW METABOLIC RATE

To the Editor—An old patient and friend of mine aged 60 has always been a hard worker inclined to take life seriously and somewhat neurotic. For many years he complained of rather unusual and marked fatigue but in spite of that continued strenuous work with considerable responsibility. About three years ago the fatigue became so marked that careful investigations were made and it was found that he had a low basal metabolism minus 32 minus 30 and minus 28 on different occasions and with cholesterol 270 mg. He was put on thyroid with immediate and rather marked beneficial effect. The symptoms returned after several months and other basal metabolism tests were made showing always minus 32 to minus 20. The dose of thyroid was increased somewhat and it was advised that the dose be balanced against subsequent tests but he was called out of the city and remained about a year. On his return I found him taking 1½ grains (0.1 Gm.) of thyroid extract with a metabolism reading of about minus 20. The fatigue is still quite marked, his endurance is considerably limited and his activities are cut in half. A very annoying symptom is burning in the feet and back of the legs and at times slight cramping. These symptoms have been present more or less during the past two years but have become more marked in recent months. The temperature when observed has ranged from 96 F in the early morning to 97.8 in the afternoon. There is now and has been for several years a marked periodic insomnia. Can a balanced ration of thyroid be expected to relieve these symptoms? If not what other measures could be used to bring relief from the symptoms especially the burning of the feet and legs?

M D, Texas

ANSWER—In cases of fatigue associated with a low metabolic rate there is always the question of how much the fatigue is due to the low metabolic rate or whether the low metabolic rate is due to fatigue. With a rate as low as this, however, it would appear possible that a hypothyroidism was present. The presence of a burning sensation in the feet and cramps in the calves of the legs may be due to a circulation impaired because of a hypothyroidism, to changes in the cardiovascular system consequent on some other factors than hypothyroidism, or possibly to some change in the calcium or chloride metabolism. Other conditions aside from the hypothyroidism should be ruled out as, for instance, anemia. It is to be expected that symptoms of hypothyroidism would be relieved by an adequate dose of thyroid if the symptoms are entirely due to that condition. A good vacation, with complete rest and relaxation while taking desiccated thyroid, may be more efficacious in bringing the basal metabolic rate into the normal range than merely giving more thyroid alone.

The peripheral circulation can also be improved by the use of the theobromine derivatives, such as the alkaloid theobromine or theobromine with sodium acetate given in 0.5 Gm. grain doses three times daily with some or complete relief of symptoms. In selected cases, insulin free tissue extract in small doses intramuscularly gives relief while in others it may merely make the symptoms worse. Patients who have an impaired peripheral circulation to the extremities should be warned of the dangers of traumatic injuries to the extremities.

MERCURY POISONING

To the Editor—What are the ordinary tests for mercury poisoning by ingestion? What pathologic changes are shown in the stomach lining and what tests are made on the gastric contents? How long after the ingestion of 10 or 20 grains (0.613 Gm.) of mercury chloride does death occur? Has a minimum lethal dose ever been determined?

W W BOYNE M D, East St. Louis, Ill

ANSWER—The most serviceable test for mercury in the stomach contents is based on the fact that metals which are more electropositive than mercury (such as copper, zinc, iron and aluminum) liberate metallic mercury from solutions. The test is performed as follows:

To a portion of the stomach contents add one-sixth volume of chemically pure hydrochloric acid. Place in this mixture one or two small strips of bright copper foil and boil the mixture for a few minutes. If mercury is present in the material, the copper foil will receive a silvery deposit. Remove the foil, wash with water, alcohol and ether, and dry between filter paper. To prove that this deposit is mercury, cut the copper foil into small bits, place in a reduction tube and heat the lower end over a free flame until the copper glows slightly. The mercury sublimes and collects on the cool portions of the tube. Microscopic examination of the sublimate reveals the

characteristic globules of mercury. For further verification of mercury, one may remove the copper foil place in the tube a crystal of iodine and stopper with a cotton plug. After standing for a while the sublimate becomes red from the formation of mercuric iodide.

A grayish white eschar is found on the lips, mouth, pharynx and esophagus. The stomach is firm and contracted and looks as if cooked. The mucosa is of a uniform pale violet, which is the result of the mouse gray tint of the coagulated blood in the vessels blending in with the white coloring of the escharotic epithelium.

Death usually occurs after from five to ten or even twenty days. Death within a few hours is most exceptional. Even less than 0.1 Gm may cause death in a sensitive person while 0.5 Gm and even 5 Gm have been recovered from.

ORAL TREATMENT OF DIABETES—CHANGE IN LIFE EXPECTANCY WITH INSULIN

To the Editor—Five of eight patients use insulin the other three refuse it but adhere strictly to their diet. Is there any adequate treatment by mouth? In Beckman's General Practice myrtillin is mentioned but none of the drug houses seem to carry either a tincture or a fluid extract of it. Many years ago (over fifty) a Swiss family in my town made a tea from blueberry leaves which it used for diabetes. Could the myrtillin which it contained have been of benefit?

M D Pennsylvania

ANSWER—There is no adequate treatment of diabetes by mouth today. What will happen tomorrow no one can predict. Myrtillin has not been used for years. Those most interested in it and competent to use it have dropped it.

At the present time insulin injected parenterally affords the only treatment specific for diabetes. One must insist that insulin be taken by those patients whose diabetes is so severe that their urine is not sugar free when they are on a diet necessary to maintain their weight and strength. In talking with patients averse to the idea, one should contrast the mortality today with that prior to 1922. Before the introduction of insulin (1) children despite rigid dieting died within twelve months (2) the mortality of diabetic coma among children was 100 per cent and (3) in all diabetic persons, young and old, the duration of life after the onset of diabetes was only from four to five years. Today (1) the life expectancy of a diabetic child at age 10 is 31.7 years (estimated by the Metropolitan Life Insurance Company) (2) the mortality from coma in children (if not hopelessly far advanced before treatment is begun) has been reduced to almost zero in the better hospitals and (3) there has been a threefold increase in the duration of life of all persons with diabetes.

If patients who need insulin but have refused it are not open to these arguments or to persistent persuasion always without success, it is best to advise them to select another doctor in whom they have more confidence. At the same time the physician should concentrate on patients who do take insulin so that their superiority in comfort, health and efficiency may be noted by every one.

FRIEDRICH'S MODIFICATION OF PREGNANCY TEST

To the Editor—I have been interested in Friedrich's modification of Visscher and Bowman's chemical pregnancy test abstracted on page 80 in the January 2 issue of THE JOURNAL. Will you let me know if there has been any confirmation of this work and also your opinion concerning it. I have done quite a number of these tests using the bunsen burner method described in the abstract and I am so far pleased with the results obtained.

*WILLIAM C. STEPHENSON, JR. M D Roanoke Va

ANSWER—The modification of the Visscher-Bowman test as described by Friedrich (*Monatsh. f. Geburtsh. u. Gynak.* 103:185 [Oct.] 1936) has not as yet been verified by other workers although the original test has been reported on rather favorably by Dodds (*Brit. M. J.* 2:224 [Aug. 1] 1936) who in an investigation on 100 pregnant women found the test to be correct in ninety and on the urine of 80 nonpregnant women there were nine that responded as positive a correct reading having thus been made in 89 per cent of the cases tested. Wiesener (*Zentralbl. f. Gynak.* 60:1588 [July 4] 1936) on the other hand states that the titration method is unreliable but reports that his glass mortification reaction gave a 93 per cent correct diagnosis in early pregnancy and a 91 per cent correct result in nonpregnant women.

Although the modification of the test as described by Friedrich is simple it seems that the color distinction as described is too fine.

In extensive series the original Aschheim-Zondek test has been found to be reliable in about 99 per cent of cases tested while the Friedman modification is correct in about 98 per cent.

Because of the reliability of the latter tests it is felt that at the present time none of the more simple reactions can be used with a sufficient amount of security to replace the Aschheim-Zondek or Friedman test.

PSYCHOSIS IN MALARIA

To the Editor—I have been consulted with regard to an acute mania which occurred in an American woman aged 47 located in a tropical country. There was an indefinite preceding history of malaria, with no undoubted attacks for four years except that she said she had a fever one and one half days before hospitalization. She was however afebrile on admission and no plasmodia were found in the blood and showed no subsequent symptoms of malaria. In spite of this she was given the usual antimalarial treatment consisting of quinine for five days followed by atabrine for several days. The third day after discontinuance of atabrine she had one dose of plasmochin. On the next day and to some extent before the plasmochin she began to develop an acute maniacal condition which increased in severity for several days. She was placed in a mental hospital under British physicians and pronounced in an extreme maniacal condition. This lasted nineteen days and she was in the mental hospital three months and was then discharged apparently in good condition. Is it reasonable to suppose that this was a toxic psychosis from drugs administered or that it occurred entirely independent of the malaria or the treatment?

M D Kansas

ANSWER—Psychotic states have been described following the administration of atabrine and apparently due to a toxic effect of the drug (Kingsbury, A. N. *Lancet* 2:979 [Nov. 3] 1934). This would seem to be a rare occurrence however. In the case described the psychosis might have been due to malaria if this is believed to have been present, or to the atabrine or have been an independent occurrence. There is nothing to guide one in the history given as to which is the correct explanation. A history of the events preceding the psychosis would probably be of assistance in deciding as to the latter possibility.

CONTACT DERMATITIS

To the Editor—A white married woman aged 23 has annual recurring blisters on her legs and feet. For the past thirteen years (she has lived in New York for five years previous to that time being a native of Connecticut) these blisters have returned the early part of June and have disappeared in late September or early October without medication. The onset is as follows: Several mosquito-like bites on both lower extremities usually the forelegs and feet develop which quickly progress with the formation of an area of erythema about 1 cm in diameter. In the center of these lesions a vesicle forms which contains a clear serous fluid. This vesicle within twenty-four to forty-eight hours grows until it measures from 1 to 2.5 cm in diameter. There is itching. At this point, owing to trauma the vesicles or bullae rupture with subsequent oozing of serous fluid. They quickly close and refill again. Such a lesion may stay throughout the three to four months period. On the thighs and hands are similar lesions appear but never progress beyond the mosquito-bite stage. These itch slightly. A brother is sensitive to barn dust. A sister is asthmatic and is being desensitized. Physical examination for a focus revealed nothing pathologic. The patient has flaming red hair and tender white skin and is only moderately covered with freckles. I was under the impression that I was dealing with either a food sensitivity (pollen or grass sensitivity). I therefore scratch tested her for the common foods which one usually eats for the first time in June, viz. strawberries, plums, apricots, cherries and peaches. I have also scratch tested her for sensitivity to lamb's quarter, bluegrass, orchard grass, timothy, redtop, sweet vernal grass, ragweed, both dwarf and giant, and cocklebur. These have all been negative. I withdrew some of the serum from the bulla and injected it intracutaneously without reaction. I made a smear of the serous fluid and found many eosinophils, lymphocytes and polymorphonuclear cells. There were no microorganisms. The white and differential blood count revealed 6,000 white blood cells of which 44 per cent were lymphocytes, 46 polymorphonuclears, 2 eosinophils, 6 monocytes and 1 basophil. Am I justified in assuming that these lesions are due to a sensitivity? I would appreciate any further suggestions as to procedure and therapy.

M D New York

ANSWER—The fact that the vesicles have occurred each year in the summertime, from June until September or October, and the fact that there are more on the lower extremities associated with itching, strongly suggests that the patient has a contact dermatitis sometimes called true eczema. Such persons are not allergic in the sense that there is a family inheritance and they do not show any other signs of allergy such as other allergic manifestations, cosmophilia or positive passive transfer tests (Prausnitz-Küstner reaction).

This patient is almost certainly sensitive to some weed with which she comes in contact as by walking through vacant lots especially if she goes barefooted or barelegged through such weeds. It is a simple matter to find out which weed it is by contact or patch tests should be made with the leaves themselves of such weeds as the various grasses, timothy, redtop, orchard grass, June grass, and also of short and giant ragweed and barnyard marsh elder. These are the most common causes but any other weed or grass may be responsible.

The leaves should be moistened and placed against a clean part of the skin, such as the back, and left for from twenty-four to forty-eight hours. Redness and vesiculation indicate a positive reaction.

As far as treatment is concerned, mere avoidance of weeds, either by keeping away from them or by wearing heavy shoes and stockings, should suffice. If not, injections with an extract of the oily fraction of the responsible weed has given success in some hands, in others, disappointing results have been obtained by this method.

Ordinary skin tests carried out in such cases are usually negative because the materials used contain the protein fraction of the weeds, whereas the sensitivity in contact dermatitis is due to the oily fraction. Furthermore, the contact must be of sufficient duration to allow redness and vesiculation to form.

HAIR TONIC

To the Editor—Is there any incompatibility in the following for use as a hair tonic?

	Gm or Cc	
R Pilocarpine hydrochloride	0.65	
Tincture of cantharides	7.5	
Tincture of capsicum	15	
Castor oil	2	
Quinine bisulfate	2.6	
Mercury bichloride	0.065	
Alcohol	ad 125	
Oil of rose geranium	0.18	
Oil of bergamot	0.5	
Dissolve and filter.		
Label	Poison	Sig
daily or every other day		Message into the scalp
		M D New York

ANSWER—The mixture precipitates because of the tincture of cantharides which contains principles that are insoluble in alcohol. It is perfectly compatible if the tincture of cantharides is omitted. Should one insist on employing the tincture of cantharides the solvent should be the same as the menstruum employed in the manufacture of the tincture which is 10 per cent of glacial acetic acid in alcohol. This would, however, make the application probably rather strong in acetic acid. It is therefore best to eliminate the tincture of cantharides from this preparation. It would then be quite unobjectionable excepting, of course, that it should be labeled "for external use only."

HENNA AND INDIGO IN HAIR DYES

To the Editor—I have an inquiry for trade names of vegetable hair dyes that contain a combination of henna with the powdered leaves of Lawsonia inermis and reng and also powdered leaves of indigo. Fera argenta. These dyes were recommended in Queries and Minor Notes in THE JOURNAL some time ago.

M D Minnesota

ANSWER—The article from which the information regarding the combinations of henna and reng as hair dyes was derived gives no trade names under which such hair dyes are sold and we have not been able to find any such commercially made dyes. Adelaide O'Brien, of the magazine *Modern Beauty Shop* in answer to an inquiry writes:

"I regret that I am unable to give you the name of any commercial dye consisting of henna and indigo. The mixture is seldom used in modern hair tinting because the process of application is a tedious one and the long continued use of such a mixture makes the hair rather harsh and brittle and obscures its natural luster."

"The henna and indigo powders are mixed in varying proportions that is about 80 parts of indigo to 40 of henna for a light brown shade, 90 of indigo to 30 of henna for a dark brown. A few ounces of this mixture were then mixed with warm water, and the paste allowed to remain on the hair as a pack for several hours."

The comparatively harmless dyes are not satisfactory. Individual reaction plays an important part in the dyeing of hair and good results can be obtained only by expert work.

TOXICITY OF GREEN ROUGE OR CHROME GREEN

To the Editor—I would appreciate information as to the nature of the substances used in the polishing and coloring of electrical fixtures. There is one particular substance used in this industry called green rouge that I am especially interested in as a cause of toxic symptoms. Please list references also.

M D New York

ANSWER—Green rouge' is the term widely applied to chromium sesquioxide Cr₂O₃, chrome green. Apart from its pigment properties this chemical is somewhat extensively used as an abradant for the very fine polishing of steel and other metals. In a paste or liquid form it may be used to impart an arti-

ficial patina. Both of these uses appear to be involved in the conditions of work mentioned in the query. Exposure may lead to the well known 'chrome holes' particularly if the green rouge comes in contact with breaks in the integument. However, chromic acid, chromates and chromium oxides will attack unbroken skin, particularly in the presence of moisture leading to a persistent dermatitis. The breathing of chromium oxide dust may induce nasal perforation or widespread nasal inflammation. Very rarely workers become sensitized to the action of chromium compounds leading to gross dermatoses with manifestations suggesting systemic disease.

PERVERSION OF TASTE SENSATION

To the Editor—I have a patient who has been complaining for the past three years of a peculiar taste in his mouth. His tongue is always heavily coated and he reports that he can feel pus exuding from one side of his cheek. All tests are essentially negative. Is it possible to have a suppurative discharge from the salivary or parotid glands without any swelling or other clinical evidence?

M D New York

ANSWER—Two possibilities deserve exploration. Cultures should be made in brain broth from saliva taken aseptically through a cannula inserted into the parotid duct on the suspected side in order to rule out definitely infection of a low grade without obvious symptoms. The teeth should be examined for large metallic restorations. If two or more different metals are found, especially if a tooth under such circumstances is found bearing a large metallic filling adjacent or near to the origin of the perverted sensation, this clue should be followed up. Otherwise this must be classified as a poorly defined neurosis characteristic of a patient in the decades of life.

CARDIAC ANEURYSM

To the Editor—I recently had a case that came to necropsy showing a large aneurysm of the left ventricle of the heart. Pick's disease was also found. Will you please inform me how rare aneurysm of the heart is also please give references.

M L PINDELL M D Los Angeles

ANSWER—Cardiac aneurysm is comparatively rare. In a review of 12,000 necropsies by Lucke and Rea the instance was 1.25 per thousand. Most such aneurysms follow coronary occlusion but occasionally are traumatic as when the ventricle wall is just nicked by a bullet. There is a good review on the diagnosis with the report of two cases by Sigler and Schneider in the *Annals of Internal Medicine* (8 1033 [March] 1935). This article gives many references.

Some additional references are

Wallis A D *Bull Ager Clin Lab Pennsylvania Hosp* 3 25 (May) 1934

Rae M V *J Tech Methods* 15 136 (March) 1936

Ehasoph Benjamin *J Mount Sinai Hosp* 2 26 (May June) 1935

Linck K *Virchows Arch f path Anat* 297 113 1936

ALDRICH DYE MIXTURE FOR BURNS

To the Editor—Will you please give me the formula of the Aldrich dye mixture for the treatment of burns?

W F CANTWELL M D International Falls Minn

ANSWER—The use of gentian violet in a 1 per cent aqueous solution was suggested by R H Aldrich (*Role of Infection in Burns New England J Med* 208 299 [Feb 9] 1933) as a primary treatment for burns. The solution is applied either as a swab or as a spray and is repeated every two hours for twenty-four, at the end of which time a firm eschar is formed.

TONICITY OF ATROPINE

To the Editor—Kindly advise me as to the effects and dangers common particularly to the eyes of large doses of atropine by mouth. One thirtieth grain (0.002 Gm) three times a day. These doses are being used in an effort to reduce the spasticity in a case of parkinsonism. Will the continued dilatation of the pupils produce glaucoma? Is it possible for this patient to develop an immunity to atropine? Is the effect of one seventy-fifth grain (0.0008 Gm) three times a day over a long period as dangerous as the previous dose mentioned? Is it possible to become so immune to either dosage mentioned that the eyes will be able to accommodate and the mouth will lose its dryness?

M D Florida

ANSWER—Such atropine therapy would be decidedly dangerous for a person predisposed to glaucoma otherwise not. Tolerance so that the therapeutic effect is lost may develop earlier than tolerance to the untoward effects. When this occurs a change to scopolamine is advisable. The interesting suggestion has been advanced to combine the mydriatic drug with an antagonist such as pilocarpine proper dosage of which must be worked out as required in each individual case.

Book Notices

Public Medical Services. A Survey of Tax Supported Medical Care in the United States. By Michael M. Davis. Cloth. Price \$1.50. Pp 170. Chicago: University of Chicago Press, 1937.

The subject of medical services supported by taxation is now receiving considerable attention. As the author indicates, such services developed out of the attempt to combat poverty in contrast to public health work, which had its origin in the endeavor to control pestilence.

Part I is a review of the kind and extent of public medical services. Four major types are discussed: 1. General medical care as a governmental responsibility for dependent persons (indigents and near-indigents); 2. Governmental hospital care for dependent and other persons (general and acute diseases, mental and tuberculous patients, and tax-supported care in nongovernmental hospitals and clinics); 3. Medical services for special groups (soldiers, sailors, marines, veterans, Indians, prison inmates and college students) and for special rural areas; 4. Medical care for dependent and other persons afflicted with diseases or conditions bearing a public health interest (communicable diseases and other than communicable diseases, such as school medical inspection, baby clinics, maternity services, cancer, heart diseases and pneumonia). The information and statistics gathered on these topics are not exhaustive but do serve to outline the trends and problems in public medical services.

In part II, Summary and Comments, the development of public medical services is pictured as a broadening of the social base "from the concept of dependency to the concept of need" and a broadening of the medical base to a recognition of more diseases "as infused with a public health interest." The causes for the widening in the scope of public medical services are stated to be "(a) the public interest in dependency, (b) the public threat of diseases, (c) the costliness of diagnosis and treatment."

Despite the growth in the amount of medical services in governmental hospitals and institutions, the author recognizes the increasing importance of personal medical care. Both for medical and for economic reasons the care of the indigent, the rehabilitation of the mentally ill and the treatment of tuberculous patients are returning to a person or "home" service basis as contrasted with custodial care. It is also noted that there is "an increasing emphasis upon the medical as distinguished from the charitable, aspect." It follows that increased responsibility is being placed on physicians in the expenditure of governmental funds for public medical services.

The amount of public medical services is estimated at between \$400,000,000 and \$500,000,000, or about one seventh of the total bill for all forms of medical care. The development of this extensive public medical service has not been based on any general policy and as a result has been largely haphazard and lacking in coordination. Primary problems in the administration of such a service have to do with quality, adequacy and economy of the intended service. New projects for public medical service to meet some reported need often ignore these primary problems and consider only the costs of the service in relation to available revenue. The author states that "probably the most important single factor in maintaining and improving the quality of service is professional participation in determining the qualifications and appointment of professional personnel and in controlling the procedures through which professional service is furnished."

The three major problems of relationship in the organization and administration of public medical services are: (1) the relations between physicians and patient, (2) the privileges and status of the patient in relation to public medical services, and (3) the relation of the governmental authority to the medical and allied professions. With regard to these problems it is noted that "a relation of mutual confidence between patient and physician is essential," that the extension of public medical services varies with localities and with the type of service supplied, and that "the freedom of the professions and their

control of professional standards and procedures is vital to the care and promotion of health."

The author has expressed in this publication a more tolerant attitude than in some of his previous writings toward the medical profession as the qualified agency to maintain and advance the quality and adequacy of medical services.

Le venin des araignées. Par J. Vellard. Préface du Professeur Cuillery. Paper. Price 45 francs. Pp 311 with 63 illustrations. Paris: Masson & Cie, 1936.

This monograph, from the Pasteur Institute of Paris, is written by a physician-naturalist who has traveled extensively in the wilds of South America, has been associated with the Institut antiofidique de Butantan at São Paulo, Brazil, and has prepared antivenomous monovalent and polyvalent serums against the principal poisonous spiders of South America. The book is a comprehensive treatment of the subject based mainly on the author's experience with South American species. It is divided into three major parts. The first is a history of araneism, beginning with Aristotle and Pliny, and includes a discussion of tarantulum. The Spanish dance, the tarantella, had its origin in an epidemic collective neurosis, derivable from the convulsive symptoms and cries of patients suffering from the bites of the tarantula (*Lycosa tarantula*). The more accurate accounts of this disorder led the author to the opinion that the larger and better known tarantula got all the credit for tarantulum, whereas a definite part of the symptoms observed were in reality attributable to the smaller, less often observed *Latrodectus* *l3-guttatus*, the European analogue of our black widow spider. There is a brief discussion of the poisonous spiders of Australia, New Zealand, Madagascar, Africa and Asia, of the structure of the poison glands and their ducts, of the mechanism of injection of the venom, and of the use of the venom in the capture of insects used as food by spiders in general. The author gives a full account of the physicochemical properties of the venoms of spiders, of their toxic, gangrenous, hemolytic, coagulative and proteolytic action and of the relation of these properties to the types of alimentary spiders. The bodies of adult spiders and their eggs when macerated and extracted yield additional hemolysins and proteolytic ferments. Their own blood contains toxic substances, their salivary glands a highly proteolytic ferment, and the hairs on their body an urticating substance. The second part contains an exhaustive study of the classification, structure and habits of the many dangerous spiders of South America with clinical observations on the effects of their venoms on experimental animals and man.

The major interest for physicians in this country attaches to the notorious black widow spider *Latrodectus mactans*, which is widely distributed throughout the United States and extends south as far as Patagonia. The effects of its bite are severe and sometimes fatal. Clinical observations in reputed human cases coincide with those in controlled experimental cases in man and experimental animals. The symptoms begin with local pain, later becoming general and more severe, delirium, perspiration, salivation, vesicular and intestinal paralysis, cutaneous hyperesthesia, muscular pains, trembling, convulsions and intellectual fatigue and are followed by weeks of slow convalescence. In fatal cases death ensues in from twenty-four to forty-eight hours. Necrosis at the site of the bite does not occur as in bites of some other spiders. The black widow is found in shrubbery, among the bases of plants, in rubbish and in out-houses, especially privies. A number of cases of bites on the penis have been recorded. The Eurasian *Latrodectus* *l3-guttatus* causes extensive losses among camels (32 per cent), horses (16 per cent) and sheep (12 per cent), with a death rate of 4 per cent in man at times of great abundance of this species in Asiatic Russia. As in the case of many insects, spiders exhibit the phenomenon of recurrent waves of great abundance. Recent reports of widespread occurrence of the black widow spider in various parts of the United States suggest such a wave in this country of this species.

The author has prepared for distribution from the Institute of Butantan serums for treatment of persons bitten by certain poisonous spiders. A single subcutaneous injection of the appropriate serum is sufficient to arrest the intoxication in man and also to prevent necrosis after bites by *Lycosa*. There is a high degree of specificity in the antiaraneidan serums.

A Workbook in Health for High School Girls By Gladys B. Gogle
MS Paper Price \$1 Pp 267 New York A. S. Barnes & Company Incorporated 1937

This health workbook is one of many devised for similar purposes, namely, to make health attractive to those who have a reasonable share of it. One wonders whether the author really expects to make health attractive to the adolescent girl by putting greatest stress on the teaching of health during the first three days of the menstrual period or by giving to health a grudging few minutes of the time of the physical educator "while the gymnasium class is dressing," and a few more at the end of the gymnasium period "when the gymnasium class is again dressing." Moreover, she says "Ideally, the school arranges for a health examination for each pupil once a year. When it is impossible to do this, the pupils may be educated to have the family physician make a careful examination." Ideally it is quite the other way around. The proposal advanced by the author is neither good health procedure nor good education, it teaches the student to depend on some one else first for the initiative toward health examinations and to be self-reliant only as a second choice. It should be said, however, that the author is not alone in this but follows common practice, which has been allowed to gain a firm foothold in many instances by the failure of physicians to cooperate with school authorities in making examinations promptly and recording them according to prescribed instructions, when offered the opportunity. The health charts in the workbook, while complicated and voluminous, and therefore discouraging to those for whom health is to be made attractive, are for the most part sound. One notes, however, as a good health habit "my breakfast always contains fruit and whole-grain cereal," some girls should not have both every morning, and some should never eat whole-grain cereals at all. In the same list (health chart 1) are the following items, which would have been modified if the consensus of medical opinion had been followed: "each day I have one or more elimination of waste from the intestinal tract without use of a laxative" (some persons naturally eliminate only once in thirty-six hours or more and are healthy), "I drink at least 3 glasses of milk" (when eating a full diet this is not always possible or desirable), "each day I take a full bath" (some skins will not tolerate this), "each morning I take a cold bath" (there are some who should never take cold baths). The human body is so variable, and rules are so difficult to formulate, that the wiser teachers are now abandoning hard and fast rules for health. There are so many exceptions that students with alert powers of observation will not be influenced as intended, because they will see for themselves that some of these things just are not so. The chapters on the menstrual period, on teeth, on food and on the problem of clothing are good. The units on advertised medicines are excellent, with a well-considered appeal to the girl's own judgment on the basis of material selected from authoritative sources, in which it is gratifying to note that the American Medical Association is prominently mentioned. On the whole, this should be a useful book in the hands of a teacher who can inspire her students, but she will need more time than the intervals when there is nothing better to do or the days when the girl student menstruates.

Die Nomina anatomica des Jahres 1895 (B. N. A.) nach der Buchstabenreihe geordnet und gegenübergestellt den Nomina anatomica des Jahres 1935 (I. N. A.) Von Dr. Fr. Kopsch. Boards. Price 2.50 marks. Pp 103. Leipzig: Georg Thieme 1937.

The aim of this book is to enable anatomists, students and physicians to become more familiar with the revised *Nomina anatomica*. The original list of anatomic names authorized by the Anatomische Gesellschaft at its Basel meeting (1895) was an enormous improvement over the previously existing chaos. It was not even then, however, a perfect list. It has been revised by committees appointed by the Anatomische Gesellschaft of which Dr. Ross Harrison of Yale was recently president, in cooperation with the anatomic societies of Great Britain and Ireland and the American Association of Anatomists, and representative anatomists from France and Italy. The new list (*Jena Nomina anatomica I. N. A.*) reduces the number of terms from 5,291 to 5,124. Changes have been made to bring human nomenclature into conformity with that of com-

parative anatomy. The terms cranialis and caudalis are frequently substituted for superior and inferior, ventral and dorsal for anterior and posterior. Names of individuals are entirely omitted. Some new names were necessitated by discoveries. On philologic grounds some names have been slightly modified, for example, articulus for articulo, fibularis for peroneus, and pharyngicus for pharyngeus. Dr. Kopsch has arranged the names of the B. N. A. and those of the I. N. A. side by side, in alphabetical order. In the I. N. A. list he has marked with one, two or three asterisks all the changes that have been made—the greater the change, the greater the number of asterisks. This will be of considerable convenience to anatomists and students who are seeking to become familiar with the revised nomenclature. The changes are for the most part a decided improvement. Undoubtedly they will be generally adopted, and when the new nomenclature appears in the editions of the atlases of Spalteholz, Toldt and Sobotta and in the newer textbooks of anatomy, they will pass into current use as easily as did those of the B. N. A. forty years ago.

Allgemeine Elektrokardiographie Von Professor Dr. Eberhard Koch, Vorstand der Abteilung für experimentelle Pathologie und Therapie des Kerkhoff Herzforschungs-Institutes zu Bad Nauheim. Mit einem Anhang: Wie analysiert und beschreibt man zweckmässig ein EKG? Von Dr. Elisabeth Koch-Momm, Bad Nauheim. Second edition. Boards. Price 3 marks. Pp 40 with 37 illustrations. Dresden & Leipzig: Theodor Steinkopff 1937.

This pamphlet is an attempt to present the physiologic and physical background of electrocardiography in elementary language. This is accomplished by correlating the text with well-chosen illustrations. It should help the medical student and general practitioner to obtain a clear idea of the theory behind electrocardiography, provided he can rid himself of the mental hazard which so many students have who enter this field. The presentation is of necessity dogmatic, and yet the majority of authorities will find little to take exception to. The appendix on the manner in which to analyze and describe the electrocardiogram is out of place and should have been omitted. It can serve no useful purpose for the student who has no previous knowledge of electrocardiography, for whom the pamphlet was written, and is too sketchy for the experienced. Many of the illustrations are refreshingly different from those in monographs covering this subject and should interest more experienced electrocardiographers.

Sexual Power By Chester Tilton Stone, M.D., Clinical Assistant Surgeon in the Urological Department, Bellevue Hospital, New York. Cloth. Price \$1.50. Pp 172 with 7 illustrations. New York & London: D. Appleton Century Company Incorporated 1937.

The advertisement for this book states that it is "a book on sex written primarily to help men understand fully the factors which determine male sex efficiency." In other words it is a book intended for the public, and it is therefore not surprising that it contains no new scientific matter and that whatever scientific material it contains can readily be found in the standard works on the subject. But even as a book for the general public, it has marked and serious defects. How, for instance, is an ordinary nonmedical mortal supposed to understand that the brain center sends impulses to the erection center in the spinal cord, and that this in turn sends impulses to the arteries and muscular structures in the penis? The book is full of statements of this kind, and the occasional illustrations do not help matters much. Aside from all this, some of the statements are misleading and the advice given may even be harmful. In one paragraph, for instance, the author obviously confuses impotence with sterility. He makes the statement that after epididymitis, both vasa may be obstructed and that in such cases the result is the same as castration, whereas it is well known that the obstruction of both vasa will cause sterility but has no bearing on sexual power in the vast majority of cases. In fact, the Steinach operation does this very thing on one or both sides with the avowed purpose of improving sexual power. As a result of misleading statements that have long since been disproved, the author makes really harmful deductions. Among these may be mentioned his statement that "absolute continence is so rare that with few exceptions it only applies to the impotent, to chronic onanists—masturbators—and to inverts." Again, he repeats the long forgotten fallacy that the sexual glands and muscles need regular exercise to prevent them from becoming disabled. The following statements

in the book are exceedingly dangerous and might be used by many readers as an excuse for sexual immorality. "It is just as much a woman's privilege, however, to enter a life of sexual freedom if she feels so inclined after considering the consequences." Again "If, in such a case, the woman does not care for the sex act and submits to it reluctantly at rare intervals, the man is fully justified in seeking extramarital relations, if he can do so without causing those at home to suffer." The book is full of generalities, conflicts and psychoanalytic statements and, in the majority of cases, fails to state the remedy. Too much stress is laid on the emotional side and too little on the influence of the prostate and other sexual organs as causes of impotence.

Lehrbuch der röntgenologischen Differentialdiagnostik der Erkrankungen der Bauchorgane Von Dr. med. habil. Werner Teschendorf, Chefarzt des Strahleninstituts der allgemeinen Ortskrankenkasse Köln. Paper. Price 42 marks. Pp. 477 with 929 illustrations. Leipzig: Georg Thieme 1937.

The excellent book by Matthes on the differential diagnosis of the internal diseases inspired his pupil Teschendorf to write a roentgenologic differential diagnosis, since the roentgenologic aspect was neglected in the Matthes work. This treatise should serve as a supplement to Matthes's textbook. In general, by differential diagnosis is meant the consideration of all pathologic changes that will help to explain the symptom complex and arrive at a final diagnosis. Teschendorf, however, insists on the use of x-ray examination exclusively, from which considerable difficulties must result. One should expect from the roentgenologic method that a differential diagnosis which follows morphologic and topographic-anatomic aspects would be successfully discussed. The various applications of contrast mediums as used for the examination of the stomach, colon, kidney and gallbladder may be helpful for this purpose. Also the concretions as far as they can be visualized within the abdomen may guide our diagnostic efforts. Combined examinations of different organs, furthermore, assist in establishing the differential diagnosis. These investigations are necessary for a correct interpretation of a roentgenologic differential diagnosis. Teschendorf's book, however, can be considered as an attempt only in spite of the abundant material. The author has not succeeded in solving the problem of a roentgenologic differential diagnosis of the diseases of the abdominal organs. In spite of the misinterpretation of the subject, the book is stimulating because of the abundant material. The work has to be considered as a textbook of roentgenologic diagnosis of the abdominal organs and only as such is it of value.

Diagnóstico anatómico topográfico de la obstrucción arterial coronaria Por el Doctor Guillermo A. Bosco, profesor adjunto de semiología y clínica propedeutica en la Facultad de ciencias médicas de la Universidad Nacional de Buenos Aires. Paper. Pp. 755 with 245 illustrations. Buenos Aires: Artes Gráficas Modernas 1935.

This bulky work, devoted to an important subject is divided into three parts: (1) anatomic description of the coronary arterial system, (2) graphic representation of the coronary arterial system and (3) symptoms and topographic signs of coronary arterial obstruction. The author believes that he has solved one of the most difficult problems of diagnostic medicine. He refers to recognition of the site of the necrosis of the myocardium in acute coronary obstruction. Clinically this is not easily established by the present diagnostic means. The first investigators of the subject of this work relied too much on the electrocardiogram for localizing the site of myocardial infarcts, it finally developed that the fibrous plaque was a sequel of the ventricular parietal cicatrix and that the electrocardiographic tracing does not pursue the same curve in all cases of parietal necrosis of the myocardium even in the same patient, during the short or long period of anatomic-clinical evolution of the anatomic alteration. Due credit is given Barnes, Whitten, Bell and Pardee for work done in this country. The illustrations are reproductions of photographs, line and wash drawings, and roentgenograms of anatomic specimens after injection of the arteries with opaque material. The author has made a detailed study, the results of which ought to be of value to all physicians interested in the heart from the clinical, radiologic and pathologic points of view. The author believes that his studies have proved the establishment

of new myocardial zones nourished by coronary branches which until the present have not been mentioned. He suggests that the left coronary artery marks out three myocardial regions which correspond to the anterior descending branch, to the diagonal of the left ventricle, and to the left circumflex, sometimes called the left auriculoventricular branch.

Anatomy of the Fetal Pig By John G. Sinclair, M.S., Ph.D., Professor of Histology and Embryology, the University of Texas Medical School, Galveston, Texas. Paper. Price \$2. Pp. 80 with 51 illustrations. Ames, Iowa: Collegiate Press, Inc. 1936.

The full term pig fetus offers many advantages as the mammalian type for study in comparative anatomy and its use has spread widely in recent years. The present dissection manual is timely and adequate, giving a good account of the important features characteristic of mammalian anatomy. It is stated that the work outlined can be done in thirty laboratory hours, but the mass of detail presented could hardly be mastered in so brief a time. The plan of work is particularly adapted to the needs of the premedical student and there are frequent comparisons between the pig and man. The anatomic description of each system is included with the instructions for dissection and is illustrated with line drawings which are for the most part excellent. Where clarity has been sacrificed in favor of detail the student can remedy the situation by coloring the figures with crayons. In most cases the structures are labeled directly and in full, so that there is no annoying legend to decipher. There are tables of muscles into which the student may insert the function of each muscle.

The description of each system of organs is followed by an "interpretation", i.e., a brief statement of its fundamental morphology and physiologic significance. This is an especially valuable feature in spite of the occasional unavoidable inaccuracy. On page 80 for example it is stated that the nerve impulse is an "electrical impulse." The details presented in this section on the nervous system are far beyond the scope of a course in comparative anatomy. As they stand, they would not be adequate for even a brief elementary course in neurology. The introductory embryologic chapter dealing primarily with placentation is followed by accounts of the various systems beginning with the external form and the skin and ending with the nervous system. The lymphatic system is not mentioned, and the consideration of the reproductive system is necessarily superficial. In the "interpretation" of the latter system a section of the text appears to have been inadvertently omitted by the printer. While the embryologic point of view is an important feature of the whole presentation, there are some lapses which create false impressions and introduce inconsistencies in the text. Thus the optic "nerve" is said to "enter" the retina, and the fila olfactoria are described as "extensions of the olfactory lobe."

Kurzwellentherapie in der Praxis Von Dr. Ernst Raab. Mit einem Vorwort von Prof. Dr. Erwin Schleichmann. Boards. Price 5.80 marks. Pp. 173 with 97 illustrations. Leipzig: Georg Thieme 1937.

Although there is no dearth of monographs on short wave diathermy, the present small and inexpensive volume is in many respects a worthy addition to the literature. Raab fully realizes that the early overenthusiasm has led to many disappointments and that a number of theoretical concepts have been erroneous. He has sifted facts from fancy on the basis of his own extensive clinical experience, and while he has made extensive use of the literature—he includes 149 articles and monographs in the bibliography—he has accepted nothing as granted. Moot problems, such as the selectivity of certain wavelengths for special tissues, have been treated objectively and conservatively. He stresses the need for thorough familiarity with the underlying biophysical fundamentals, which he presents in the first sixty-two pages. To be clinically successful the method must be applied intelligently in the sense of proper indications, dosage, selection of electrodes and their technique of application. The bulk of the book is devoted to therapy, the diverse diseases having been grouped both regionally and according to their pathologic similarity. Electropneumonia is considered separately at the conclusion of the clinical part and is properly evaluated. The text proper is concluded with a brief critical review in which the author endeavors to show that different results by various observers are ascribable

to differences in technic, the latter being the sine qua non for success of a method that has been applied too often in haphazard fashion. A good index enhances the well prepared table of contents. The book may safely be accepted as a reliable guide to short wave treatment of the many disorders in which modern thermotherapy is indicated.

Les spasmes de la face et leur traitement. Par Th. Alajouanine et R. Thurel. Paper. Price 12 francs. Pp. 88. Paris: Masson & Cie. 1936.

This monograph describes briefly and concisely the varieties, nature and origin of facial spasm. The tics are divided into two groups depending on whether the irritative focus is peripheral or central. This differential diagnosis can be made by a morphologic analysis of the muscle groups that enter into the spasmodic movement. A spasm due to peripheral involvement of the facial nerve involves only the muscles innervated by that nerve. A spasm of central origin may include movements of muscles supplied by nerves other than the facial. Facial spasm due to involvement of the facial nerve is caused by a focus of irritation affecting this nerve after its emergence from the brain stem. Not infrequently voluntary twitching occurs during recovery from a paralysis of the facial muscles (Bell's palsy). Otitis media, a cerebellopontile angle tumor, and vascular, neoplastic or infectious lesions along the course of the nerve may result in a facial spasm. Occasionally, for want of a better explanation, an intrinsic irritative factor in the nerve itself can apparently produce the same result. The only effective treatment in the relief of such a spasm is the injection with alcohol of the peripheral branches of the facial nerve that run to the muscles involved. The causes for central irritation of the facial musculature are less clear. A facial spasm often accompanies the severe, lancinating pain of major trigeminal neuralgia, undoubtedly an involuntary response to the painful stimulus. Spasmodic movements of the face following almost reflexly on certain stimuli may be due to constant repetition of certain facial movements as seen in actors or mimics. Jacksonian convulsive movements due to cortical irritation often involve the facial musculature. Rhythmic myoclonic movements of the face, which not only include the face itself but also the eyes, palate, pharynx and larynx, not infrequently extending to the arms, follow a lesion in the olivary or dentate nuclei. Finally the lesions of a postencephalitic syndrome produce a well defined quivering of the lips or cheeks, while much more rarely choreic or athetotic facial movements are seen, usually in conjunction with similar involuntary purposeless movements of the extremities. A fairly complete bibliography is appended to this monograph. While adding nothing new to our knowledge of the various types of facial spasm, what is known is concisely described without undue speculation as to the underlying physiopathologic mechanism.

Life Saving and Water Safety. Prepared by the American Red Cross. Cloth. Price 60 cents. Pp. 267 with 141 illustrations. Philadelphia: P. Blakiston's Son & Co. Inc. 1937.

This is an excellent and timely release. As its title indicates, it covers the water-front from the angles of life saving and safety. The coverage is complete, concise, clear, fully illustrated, and free from notions or unsupported theories. It gives full and common sense reasons for the commonly repeated and uncommonly respected rules about not swimming alone, about not swimming too soon after meals, and about sensible precautions to take when swimming at night. It deals with personal safety in swimming bathing places (including the old swimmer's hole) and what they ought and ought not to be like, safety and self rescue in the use of small craft, drowning and elementary forms of rescue, swimming rescues and how to avoid being a second victim instead of a rescuer, recovering a submerged victim resuscitation, special forms of rescue and ice accidents (prevention and rescue). The full and clear descriptions with accompanying illustrations of the various procedures involved especially in handling small craft, in rescues and in resuscitation should be of inestimable service to instructors and supervisors of life-guards, to boys and girls camp directors and workers to emergency crews in industry (a growing group) and to physicians who may be called on not only for medical treatment but for cooperation in rescue work. This book should take its place beside the Red Cross Manual on First Aid as a standard reference and textbook in its field.

Nogle Undersøgelser over Widalreaktionen ved Tyfus og Paratyfus. M. Chresten Faarup. [Studies on Widal Reaction in Typhoid and paratyphoid.] (With an English summary.) Paper. Price 8 d. Kr. Pp. 141. Copenhagen: Levin & Munksgaard. 1937.

This dissertation for the degree of doctor of medicine at the University of Copenhagen describes in detail the author's observations on specific agglutination in typhoid paratyphoid fever with special reference to H and O agglutinins. It will be recalled that H, or flagellar, agglutinin reacts with motile bacilli and gives rise to a floccular, large flake agglutinate, while the O, or somatic, agglutinin reacts with nonmotile forms and gives rise to a granular, small flake agglutinate. To secure the most reliable results, tests should be made for both H and O agglutinins. The dissertation, which is in Danish with an English summary, will be of value to workers with typhoid and paratyphoid agglutinations.

Der klinische Blick. Von Dr. Erwin Rissak. Privatdozent für Innere Medizin der Universität zu Wien. Paper. Price 4.80 marks. Pp. 141. Vienna: Julius Springer. 1937.

This booklet attempts to outline to the medical student in a brief manner some fundamental bedside observations. Clinical impressions to be gained by the eye, ear and nose are recorded and illustrated by practical examples. Some of the author's statements may be criticized. For instance the doctor should observe the manner in which his female patient is disrobing. If she does it in a modest way, she is not seriously ill. If she does it in a shameless way, she is gravely ill. As a whole, however, the book fulfils the purpose for which it was written. It does not record original observations but offers to the student an evaluation of impressions gained at the patient's bedside.

Nutritive Aspects of Canned Foods. A Bibliography of Scientific Reports and Helpful Tables of Food Data. Compiled by the Nutrition Laboratory Research Department of the American Can Company. Cloth. Pp. 110 with illustrations. New York: American Can Company. 1937.

The canning of foods began more than a hundred years ago as a result of the need by Napoleon to preserve food for his armies. Today the canning of foods is an enormous peace time industry, but textbooks on nutrition have largely neglected to discuss the nutritional significance of these products. This little volume contains information about the human dietary requirements and on the nutritional, bacteriologic and other public health aspects of canned foods. There are interesting chapters on the manufacture of cans and the various canning procedures. The appendix provides information in tabular form about the chemical composition and dietary value of canned foods. A selected bibliography is appended.

Digitalslibel für den Arzt. Von Prof. Dr. Ernst Edens. Paper. Price 1.80 marks. Pp. 39. Berlin: Julius Springer. 1937.

The primer gives a sketchy history of the digitalis bodies (51 pages), an equally sketchy discussion of their chemistry and pharmacology (seven pages), a discussion of their clinical use, and emphasizing especially the use of strophanthin in certain conditions. Those who are familiar with efforts to popularize the routine intravenous use of strophanthin are acquainted with the work of Edens and Fraenkel, who recommend the use of strophanthin in many conditions in which digitalis is preferable. It is nevertheless surprising to find no less than twenty references to the papers of these two authors in this booklet. It is not probable that this primer will serve any useful purpose in promoting the scientific treatment of cardiac disease.

Etudes sur les maladies de l'enfance. Par A. B. Marfan. Professeur honoraire à la Faculté de médecine de Paris. Paper. Price 30 francs. Pp. 191 with 6 illustrations. Paris: Masson & Cie. 1936.

This book consists of clinical essays, each about twenty pages in length on scrofula, rickets, lymphatism, intermittent albuminuria, headache of school children, involuntary defecation, spasmodic paraplegia, varicella, pericardial puncture, and extubation. The discussions are mainly clinical and are based on the writer's experience. Throughout the book more than in most American writings greater emphasis is laid on syphilis and tuberculosis as etiologic factors. Some of the author's hypotheses are not widely known in this country. He believes that infections are important in the causation of rickets. It

feels that the value of the ergosterol in our tissues lies in overcoming chronic infections when it is activated by sunlight. Intermittent albuminuria, although frequently postural, has its real origin in a mild kidney infection which has healed but left the kidney with slight functional damage. For the mature pediatrician, the excellent clinical descriptions and observations make stimulating reading. The book can well be read by any one wishing succinct clinical lectures by an authority of another land.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Dental Practice Acts Injunction to Restrain Enforcement of Legislative Ban on Advertising—The plaintiff, a licensed dentist, owned and operated a chain of dental offices in Iowa. In connection therewith, he advertised extensively in the newspapers. In 1935 the legislature of Iowa forbade all advertising by dentists other than the use of professional cards and window or street signs at the licensee's places of business. The plaintiff thereafter instituted proceedings against the state commissioner of health and others to enjoin the enforcement of the ban on advertising. The trial court dismissed the plaintiff's petition and he appealed to the Supreme Court of Iowa.

The appellant did not apparently question the right of the state, under the police power, reasonably to regulate the practice of dentistry but urged strenuously that the legislation must bear a fair relation to the public health, morals, safety or general welfare of the people, and that so long as there is nothing untruthful in advertising matter the public welfare is not adversely affected. He contended, further, that the legislature in attempting to regulate the practice of dentistry, had destroyed his right to practice. But, the court said the restrictions placed on advertising have the sanction of the dental profession as a whole. They are intended to preserve the profession, not to destroy it. Such laws are not enacted for the benefit of any class of individuals but in the interest of the general public. In the sense that they tend to prevent an unseemly rivalry in a race for business and preserve a rational, reasonable and ethical approach to the public and aid the profession in maintaining its service on a high plane of efficiency, such laws may be said to be beneficial to the profession as a whole. But this is not the primary purpose of the law. It is but one of the beneficial and beneficent fruits of the law. By making unlawful all methods of advertising calculated to bait or allure the public, the quack the charlatan and the exploiter are deprived of any means of plying their art. Likewise the member of the profession who would seek to commercialize it by boosting himself through extensive use of methods of publicity, extolling the superiority of his services, thereby forcing his competitors into a race for business, to the demoralization of the high standards and established ethics of the profession—all of which worketh ill to the public—is successfully thwarted in his purpose. It is true, said the Supreme Court, that the authorities are not uniform in relation to this matter of truthful advertising, and many of the earlier cases may be cited to the effect that legislation of this character can only be directed toward eliminating advertising which is false and fraudulent and intended to deceive the public. More recent cases, however, seem to go deeper into the philosophy and purpose of such legislation.

The experience of mankind said the court, has shown that human greed and avarice, untrammelled and uncontrolled by law, will not hesitate to prey on the frailties of overcredulous human beings. Those affected by real or imaginary ills are an easy prey. The unscrupulous as well as some of the more honorable but avaricious members of the profession, in disregard of the ethics of their profession, are many times overcome by the great temptation to become rich at the expense of humanity, with all its afflictions. They have resorted to all the devices of the faker on the street corner and of the skilful

artisan of expert advertising and radio propaganda, some even going beyond the borders of the United States with their broadcasting stations, where they may exploit their victims without hindrance. Such methods are demoralizing to the profession and detrimental to society. While the object of the statute is to strike at the charlatan and unscrupulous practitioner, no legislation can be upheld which would apply alone to the quack. Such legislation must be general in its application and rest alike on all members of the profession concerned. The best interests of the public demand that members of a profession affecting the public health stand or fall on the merits of their services, not on their skill in advertising.

It was for the legislature to say whether or not it was necessary that all advertising except that designated in the statute be prohibited. That is the real pith of the controversy in this case. There is no claim that in itself there is anything harmful in advertising prices for dental work or displaying signs illustrating bridgework, or running stories in the newspapers. It must, however, be admitted, said the court, that there are some dishonest and disreputable members of the profession who are not willing to abide by what is commonly called the ethics of their profession, and who make use of such methods of advertising. The unsuspecting public and overcredulous members of society, unable to distinguish the true from the false, or the honest from the dishonest, are lured to the offices or lairs of the professional charlatans, who point to their array of expensive office equipment and overstuffed furnishings to convince their unsuspecting patients of their superiority, and use this as an excuse for "fleecing them." In order to reach this evil and attempt to correct it, in the interest of the public welfare individual rights must give way to the greater rights of the whole people. While under the Iowa statutes the limitations on advertising are rigid, they are not too rigid when the purpose or aim of the law is considered. The law, in the opinion of the court, bears a fair relation to matters of public health and the moral and physical welfare of the people.

The Supreme Court did not agree with the appellees' contention that the plaintiff had no standing in a court of equity. The enforcement of this law, the court said, will undoubtedly constitute a serious restraint on the plaintiff's prior methods of conducting a lawful vocation and will result in a financial injury. If the law is unconstitutional and void, he has a right to restrain its enforcement. He is not required to take the risk of forfeiting his license before he may proceed in equity to challenge the constitutionality of the law. It would be an unjust and arbitrary rule which would require him to proceed first openly to violate the law and thus place himself and his property rights in jeopardy in order to place himself in a position to have determined the question of the constitutionality of the statute.

While holding that the plaintiff had a right to proceed in equity, the Supreme Court was of the opinion that the decree of the trial court denying the plaintiff's petition for an injunction was correct. The decree was therefore affirmed.—*Craven v. Bierring, State Commissioner of Public Health, et al (Iowa), 269 N. W. 801*

Malpractice Physician an Independent Contractor, Not an Employee of Corporation—One of the defendants, a physician, was employed on a part time basis by the New York Telephone Company, a self insurer under the workmen's compensation act of New York, to render medical services to employees in emergency cases and to examine employees in connection with its disability benefit plan and its pension system. The plaintiff, an employee of the company, consulted the physician-defendant because of a pain in her foot. The condition, osteomyelitis, had no connection with her employment. She later sued the company and the physician, contending that because of the latter's negligent treatment she sustained injury. The trial court gave judgment against both defendants for \$40,227.39 and they appealed to the supreme court of New York, appellate division.

The defendant company was held liable on the theory that the physician was the servant of the company for whose negligence it was responsible. But, said the appellate court, the doctrine of respondeat superior has no application to the facts presented by the record. A physician employed under the cir-

cumstances of this case is not a servant of his employer but is engaged in an independent calling and his status is that of an independent contractor. Furthermore, the court continued, the evidence against the physician-defendant showed, without contradiction, that the plaintiff at the time she first saw the physician had a disease condition of the bones of her foot which had existed for at least two months and which grew progressively worse thereafter. The only damage for which the physician could be held responsible was for an aggravation of the existing condition resulting from his failure to treat the plaintiff properly. This issue, however, was not presented to the jury. The only issue presented was whether the alleged malpractice of the physician was responsible for the entire condition which developed. The finding of the jury in the plaintiff's favor on this issue was, in the opinion of the appellate court, clearly against the weight of the evidence.

The judgment against the telephone company was reversed and the complaint against it dismissed. The judgment against the physician was reversed and a new trial ordered—*Schneider v New York Telephone Co et al (N Y)*, 292 N Y S 399.

Malpractice Loss of Eye Attributed to Negligent Treatment of Gonorrheal Ophthalmia.—The plaintiff consulted the defendant, a specialist in diseases of the ear, eye, nose and throat, because of a badly infected and swollen eye. A diagnosis of gonorrheal ophthalmia was made and a course of treatment instituted. After eight days of treatment, the plaintiff consulted a specialist in another city who found the eye full of pus and badly swollen. There was a perforation of the cornea and prolapsus of the iris. Since sight from the eye was destroyed and could not be restored, this specialist removed the eyeball. Subsequently, the plaintiff sued the defendant, attributing the loss of the eye to his negligence. The trial court directed a verdict for the defendant and the plaintiff appealed to the district court of appeal, fourth district, California.

The degree of skill and care required of the defendant as a specialist, the court said, is stated succinctly in Ann Cas 1915D, 1124, as follows:

One who holds himself out as a specialist in the treatment of a certain organ injury or disease is bound to bring to the aid of one so employing him that degree of skill and knowledge which is ordinarily possessed by those who devote special study and attention to that particular organ injury or disease its diagnosis and its treatment in the same general locality having regard to the state of scientific knowledge at the time.

The plaintiff based his allegation of negligent treatment on the contention that the defendant failed (1) to cap the uninfected eye, (2) to hospitalize the plaintiff, (3) to take and test a smear from the infected eye and (4) to use more energetic treatment on the eye. Even if good practice required the defendant to cap the uninfected eye the court said, that eye did not become infected and the failure to cap it was neither a proximate nor a contributing cause of any injury suffered by the plaintiff. Furthermore there was no evidence to show that hospitalization of the plaintiff was required by the standards of good practice in and around the community. The specialist who enucleated the eyeball testified that hospitalization in such cases is desirable and that he himself did not see how a patient could properly irrigate his own eye. This fell short in the opinion of the court, of proving that the standard of care in the particular community required hospitalization of patients suffering from gonorrheal ophthalmia. There was testimony to the effect that good practice required the defendant to take a smear from the infected eye to determine the nature of the infection and the type of treatment required, the nature of the treatment being dependent on the nature of the infection and its virulence. The defendant, however, recognized immediately the nature of the infection on his first examination. The only merit to this particular contention would depend, therefore, the court said on the propriety and efficacy of the treatment administered by the defendant.

According to the record, the defendant, after diagnosing the condition as gonorrheal ophthalmia irrigated and cleaned the eye painted the lids with a 1 per cent solution of silver nitrate, and placed two drops of atropine solution in the eye. He administered this treatment daily during the eight days that

the plaintiff was under his care. He also advised the plaintiff to apply ice compresses continuously, to keep the eye clean with frequent irrigations of a salt or boric acid solution, and prescribed a one-half of 1 per cent solution of zinc sulfate with directions to place two or three drops in the eye every two hours. Subsequently, the zinc sulfate solution was discontinued and a 15 to 20 per cent solution of neosilvol was substituted. The specialist who operated on the eye, testifying for the plaintiff, said "If I were treating such a case, I would want to have more energetic treatment. In this serious disease the outcome might be grave in any event." He admitted, however, that "there is a great difference in the opinion about the use of drugs" and that each step in the treatment administered by the defendant was proper. Thus, in the opinion of the court, did not prove that the defendant did not bring to the case the required degree of skill and knowledge. The evidence only tended to prove that in the opinion of the witness a method of treatment other than that employed by the defendant might have produced a better result. Such evidence was not sufficient to make out a case for the plaintiff.

The judgment of the trial court for the defendant was therefore affirmed—*Jensen v Findley (Calif)*, 62 P (2d) 430.

Society Proceedings

COMING MEETINGS

- Academy of Physical Medicine Philadelphia Oct 19 21 Dr Herman A Osgood 144 Commonwealth Ave Boston Secretary
American Academy of Ophthalmology and Otolaryngology Chicago Oct 10 15 Dr W P Wberry 107 South Seventeenth St Omaha Executive Secretary
American Association for the Study of Neoplastic Diseases Washington D C Sept 9 11 Dr Eugene R Whitmore 2139 Wyoming Ave N W Washington D C Secretary
American Association of Obstetricians Gynecologists and Abdominal Surgeons Hot Springs Va Sept 20 22 Dr James R Bloss 418 Eleventh St Huntington W Va Secretary
American Association of Railway Surgeons Chicago Sept 20 22 Dr Daniel B Moss 547 W Jackson Blvd Chicago Secretary
American Clinical and Climatological Association Baltimore Oct 11 13 Dr Francis M Raekemann 263 Beacon St Boston Secretary
American College of Surgeons Chicago Oct 25 29 Dr George W Cline 40 East Erie Street Chicago Chairman Board of Regents
American Congress of Physical Therapy Cincinnati Sept 20 24 Dr Richard Kovacs 1100 Park Ave New York Secretary
American Hospital Association Atlantic City, N J Sept 13 18 Dr Bert W Caldwell 18 East Division St Chicago Executive Secretary
American Public Health Association New York Oct 5 8 Dr R M Atwater 50 West 50th St New York Executive Secretary
American Roentgen Ray Society Chicago Sept 13 17 Dr Eugene P Pendergrass 3400 Spruce St Philadelphia Secretary
Association of American Medical Colleges San Francisco Oct 24 26 Dr Fred C Zapffe 5 South Wabash Ave Chicago Secretary
Association of Military Surgeons of the United States Los Angeles Oct 14 16 Dr H L Gilchrist Army Medical Museum Washington D C Secretary
Central Association of Obstetricians and Gynecologists Dallas Texas Oct 14 16 Dr Ralph A Reis 104 South Michigan Blvd Chicago Secretary
Clinical Orthopaedic Society, Chicago Oct 14 16 Dr H Eark Conwell 215 Medical Arts Bldg Birmingham Ala Secretary
Colorado State Medical Society Colorado Springs Sept 22 25 Mr Harvey T Sethman 537 Republic Building Denver Executive Secretary
Delaware Medical Society of Wilmington Oct 12 13 Dr W H Spee 917 Washington St Wilmington Secretary
Indiana State Medical Association French Lick Oct 4 6 Mr T A Hendricks 23 East Ohio St Indianapolis Executive Secretary
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Kentucky State Medical Association Richmond Sept 13 16 Dr A T McCormack 532 West Main St Louisville Secretary
Michigan State Medical Society Grand Rapids Sept 27 30 Dr L Fernald Foster 311 Center Ave Bay City Secretary
Mississippi Valley Medical Society Quincy Ill Sept 29 Oct 1 Dr Harold Swanberg 510 Maine St Quincy Ill Secretary
Nevada State Medical Association Ely Sept 24 25 Dr Horace J Brown 120 N Virginia St Reno Secretary
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Oregon State Medical Society Salem Oct 21 23 Dr Morris L Brainerd 1020 S W Taylor St Portland Secretary
Pennsylvania Medical Society of the State of Philadelphia Oct 4 7 Dr Walter F Donaldson 500 Penn Avenue Pittsburgh Secretary
Radiological Society of North America Chicago Sept 13 17 Dr D Childs 607 Medical Arts Building Syracuse N Y Secretary
Vermont State Medical Society St. Johnsbury Oct 14 15 Dr A B Soule Jr Mary Fletcher Hospital Burlington Secretary
Virginia Medical Society of Roanoke Oct 12 14 Miss A V Edwards 1200 East Clay St Richmond Secretary
Wisconsin State Medical Society of Milwaukee Sept 14 17 Mr J G Crownhart 119 East Washington Ave Madison Secretary

Current Medical Literature

AMERICAN

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American J Obstetrics and Gynecology, St Louis

34 1 182 (July) 1937 Partial Index

- *Eclampsia and Its Sequels. Clinical and Follow Up Study of All Cases at Boston Lying In Hospital Over Twenty Year Period. H M Teel and D E Reid Boston—p 12
- Primary Dysmenorrhea. Endocrine Problem. J Kotz and Elizabeth Parker Washington D C—p 38
- Parametrial Fixation Operation for Uterine Prolapse. Technique and Review of 254 Cases. U J Salmon New York—p 58
- *Gonorrhea in Female Treated by Combined Heating Technique. W Bierman and E A Horowitz New York—p 68
- Analysis of 521 Cases of Twin Pregnancy. I Differences in Single and Double Ovum Twinning. A F Guttmacher Baltimore—p 76
- *Treatment of Obstructed Fallopian Tubes in Sterility by Diathermy and Tubal Insufflation. M E Mintz New York—p 93
- Granulosa Cell Carcinoma of Ovary in a Child of Three Years and Nine Months. M V Anderson and E A Sheldon Los Angeles—p 119
- True Hermaphroditism in Man with an Endocrinologic Study. R R Huggins M Cohen and B Harden Pittsburgh—p 136
- Uses and Limitations of Roentgen Pelvimetry. H Thomas New Haven Conn—p 150
- Missed Abortion. Hematoma Mole. E C Sage Omaha—p 163
- Atelectasis as Complication of Obstetric Analgesia. G R Cheatham Endicott N Y—p 166
- Incidence of Trichomonas Vaginalis Infections. S B Potter Denver—p 169

Eclampsia and Its Sequels—Teel and Reid present a study of 173 patients with eclampsia who were treated at the Boston Lying-In Hospital from 1915 through 1934. The uncorrected mortality was 26.6 per cent. The mortality for patients who had attended the clinic prior to the development of eclampsia was less than for those admitted as an emergency measure. The mortality was higher in multiparas than in primiparas and was also higher in patients more than 30 years of age. Of the 127 survivors of eclampsia, eight have subsequently died, three of recurrent pregnancy toxemias, two of severe hypertension with cerebral lesions, one of cardiac decompensation, one of lobar pneumonia complicated by hypertension and possibly chronic nephritis, and one of cancer of the cervix. In eighty patients who survived the eclampsia and who have been followed for more than from one to twenty-one years (average 7.6 years) the incidence of hypertension was 27.5 per cent and the incidence of albuminuria 8.75 per cent. Evidence of significantly impaired renal function was found in only one case. A significant number of these patients had hypertensive disease or nephritis prior to the eclampsia, and both the immediate and the remote outlook for them was considerably poorer than for those known to have been normal before the eclampsia. In the twenty-nine patients followed who were known to have been healthy prior to the eclampsia, the incidence of subsequent hypertension was 10.3 per cent and that of albuminuria was nil. Such symptoms as were encountered at follow up examination were largely explicable on the basis of hypertensive disease.

Gonorrhea in Female Treated by Combined Heating Technique—The procedure that Bierman and Horowitz now follow in the treatment of gonorrhea in women is first to elevate the systemic temperature by short wave currents while the patient lies in a cabinet heated by electric lamps. After the systemic temperature has been elevated to about 106 F they apply the additional local heating to the pelvis, principally by means of diathermy, supplemented for an hour or two by ultra-short waves. At the same time the systemic temperature is maintained at its elevated level. The treatment (121 cases during the last six years) is strenuous and not without danger. It is a hospital procedure. Adequate apparatus, trained personnel and continuous watchfulness are necessary. Physically induced fever is combined for six hours with pelvic diathermy and for two hours with pelvic short waves, so as to produce

a vaginal temperature of about 109 to 110 F, while the body temperature is held between 105.5 and 106.5 F and continued for a period of about twelve hours. While usually from one to three such treatments may be required to eradicate all gonococci, the average number found to be necessary in the authors' last series of fifty-four patients was 1.4 per patient.

Treatment of Obstructed Fallopian Tubes in Sterility—Mintz finds that diathermy treatment combined with insufflation exerts a reparative influence on some chronically diseased tubes, leading to the restoration of patency, and is followed by pregnancy in many instances. The beneficial effects of diathermy are produced by the action of heat. The heat is generated by a high frequency current passing through the tissues between two metal electrodes, the greatest concentration of heat being near the smaller electrode. Of the forty-four patients treated, patency was reestablished to some degree in twenty-five, nine of whom became pregnant and gave birth to normal children. Ectopic pregnancy occurred in two patients, necessitating operation. In fourteen instances no pregnancies have been noted as yet. Each patient received diathermy treatments from one to three times a week, the total ranging from fifteen to fifty-nine treatments. Each treatment lasted from thirty to forty-five minutes, and from 2,500 to 3,000 milliamperes of current with the abdominal and sacral electrodes was used. When the abdominal and vaginal electrodes were used, the current employed was from 2,000 to 2,500 milliamperes. The electrodes were a concave vaginal electrode, and for the abdomen and sacrum ordinary Cook's malleable tin metal, 5 by 8 inches long, 22 gage.

Am J Roentgenol & Rad Therapy, Springfield, Ill

37 721 866 (June) 1937

- Roentgen Kymography of Respiratory Movements of Thorax. Diaphragm. Lungs. Bronchi and Mediastinal Structures. W G Scott and S Moore St Louis—p 721
- Inflammatory Diverticula of Pericardium (Encapsulated Pericardial Effusion). L Freedman Cleveland—p 733
- *Roentgenologic Diagnosis of Cardiac Compression Due to Pericardial Scar (Adhesive Pericarditis). E Freedman Cleveland—p 739
- Obstruction at Uretropelvic Junction Due to Aberrant Blood Vessels. C A Waters Baltimore—p 756
- Roentgen Studies of Shoulder. C W Blackett and T R Healy Boston—p 760
- Posterior Subacromial Dislocation of Head of Humerus. M A Thomas, Cleveland—p 767
- Osteopathia Condensans Disseminata. Spotted Bones. Report of Case. J M Lowrey and J H R Booth Baltimore—p 774
- Nonparasitic Cyst of Spleen with Especial Reference to Roentgenologic Aid in Diagnosis. M Ostro and H B Makover Baltimore—p 782
- Phrygian Cap Deformity of the Gallbladder. W H Meyer R F Carter and L H Meeker New York—p 786
- Care of the Cancer Patient. E E Downs H Wammock and R T Artman Philadelphia—p 790
- *Changes in Lungs and Pleura Following Irradiation of Extrathoracic Tumors. C K Hsieh and H T Kimm Peiping China—p 802
- Spatial Distribution of Radiation from Supervoltage Roentgen Tube and Its Significance in Therapy. K E Corrigan and B Cassen Detroit—p 811

Roentgenologic Diagnosis of Cardiac Compression—Freedman points out that the roentgen diagnosis of cardiac compression due to pericardial scar tissue formation is made by the utilization of several signs the most conclusive of which is the pericardial calcification. Aside from the latter only the finding of several of the individual signs justifies one in making an unequivocal diagnosis. The roentgenoscopic examination is of greater importance than the roentgenographic because important respiratory changes in the position and configuration of the heart and diaphragm can be elicited with ease. The knowledge of the clinical history is important, because it leads to a search for some of the signs which are not obvious and have to be elicited. One of the most important signs is the marked discrepancy between the clinical symptoms of cardiac decompensation and the absolutely or relatively small shadow of the heart. A marked enlargement of the cardiopericardial shadow is rare. The cardiac configuration is variable. The triangular heart is common, while others show an abnormal bulging on either the left or right contour. The cardiac pulsations are abnormal. They are either diminished in amplitude or absent throughout the entire heart or throughout certain sections as seen by roentgenoscopy and by kymographic studies. Similarly, abnormal pulsations can be found in pericardial effusions and in cases of decompensation due to cardiac dilatation. However, the compressed heart is rarely large enough to suggest

either of these two conditions. The lack of plasticity and the presence of fixation of the heart are determined by examination during the inspiratory and expiratory stage with the patient in the erect postero-anterior and lateral positions and in both lateral recumbent positions in the postero-anterior direction. Calcification of the pericardium, the most conclusive single sign, is present in only the minority of cases.

Changes in Lungs and Pleura Following Irradiation—In fifty-one consecutive patients with malignant tumors of the thoracic wall treated intensively by means of x-rays, radium and radon, Hsieh and Kimm observed that definite roentgenographic evidence of postirradiation changes was demonstrated in the lungs and pleura of twelve patients. The series included forty-seven cases of carcinoma of the breast, two cases of recurrent fibrosarcoma of the back, one case of hemangioendothelioma of the supraclavicular region and one case of recurrent fibrosarcoma of the upper part of the wall of the chest. The postirradiation changes were all observed in patients treated for carcinoma of the breast. These changes included pleural thickening, increased lung markings, contraction of the lung and shifting of the mediastinum. The postirradiation changes were believed to be due to a late fibrous tissue reaction following a more acute congestive change, and to be comparable to the irradiation reaction which may occur elsewhere in the body. Acute congestive reactions, as evidenced by pleural effusion soon after the irradiation, were observed in two cases. Chronic pulmonary tuberculosis, the infiltrative type of pulmonary metastasis and interstitial pneumonia were considered in the different diagnosis. In all the cases in which definite changes occurred in the lungs and pleurae signs, symptoms and laboratory evidence of the foregoing diseases were not encountered.

Am J Syphilis, Gonorrhea and Ven Dis, St Louis

21 357-474 (July) 1937

Visceral Pathology in Haitian Treponematoses C V Weller Ann Arbor Mich—p 357

Value of Present Therapeutic Methods in Control of Communicability of Gonorrhea and Suggestions for Clinical Study P S Pelouze Philadelphia—p 370

*Medical Shock Following Intravenous Therapy with Neosarsphenamine Report of Three Cases T Weinberg Baltimore—p 376

Oral Administration of Potassium Bismuth Tartrate in Treatment of Experimental Syphilis of Rabbits with Note on Gastric Chemistry of Rabbits J A Kolmer and H Brown with assistance of Anna M Rule Philadelphia—p 387

Treatment of Syphilis with Mapharsen L E Schmidt and G G Taylor Chicago—p 402

Modification of Eagle Flocculation Test for Syphilis J H Strauss Baltimore—p 406

Studies in Cardiovascular Syphilis. III Effect of Occupation on Incidence and Type of Syphilitic Aortitis K D Cochems and J E Kemp Chicago—p 408

*Divided Doses of Typhoid H Antigen Vaccine in Treatment of Neurosyphilis G V Kulchar San Francisco and L E Anderson Philadelphia—p 413

Results of Bilirubin Test for Liver Function on Patients Recovered from Arspenamine Jaundice A D Campbell and L J Soffer Baltimore—p 420

Shock Following Intravenous Neosarsphenamine—Weinberg presents three cases of shock following intravenous therapy with neosarsphenamine. All three patients exhibited a typical clinical picture of shock. The first two patients remained in shock for about six hours each, while the third patient maintained this state for about six days. All three were admitted to the wards with palpable peripheral pulses and unobtainable blood pressures. Patients 1 and 2 at first presented signs and symptoms characteristic of the nitritoid crisis, but none of the three responded in the least to epinephrine or similar stimulants. They did, however, respond well to the usual shock therapy, patients 1 and 3 receiving intravenous fluids, while patient 2 was treated with heat to the extremities and oxygen. Patients 1 and 2 presented marked cyanosis. All three suffered from persistent vomiting and cold sweats with cold clammy skins. Patients 2 and 3 showed marked increase in the concentration of hemoglobin and erythrocytes in the peripheral blood. The nonprotein nitrogen determination was greatly increased in patient 1 seven days after admission. All three showed an elevation in temperature during the first few days, and this, accompanied by nausea and vomiting has been described by Boardman as in itself a characteristic sign of intolerance to arspenamine and its derivatives. The mechanism of the production of shock in general and by the arspenamines

in particular is discussed briefly. It is suggested that arsenoxide plays a part in this toxic manifestation, but in addition there appears to be an α factor yet to be discovered.

Typhoid H Antigen Vaccine in Treatment of Neurosyphilis—Kulchar and Anderson used typhoid H antigen in the treatment of thirty-eight unselected patients (nine women and twenty-nine men) with various forms of neurosyphilis. All except two patients had previously received considerable amounts of antisyphilitic treatment, and fever therapy seemed indicated because of the unsatisfactory clinical or serologic response. The H antigen suspension was prepared by adding 0.5 per cent phenol in physiologic solution of sodium chloride to a twenty-four hour broth culture of motile typhoid bacilli. On filtration the somatic (O) antigen is blocked off, resulting in a water-clear saline filtrate containing the flagellar (H) antigen. The filtrate is standardized so that each cubic centimeter contains the flagellar antigen obtained from two billion typhoid bacilli. A preliminary dose of from forty to fifty million organisms (killed bacilli equivalent) was given intravenously by means of a 26 gage hypodermic needle. Usually, but not always, a moderate chill lasting from ten to thirty minutes occurred from one to two and one half hours after the injection, at which time the patient was closely wrapped in woolen blankets and the temperature taken every half hour until it returned to normal. Increase in temperature usually began at the time of the chill and required from two to three hours to reach its peak, which varied between 103 and 105.6 F. The temperature remained at the maximal level from one half to one hour, following which it gradually declined, returning to normal in from six to twelve hours. The rise in temperature was accompanied by an increase in pulse rate, never above 120 per minute. Except for the feeling of warmth, the patients were fairly comfortable for the most part. Sedatives of the barbiturate series were used to control any unusual restlessness during the period of fever. The doses for subsequent injections were determined by the febrile response to the preceding dose. The increases varied from 25 to 600 million per injection. After the first day, doses were divided into two portions, the second injection of the slightly lower dosage being given as soon as the temperature started to rise. Fever was induced daily by this method until the patient had received a total of from ten to eighteen days of treatment, a day of rest usually being given after each six days of fever. Each day as the temperature returned to normal the patients were allowed up about the ward. Aside from the slight loss of weight and the frequent occurrence of herpes labialis, no ill effects were observed and the patients were able to leave the hospital two or three days after completing treatment. Patients were observed for periods varying from five to twenty six months after receiving fever therapy. There were 28.5 per cent of reversals and 57.1 per cent of instances of marked improvement in the spinal fluid formula. This compares favorably with the 36.7 per cent reversals and the 20.7 per cent instances of improvement in the spinal fluids reported by Solomon and Epstein following malarial therapy. Fever therapy with typhoid H antigen provides a method that may be carried out in the home by a nurse under the supervision of a physician.

Anatomical Record, Philadelphia

68 393-506 (July) 1937

Functional Differentiation of Hepatic Cells of Chick Embryo A J Dalton Cleveland—p 393

Description of the Brain of a Human Cyclopic Monster F A Mettler and Cecilia C Mettler Augusta Ga—p 411

Innervation of Suprarenal Glands C A Swinyard Minneapolis—p 417

Functional Transplants of Primordium of Epithelial Hypophysis in Amphibia W J Atwell Buffalo—p 431

Origin of Entodermal Cells from Primitive Streak of the Chick Embryo T E Hunt University Ala—p 449

Pigment Cells in Heterogenous Feathers C H Danforth Palo Alto Calif—p 461

Weights and Linear Measurements of Digestive System of Adult Canis H B Latimer Lawrence Kan—p 469

Effect of Progesterone on Growth Response of Uterus to Chronic Dose S R W Reynolds Brooklyn and W M Allen Rochester N Y—p 481

Tables for Normal Development of Rana Sylvestris A W Felt and J A Moore New York—p 489

Comparison and Rate of Testicular Degeneration in Rats After Cryptorchidism and Hypophysectomy S L Leonard and J B Hirsch Albany N Y—p 497

Archives of Neurology and Psychiatry, Chicago

38 1238 (July) 1937

- Vascular Architecture of Lesions of Multiple Sclerosis T J Putnam and Alexandra Adler Boston—p 1
- Relationship of Autonomic Nervous System to Pathogenesis of Epilepsy K Orzechowski Warsaw Poland—p 16
- Lissauer's Dementia Paralytica Study of Its Pathogenesis N Mala mud Ann Arbor Mich—p 27
- Combined System Diseases in Tabes Dorsalis C Davison and H Kelman New York—p 43
- *Unsteadiness of Heart Rate in Psychotic and Neurotic States J C Whitehorn and Helen Richter Waverley Mass—p 62
- Aggression and Anxiety in Determination and Nature of Manic Attacks N L Anthomisen Waverley Mass—p 71
- The Mood—Content Problem and Thymonic Reactions W Muncie and P White Baltimore—p 90
- Stain for Myelin Sheaths in Tissues Embedded in Paraffin G S Mahon New Haven Conn—p 103
- Unilateral Cerebral Dominance as Related to Mind Blindness Minimal Lesion Capable of Causing Visual Agnosia for Objects J M Nielsen Los Angeles—p 108
- Contribution to the History of Narcolepsy H A Cave London Ont—p 136

Unsteadiness of Heart Rate in Psychotic and Neurotic States—Whitehorn and Richter find that psychotic patients, even when reacting with so-called affective behavior in a personal interview, maintain a steadiness of heart rate greater than that of normal subjects, whereas neurotic patients tend toward a greater unsteadiness of heart rate. The average unsteadiness of heart rate as measured by the percentage change per beat was 29 per cent for the psychotic patients, 6 per cent for the neurotic patients and 44 per cent for the normal subjects. The different groups overlap each other. Another point of distinction which rates psychotic persons as less variable is brought out by the comparison of the amplitude of waves on the heart records. On the basis of this comparison of wave amplitudes, normal and neurotic persons are nearly alike.

Archives of Ophthalmology, Chicago

18 1192 (July) 1937

- Retinal Tumors in Tuberculous Sclerosis Review of Literature and Report of Case with Especial Attention to Microscopic Structure H C Messinger and B E Clarke Providence R I—p 1
- Secondary Cataract, with Particular Reference to Transparent Globular Bodies A Cowan and W E Fry Philadelphia—p 12
- Sketch of Early Days of Ophthalmology in Philadelphia B Chance Philadelphia—p 23
- *Suggestions for Prevention of Ocular and Aural Sequels of Meningococcal Meningitis W P Eagleton Newark N J—p 46
- Adenocarcinoma of a Meibomian Gland Report of Additional Cases A Hagedoorn Amsterdam Netherlands—p 50
- Use of Sucrose Preparatory to Surgical Treatment of Glaucoma Preliminary Report E W Dyar and W B Matthew Indianapolis—p 57
- Hypersensitivity to Pontocaine Report of Case R L Pfeiffer New York—p 62
- Repair of Choroidal Detachment Report of Case L Bothman Chicago—p 65
- Embryotoxon Corneae Posterioris Axenfeld Review of Literature and Report of Case F Bloch New York—p 68
- Retinal Detachment Due to Allergy Report of Case L H Prewitt Ottumwa Iowa—p 73
- Effect of Cystene Hydrochloride on Conjunctiva J G Bellows Chicago—p 76
- Human Autonomic Pharmacology IX Effect of Cholinergic and Adrenergic Drugs on the Eye A Myerson and W Thau Boston—p 78
- Tumor of Optic Chiasm and Optic Nerves Report of Case J M Levitt Brooklyn—p 91
- Treatment of Carotid Artery Cavernous Sinus Fistula Report of Case J Browder Brooklyn—p 95
- Pathogenesis of Unilateral Exophthalmos E B Spaeth Philadelphia—p 107

Prevention of Sequels of Meningitis—Eagleton suggests that physicians attempt to prevent the ocular sequels of meningococcal meningitis by treating the various lesions causing the ocular disturbance at the site of the embolic infarction in a manner similar to that now employed in the treatment of suppurative meningitis. The optic nerve is involved as a perineurosis. There is no papilledema from pressure. The impairment of hearing associated with pyogenic meningitis is due to effusions in the arachnoid space, the deafness is never complete, because the eighth nerve withstands pressure well. On the other hand, the deafness associated with meningococcal meningitis is generally complete, because the disease involves the vessels of the nerve tissue itself either in the labyrinth or in the brain. With the embolic process of meningococcal infection, nystagmus is present for some time immediately after the invasion of the labyrinth. The author suggests that the

therapist from the beginning of meningococcal meningitis try to differentiate (1) embolic lesions of the blood stream (such as the intra-ocular effusions) from (2) those due to cerebral meningoencephalitis, and that serum be applied as near the site of the lesion as is possible. In cases in which there is vertical nystagmus, putting serum into the basal cistern should be tried as in all such cases up to the present time the condition has terminated fatally. If emboli lodge in the eyeball the injection of serum into the anterior chamber or even into the vitreous might be tried, as in all such cases the condition ends in blindness and is known to be of blood vessel origin. Increased intracranial pressure due to meningococcal meningitis can be relieved surgically.

California and Western Medicine, San Francisco

47 172 (July) 1937

- Education of a Dermatologist T J Clark Oakland—p 7
- Health Department Remedies for Sick Housing J C Geiger San Francisco—p 9
- Peripheral Vascular Disturbances Evaluation of Methods for Their Study A H Elliot R D Evans C S Stone and P A Gray Santa Barbara—p 13
- Management of Postoperative Pain S H Bahington Berkeley—p 23
- Natural Gas Its Physiologic Action D B Tyler and D Drury Los Angeles—p 25
- Pathogenesis of Orogenous Cerebellar Abscess Study of Sixteen Cases Verified at Autopsy C B Courville and J M Nielsen Los Angeles—p 29

Colorado Medicine, Denver

34 441 552 (July) 1937

- Modern Trends in Interpretation of Pulmonary Tuberculosis H J Corper Denver—p 458
- Pain and Pain Equivalents in Anginal Syndrome C T Burnett Denver—p 464
- Antigenic Studies of Polysaccharides Isolated from Pollen W C Ser vice Colorado Springs—p 468
- Normal Standards for Red Blood Cell Values in Colorado E R Mugrage and Marjory I Andresen Denver—p 473
- *Verruca with Description of Recently Introduced Treatment J G Hutton Denver—p 478
- Recent Trends in Obstetrics G H Phelps Cheyenne Wyo—p 484
- Injection Treatment of Inguinal Hernia R J Boesel Cheyenne Wyo—p 487

Verruca—Hutton introduces a new method for the treatment of warts, which consists of the injection of a small amount of some sclerosing agent into the base of the wart. The injection is made with a tuberculin syringe and a fine gage needle and is accompanied by a surprisingly small amount of pain. After a few days the wart becomes dry and hard very much like a callus and after ten days, two weeks or longer, depending on the size of the wart and the thickness of the surrounding skin, the wart comes off or can be trimmed off, leaving a practically normal skin underneath. The following solutions have been used: quinine and urethane, 50 per cent invert sugar, equal parts of 50 per cent dextrose and 30 per cent sodium chloride, sodium morrhuate and potassium oleate. The heavier solutions have a distinct advantage in that they remain localized at the point of injection with less infiltration of surrounding tissue and therefore cause less pain. This increased localization seems also to increase the chance of curing the wart. The sclerosing solution should be injected into the wart rather than into the corium or the subcutaneous tissues underneath the wart. This aids greatly in keeping the injected solution localized by preventing infiltration into the surrounding tissue and minimizing not only the pain but also the resulting reaction within the tissues produced by the foreign substance.

Illinois Medical Journal, Chicago

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- Medicine at the Crossroads R L Green Peoria—p 59
- Present Problems in Preventive Medicine E A Thacker Urbana—p 63
- Industrial Hygiene Its Historical Development and Modern Campaign M H Kronenberg Chicago—p 66
- Convalescent Blood in Typhoid Fever G D J Griffin Chicago—p 70
- Typhoid Fever and Diphtheria in Illinois F J Jirka Springfield—p 74
- Use of Ergotamine Tartrate in Treatment of the Tabetic Bladder E Palmer and J T Gernon Chicago—p 77
- Mesenteric Vascular Occlusion Report of Case of Complete Occlusion of Superior Mesenteric Artery with Involvement of Practically the Entire Small Intestine M S Underhill Evanston—p 84
- Organic Inferiority or Allergic Conditions in Surgery and Gynecology W W Vogt Chicago—p 87
- Impotence and Its Medical Treatment L M Beilin Chicago—p 89

Indiana State Medical Assn Journal, Indianapolis

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- Protamine Insulin in Treatment of Diabetes Mellitus J H Warvel and M R Shafer Indianapolis—p 325
Scarlet Fever Gladys R Dick Chicago—p 332
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Insulin Shock Treatment of Schizophrenia H Nisenbaum Evansville—p 341
Some Problems of Surgical Diagnosis and Treatment Interesting Case Reports P G Skillern South Bend—p 343

Iowa State Medical Society Journal, Des Moines

27 279 398 (July) 1937

- Recent Views of Senile Cataract S R Gifford Chicago—p 279
Head Specialties Everyday Practice T R Gittins Sioux City—p 281
Present Trends in Pulmonary Diagnosis and Therapy C E Harris Grinnell—p 288
Frequency of Syphilis and Neurosyphilis in Chronic Alcoholism R A Stenart Independence—p 291

Johns Hopkins Hospital Bulletin, Baltimore

61 174 (July) 1937

- *Lesions of Lead Encephalitis in Children S S Blackman Jr Baltimore—p 1
Production of Hyaline Arteriosclerosis and Arteriolonecrosis by Means of Proteolytic Enzymes A R Rich and G L Duff Baltimore—p 63

Lead Encephalitis in Children—Blackman describes twenty-two cases, all occurring in children, in which the evidence of lead poisoning was clear in each instance. In most cases lead was ingested by nibbling painted articles, usually furniture. Paint may be swallowed in this manner for many months (from five to eighteen months in this series) before the onset of neurologic disturbances. Lesions are found throughout the entire central nervous system. They are most abundant in the cerebral hemispheres and cerebellum. All the changes are patchy in distribution, but examination of many sections shows the presence of numerous lesions. The microscopic changes are those of a serous inflammation. Vascular lesions are found, including capillary necrosis and thrombi, together with abundant exudate, tissue damage and evidence of repair. Most of the injury to the nervous tissue seems dependent on the accumulation of exudate. Fresh serous exudate and the older droplets cause distortion of the architecture of the brain, depending on the location and quantity of the fluid. Fields in the gray and white matter diffusely saturated with exudate contain many damaged and necrotic nerve and glial cells, and there is marked tearing and necrosis of fibers. In patients who recover after the initial convulsions, functional disorders varying from mental retardation to spastic paralysis may be expected, depending on the intensity and location of the injuries. Microscopically, there is a corresponding loss of tissue in the gray and white matter of the brain and cerebellum. Remnants of old coagulated exudate are found, basophilic in appearance like calcium, and basophilic plaques in the walls of blood vessels.

Journal of Bacteriology, Baltimore

34 1138 (July) 1937

- Comparison of Germicidal Efficiency of Hypochlorites of High and Low Alkalinity S M Costigan Philadelphia—p 1
Fermentation of Propylene Glycol by Members of *Escherichia* Aerobacter Intermediate Groups K P Dozois G A Lee C J Carr F Hachtel and J C Krantz Jr Baltimore—p 9
Disimulation of Organic Acids by *Aerobacter* Indologenes H Reynolds B J Jacobson and C H Werkman Ames Iowa—p 15
Studies on Hemolytic Streptococci IV Streptococcus Scarlatinae Alice C Evans Washington D C—p 21
Appearance of Double Zone Beta Hemolytic Streptococci in Blood Agar J H Brown Baltimore—p 35
Dissociation in *Bacillus Salmonicida* with Especial Reference to Appearance of a G Form of Culture D C B Duff Vancouver B C—p 49
Correlated Antigenic and Biochemical Properties of Staphylococci R Thompson and Deborah Khoraz New York—p 69
Influence of Salts in Diet on Intestinal Flora of Albino Rat E S Eppright G Valley and A H Smith New Haven Conn—p 81
*Practical Classification of Monilias D S Martin C P Jones K F Yao and L E Lee Jr Durham N C—p 99

Classification of Monilias—Martin and his colleagues studied 153 unidentified strains of *Monilia* isolated from various sources and compared them with nineteen "known" species types obtained from other investigators. They classified 150 of these organisms into one of six species. The methods used in classification are comparatively simple and the criteria on

which identification is based are easily recognizable and the technic described is rigidly followed. An outline of the procedures necessary for identification is as follows. The fungus is isolated on Sabouraud's dextrose agar slant, transplanted to Sabouraud's dextrose acid broth and incubated at 37 C for forty-eight hours. After the type of surface growth has been noted, the tube is shaken to suspend the sedimented organisms and streaked on a beef extract blood agar plate of pH 7.4, which is incubated at 37 C for ten days, the type of colony is noted, and a well isolated colony is picked and transplanted to a Sabouraud dextrose agar slant. This is incubated at room temperature or 37 C for twenty-four or forty eight hours. Some of the growth is transplanted to a carrot plug, which is kept at room temperature and subsequently examined for ascus. The rest of the material is streaked on the surface of a beef extract agar slant pH 7.4. The growth is subcultured on this medium for two or three generations and a loopful is streaked on a corn meal agar slide culture, which is incubated at room temperature in a moist sterile chamber for several days. The slide is then fixed, stained and examined microscopically for details of mycelial growth. Four beef extract broth tubes, containing 1 per cent of dextrose, sucrose, lactose and maltose respectively, are inoculated with a pipet containing a saline suspension of the last transplant of the fungus on the beef extract agar slant.

Journal of Clinical Investigation, New York

16 479 684 (July) 1937

- Effect of Heating with Alkali on Calorigenic Activity of Desiccated Thyroid and of Thyroxine W O Thompson Phebe K Thompson S G Taylor 3d and Lois F N Dickie Chicago—p 479
Magnesium Metabolism in Health and Disease I Magnesium and Calcium Excretion of Normal Individuals Also Effects of Magnesium Chloride and Phosphate Ions Dorothy M Tibbitts and J C Aub Boston—p 491
Id II Effect of Parathyroid Hormone Dorothy M Tibbitts and J C Aub Boston—p 503
Id III Exophthalmic Goiter Basophilic Adenoma Addison's Disease and Steatorrhea Dorothy M Tibbitts and J C Aub Boston—p 511
Studies in Temperature Sensation I Comparison of Sensation Produced by Infra Red and Visible Radiation T W Oppel and J D Hardy New York—p 517
Id II Temperature Changes Responsible for Stimulation of Heat End Organs T W Oppel and J D Hardy New York—p 525
Id III Sensitivity of Body to Heat and Spatial Summation of End Organ Responses J D Hardy and T W Oppel New York—p 531
*Acute Mountain Sickness Effect of Ammonium Chloride E S G Barron Chicago D B Dill, H T Edwards Boston and A Hurtado Lima Peru—p 541
Use of Ferrous Gluconate in Treatment of Hypochromic Anemia P Reznikoff and W F Goebel New York—p 547
*Rheumatic Fever as Familial Disease Environment Communicability and Heredity in Their Relation to Observed Familial Incidence of Disease May G Wilson and M D Schweitzer New York—p 553
Splenic Vein Pressure in Congestive Splenomegaly (Banti's Syndrome) W P Thompson J L Caughey A O Whipple and L M Rouss New York—p 571
Studies of Principle in Liver Effective in Pernicious Anemia II Therapeutic Activity of Its Multiple Factors B M Jacobson and I Subbarow Boston—p 573
Vitamin C Saturation Levels in Body in Normal Subjects and in Various Pathologic Conditions P Finkle New York—p 587
Studies on Elastic Properties of Human Isolated Aorta P Hallock and I C Benson Minneapolis—p 593
Calcium and Phosphorus Metabolism in Osteomalacia V Effect of Varying Levels and Ratios of Calcium to Phosphorus Intake on Their Serum Levels Paths of Excretion and Balances in Presence of Continuous Vitamin D Therapy S H Liu C C Su S K Chou H I Chu C W Wang and K P Chang Peiping China—p 603
Studies in Iron Transportation and Metabolism I Chemical Methods and Normal Values for Plasma Iron and Easily Split Off Blood Iron C V Moore with technical assistance of W R Arrowood J J Quilligan Jr and J T Read Columbus Ohio—p 613
Id II Mechanism of Iron Transportation Its Significance in Iron Utilization in Anemic States of Varied Etiology C V Moore C A Doan and W R Arrowood Columbus Ohio—p 627
Result of Intra Arterial Injection of Vasodilating Drugs on Circulatory Observations on Vasomotor Gradient E V Allen and G R Crile Rochester Minn—p 649
Validity of Calculation of Standard Urea Clearances from Low Urine Volumes L C Chesley Jersey City N J—p 653

Effect of Ammonium Chloride in Mountain Sickness—Barron and his associates consider the disturbances produced as a consequence of rapid ascents to high altitudes. The alveolar air and the arterial oxygen saturations which they determined in subjects suffering from mountain sickness revealed only that in rapid ascents up to 4,700 meters the development of mountain sickness has no simple dependence on the arterial oxygen saturation and the alveolar oxygen pressure. Arterial

nium chloride offers a handicap rather than an advantage (Haldane) in acclimatization. Since mountain sickness may be due to diminished oxygen utilization by certain tissues, the factors concerned with the maintenance of a suitable oxygen supply to the tissues are the vascular oxygen transport system (blood hemoglobin), the efficiency of which is regulated by the arterial oxygen capacity and saturation and by the alveolar oxygen, and the tissue oxygen transport system (myoglobin and part of the cytochrome complex), the efficiency of which is regulated by the blood flow, the state of the capillaries and the like. Since mountain sickness may occur when the vascular oxygen transport system is still within normal limits, it is suggested that the tissue oxygen transport system plays an important part in determining the appearance of mountain sickness, because it contains and transports the molecular oxygen, which will be immediately utilized by the oxidizing enzymes, i. e., the enzymes concerned with cellular respiration.

Rheumatic Fever as Familial Disease—From the genetic analysis of their data (112 families observed from three to eighteen years) Wilson and Schweitzer conclude that the susceptibility for rheumatic fever is transmitted as a single autosomal recessive gene. This may be said with some assurance, since it is based on quantitative agreement between observed incidence and the value predicted from this hypothesis. A consideration of penetrance is of importance in diseases in which hereditary factors play a part. In the case of a recessive disease, the best method of estimating penetrance is from the progeny of positive parents. In the authors' series, four families in which both parents were positive had fifteen siblings. Of these, thirteen were rheumatic. Of the remaining two children, one is now 7 years old and the other is 15. The penetrance is therefore 86 per cent. Of thirteen additional siblings examined in five similar matings, ten were rheumatic, taking all these cases together there is a penetrance of 82 per cent. The failure of a dominant factor to be expressed in any generation may be attributed to poor penetrance. The high penetrance observed in families of positive parents in these families excludes this possibility for the authors' cases. If penetrance is found to be lower in different geographic localities or economic groups, or following particular changes in the environment, important progress will be possible in the prevention of this disease. In clinical investigation it would be advisable to select not a sample of the general population but a series of subjects whose genetic constitutions are known. The evaluation of the efficacy of proposed treatment would be the ratio of positives in the series compared with the predicted incidence for their known genetic background. Accepting the hereditary transmission of a susceptibility to rheumatic fever, it is interesting to consider whether every susceptible individual will necessarily develop rheumatic fever, or whether the development of the disease is dependent on other factors. From what is known of the disease, it is more likely that other contributing factors are involved, such as environment and exposure. Should comparable studies of the familial incidence of rheumatic fever in families of the well-to-do, living under more favorable climatic conditions, reveal a diminished incidence of the disease among susceptible individuals of the family, a preventive therapeutic method would be available in this disease. There was no direct relation between the type and source of exposure and the resulting activity. The incidence of rheumatic fever following "active exposure" and "inactive exposure" was comparable. Intimate contact ("familial exposure") and casual contact ("extrafamilial exposure") were equally effective.

Journal of General Physiology, New York

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- Apparent Distortion of Brief Rectangular Electrical Stimuli in Nerve H A Blair Rochester N Y—p 787
Immunologic Studies on Pepsin and Pepsinogen C V Seastone and R M Herriott Princeton N J—p 797
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Do Melanophore Nerves Show Antidromic Responses? G H Parker Cambridge Mass—p 851
Phase Rule Study of Proteins of Blood Serum Effect of Changes in Certain Variables E Jameson San Francisco—p 859
Biogenesis of Primary Sex Hormones I Fate of Estrus Injected into Rabbit G Pineus and P A Zahl Cambridge, Mass—p 879

Journal of Lab and Clinical Medicine, St Louis

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- Amebic Dysentery Analysis of Laboratory Data from 400 Cases R H Kampmeier and E H Hinman New Orleans—p 985
*Role of Vitamin B₁ in Cardiovascular Diseases Preliminary Report W A Jones and B Sure Fayetteville Ark.—p 991
Gastric Achylia Study of Electrolytes of Gastric Juice M H Streicher R Snyder S Liehman and R W Keeton Chicago—p 1003
*Second Attack of Meningococcal Meningitis with Recovery Two Cases H W Schaffer and J T Freeman Philadelphia—p 1010
Normal Urinary Iodine of Man G M Curtis I D Puppel Versa V Cole and N L Matthews Columbus Ohio—p 1014
Variations in Toxicity of Morphine Sulfate A J Nedzel Chicago—p 1031
Chemical Diagnosis of Pregnancy by Detection of Estrin in Urine II Note on Hydrolysis of Estrin Esters M J Schmulovitz and H B Wylie assisted by J N Cianos Baltimore—p 1037
Rapid and Accurate Methods for Determination of Urea Nitrogen in Blood and Urine by Direct Nesslerization H T Wrenn New York—p 1040
Hippuric Acid Elimination as Test for Liver Function K Yardumian and P J Rosenthal Pittsburgh—p 1046
Studies on Kline Test for Syphilis I Technique of Kline Test on Heated Serum with Especial Reference to Quantitative Aspects A S Wiener Brooklyn—p 1062

Vitamin B₁ in Cardiovascular Diseases—Clinically, the thirty patients with cardiovascular disease whose diet Jones and Sure supplemented with vitamin B₁ were easier to manage, were contented and used less medication than any group they have had under their supervision. With the exception of three patients, all stated that they felt better than they had in years. Respiration average of the thirty patients for the first week was 21 and the average for the last week under treatment was 18½. Pulse rate average for the first week was 89, the last week 79. Blood pressure showed definite improvement, with exception of one case, and the blood pressure gradually increased in this one instance. The patients were walking from two to four miles a day at the time of discharge from the hospital and reported no undue ill effects. Their respiration and pulse rates and blood pressure showed improvement over admission to this hospital after indulging in exercise. Whether this improvement is entirely due to vitamin B₁ therapy or not the authors are unable to say. There were no deaths and the average length of hospitalization was 114 days.

Recovery After Second Attack of Meningococcal Meningitis—The dividing line between relapse and fresh infection is difficult to establish. For practical purposes Schaffer and Freeman consider a patient as recovered when, while ambulant, examination of the cerebrospinal fluid shows a normal number of cells, persistent negative spinal fluid culture under lowered oxygen tension, normal spinal fluid sugar and chloride values, normal temperature and pulse, and absence of abnormal neurologic signs. Newer immunologic agents may yield opportunities for certainty, and active immunization may lower the incidence of second infections as well as primary infections. Since it is not possible at this time to be certain when an infection with the meningococcus is ended, patients who have had the disease must be regarded as potentially liable to additional attacks. In their two cases the second attack of the disease was proved each time.

Journal of Pediatrics, St Louis

11 1156 (July) 1937

- Hypoglycemia A F Hartmann and J C Jaudon, with technical assistance of Marie Morton St Louis—p 1
Diverse Attributes of Healthy Children Report of Progress in Understanding the Normal Child A H Washburn Denver—p 37
*Elevated Temperatures in Childhood Due to Exercise W A Hawke Toronto—p 64
*Care of Skin of the New Born Infant Six Year Study of 3 500 New Born Infants H N Sanford Chicago—p 68
Aural Complications of Pneumonia in Children C E Towson, Philadelphia—p 77
Public Health Methods in Private School Lucy Porter Sutton New York—p 88

Fever Due to Exercise—Hawke bases his remarks on a study of 2,500 temperature readings from thirty children varying from 3 to 14 years of age. The children selected were those with no physical defects other than the common dental or visual abnormalities. Each child had been admitted because of behavior problems due to maladjustment at home or at school. The temperatures were taken rectally at 6 a. m. before

arising, at 11 a m before lunch, at 4 p m before supper and at 8 p m before retiring. In addition to recording the temperature, a note was made of the type of exercise and the activity of the child for an hour or so before his temperature was taken. No specific exercises were given and the children followed out the usual routine of the home. The exercise was, for purposes of analysis, divided into two types: mild, which consisted of school, cinema, council or walking about the wards, and severe, which consisted of sleighing, skating, basket ball and baseball. There is definite proof that exercise will raise the body temperature. The average resting temperature for all the children was 98.2 F and varied from 97.3 to 99.8 F. When the results are considered after mild exercise it is found that the average level was 99.2 F and that 90 per cent of the children had a temperature above 99 F. The average reading after severe exercise was 100.2 F and in 70 per cent of the children more than 100 F. Every child showed some elevation in temperature after exercise. The height reached in most cases depended on the activity of the child, but in a few cases this correlation was not true, and one must suspect some constitutional factor probably involving the heat regulatory centers. The response of the individual to exercise is fairly constant, although occasionally there were marked differences in the readings obtained after similar activities on different days. There is apparently no relation to sex or age and some of the highest values were obtained from children of 12 years or older. In order to see how long the temperature would remain up after exercise, some of the 4 p m readings were checked every thirty minutes until the children were in bed. The time taken for it to fall to 99.2 F, the level of mild exercise, varied with the routine chosen. If the children were allowed to carry on the ward routine, only a few reached that level within sixty minutes and most temperatures were up until bedtime or later. If the children were put to bed at 4 p m, most temperatures reached that level within sixty minutes.

Care of Skin of the New-Born—Owing to the fact that the frequency of skin lesions in the new-born infant is still unknown, Sanford began a study in 1930 by examining the skins of new-born infants at birth and each day thereafter. All lesions of any type were noted. The lesions were classified into three groups: (1) irritations, including all erythematous macules and papules, as erythema toxicum and all forms of intertrigo; (2) pustules, including all vesicles and pustules, as the so called benign pustulosis, impetigo and pemphigus neonatorum; and (3) pustules with exfoliation, that is exfoliative dermatitis, but there was no case of this in the series covering six years. There was no seasonal incidence for either irritations or pustules. There is no apparent relationship between irritations and pustules, that is, an increase in the frequency of irritations does not mean an increase in pustules. There is no doubt that some internal factor acts as a cause of toxic erythema. The incidence appears to be about the same irrespective of the external treatment. It may be that something in the colostrum in the nature of hormones may be responsible, and it has been suggested that this is a pregnancy reaction. Babies with this condition show no other symptoms of any kind. Other erythemas and intertrigo are due to outside mechanical irritations. For the first few days, improperly laundered linen is the commonest cause. After the first week, circumcision was the chief cause of irritations. The skin of some new-born infants is sensitive to the antiseptics used to sterilize the field, and the skin of others is sensitive to the petrolatum used in the dressings. There was but little difficulty with intertrigo. Buttocks reddened from loose stools healed promptly when exposed to air and the heat from an ordinary incandescent bulb at a distance of 20 inches. Irritations caused by rubbing the face with the hands responded quickly after encasing the baby's hands in silk mittens. Nursing technic and the isolation of infants with initial lesions is one of the greatest factors in the control of skin lesions in the new-born. Beginning in 1935, with some hesitation the author decided to leave the skin of the new-born infant entirely untreated. The excess blood was gently wiped off and nothing further was done for nine days. This method has been so satisfactory that it has been continued. The number of irritations is practically the same as it was with the olive oil alone, ammoniated mercury and olive oil,

and ammoniated mercury and water, but the most astounding result was the practical absence of pustules. During the entire year only one pustule was found on one baby. It is apparent, therefore, that the skin of the new-born infant, if left alone and not injured by rubbing with an antiseptic or irritated with washings, tends to clear itself and seems to give some immunity to infection. After the first nine days, olive oil or liquid petrolatum may be used for the daily bath. From a physical standpoint the skin of these new-born infants is much more pink and healthy appearing than is the skin washed with oil or water.

New England Journal of Medicine, Boston

217 45 84 (July 8) 1937

- *Lymphogranuloma Inguinale. Clinical Study of Thirty Cases of Syphilis. Venereal Disease in Natives of New England. E. M. Chapman and E. P. Hayden. Boston—p. 45.
- Surgery of Prostate, Open and Closed, with Especial Reference to Technic. J. F. McCarthy. New York—p. 57.
- Progress in Anesthesia. R. F. Sheldon. Boston—p. 64.

Venereal Lymphogranuloma—In the last three years at the Massachusetts General Hospital and in private practice Chapman and Hayden saw the several manifestations of venereal lymphogranuloma in thirty white persons of all social level, most of whom have never been outside New England. Furthermore, the confusion of this disease with other venereal disease, malignant tumors, tuberculosis, Hodgkin's disease or simple traumatic infection gave them startling evidence that this disease entity is passing unrecognized in white people. These facts predict a wider recognition of a condition that can no longer be regarded as climatic, racial or rare. Venereal lymphogranuloma is venereal in origin, having its onset with a genital lesion that may pass unnoticed, from one to three weeks after exposure. This lesion may be a fleeting herpetic lesion resembling herpes praeputialis, an ulcerative lesion, a nodular lesion or a nongonococcal urethritis, the discharge showing only polymorphonuclear leukocytes without organisms. Nonvenereal and extragenital infections are extremely rare but possible. The thirty patients described had Frei tests positive to human antigen. In the entire group of cases a previous history of gonorrhea was obtained in six and the gonococcus complement fixation test was positive in three. The routine Hinton and Wassermann tests revealed the presence of syphilis in four, only one of these four patients was cognizant of his disease, and he had received some treatment after it was acquired in 1915. In the authors' experience with the acute disease, bed rest, nursing care, local heat applied to the bubo to hasten abscess formation and simple aspiration of the pus are most important in returning the patient as quickly as possible to a useful life. He will, however, continue to harbor the disease. At best, the patient can be told that the disease comes on over a period of weeks, is in full bloom for a few weeks and subsides in the course of the following months or more. The most serious effect of this disease, and the most difficult to treat, is the involvement of the lower part of the rectum and of the vulva and perineum. Surgical incision and drainage are necessary in late cases with fistulas. An instance may occasionally arise in which the perianal infection is so widespread and intractable that colostomy is indicated in an effort to reduce the amount of infection by directing the fecal current from the involved area.

New York State Journal of Medicine, New York

37 1181 1270 (July 1) 1937

- Sequelae of Head Injury. J. Strauss and N. Savitsky. New York—p. 1181.
- Syngomyelia Treated by X-Ray. M. B. Radding. New York and J. A. Forestiere. West New Brighton—p. 1189.
- *Progressive Muscular Dystrophy. Biochemical Endocrine Study. L. Berman. New York—p. 1191.
- Esophageal Obstruction. Seventy Eight Hospital Cases. E. A. S. Brooklyn—p. 1197.

Progressive Muscular Dystrophy—Berman studied certain biochemical characteristics of progressive muscular dystrophy and the response to endocrine therapy intended to affect these biochemical abnormalities. Pathologically not much can be gleaned as to the nature or causation of the disease process. Consequently attention was turned to the study of the metabolic

hism and the regulators of metabolism, the endocrine glands, in these patients. It was at first thought that the seat of the disease was primarily in the nervous system, but the study of the nervous system has failed to reveal changes comparable in extent or gravity with those in the muscles. In the studies conducted by the author, the following metabolic changes have been discovered to be constant characters of the disease: (1) a hypoglycemia, more marked than that which occurs in any other form of myoneural disease, (2) a disturbance of the blood sugar tolerance, (3) a hypocholesteremia and (4) a creatinuria, with a disturbance of creatine tolerance. On the theory that the hormones most definitely involved in the disturbances of sugar and phosphocreatine metabolism in progressive muscular dystrophy were those of the parathyroid and adrenal cortex, parathyroid extract and adrenal cortex extract were administered to twenty-two patients in various stages and ages of the disease. Marked clinical improvement occurred in fifteen: there was a rise in the blood sugar and blood cholesterol and a normalization of the blood sugar tolerance curve together with a reduction in creatinuria and an increased creatine tolerance, signifying an increased ability of the muscles to handle creatine and apparently as a result of the treatment. These observations, correlated with recent studies concerning the relation of the parathyroids to phosphocreatine metabolism and of the adrenal cortex to sugar metabolism in muscle, would seem to indicate that progressive muscular dystrophy represents a muscular dysplasia occurring on a basis of an endocrine dyscrasia centering around a deficiency or imbalance of the parathyroids and adrenals.

Pennsylvania Medical Journal, Harrisburg

40 803 900 (July) 1937

- Venereal Diseases with Particular Reference to Granuloma Inguinale and Lymphogranuloma Inguinale H N Cole Cleveland—p 803
Problems of Posture From the Standpoint of Etiology and Treatment D Silver Pittsburgh—p 809
Considerations in Bowel Surgery C B Rentschler Reading—p 813
*Retropharyngeal Abscess in Children H Dintenfuss Philadelphia—p 817
Chronic Sinusitis Its Relation to Chronic Bronchitis F W Davison, Danville—p 821
Cancer of the Breast D Guthrie and W F Shepherd Sayre—p 826
Gastric Resection with Pylorectomy Method of Choice in Surgical Treatment of Peptic Ulcer H May Philadelphia—p 832
Clinical Management of Preeclampsia and Eclampsia B Harden Pittsburgh—p 835
The Universal Application of Fascia in All Hernias M Behrend Philadelphia—p 837
Bronchoscopy as Treatment of Postoperative Atelectasis J A Perrone, Pittsburgh—p 842
Liver Therapy in Various Anemias and in Case of Hemochromatosis L I Fisher and H A Rothrock Jr Bethlehem—p 846
Unusual Fractures and Their Treatment D Hinton Drexel Hill—p 849
Accurate Localization of Foreign Bodies in the Eyeball C J McCullough Washington—p 852

Retropharyngeal Abscess in Children—Dintenfuss maintains that in all children with acute sore throat and especially with large projecting tonsils a thorough search should be made behind the posterior pillars for the presence of a retropharyngeal abscess. Early diagnosis is important because retropharyngeal abscess is always a dangerous condition, and neglected cases frequently lead to death. Cases have been reported in which death ensued as a result of hemorrhage from erosion of the internal carotid artery and still others in which the jugular vein had become thrombosed with consequent bleeding or sepsis. The bacteriology of retropharyngeal abscess gives evidence that the predominating exciting micro-organism is the hemolytic streptococcus, less frequently the staphylococcus and pneumococcus. A number of conditions should be differentiated from retropharyngeal abscess, chief of which are enlarged thymus, meningitis, laryngeal diphtheria, severe adenitis, foreign body in the larynx, osteomyelitis and tuberculosis of the cervical spine. The treatment of retropharyngeal abscess in the beginning stage consists of the application to the neck of hot moist compresses, which are changed frequently. In addition steam inhalations and hot gargles whenever possible and the injection of nonspecific protein may prove of value. When the stage of suppuration is reached, the one curative treatment is operation. Suction is employed to complete the evacuation of the abscess. Improvement following the

initial discharge of pus may be only temporary, and renewal of symptoms may occur as the result of the closing together of the wound edges. This necessitates a further introduction of closed forceps followed by more suction. The procedure may have to be repeated for several days until a cure results. If the retropharyngeal abscess has broken through into the parapharyngeal space and an incision in the pharynx is inadequate to drain the abscess cavity properly, an external incision is necessary. External incision should always be made if the abscess is tuberculous in character and has its origin in the vertebrae. In cases of hemorrhage from a ruptured carotid artery or jugular vein, or septic phlebitis of the jugular vein, ligation of the particular vessel is indicated. Case reports emphasizing the difficulties that may be encountered in the diagnosis and treatment of the condition are presented.

Psychiatric Quarterly, Utica, N Y

11 333 530 (July) 1937

- Schizophrenic Thought Case Report B Pollack Rochester N Y—p 337
Infant Feeding and Personality Disorders Study of Early Feeding in Its Relation to Emotional and Digestive Disorders J Hill Houston Texas—p 356
Prognosis in Dementia Praecox Comparative Study of Present Results and Those Obtained from Hypoglycemic Treatment D Whitehead Utica N Y—p 383
Psychiatric and Social Treatment Functions and Correlations Leona M Hambrecht New York—p 391
Mechanism of Continuous Bath Therapy in Excitement G M Davidson Ward's Island N Y—p 424
Statistical Study of Benign Stupor in Five New York State Hospitals H L Rachlin New York—p 436
Note on Rate of First Admissions with Traumatic Psychoses in New York State B Valzberg New York—p 445
Social Competence of the Feebleminded Under Extra Institutional Care E A Doll and S Geraldine Longwell Vineland N J—p 450
Studies in Obsessive Ruminative Tension States IV Psychasthenia Definition and Delimitation L F Woolley Towson Md—p 465
Extramural Care in New York State with Reference to Persons with Mental Disorders and Mental Deficiency R R Steen New York—p 481
Technical Approaches Used in Study and Treatment of Emotional Problems in Children Part IV Collective Phantasy J Louise Despert New York—p 491
Patients' Observations on Care and Treatment Made on Leaving a State Hospital A D Black Marcy, N Y—p 507

Public Health Reports, Washington, D C

52 913 944 (July 9) 1937

- Spontaneous Mammary Tumors in Mice Factors Influencing the Incidence of Metastases L L Ashburn—p 915

52 945 988 (July 16) 1937

- Experimental Studies of Natural Purification in Polluted Waters I Reoxygenation of Polluted Waters by Microscopic Algae W C Purdy—p 945

Science, New York

86 1 122 (July 2) 1937

- Biologic Basis of Individuality L Loeb St Louis—p 1
Significance of Adrenals for Adaptation to Mineral Metabolism E C Kendall and D J Ingle Rochester Minn—p 18
*Disappearance of Injected Epinephrine in Animal Body S S Weinstein and R J Manning Saskatoon Sask—p 19
Meningococcus Infection of Chick Embryo G J Buddingh and Alice Polk Nashville Tenn—p 20

Disappearance of Injected Epinephrine in Animal Body—As an alternative hypothesis for the rapid disappearance of epinephrine from the blood, Weinstein and Manning suggest the following from a critical consideration of their problem. Epinephrine is not destroyed by the blood or to any significant extent by specific organs but passes rapidly through the capillaries into the tissues, where it is oxidized to a physiologically inactive substance, possibly protocatechic acid. In the present experiments, rabbits were kept on a strictly controlled diet for forty-eight hours prior to the injection of epinephrine, and the phenolic content of the urine was determined in a twenty-four hour specimen. An increase in phenolic substances was obtained after injection of epinephrine equivalent to 80 per cent of the injected drug. A portion of the urine was acidified, hydrolyzed and concentrated under reduced pressure, the residue extracted several times, the extract reduced to dryness and the dark brown mass extracted with ether produced on evaporation of the ether extract, a small quantity of crystalline material which gave characteristic tests for protocatechic acid.

Southern Surgeon, Atlanta, Ga

6 183 266 (June) 1937

- Liver Deaths and Complications of Gallbladder Surgery C G Heyd New York—p 183
- Internal Fixation of Fractures (Intracapsular) of Neck of Femur Report of Twenty One Cases H E Conwell and J D Sherrill Birmingham Ala—p 194
- Pulmonary Abscess in Adults and Children Clinical Observations C Jackson Philadelphia—p 207
- Review of Surgical Treatment of Pruritus Ani M C Pruitt Atlanta Ga—p 216
- Gastro Enterostomy versus Polya Operation in Duodenal Ulcer G C Engel Philadelphia—p 231
- Endocrine Basis of Gynecologic Organotherapy E Novak Baltimore—p 237
- Surgical Treatment of Painful Syndromes of Head and Neck W M Craig Rochester Minn—p 245

Texas State Journal of Medicine, Fort Worth

33 207 280 (July) 1937

- *Early Differential Diagnosis of Breast Tumors A C Scott Temple—p 213
- Burrowing Ulcers, J W Nixon San Antonio—p 216
- Infection and Immunity Resume of Prevention of Infection E C Mitchell and D W Goltman Memphis Tenn—p 220
- Relation of Maternal Vitamin A Deficiency to Microphthalmia in Pigs F Hale College Station—p 228
- Plans for Public Health in Texas G W Cox Austin—p 232
- Insulin Hypoglycemia in Treatment of Schizophrenia I General Considerations G W Day and E O Niver Galveston—p 236
- Silicosis C A Nau Austin and C J Koerth San Antonio—p 242
- Species of Fungus as an Apparent Pathogen in Subacute or Chronic Inflammations of Different Organs of Body Martha A Wood and Ellen Kyle Wellensiek Houston—p 247
- Some Skin Reactions Shown by Pregnant Women J B Robinett Jr Houston—p 252
- Hypoglycemia Certain Diagnostic and Therapeutic Considerations W Rosenblatt Wichita Falls—p 254
- Tuberculosis Program of the Texas State Department of Health A Burns Austin—p 257

Early Differential Diagnosis of Breast Tumors—Scott believes that a definite tumor fixed to the adjacent breast tissues, adhering to the chest wall and to the overlying skin, presenting a retracted nipple, a deep dimpling of the skin and massive axillary nodes, need not be broken down into a foul smelling ulcer for any one to make a diagnosis of cancer. Early differential diagnosis of the malignant breast is frequently possible by careful search for the beginning of those signs which are so pathognomonic in late cancer. Enlarged and firm axillary lymph nodes may occasionally be found early in the lower axillary area, if the tumor occupies the upper outer quadrant of the breast. The earliest effect in tissue change is manifested in increased firmness, diminished elasticity and restricted motion. Skin adhesions and dimpling may be observed in early cancer when the breast is examined by a dim light glancing across the spherical surface of the breast and the tumor is slowly moved in such a manner as to cause dragging or pulling of its fibrous attachments to Cooper's ligaments, they, in turn, pulling on the overlying skin, causing it to become flattened or dimpled long before the usual skin adhesions and dimpling are to be observed by the customary examination. This early dimpling is significant of malignant change and can best be recognized by the use of oblique rays of a spotlight, which are directed across the surface of the breast during manipulation of the tumor in a darkened room. The resulting shadows magnify the dimples and make them clearly visible. The upward pressure of a tumor in the outer half of the breast, though benign, may exaggerate the normal creases, which run transversely across the anterior axillary fold and should not be mistaken for dimpling. It is often helpful to make comparison with a normal breast, which, under manipulation, preserves its smooth spherical surface. A study has been made of 178 cases, and the shadow test was applied in the diagnosis of eighty-nine of this number. Of these eighty-nine cases, forty-six were diagnosed benign. The shadow test, showing absence of dimples, was correct in forty-two cases, or 91.3 per cent. A dimple was found within the areola in three of these cases. In one, the dimple was found external to the areola. However, this dimple was small, deep and sharply defined, and it contained scar tissue evidently due to some previous inflammatory process and not produced by manipulation. Of the forty-eight cases diagnosed malignant, the shadow test, showing definite dimples, was correct in forty-one, or 97.6 per cent. Dimples within the areola are not to be relied on in determining a diagnosis, either in favor of or against a malignant

change, and while dimples outside the areola usually may be depended on as pointing to malignant manifestation, an occasional error may occur by reason of some previous trauma, incisional scar or inflammatory process. Dimpling, as demonstrated by the shadow test, makes possible a differential diagnosis at an earlier stage of the disease than any other sign. It is particularly applicable in cases that have not advanced to the stage of demonstrable adhesions to the skin or the chest wall, and it has been of inestimable value in differentiating malignant tumors of the breast prior to demonstrable axillary metastasis.

United States Naval Med Bulletin, Washington, D C

35 293 372 (July) 1937

- Seasickness L Humphreys—p 293
- Dementia Pugilistica J A Millspaugh—p 297
- Report of Comparative Study of Liquid Insecticides F S Johnston with technical assistance of A G Vallee—p 303
- Some Diseases of Peripheral Arteries E V Allen and I L Norma Rochester Minn—p 309
- Review of Trachoma O W Cole—p 322

Western J Surg, Obst & Gynecology, Portland, Ore

45 353 408 (July) 1937

- Calcium Deposits About Joints H H Hitchcock Oakland Calif—p 353
- Some Observations on Regional Ileitis and Allied Conditions Case Reports R D Forbes and J Duncan Seattle—p 367
- Enterostomy Technique and Management J H Woolsey Woodland Calif—p 368
- Surgery of Right Colon with Relation to Arthritis J M Schmoel Los Angeles—p 375
- Basic Factors Involved in Proposed Electrical Methods for Measuring Thyroid Function II Resistance and Q Factor in Relation to Sex and Physical Conformation A Barnett New York—p 380

Wisconsin Medical Journal, Madison

36 509 596 (July) 1937

- *Pathologic Significance of Bleeding After Menopause R W TeLinde Baltimore—p 521
- Treatment of Erysipelas M J Fox Milwaukee—p 528
- Treatment of Snake Venom Poisoning J L Keeley Madison—p 534
- Cleft Palate Repair Technic Affording Better Speech Results V B Hyslop Madison—p 540
- Current Endocrine Problems in Gynecology E L Sevringhaus Madison—p 543
- Acute and Subacute Upper Respiratory Infections J Y Malone Milwaukee—p 548
- Encephalitis with Polyneuritis Inhalation of Chemical Dust S A McCormick Madison—p 551

Significance of Bleeding After Menopause—By examining the records of all the patients (349) entering the Johns Hopkins Hospital with postmenopausal bleeding between Jan 1 1919, and Jan 1, 1935, in which complete pathologic and clinical data were available, TeLinde hoped to determine the pathologic lesion causing the condition. The most frequent lesion responsible for postmenopausal bleeding was carcinoma of the cervix which occurred in 32.4 per cent. If the cases of carcinoma of the cervix are added to those of the body of the uterus (14.9 per cent), it is found that the cause of postmenopausal bleeding is due to cancer of the uterus in 47.3 per cent. If to this are added the other malignant growths (eleven cases of malignant ovarian tumors, five cases of sarcomatous change in myomas, three cases of sarcoma of the endometrium and one case each of sarcoma of the vagina and secondary carcinoma of the vagina), a total of 53.3 per cent of the cases of postmenopausal bleeding are due to malignant changes of the genital tract. Therefore every woman bleeding a year or more after her last menstrual period has more than an even chance of suffering from some malignant process. This warrants the demand for a complete diagnostic study of all such patients. It is impossible to guess as to the malignant or benign source of the bleeding from the amount or character of the bloody discharge. Some of the cases with the least bleeding proved to be due to malignant lesions, while in others the most profuse bleeding was due to benign lesions. Bimanual and speculum examinations should be a routine procedure in every case. When these measures fail to reveal the cause, a diagnostic curettage will establish the diagnosis in most instances. On following a patient with postmenopausal bleeding in whom these diagnostic measures have failed to reveal the cause, one should regard an increase in the size of an ovary, suggesting beginning neoplasm as an indication for a laparotomy, provided there is no medical contraindication.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

1 1241 1296 (June 19) 1937

- Abnormalities of Growth and Development Clinical and Pathologic Aspects H Gardiner Hill—p 1241
Auricular Flutter Continuing for Twenty Four Years T Lewis—p 1248
Hypo-Adrenalism and Pellagra Role of Vitamin Deficiency I M Sclaire—p 1249
Epithelial Overgrowths and Diverticula in Gut of Rats Fed on Human Diet D M Luhock W Thomson and R C Garry—p 1252
Hypoglycemic Therapy in Psychoses H Gilhes—p 1254

1 1297 1352 (June 26) 1937

- Some Common Diseases of Rectum and Anal Canal A L Ahel—p 1297
Abnormalities of Growth and Development Clinical and Pathologic Aspects H Gardiner Hill—p 1302
Does Superfetation Occur? Report of Possible Case B C Murless and F L McLaughlin—p 1309
Keratoplasty R E Wright—p 1311
Syphilis in Diagnosis and Prognosis of Cancer J I M Black—p 1313

Journal of Mental Science, London

83 137 246 (March) 1937

- Electro-Encephalogram in Epilepsy F Golla S Graham and W G Walter—p 137
Differentiation of Neuroses and Manic Depressive Psychoses D Curran—p 156
Enumeration of Blood Platelets in Mental Disorders D K Bruce—p 175
Hysteria Showing Spontaneous Hyperventilation Tetany Case R Fraser—p 190
Effect of Altering Conditions of Autonomic Nervous System on Choline Esterase Level in Human Blood Serum M S Jones and H Tod—p 202
Urea Clearance Test in Psychotics A M Wylie—p 208
Use of Diathermy in Idiopathic Epilepsy Note J L Clegg—p 216

Urea Clearance Test in Psychotic Patients—Wylie examined eleven cases of epilepsy and thirty-four cases of melancholia by the method of Addis modified by Van Slyke intended to measure the renal efficiency in terms of the number of cubic centimeters of blood cleared of urea by the urine per minute, in other words, the volume of blood which contains the same amount of urea as is excreted per minute in the urine. There were two figures for almost every patient, the first being calculated on the excretion during the first hour and the second on the excretion during the second hour. The renal efficiency fell below the standards adopted for normality in only two of the thirty-four melancholic patients and in one of the eleven epileptic patients. In seventeen of the cases in which a slight albuminuria was noted at the time of the test, six showed a renal efficiency above 130 per cent. The results indicate that albuminuria occurring in patients suffering from melancholia or epilepsy is rarely associated with renal deficiency. The two melancholic cases that showed marked renal impairment had bad prognoses.

Lancet, London

1 1505 1572 (June 26) 1937

- Study of Cretinism in London with Especial Reference to Mental Development and Problems of Growth A Lewis with assistance of Nancy Samuel and Janet Galloway—p 1505
Menstrual Fistulas Note on Significance of Transtubal Menstruation R G Malphand—p 1509
Duodenitis and Its Surgical Treatment G Garry—p 1512
Gluteal Aneurysm H I Deitch and J M Rogan—p 1516
Experimental Assessment of Therapeutic Efficacy of Amino Compounds with Especial Reference to p-Benzylamino-Benzene-sulfonamide L E H Whitty—p 1517
Death from Agranulocytosis After Treatment with Prontosil Flavum J G G Borst—p 1519

Menstrual Fistulas—Malphand reports a case of uteroparietal fistula, which followed the drainage of a tuberculous pelvic abscess. Uteroparietal fistulas are of two types. In the first there is direct connection with the uterine cavity, and the fistula is usually the sequel of cesarean section. The second type is seen in conjunction with pelvic inflammation, and communication with the uterine cavity is indirect by one of the fallopian tubes or tubal stumps. In about one third of the recorded cases indirect uterine fistula has been associated with peritoneal or adnexal tuberculosis. The free transtubal men-

struation often conspicuous in cases of tubo-abdominal fistulas signifies a breakdown of the sphincteric mechanism at the uterotubal junction. Chronic inflammation, by disturbing normal tubal physiology, may play an important part in the causation of pelvic endometriosis.

Agranulocytosis After Treatment with Prontosil Flavum—Between September and December 1936 Borst treated thirteen cases of *Bacillus coli* pyelocystitis with prontosil flavum, and toxic symptoms developed in five of these. One patient became dyspneic and developed Cheyne-Stokes respiration, she was seriously ill for one day, but not cyanotic. The blood was not tested for sulfhemoglobin and methemoglobin. Three patients complained of paresthesia of the face and hands, two of them at the same time had sensory disturbances, while doing their hair they could not actually feel it. None of these patients received more than six tablets of 300 mg of prontosil flavum daily, and after administration of the drug was discontinued the symptoms disappeared in a few days. The fifth patient developed agranulocytosis. During her stay in the wards this patient had no remedies except prontosil flavum, some dilute hydrochloric acid to facilitate its absorption, and 15 Gm of castor oil. There can be no doubt about the close connection between the use of prontosil flavum and the occurrence of agranulocytosis, but the patient's unusual previous history of thrombopenic purpura may indicate some predisposing disease of the bone marrow. As a result of the unfavorable experience prontosil flavum treatment was stopped, and sulfanilamide was given to eleven other patients. This drug also caused toxic effects, but these were fairly harmless.

Medical Journal of Australia, Sydney

1 853-894 (June 5) 1937

- Cardiac Pain K S Hetzel—p 853
Wounds and Incisions R D Wright—p 859
Chrysotherapy in Rheumatoid Arthritis L J A Parr and Eva A Shipton—p 864
Results of Use of Gold Salts in 100 Cases of Pulmonary Tuberculosis J H Blackburn—p 874

1 895 934 (June 12) 1937

- Syphilis and Neurosyphilis Treated by Electropexia G P U Prior—p 895
The Soldier Doctor L Duncan—p 910
Suppuration in Petrous Temporal in Mastoiditis E Guttenidge—p 916

South African Medical Journal, Cape Town

11 395 426 (June 12) 1937

- Bacteriologic Aspects of Enteric in South Africa B F Sampson—p 397
Enteric Fever in Rand Mines A J Orenstein—p 401
Urban and Rural Aspects of Enteric Fever Control F W P Cluver—p 402

Journal of Oriental Med, Dairen, S Manchuria

26 87 118 (June) 1937 Partial Index

- Experimental Glomerulonephritis Due to Toxins of Tubercle Bacilli Y Tsuge—p 87
Teeth Anomalies in the Chinese S Ohshima—p 103
Prostatic Stones T Uchimura—p 104
Iron as Causative Agent of Kaschin-Beck's Disease K Hiyeda, N Hayashi and M Anso—p 107
Report of Mantoux Tests on 34781 Japanese and Manchukuo School Pupils in Kwantung Leased Territory (Japan) J Iio T Kitahara Y Morita Y Matsuura G Ishiyama K Ohga R Iwakuma T Obata K Mase, I Kawashima H Tada Y Futaki and F Matsubara—p 109
Dermatomyxosis in the Holonbail Neighborhood of Manchukuo S Nuzawa—p 114
Pemphigus Vulgaris Case. Kan Jin Nan—p 115

Iron as Causative Agent of Kaschin-Beck's Disease—In previous papers Hiyeda and his associates have reported not only the epidemiology, pathologic anatomy and the clinical observations of Kaschin-Beck's disease but also the results of experiments made on laboratory animals by feeding them on various inorganic irons. From these studies it was verified that the iron of the drinking water in the endemic area is very high, the blood iron of the patients is sometimes three times more than normal, the various internal organs show an appreciable siderosis, and ulceration of the surface of joint cartilage and dilatation of the marrow cavity of the bones occurs in animals experimented on. From these data it is inferred that iron taken habitually in large amounts is the cause of Kaschin-Beck's disease.

Bull et Mém de la Soc Méd des Hôpitaux de Paris

53 983 1051 (July 12) 1937 Partial Index

- Study of Acid Base Equilibrium by Analysis of Urine J Leyritz—p 984
- Late Results of Successive Double Stellectomy in Sinusal Tachycardia L Langeron—p 987
- Relapsing Agranulocytosis M Roch M Naville and Mlle S Jendt—p 988
- Combination of Diabetes with Biliary Lithiasis Improvement of Diabetes by Cholecystectomy F Rathery and P Froment—p 993
- *Late Sequels of Splenectomy in Course of Cirrhoses of Liver A Bergeret and J Caroli—p 1019
- *Roentgenologic Opacification of Gallbladder by Black Bile N Fiesinger A Bergeret and A Gajdos—p 1023

Sequels of Splenectomy in Cirrhoses of Liver—Bergeret and Caroli report observations on several splenectomized patients, who were kept under careful observation after the operation. The first patient was hospitalized on account of a hepatosplenomegalic cirrhosis for the first time in 1928. A search for etiologic factors remained negative. From this time on, the size of spleen and liver increased steadily. The general condition became aggravated, ascites developed and severe intestinal hemorrhages necessitated copious blood transfusions. During this critical state splenectomy was done (July 1931). Following the operation, the patient's condition improved considerably. The number of erythrocytes remained practically normal and ascites did not recur. Nevertheless, in November 1934 the patient had recurrent intestinal hemorrhages and severe attacks of pain in the hepatic region. The authors express the opinion that the late results demonstrate that in certain hypertrophic cirrhoses of the liver favorable results can be obtained by means of splenectomy. They agree with Carnot and Harvier, who formulated in 1935 that in these cases it seems to be a question of a primary hepatolienal disease, of a splenogenic hepatic cirrhosis, and that the splenectomy must be considered as a palliative intervention rather than a curative operation. It intervenes especially, if not to suppress completely certain complications, such as hemorrhages, at least to diminish the fatal risks and dangers. These conclusions seem confirmed to the authors by some unpublished observations which they analyze particularly from the point of view of the late results. One case demonstrates that if the spleen is hypertrophic, even if the hepatic cirrhosis develops in the form of an atrophy, splenectomy is likely to produce favorable results as regards the recurrence of hemorrhages of the digestive tract and the general condition of the subject. Two other reported cases concern hepatic cirrhoses which, in the absence of a biopsy at the time of the intervention, appeared not to have developed until after the splenectomy, in spite of a considerable improvement in the general condition of the patients.

Opacification of Gallbladder by Black Bile—Fliessinger and his associates show that gallbladders which show spontaneous opacity in the roentgenogram and which contain no calculi derive their opacification from two chemical phenomena: either the bile is white and charged with calcium carbonate and calcium phosphate, or the bile is black and charged with calcium carbonate and bilirubinate. The authors review two cases belonging to the second group. In the first case a long clinical history seemed to favor the diagnosis of calculi in the gallbladder. A roentgenogram that was made without preparation showed a round homogeneous shadow. During the intervention, black bile was discovered, which contained several rare small calculi. The second observation is another example of opaque gallbladder of the same nature. The opacity of the gallbladder to x-rays is due in these cases to the abnormal richness of the bile in calcium, which forms a type of sediment and behaves in the roentgenologic examination as does a contrast medium. Most often it is calcium carbonate which determines the white aspect of the bile. If the precipitation is in the form of calcium bilirubinate, the bile remains hyperpigmented, presenting by its color and its consistency the appearance of tar, as was the case in the two reported cases. The authors point out that Bianchi likewise reported two cases of opaque gallbladders with black bile. In all published observations obstruction of the cystic duct existed either by a calculus of cholesterol or, in exceptional cases, by an epithelioma. In the described cases the cystic duct was likewise obstructed. All authors consider this obstruction the cause of the calcareous deposits. The roentgenologic examination, although

possible, is not easy. To make a diagnosis, the examination must be made carefully and repeatedly. Bianchi, in a detailed study of this problem, distinguished two different roentgenologic aspects. 1 There is a uniform shadow, more or less dense, reproducing the outline of the gallbladder and perhaps also that of the cystic duct. 2 There is a semilunar opaque outline, which partly reproduces the form of the gallbladder in its lowest portions. From the clinical point of view it is interesting that diagnostic errors are frequent. Most frequent is the diagnosis of vesical calculi. In the first reported case the abnormal shadow, the familial antecedents and the considerable eosinophilia would have made the authors think of the possibility of a hydatid cyst of the liver if the lithiasic symptomatology had not determined the diagnosis.

Presse Médicale, Paris

45 1019 1034 (July 10) 1937

- Hemocholécystitis N Fliessinger A Bergeret and J Lefeuf—p 1019
- *Lobstein's Disease in Thirty Four of Eighty Six Members of Five Families G Carrière E Delannoy and C Huriez—p 1023
- Aspects of Blood in Cirrhosis of the Liver E Henhamou and A Nouchi—p 1027
- Electrocardiogram of Arrested Heart R Lutembacher—p 1031

Familial Occurrence of Osteopsathyrosis—Carrière and his collaborators state that their interest in Lobstein's disease (osteopsathyrosis) was first stimulated by a young woman with deep blue scleras, who sustained a fracture of the fifth lumbar vertebra from an insignificant cause. Although the patient was not deaf, she doubtlessly had osteopsathyrosis because, when her family history was investigated, seven analogous cases were detected. The disorder, which is generally designated as Lobstein's disease, is characterized by the following triad of symptoms: blue coloration of the scleras, fragility of the bones and deafness. In further investigations on this problem the authors detected five families with eighty six members, of whom thirty-four had signs of Lobstein's disease. They give diagrams of the genealogical trees of these five families. The diagrams clearly demonstrate the hereditary character of osteopsathyrosis. The authors state that from the clinical point of view the blue coloration of the scleras is the most important symptom, by reason of its frequency and of the ease with which it can be detected. They observed it in various degrees of intensity in thirty-three of thirty-four patients. However, they think that in order to be a diagnostic sign of Lobstein's disease the blue coloration of the scleras must have a certain intensity, be of a familial character and be associated, at least in one member of the family, with osseous or auditory defects. Further they give their attention to the osteo articular symptoms of Lobstein's disease, discussing the fragility of the bones, the skeletal deformities and the articular luxations. They say that they detected deafness in seven of the thirty-four patients. Then they take up the endocrine disturbances, which they observed in many members of the five families. They found that the function of the thyroid is frequently impaired in the patients with osteopsathyrosis. All the members of one family had hypothyroidism. In another family myxedema was observed in a woman and her daughter. On the other hand, two of the patients exhibited signs of hyperthyroidism. Ovarian dysfunction, pancreatic disorders and parathyroid disturbances were other signs indicative of endocrine involvement. In answer to the question as to what might cause both the pluriglandular symptoms and the osseous dystrophy, the authors suggest that hereditary syphilis might play a part. The probability of such an etiology is proved by the frequency of the symptoms of hereditary syphilis among the patients. The authors think that, if their hypothesis of the role of the glandular disturbances and of the etiologic significance of hereditary syphilis is accepted, endocrine as well as antisyphilitic treatments are justified in the therapy of osteopsathyrosis.

45 1035 1050 (July 14) 1937

- *Physicochemical Studies on Intradermal Injection Action of Histamine Solution E Aron—p 1037
- Studies on Chemical Modification of Cerebrospinal Fluid After Operations S Tzouvaru and D Theodoresco—p 1039

Intradermal Injection of Histamine-Histidine Solution—A review of the previous literature on the action of intradermal injections revealed to Aron three important points. First, the intradermal injection of all substances at the point

area has an analgesic action. In discussing this point he directs attention to the observation made by Lenormand, namely, that substances which influence disturbances in the sympathetic nervous system act most intensively when they are injected into the skin. The author thinks that the richness of the skin in sympathetic elements and its common embryologic origin with the nervous system are points which help to explain the therapeutic efficacy of the intradermal injection. The second point stressed by the author is that the intradermal route augments the rapidity and the efficacy of the action of the neurotropic substances (histidine). Third, the intradermal injection of histamine by its special vasodilator effect and by its general action is an efficacious method in the treatment of the pain and the contracture of rheumatic disorders. These points were corroborated by three series of experiments which the author carried on in recent years. He employed a histidine solution of 4 parts in 100, which contained 0.1 mg of histamine per cubic centimeter. The intradermal injection of this solution is not painful, provided it is rendered neutral or slightly alkaline. The technic is simple. It requires no special needle but a syringe of 1 cc, and needles that are used for subcutaneous injection are sufficient. The needle is placed parallel to the skin and its beveled edge is inserted, when the beveled edge is covered by the dermal membrane the injection is made. The author never injected more than 1 cc of solution and rarely gave more than one or two injections at one time. The patient himself usually indicated the painful area of the skin. The total number of injections was from six to twelve. One injection was given either daily or every other day. The results so far obtained encourage the further use of the method on a larger material, which will be necessary for a definite evaluation of the method. The author gained the impression that the combined use of histamine and histidine is more constant and lasting than is the separate use of the substances.

Schweizerische medizinische Wochenschrift, Basel

67 613 664 (July 10) 1937 Partial Index

- Subcutaneous Injury of Pancreas J Barth—p 614
Evaluation of Osteoplastic Stiffening of Vertebral Column in Tuberculosis F Becker—p 615
Question of Pneumothorax Therapy in Bronchiectasis A Brunner—p 616
Traumatic Detachment of Epiphysis at Distal End of Tibia and Fibula C F Geigy—p 626
*Function of Musculature of Renal Calices O Hennig—p 629
Roentgen Examination of Surgically Exposed Kidney H Heusser—p 630
Symmetrical Hemangioma of Both Feet with Rheumatic Changes L Jecker—p 633
*Calcium Prophylaxis of Fatal Postoperative Pulmonary Embolism E Muff—p 643

Function of Musculature of Renal Calices—According to Hennig the function of musculature of the renal calices plays an important part in the circulation of the urine through the renal parenchyma and in the excretory mechanism from the renal canal system. A knowledge of this function is of value for the interpretation of certain pathologic conditions of the urinary apparatus. An accidental observation in the course of a retrograde pyelography proved to the author the sphincter-like action of the ring musculature of the calices. After reviewing Henle's description of the musculature of the renal calices, he says that the action of the ring musculature of the renal calices had never before been observed directly on a living human subject and then he describes his observation of a pyelovenous reflux, which was localized in one calicine system, and of the sphincter-like closure of a renal calix. The roentgenogram of the right, healthy kidney revealed that the ureteral catheter had penetrated into the upper calix. Whereas the median and lower calices showed only rather weak shadows and smooth outlines, the upper calix showed a strong shadow and appeared laced in toward the renal pelvis. In trying to explain this phenomenon the author points out that by the accidental penetration of the point of the catheter into the upper renal calix the iodine preparation exerted such an irritating effect on the mucosa that the calix was closed against the renal pelvis by reflex of the ring musculature. Before the irritation could become completely effective, a small part of the contrast medium entered the other parts of the hollow system. If the wall of the calix did not contain ring-shaped contractile muscular elements, the contrast medium, according to the laws of

hydrostatics, would have spread uniformly through the entire hollow system, so that a shadow of uniform intensity would have been the result. The author thinks that his observation furnished the proof for the existence and lacing in effect of the ring fibers on the renal calices. He suggests that under normal physiologic conditions it is probably the suction of the calix bell which forces the urine stream periodically from the renal canals. The periodic play of the musculature of the renal calices, which is manifested in contraction and suction, was corroborated also by the roentgenograms following intravenous urography. This more physiologic procedure of renal visualization revealed that the muscular action of the renal calices does not take place simultaneously in all calices but alternates from side to side.

Calcium Prophylaxis of Postoperative Pulmonary Embolism—Muff reports on prophylactic injections of calcium chloride for the prevention of fatal pulmonary embolisms. He says that this treatment was first introduced in Bier's clinic. Two cases of fulminant postoperative pulmonary embolism, which occurred at the author's clinic shortly after Martin had reported on the prophylaxis in Bier's clinic induced the author to try the calcium prophylaxis. The technic of this method called for the daily subcutaneous injection of 1 cc of a 0.01 per cent solution of calcium chloride intramuscularly into the thigh or the gluteal muscle, this is less painful than the subcutaneous method of administration. According to Martin's directions the injections are given daily for eight successive days after operations or injuries. If signs of thrombosis or of pulmonary infarct appear, the injections are continued for two weeks. The author illustrates the effectiveness of the calcium prophylaxis in a tabular report which reveals the comparative incidence of embolisms in two groups of over 2300 surgical cases each. He does not assert that calcium prophylaxis alone will prevent every fatal embolism. However, since the fatal embolus usually originates in a symptomless distant thrombosis, he thinks that a measure which increases the adhesiveness of such thrombi appears valuable.

Clinica Medica Italiana, Milan

68 367 440 (June) 1937

- *Clinical Value of Indicanemia L Pinelli—p 371
Perspiration Insensibilis in Edema G Rocchini—p 399
Bronchiectasis and Pulmonary Tuberculosis G Gianni—p 425

Clinical Value of Indicanemia—Pinelli states that the increase of indican in the blood is common in acute and chronic renal diseases and in other diseases in which the kidneys are normal. He found hyperindicanemia in acute diseases of the respiratory tract, chronic and acute liver diseases, diabetes, chronic constipation and grave anemia. In all cases azotemia is normal. The amount of indican in the blood becomes normal as the disease regresses. In acute and chronic nephritis there is hyperindicanemia and normal azotemia. The increase of indicanemia in renal diseases is of poor prognosis, especially if azotemia also increases. The intensity of hyperindicanemia in renal diseases depends on the intensity of renal insufficiency. Uremia is independent of the presence and intensity of hyperindicanemia. The determination of indicanemia during fasting has no specific clinical value in showing pathologic conditions of the kidneys.

Policlinico, Rome

44 321 368 (July 1) 1937 Medical Section

- Bile Salts in Cerebrospinal Fluid in Jaundice M Coppo and L Travini—p 321
Active Immunity in Experimental Infection by Castellaniella Gambiensi A Castellani and I Jacono—p 325
Retro-Olivary Bulbar Alternating Syndrome (Wallenberg's) Case D Mircoli—p 335
*Short Wave Treatment in Disturbances of Gastric Secretion E Benassi and L Montagnini—p 353

Short Wave Treatment in Disturbances of Gastric Secretion—Benassi and Montagnini applied a local short wave treatment to nineteen patients suffering from disorders of the gastric secretion. During administration of the treatment no medicine was given and the patients followed their usual habits of life and diet. The modification of the gastric secretion was determined at intervals in the course of treatment and, in some cases, after discontinuation of the treatment. The waves were 6 meters long of a modulated type and average intensity which produced a slight feeling of local warmth.

The electrodes (12 by 18 cm and 27 by 18 cm, respectively) were applied at opposite points at the epigastrium and the back in order to include the stomach in the electric field. The treatments were given daily, on a fasting stomach or at a time remote from meals. Each treatment lasted thirty minutes (except in the cases in which the condition of the gastric secretion, such as changes induced by the treatment, were verified during one of the applications). The number of treatments varied from twelve to fourteen. In all patients the treatment controlled pain and regulated the gastric secretion, which decreased in hyperchlorhydria and increased in hypochlorhydria. The effects were lasting. In some cases the treatment induced a complete clinical cure. The authors state that the mechanism of action of the short wave treatment on the motor and sensory phenomena of the stomach is complicated. The action takes place especially through the sympathetic. Local hyperthermia and the stimulation of local nerve fibers are secondary factors.

44 1385 1428 (July 19) 1937 Practical Section

*Intraspinal Anesthesia and Prevention of Following Headache M Margottini—p 1385

Fever of Malarial Type in Syphilis Associated with Chronic Malaria A Spanu and M Piga—p 1397

Spinal Anesthesia—According to Margottini, spinal anesthesia with a 10 per cent solution of procaine hydrochloride is the method of choice in performing all operations in structures lower than the diaphragm. It is not advisable to resort to this type of anesthesia in children less than 13 years of age. It is contraindicated in persons with low blood pressure, as well as in those suffering from toxic conditions, infections, circulatory disorders, syphilis and headache. The intraspinal injection of 12 or 16 cc of a 1 per cent solution of dextrose shortly after the intraspinal injection of procaine hydrochloride greatly reduces the frequency, intensity and duration of headache following intraspinal anesthesia. The author's conclusions are based on results of 3,500 cases in which procaine hydrochloride intraspinal anesthesia was used.

Prensa Médica Argentina, Buenos Aires

24 1331 1376 (July 7) 1937

Exophthalmic and Toxic Goiters in Pregnancy A Peralta Ramos, M Scheingart and Ida C de Urison—p 1331

Acute Osteomyelitis of Calcaneum M Cieza Rodriguez—p 1338

Plans for Studies on Effects of Mate Tea F L Soler—p 1341

Auriculoventricular Dissociation by Interference Case G Segura, J E Israel and J Ferretti—p 1344

*Appendicitis from Oxyuris A Battaglia and H di Fiore—p 1349

Hay Fever in City of Bahia Blanca L G Bouzat—p 1359

Appendicitis from Oxyuris—Battaglia and di Fiore found appendicitis caused by Oxyuris with a frequency of 2 per cent. It is more frequent in children than in adults. Only two patients out of a group of eleven suffering from oxyuris appendicitis complained of symptoms of oxyuriasis (occasional dizziness with unconsciousness). A microscopic study of the removed appendix was performed in three cases. The appendix was the seat of chronic inflammation and typical oxyuris lesions. The hemogram in three cases showed eosinophilia (4, 5 and 8 per cent, respectively). The appendix was intensely parasitic (twenty-nine, sixty-two and eighty-three oxyurids, respectively). The largest number of oxyurids isolated from the appendix were female. The examination of the feces for parasites and of the lumen of the appendix for eggs gave negative results.

Archiv für klinische Chirurgie, Berlin

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*Progressive Staphylococcosis of Face or So-Called Staphylococic Erysipelas of Face H Behrendt—p 391

*Chorionepithelioma in Males and Its Hormone Action G Bankoff—p 402

Echinococcus Disease in Greece H Toole—p 459

*Impairment of Blood Vessels by Continuous Concussions as Result of Work with Pneumatic Tools H Junghanns—p 466

Clinical Aspects of Dissecting Aneurysm of Aorta W Block—p 480

Hypothesis Regarding Incretion of Hassall's Bodies in Connection with Cancer Problem S Kamboj—p 490

*Sacralization of Fifth Lumbar Vertebra and Its Clinical Significance O Wenzl—p 493

Chorionepithelioma in Males—Chorionepithelioma in males, Bankoff states, is usually localized in the testicles or in testicular teratomas; the extragenital localization is probably only apparent or at least extremely rare. The histologic aspects

of the chorionepithelioma in males correspond morphologically with those of the chorionepithelioma in women. In its behavior toward the general organism, the chorionepithelioma of males likewise resembles that of women. The author describes the history of a man, aged 27, in whom a chorionepithelioma was removed from the right testicle. The patient recovered and as yet there have been no signs of metastasis. The author concludes that there is a morphologic similarity between chorionepithelioma in men and in women. However, this similarity is no proof that these tumors are of the same type, for it is known that tumors with the same histologic aspects may be of different origin. In support of the hypothesis that chorionepitheliomas are of different nature in men and in women, the following characteristics are cited. The teratomatous chorionepithelioma occurs only in men and always in the testicle; the entire tumor is of a malignant nature and free from benign elements, in contradistinction to the tumors in women, the metastases of the chorionepithelioma in men appear almost exclusively in the retroperitoneal lymph nodes, combinations of chorionepithelioma with other types of testicular tumors as well as a direct transition of chorionepithelioma-like structures into adenocarcinomatous proliferations are demonstrable only in men. The author arrives at the hypothesis that chorionepithelioma originates like all other testicular tumors in the testicular parenchyma. Its anatomic structure proves to a certain extent that its syncytial cells originate from Sertoli's cells.

Impairment of Blood Vessels by Pneumatic Tools—It is pointed out by Junghanns that the literature of recent years brings isolated reports of cases of vascular disturbances in the hands of workers who for years have handled pneumatic tools. He himself describes observations on a man, aged 38, who for eleven years had operated a pneumatic hammer. He concludes that workers whose hands are exposed to continuous concussions from the operation of pneumatic tools gradually develop a traumatic angioneurosis of the capillaries of the fingers. This angioneurosis manifests itself in pallor of the fingers, a feeling of deadness, impaired movement, and disturbances in the sense of touch and sensitivity to cold. In rare cases these vascular disturbances, which appear at first in the form of spasms, may become so exacerbated on the fingers, hands and lower part of the arms that local tissue death results (wounds heal poorly and the tips of the fingers or the fingers become gangrenous). Histologic studies on the blood vessels of the lower part of the arm of the patient whose history is reported revealed changes similar to those of Burger's endangitis obliterans (closure of the vessel by connective tissue plugs, separation of the layers of the vascular wall, tubercle-like accumulations of cells with giant cells, and so on). The author suggests that this form of vascular disease should be recognized as an occupational disease, just like the impairments of muscles, bones and joints that develop in workers who operate pneumatic tools. Workers in whom the beginnings of such disturbances are noticed should discontinue their work with pneumatic tools. At any rate, it is advisable that such work which involves continuous concussion should be done only for a few hours each day and, if possible, the workers should be relieved from it completely for several months out of the year.

Sacralization of Fifth Lumbar Vertebra—Wenzl admits that persons with sacralization may go through life without having the least difficulty from it and that some cases of sacralization are discovered only by accident. The fact that some persons with sacralization are entirely free from pains has induced some authors to reject completely all connection between sacralization and backache. Nevertheless, many recognize that sacralization is the cause of many otherwise unexplainable disorders. To clarify the symptoms that are caused by sacralization, the author analyzes a so-called sciatic complex and a skeletal complex. He describes several cases. He designates as the skeletal complex those static disturbances which develop as the result of the vertebral changes in sacralization. The neuralgiform pains, the sciatic complex, is often the result of the simultaneous increase in the thickness of the transverse process. To this group belong relapsing sciatic cases in which the roentgenoscopy fails to reveal sacralization. In most cases of sacralization the two complexes are combined. The author thinks that, whenever symptoms can be traced

with certainty to sacralization, surgical is preferable to symptomatic treatment. He shows that the operation, namely, the excision of the transverse process, is not difficult and can be performed without great risk for the nerve. After the operation the patients should be put in a suspended position, which makes possible a lordotic position in the region of the lumbar portion of the vertebral column. After three weeks the patients usually can get up again.

Klinische Wochenschrift, Berlin

16 937 976 (July 3) 1937 Partial Index

- Experimental Contribution to Pathophysiologic Analysis of Hypophysial Disturbances M. Reiss—p. 937
Regulation of Carbohydrate Metabolism During Athletic Activities F. Meythaler—p. 951
Change in Hemostatic Pressure and Arterial System R. Immel—p. 956
Histamine Content of Skin After Ultraviolet Irradiation B. Tarras Wahlberg—p. 958
*Protection Against Light by Combination of Vitamin C and Oil of Bergamot E. Urbach and F. Kral—p. 960
New Phenomenon as Indication for Surgical Treatment of Pelvicopertinitis H. Knaus—p. 963

Vitamin C and Oil of Bergamot for Protection Against Ultraviolet Rays—Urbach and Kral describe experiments which prove that the oral, rectal or paracutaneous administration of vitamin C in combination with the external application of oil of bergamot has a definite photoprotective effect. However, in order to protect the skin against ultraviolet rays, it is necessary that vitamin C form a chemical compound with the entire complex of oil of bergamot. Vitamin C acts most rapidly after intravenous administration, for if so administered it becomes effective after one hour, as against three hours in oral administration. This indicates that not the vitamin as such but rather one of its products protects against light rays. Moreover, if vitamin is rubbed into the skin, it does not prevent the ray erythema. It is noteworthy that only natural but not rectified oil of bergamot protects against light. Even heating to more than 60°C cancels the effectiveness of the oil against ray erythema and none of its constituents exert the photoprotective action. Moreover, the combination of vitamin C and oil of bergamot protects only against short, not against long, light waves.

Munchener medizinische Wochenschrift, Munich

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- *Fresh Air Treatment of Bronchopneumonia in Children R. Degkwitz—p. 1043
*Stuporous Conditions After Insulin Shock Treatment of Schizophrenic Patients H. Salm—p. 1046
Surgical Aid and Passive Protection in Aerial Warfare Kreuter—p. 1049
Clinical Aspects of Gas Edema H. Busse—p. 1052
Physician Without Pharmacy E. Mader—p. 1053
Functional Impression of Foot and Its Use in Disturbances of Static Nature A. Lettermann—p. 1060
Occurrence and Epidemiologic Significance of Diphtheria Bacillus Carriers Among Immunized and Nonimmunized Children E. Bender—p. 1062

Fresh Air Treatment of Bronchopneumonia in Children—Degkwitz discusses the mortality rate in two groups of children who contracted bronchopneumonia. The first group comprised 334 cases which were treated during the time when the fresh air treatment was not yet used. In the second group of 424 children, the fresh air treatment was used. The ages of the children, the percentage of severe cases and the incidence of complications were about the same in the two groups. Identical also were certain indispensable nursing and medicinal measures. However, whereas the first group was treated in ordinary wards, the second group received fresh air treatment in open-air verandas or in open-air rooms (with open windows and unheated) or the children were changed back and forth between the open-air veranda and steam saturated warm air (steam bed, bronchitis box), and they were not constantly left in bed but were carried around much. Children who died within the first two days after hospitalization were not included in either of the two groups. In discussing general indispensable measures that are required in pneumonia, the author stresses the importance of correct bedding (horizontal position with a flat pillow or roll under the shoulders), so that the respiratory musculature can function properly. In the second group this position was alternated for brief periods with the lateral position. Moreover, the children were frequently car-

ried around in the open air (usually in the sitting position). The author further stresses the necessity of supplying the children with adequate amounts of fluid and of carefully watching the circulation. In discussing the mortality, he points out that nurslings and small children die more frequently of pneumonia than does any other age group. However, a comparison of the mortality rates in the two groups of children proved that in the group in which the open-air treatment and the more active measures (carrying around) were used the mortality was reduced to one third of the rate that occurred in the children receiving ordinary ward treatment.

Stuporous Conditions After Insulin Treatment in Schizophrenia—Salm describes stuporous conditions which developed in schizophrenic patients who underwent the insulin shock treatment. The symptoms were generally continuous stupor in spite of the administration of large amounts of sugar, lack of energy, somnolence, vomiting and occasionally fever (up to 104°F). In some instances the stupor was preceded by a number of attacks, which continued in spite of the administration of large amounts of sugar and could be controlled only by hypnotics. The stuporous conditions may appear even if the shock is not unusually deep and lasting, and the quantities of the injected insulin differed likewise in the cases in which stupor followed. One patient died after eleven days of stupor. The author cites similar cases from the literature and, in attempting an explanation, expresses the opinion that the hypoglycemia elicits lesions in the diencephalic regions, which in turn produce disturbances in the heat regulation and in the circulation and perhaps severe sweating. If the hypoglycemia causes severe damage, stupor and somnolence may result. These cases constitute a serious problem because, if they do not yield to the repeated administration of sugar it is useless to administer more carbohydrates, particularly if the blood sugar value is high. The circulation should be carefully watched, for if the pulse and the general condition remain favorable the patient usually wakes from the stupor.

Wiener medizinische Wochenschrift, Vienna

87 745 786 (July 10) 1937 Partial Index

- Specific Action of Ultra High Frequency Field W. M. Archangelsky—p. 746
Biologic and Therapeutic Action of Hertzian Waves 80 Cm in Length A. Demier—p. 748
Fever Therapy of Gonorrhea S. Gottesmann and E. Last—p. 749
Short Wave Therapy and Diathermy R. Kovacs—p. 754
*Short Wave Therapy in Articular Diseases V. Maragliano—p. 756
Historical Sketch of Development of Short Wave Therapy J. W. Schereschewsky—p. 769
*Short Waves Mode of Action and Indications for Use E. Schliephake—p. 771

Short Wave Therapy in Articular Diseases—Maragliano employed short wave therapy in about 100 cases of articular disorders. The short waves were employed to obtain a thermic effect. The treatment was nearly always local. In applying the rays to the large joints, the body temperature was usually slightly raised. It was observed that the best results could be obtained when the patients were kept resting after the treatment. Accordingly, the treatment was most effective with hospital patients. In some instances acute exacerbations were observed after the first few treatments, but these subsided again and it appeared as if the incipient exacerbation indicated a favorable final result. The response to short wave treatment was most favorable in the traumatic articular processes, such as the sequelae of distortions, of luxations and of endo articular or periarticular fractures. In the articular disorders of metabolic origin such as gout, the short wave therapy produced varying results, for whereas some cases responded favorably, others were not improved or were even exacerbated. In the metabolic articular disorders as well as in the chronic polyarthritides it may be advisable to combine the local treatment with general treatment, the aim of the latter being a slight increase in the body temperature. Short wave treatment of arthritis deformans produced only a temporary reduction in pain. An analgesic effect was produced also in the gonorrheal arthritides. The author treated only one case of tuberculous arthritis with short waves and in this case the treatment failed. The combination of short wave and roentgen therapy proved helpful in counteracting the pains in arthritis deformans.

Short Waves Mode of Action and Indications for Use—Schliephake discusses the indications for short wave therapy and its technic. He deprecates the uncritical reports which represent the short wave therapy as a cure-all, thereby bringing it into disrepute. He regards as one of the chief indications for short wave therapy a group of suppurating inflammations, particularly furunculosis, carbuncles, panaritiums and some empyemas. The particular value of the short wave therapy lies in the fact that the infectious foci are localized. During the early stage, resorption is usually obtained, during the later stage, demarcation and spontaneous perforation. Regarding the use of ultrashort waves in chronic conditions, the author says that it is indicated in practically the same conditions as is diathermy. He also mentions the production of fever by means of the short wave field, pointing out that at his institute this treatment was used chiefly in rheumatic conditions. He stresses that excessive doses must be avoided. He thinks that the more acute the process, the smaller should be the dose and the shorter should be the time of exposure to the short waves. In giving his attention to the action mechanism, he points out that much confusion has been produced by the discussion about thermic effects versus specific effects. He says that if there are specific effects they can be produced only by physical processes, for instance, electrical powers may influence the structure of molecules or of colloidal particles, but in such processes there is always also a thermic effect.

Polska Gazeta Lekarska, Lwów

16 567 590 (July 18) 1937

Puncture and Incision of Posterior Fornix of Vagina S Maczewski —p 567

New Opinion on Process of Tuberculosis and Its Dependence from Local and General Specific Immunization K Lewkowicz —p 569

Liquid Nutrient Medium with Cotton for Anaerobic Bacteria Culture A Ławrynowicz —p 573

Vitamins as Nonspecific Remedy H Halpern Wieliczanski —p 573

*Synthetic Cevitamic Acid New Auxiliary Remedy in Arsphenamine Therapy S Landfisch —p 575

Synthetic Cevitamic Acid in Nearsphenamine Therapy—Landfisch states that, notwithstanding the great improvements in the preparation of nearsphenamine, it often happens that for various reasons the physician has to interrupt the treatment with nearsphenamine. Various auxiliary preparations have been tried with the view of creating greater tolerance to nearsphenamine in the patient but have failed to produce the desired result. He has treated twenty-five patients, to whom a nearsphenamine preparation could not be administered safely, with synthetic cevitamic acid in ampules in doses of 0.05 Gm dissolved in 10 cc of water and in tablet form for oral administration. The cevitamic acid injections have been given together with the nearsphenamine injections or half an hour before administration of the nearsphenamine. The tablets, three a day, were given one day before administration of nearsphenamine or on the same day. The following results were obtained. Among the twenty-five patients, twelve male and thirteen female, the evidence of intolerance disappeared in eleven male and nine female, or 80 per cent, slight and insignificant intolerance symptoms were observed in four female patients, or 16 per cent, and one male patient remained intolerant, or 4 per cent. On the basis of this experiment he concludes that the auxiliary remedy of synthetic cevitamic acid for intolerance in nearsphenamine therapy is worthy of further consideration.

Hospitalstidende, Copenhagen

80 657 684 (June 15) 1937

*Treatment of Cryptorchidism with Gonadotropic Substance E Dahl Iversen and U Starup —p 657

*Intracranial Angioma Case C Johansen —p 671

Renal Rickets Case J Bichel —p 678

Treatment of Cryptorchidism with Gonadotropic Substance—Of 208 cases of cryptorchidism treated with endocrine preparations collected from the literature in which exact statements of the results were given complete descent with growth of the testicles was attained in 129 cases (62 per cent), growth of the testicles with partial descent in twenty-five (12 per cent) and in fifty-four (26 per cent) the location of the testicles was unchanged, although in some the size was increased. The last group included patients who were between 20 and 30 years of

age or who had previously undergone unsuccessful orchiopexy or inguinal herniotomy. Of the 155 cases known to be unilateral or bilateral, good results were achieved in forty-three (66 per cent) of the bilateral cases, improvement in eleven (17 per cent) and negative results in eleven (17 per cent), while forty-five (50 per cent) of the unilateral cases showed good results, nine (10 per cent) were improved and thirty-six (40 per cent) gave poor results. Dahl-Iversen and Starup's experience has also been that bilateral cases react better to endocrine treatment than do the unilateral. The hypothesis is thus supported that unilateral retention depends on a mechanical obstacle to descent, while the bilateral depends on hormone disturbances. Further, endocrine treatment gave good results in seventy-two (76 per cent) of the ninety-five patients with general physical underdevelopment or genital underdevelopment or with clinically established endocrine disturbance, fourteen (15 per cent) showed improvement and only nine (9 per cent) failed to respond to the treatment. The authors conclude that endocrine treatment is superior to operative treatment. The contraindications are true ectopies, retention complicated with hernia, cases with annulus subcutaneus complicated with hydrocele, possibly in combination with open vaginal process, cases in which examination reveals a fixation of the testicles or narrow annulus subcutaneus, or in which there is other demonstrable cause for the maldescent and, finally, in which malignant change of the testicles may be suspected. According to present experience, they would not begin endocrine treatment till the age of 12 or 14. A universal endocrine disorder may indicate an earlier beginning of treatment. A dosage of 400 mouse units of the luteinizing factor twice weekly is recommended, under close control of the patient's development, both general and genital, and in cases of unilateral retention, with attention to the possibility of atrophy of the normal testicle, a condition about which little, however, is known. They use the luteinizing factor from the urine of pregnancy because this principle is believed to act preeminently on the Leydig cells, assumed to play the most important part in descent of the testicles. In their material the duration of treatment has been from about six weeks to about nine and a half months.

Intracranial Angioma—Microscopic examination showed that Johansen's case of intracranial hemorrhage following a slight trauma was due to rupture of an intracranial angioma racemosum.

80 685 712 (June 22) 1937

Applicability of Distinction Ability in Clinical Estimate of State of Nutrition with Regard to Vitamin A E Groth Petersen —p 683

*Symptomatic Steatorrhea in Carcinosis Diffusa and Puerperium. E. Lundsteen —p 698

Osteogenesis Imperfecta Congenita with Atypical Roentgenogram Ca E Ruhwald —p 707

Symptomatic Steatorrhea in Carcinosis Diffusa and Puerperium—Lundsteen describes two cases of steatorrhea resembling Gee-Thaysen's disease. In the first, necropsy revealed a carcinosis in the small intestine and in the peritoneum. In the second, which began in the puerperium after a normal pregnancy, there was a grave hyperchromatic anemia, treatment with liver and stomach preparations together with blood transfusion resulted in recovery.

Hygiea, Stockholm

99 433 480 (June 30) 1937

*Studies on Etiology of Infectious Mononucleosis A Nyfeldt —p 433

Disinfectants in Irrigation of Bladder J Hellstrom —p 457

Etiology of Infectious Mononucleosis—Nyfeldt says that the *Listerella* group is pathogenic to both man and animals and, in addition to their morphologic, cultural, fermentative and serologic relations, the bacteria are characterized particularly by the mononucleosis they induce in man and animals. According to the fermentologic spectrum the *Listerella* strains are divided into three types: (a) *Listerella cuniculi* Murray and *Listerella hominis* C P M H Nyfeldt, (b) *Listerella* *Listerella* Jones and Little, *Listerella hominis* Schultz and (c) *Listerella gallinaria* Ten Broeck. The *Listerella* bacteria are often overlooked because of the difficulty in their cultivation but culture on a suitable substrate and patience on the part of the investigator will show that they are far from rare. Continued serologic investigations are in progress.

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CONTROL OF COMMUNICABLE DISEASES IN SCHOOLS

JOHN A. FERRELL, M.D., DR. P.H.

Associate Director International Health Division of the Rockefeller Foundation
Chairman of the Executive Board of the American Public Health Association
NEW YORK

The control of communicable (contagious) diseases in schools is a subject that might be discussed from more than one angle. One approach would involve listing quite a number of the important communicable diseases to which school children are exposed and discussing each with respect to the present status of knowledge and to the consensus among health authorities as to the best procedures for its prevention, treatment and control. This would be tedious, time consuming and wearying. Besides, all that I could say is already conveniently available in reference books, in manuals for health officers and in rules and regulations of health departments. A particularly useful handbook of this character is the Report of the Committee on Communicable Disease Control, under section II of Public Health Service and Administration of the White House Conference on Child Health and Protection, published by the Century Company in 1931. It is a brief, clear-cut review covering present knowledge regarding the communicable diseases, and it reflects the prevailing opinion among public health authorities as to appropriate measures for combating each. I deem it inadvisable, therefore, to pursue this line of approach and prefer to present a discussion directed to placing administrative responsibility for the control of communicable diseases.

Sweeping and categorical statements regarding this responsibility for the country as a whole are not warranted. An extremely wide variety of communities is found. On the one hand there are great cities in which there is a concentration of population and wealth and in which conditions are extremely complex. On the other hand there is the rural community with its small population, which is widely scattered and has very limited economic resources. Also there is the school or college isolated to a large extent from community governmental services. Certain industrial organizations may be similarly situated. They find it necessary to organize and operate their own health and medical services and to assume almost complete responsibility for the health protection of their community.

Again, in communities that may be similar as to wealth, population and other features there may exist a great variety in ideas, customs and historical back-

ground, and tradition may influence practice. One finds in the New England states that the rather small township has become the unit of local government, whereas elsewhere the much larger county is the accepted unit of local government. Moreover, in certain states and cities the public schools were developed early and many of them had able and aggressive leadership, whereas the public health service in certain of these areas was backward and inadequate and had part time, untrained and indifferent direction. The school authorities were prompt to recognize the necessity for health protection of the students. They sometimes employed physicians and nurses—some on a full time basis, others on part time—to supply the schools with health services.

In communities in which for varying reasons a particular type of procedure has grown up, it is difficult to bring about logical changes designed to procure reasonably uniform practice. Fortunately, the school authorities in most states and cities have recognized that the community should have only one system of schools and only one health service. Moreover, they have been wise enough to advocate a health service designed to give protection against disease to residents of all ages and not to burden the taxpayers unduly with a second health service designed to serve the school age group, a service which at times has become competitive rather than complementary to the general health service. They have liberally supported the general health department to the extent of supplying money and personnel toward strengthening it. They realize that any soundly conceived and administered health service will concentrate activities to a large degree on persons of preschool and school age, because the largest returns in comparison with expenditures are to be obtained by this course. The schools then rarely have reason to fear lest the health department will neglect the health needs of the schools. There should exist, of course, a very intimate working relationship between the director of education and the director of health and among their associates. Where there has been able and cooperative leadership in both the educational and the health community services the results generally have been very satisfactory, and occasion has seldom arisen for having two health services in a single community.

Since, as already explained, there is such a wide variety in communities, the task of placing responsibility for the control of communicable diseases in schools will be simplified if consideration is limited to communities averaging high as to resources and citizenship and to civic jurisdictions—county or city—having a population ranging from 50,000 to 500,000. Such communities usually have a board of supervisors, a mayor or a manager as a public administrator. The schools may have separate boards or they may operate as do other branches under the general community

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board or executive. There is usually a single branch or division of service for the levy and collection of all taxes. As to personnel, some may have a civil service system or operate otherwise on an approach to a merit system. Others unfortunately may be influenced by politics and enjoy only limited stability and efficiency.

Regardless of these variations, all the communities under consideration have their systems of public schools and all have their problems of controlling communicable diseases both inside and outside the public schools. Where should the responsibility be placed for properly combating these diseases?

One naturally thinks first of the responsibility that the parents or family should assume. Certainly the home should do all that is practicable toward protecting its children, regardless of age, from communicable diseases. If financially able to utilize the services of private physicians, the parents should have their children immunized at an early age—that is, during the infancy or preschool period—against diphtheria, small-pox, typhoid and other diseases against which it may be feasible with safety to secure immunity. The home should be supplied with safe water, the facilities for the disposal of night soil should be adequate, the heating, ventilation and lighting should be hygienically correct, and the house, particularly the kitchen and dining room, should be screened against insects that may convey disease. The food should contain the essential elements and be supplied in sufficient quantity. By example and teaching the parents should as far as possible protect their children against disease and disability and provide them with a healthful environment. The extent to which parents can meet this program will vary. Certainly it is impracticable for even the fairly well-to-do families to keep their children at home for more than a part of the time and they can do little to safeguard them against diseases for which immunizing or curative measures have not been developed. Again, many families are unable to provide themselves with the necessities of life, including medical care. Obviously, such families can do little to protect themselves or their community against communicable diseases. A number of families which could meet all or a part of the cost of immunizing their children are neglectful, careless or ignorant. It seems clear that the health of the community at best would be only partially safeguarded if complete reliance should be placed on parents. The economic factor is important with most families, but it is not the sole reason for failure of individuals and families to take appropriate protective measures against disease. It would seem then that there is some parental responsibility and that it should be developed as far as possible, but neither the community nor its schools can rely on it except to a limited degree.

The responsibility of the school for the control of communicable diseases is of particular interest. In the field of public services the schools usually have led. They began operating on an efficient basis with trained personnel that could meet reasonable qualification standards much earlier than have other community services. In general it may be said that in architecture, sanitation and hygienic conditions they have endeavored to set high standards in order that the pupils who enter them will enjoy health protection and not be subjected to needless health hazards. They have served as community demonstrations of correct health measures which the homes of the community would do well to emulate. The teachers in general have been required to

teach hygiene and health protection, and as a rule they have been taught to recognize promptly symptoms of communicable diseases, with the result that there is a minimum of delay in calling in the health officer and his aids at the first appearance of a contagious disease when the chances are best for preventing an epidemic. As already stated, some schools have employed their own physicians and nurses. The schools then, generally speaking, have been alert and have endeavored, as far as practicable, to protect the children and the schools from the serious consequences that may be caused by controllable diseases.

Notwithstanding the admirable health protection provided by the schools, the question is still: How far can the schools go and how far should they go in setting up machinery at public expense for the control of communicable diseases? Corrective measures with respect to tonsils, adenoids, teeth and the production of immunity as far as practicable should be completed before the child reaches school age and comes under the jurisdiction of the schools. To have these procedures completed before the child starts school is advantageous to parents, schools and taxpayers, makes for stronger and healthier children and minimizes the likelihood of epidemics interrupting the school work. After reaching school age the child will spend approximately 25 per cent of each school day under the jurisdiction of the school, but for the remaining 75 per cent of the school day and the 180 days, or about half the year, when the school is not in session, the school could not exercise jurisdiction over the child. Is not this period of school jurisdiction too limited to justify an attempt by the schools to assume responsibility for the control of disease among its pupils? Moreover, it is questionable whether the director of schools is qualified or should attempt to administer public service beyond the realm of education. Why should a school operate a medical or health service which at best can serve only that part of the community enrolled in the schools, and that group for only about 25 per cent or less of the school day and thus for less than half the days in the year? From the standpoint of the community government, the schools have an extremely important function, but to my way of thinking it does not include the operation of a health service, a police service or a social welfare service. But the relationship of the schools to these services should be quite intimate.

The private physician is an important factor in the control of communicable diseases inside and outside the school, provided he is qualified and his services are utilized. Every one, practically speaking, favors utilizing his services by all families that can pay him for his work in combating disease and for other services. He should not be expected to render services without compensation. Giving health protection of the kind the private physician might render to families who themselves cannot afford his services is a responsibility of the community as a whole. The question that has not been satisfactorily settled is: Shall the community hire the private physician to do such protective work and pay him on a fair basis or shall it require its full time employee, the health officer, to do the work? With respect to items such as immunization against diphtheria, the health officer's chief concern is that the child be immunized. He is not particularly interested in who produces the immunity. The financial problem in many communities has prevented the use of the private physician by the community in such situations. It has

been very difficult to secure enough public appropriation to pay salaries of a small full time staff for the health department. Only Detroit and possibly a few other cities so far have provided funds that could be used to compensate physicians for authorized protective services to families unable to pay. The private physician cannot be held responsible for controlling communicable diseases beyond the extent to which it is feasible to compensate him for his services. The same may be said of the local medical society. Both in and out of the school, physicians are actual and potential factors in disease control, but except when privately employed and compensated by families their work at public expense should be organized and supervised by the health department. This follows the procedure expected by taxpayers in the case of other public activities that they finance. As an influence in the education of the people in health protection measures, the physician likewise can and does play a useful role.

Since responsibility for protecting the health of the child can be assumed in part only by the family, in part only by the school and in part only by the private physician, we come finally to the public health department and a consideration of the extent to which it should be held responsible for the control of communicable diseases whenever and wherever they occur in the community, both inside and outside the schools. Divided responsibility is unsatisfactory. Since the community must have a general health service there seems no occasion for financing a second one just for the schools. It is important, however, that the families, the schools and the physicians should support the community health organization and cooperate with it in every way. Likewise the health service, if wisely guided, will recognize the value of these forces and utilize them and others that can contribute to the success of health measures.

It seems hardly necessary, after making the foregoing remarks, to discuss the community health organization and its responsibility for the control of communicable diseases, so far as may be possible, for persons of all ages and at all times and places. In its task it should utilize all the support it can secure from the family, the school and the physician. At times it may be necessary also to call on the courts and police for support. If the community is to center responsibility on its health department it must make provision for an adequate staff of competent persons, each trained for the task he or she is to perform. This involves ample appropriations and conditions of service that make for stability. Ideas as to adequacy of staff in terms of cost vary from 50 cents per capita to \$2 or more. The smaller the per capita expenditure the thinner in general will be the veneer of service. If the community services to fight fire, to enforce the laws or to combat disease are too weak to cope with situations as they arise, the consequences may be disastrous. Since the present object is merely to place responsibility specifically for the control of communicable disease in the community, there is no need to dwell on what the other functions of the health department should be or on the size and character of its personnel and budget beyond insisting that the organization should be adequate to make possible the discharging of its responsibilities.

In taking the position that the community should have a unified service for health, another for education and still another for social welfare (provision for the aged, the orphaned, the sick, the afflicted, the destitute and the underprivileged), I wish to state emphatically that such services should not be isolated compartments

working independently. Many community problems, such for example as tuberculosis, syphilis or nutrition, have ramifications in every phase of community life. Moreover, the economic base on which the community and its services rest may determine the scope on which operations of all kinds, including education and health, may be planned. This means, of course, that there should be planning and guidance for building up and maintaining family and community resources at a high level. All the major problems of the community should be appraised by competent but detached persons. Plans for balanced programs for the various fields of service should be formulated and they should be related to present and potential resources. Trained public employees should be used and they should be permitted to operate under a merit system. The taxpayer should get a proper return on his expenditures. The present competition among community services for jurisdiction and for public funds should be regulated and reconciled. By indirection I am asserting that many local community governments, such as I have under consideration, whether county or city, are not effective, efficient or economical. Were this not true, it would not be difficult to settle the question under consideration relative to placing responsibility for controlling diseases in schools. Community problems of much greater magnitude exist and efforts should be made to solve them. The members of boards of supervisors and town councils and the mayors or other executives in most cases undoubtedly mean well, but they are not trained for their official responsibilities and in general they are part time, and their thinking is largely about private matters. A few communities have replaced this antiquated inefficient system of administration by employing trained business managers, sometimes called public administrators, to run the public business. When they are successful in securing a qualified executive, he in turn can secure trained and competent associates in each essential branch of the community's business. Under this plan there is reasonable assurance of teamwork, coordination of effort and cooperation. The taxpayer's dollar under this plan will as a rule accomplish much and the director of schools and the director of health will have much in common and little, if any, disagreement, and they can expect the wholehearted and consistent backing of the manager. The results in health protection and in other directions desired by both will be obtained through harmonious cooperation. While some communities are awaiting the arrival of this hoped for era, which I believe is on the way, I would urge that the community have but one health service and that the directors of education and of health jointly plan the best program of health protection for the community, with emphasis on the schools, that can be supplied with the financial resources in sight.

49 West Forty-Ninth Street

Success Dwells in the Silences—With a background of family practitioners, I have, by the fall of the dice, come to lead a life different from theirs, not so sequestered as that of some, but sufficiently so to let me estimate the recompenses and weigh the satisfactions which come from an existence of the two kinds. Certainly the self-sacrificing career of the practicing physician, respected and beloved of his community, is no less, perhaps even more, character making and ennobling than the secluded life of a pure laboratory worker, whatever be the importance of his researches and discoveries. In either case "success dwells in the silences though fame be in the song"—Cushing Harvey. *Consecratio Medici and Other Papers* Boston Little Brown & Co, 1928

NUTRITION PROBLEMS IN EDUCATION

JAMES S McLESTER, M D

Medical Director of the Birmingham Public Schools

BIRMINGHAM, ALA

It is a principle of the school system in which I work that the health of the child comes first. This is an expression not merely of solicitude for the child's comfort and happiness but of the realization that it is the healthy child who can make best use of the education offered him. Indeed, it is a part of our creed that in childhood even the development of character proceeds more surely in the presence of health. It is recognized, too, in the Birmingham schools that good nutrition is a prerequisite to health, and every effort is made to see that the child is properly nourished. These efforts extend in many directions.

To evaluate properly the nutritional status of the child is no easy matter. It has been suggested that use be made of precise methods which measure the exact degree to which the pupil is lacking in certain specific food factors, but such precision is not possible. True, efforts are being made to devise methods of this type, an example of which is seen in the Jeans photometer, used for the detection of vitamin A deficiencies, but these methods will find the greatest usefulness in the study of limited groups of children rather than in a general survey. Even to measure the precise degree of anemia from which the pupil suffers, which is an excellent way of detecting nutritional failure, is not feasible, for red cell counts and hemoglobin estimates on large groups of children are for many reasons impracticable. Anemia can be searched for in the school only by looking at the child's skin and mucous membranes. In spite of its inherent fallacies, it seems to me that the best criterion of the child's nutritive state is to be found in a comparison of height and weight. There are today few short cuts to diagnosis in medicine and none to the recognition of the nutritive status of large groups of school children. In this field, as in so many others in medicine, dependence must be placed on careful general observation and the putting together of the information obtained from many sources.

Nutritional failure in America is seldom simple or complete. It is, as a rule, multiple and incomplete and correspondingly complex. True, scurvy, active or latent, rickets, beriberi, perhaps, and in my section pellagra are occasionally recognized in the school child, but such well developed clear cut forms of deficiency disease are extremely rare, so rare in fact as to be of little interest in this discussion. It is the vague borderline case of nutritive failure of mild degree that is most interesting, for such cases are frequent. I am thinking of the child who doesn't get quite enough to eat, who is permitted to govern his diet by bizarre likes and dislikes, who has nervous anorexia, who thinks he can't drink milk or who will not eat because he is in too much haste to return to his play and who, as a result, is underweight, easily exhausted or nervously unstable. To recognize disorders of this type and to correct them is a prime duty of the school physician.

To what extent does the state of the child's body interfere with his ability to utilize his food properly? Fortunately it is not necessary to consider here, as one

must in adult life, the "conditioning" of the gastrointestinal tract that comes from addiction to alcohol and other types of injury. Indeed, I know of no similar influence in childhood, but there are other disturbances, notably foci of infection, which are almost equally potent. Animal experiments and clinical experience both indicate that in the presence of a focus of infection certain food factors are poorly utilized. In the presence of diseased tonsils, an infected sinus or an abscessed tooth, for example, it is sometimes well nigh impossible to correct the child's secondary anemia, the iron administered is utilized poorly if at all. There is definite evidence too, that vitamin A is utilized poorly in the presence of an infection. Remove the offending focus and the difficulty disappears. This applies to other nutritive substances. For this as well as for other reasons the eradication of infection becomes an important part of the nutritional program.

Should the school content itself with merely the correction of recognized nutritional failure and ignore the opportunity for enhancing the development of the apparently normal child? Should it ask only that the diet be adequate? The answer is definitely No. I should like to emphasize the little known fact that adequate and optimum as related to diet are by no means synonymous. The aim should be to reach the optimum.

Experience with the albino rat has shown that by suitable additions to a diet that previously has been regarded as adequate an entirely new race of rats, of greater vigor and larger stature, can be produced. Likewise, studies of population have shown that something similar can be accomplished for the human race, in numerous instances improved environmental conditions, notably with regard to food, have resulted in a more vigorous, taller race of men and women. The time to improve the environment is in childhood. In the Birmingham public schools it is realized that the child should have the optimum diet and that to secure this for him will require not only supervision but also education of three groups, the pupil, the parent and the teacher.

How is this to be done? The greatest energy should be expended not on individual, selected children but rather on the student body as a whole. Only too often home visitors, nutrition workers and school nurses become keenly interested in the individual case of obvious nutritional failure and focus all attention on this one child. His nutritional history, his dietary habits and the habits of his family are all closely scrutinized, and with good result, but the scope of such work is too limited. I realize fully the importance of correcting individual instances of nutritional failure, but this shrinks into relative insignificance when compared with the good to be achieved through improvement of the nutritive status of all the pupils. Not only will numerous cases of minor, unrecognized nutritive deficiency be thus corrected but the development of a large group of pupils will be materially enhanced. This demands well planned educational efforts addressed to the group as a whole.

To what extent is it proper in the teaching of health to emphasize the essential nature of any one food factor or group of factors? This, I am afraid, when carried too far is a dangerous thing. It is apt to lead to one of the greatest causes of nutritional failure in America, food faddism, a fault which the teacher of nutrition must constantly combat. I hasten to add that an exception should be made in the case of milk. Because of

its importance to the child I think it proper to emphasize time and again the great value of milk, but, for example, to say too much about fruits and green vegetables, and their richness in vitamins and minerals, and too little about meat and eggs may result in the making of vegetarians. This would be a grievous mistake, for few forms of mental invalidism are more insidious than vegetarianism. The teaching should include instruction in the value of each of the foods and the place each should have in the diet, and emphasis should be placed always on the danger of the one-sided diet.

Experience taught us in the Birmingham schools many years ago the great educational value of the nutrition class. The underweight and otherwise undernourished children were placed in special classes and given intensive instruction in nutrition. In addition, each child was required to take specified amounts of milk, and graphic wall charts were kept of the gains in growth and weight. At intervals graduation exercises were held and pupils who had reached the requisite body weight and nutritional status were given an appropriate diploma. I emphasize the importance of the nutrition class not alone because of its help to the undernourished pupil but because of the manifold ramifications of its influence. The instruction given in these classes gradually percolated throughout the entire school and came in time to influence the dietary habits of an appreciable proportion of all the pupils. It was early noted, for example, that the milk sales in the lunch room were increased in each of the schools in which nutrition classes were established. Also, the influence of the class reached into the home and not infrequently influenced the dietary habits of the pupil's entire family. We encouraged ourselves to believe that we were improving the nutritive status of the entire community.

The responsibility for the teaching of health does not rest alone with the department of child health. In the school plan which has been developed in my city, this department examines the pupil, plans the work, offers advice, prepares bulletins for guidance and conducts a certain amount of supervision, but the greatest part of the instruction is given by the teacher. She is asked to correlate this instruction with her other work, for example, the writing of theses on nutrition may be used as a drill in English or the making of nutrition posters in the study of art. Of great importance are the auditorium exercises, of which the schools devote one each week to health. There are lectures on health and other exercises, and not infrequently a play about health is staged by the pupils. The teacher of the past generation did not prepare herself to teach nutrition or to give other forms of instruction on health, and it has not been an easy matter to demonstrate to her that this subject is just as important a part of the school work as the teaching of English. Gradually, however, she has come to recognize the part she is expected to play and is developing a genuine interest and enthusiasm for her work on health.

Of great help in this field of instruction is the example set by the lunch room. Although for various reasons the lunch room may best be conducted by an independent school agency, the maintenance of a relationship of cordial helpfulness between this agency and the department of child health is not difficult. We have not found it so. The department of child health of the Birmingham schools has no direct authority in the lunch room, but its advice is frequently sought on important matters, and its suggestions have always been adopted without question. In this way it has been possible to

provide menus that are both nourishing and wholesome, and the example of these has been of distinct educational value.

CONCLUSIONS

A nutritional program for the public schools should include not only measures for the detection of the individual case of nutritional failure but comprehensive efforts toward an improvement in the nutritional status of the entire student body. It should be broadly educational.

HEARING PROBLEMS IN EDUCATION

HORACE NEWHART, M.D.

MINNEAPOLIS

My purpose in this paper is to emphasize the responsibility of the educator and the physician in meeting the needs of the hard of hearing school child.

The possession of normal hearing acuity is necessary for a normal growth in intelligence, the acquisition of articulate speech, the development of a personality capable of winning success, and the attainment and preservation of one's economic and social security. These objectives should all be included among the aims of a modern education.

From the otologist's point of view the hearing problem of first importance in education is the prevention of hearing deficiencies and the conservation of hearing among school children.

A definite mandate to this effect was directed to educators and the medical profession alike when, at its meeting in 1926, the House of Delegates of the American Medical Association, on the recommendation of the Section on Laryngology, Otology and Rhinology, passed the following resolution:

Recognizing the fact that the most effective means for the prevention of deafness consists in the early detection of hearing impairment, thereby giving opportunity for the prompt removal of contributing causes and believing it to be one of the important functions of our public school authorities to safeguard the integrity of the special sense organs as well as the general health of the school child be it

Resolved, By the Section on Laryngology, Otology and Rhinology of the American Medical Association that it heartily favors the provision by our public school authorities for regular, periodic examinations of the hearing acuity of all public school children, such examinations to be adequate to detect even slight degrees of hearing loss.

The obvious purpose of this resolution was to encourage the general use of scientifically accurate methods for the routine testing of the hearing of all school children, such methods having been made available by the release of audiometers of various types, particularly the 4-A or phonograph audiometer designed for group testing of school children in a practical, economical way. The older methods—the watch-tick, whisper, conversation voice and acoumeter—as ordinarily applied had proved sadly inadequate for this purpose.

This resolution was promptly adopted by all the national organizations composed of otolaryngologists and by many other national, state and local groups, including the American Federation of Organizations for the Hard of Hearing, now the American Society for the Hard of Hearing, and the American Student Health Association. Practical endorsement of the principle of early detection and prompt corrective treat-

ment implied in the resolution has since been made by the boards of education of many widely distributed American communities in which the use of the audiometer has been incorporated in their respective school health programs.

The most outstanding and inspiring endorsements of the principle recently have been made by both the state and the city of New York. During the past two years the Board of Education of New York City, with the liberal support of federal and state funds, has put in successful operation as PWA Project 188-1177 a most comprehensive survey of the hearing of public and parochial school children, including the medical and educational follow up necessary to insure the child with defective hearing an equal educational opportunity with the normal hearing child.

This survey has included a screening test by the 4-A audiometer and a second test by the same means of all pupils found to have an apparent loss of 9 decibels or more. All who by the second test again showed a loss of 9 decibels were further checked with the 2-A audiometer, a pitch-range instrument used for determining hearing loss by pure tones over a range of from 64 to 8,192 cycles. This method has the endorsement of the state education department of New York and is already in use in many communities of the state. The program includes the reference of cases presenting discovered hearing impairment to the private otologist or, in indigent cases, to the otologist acting for the interested welfare organization.

During the past year the state of New York has enacted legislation making mandatory the testing of all public school children by the audiometer. This legislation was endorsed by and became effective through efforts of the Medical Society of the State of New York, the state education department and the state board of health, as well as by the New York League for the Hard of Hearing and other chapters of the American Society for the Hard of Hearing, and many civic-minded groups throughout the state. These two notably successful steps in the effort to conserve the hearing are a fine example for similar action in other states.

Surveys of the hearing already made by different observers have brought out many important facts pertinent to this educational problem.

The older methods of testing hearing acuity, because of their inaccuracy, disclose a definitely smaller number of children having a significant hearing loss than is revealed by the audiometer. Certain discrepancies noted in the results of the tests occur from failure to observe fundamental acoustic principles necessarily followed in testing hearing acuity by any method, the most important being that no test can be accurate when made in the presence of distracting or masking noises. Each ear must be tested separately, as is done with the audiometer, the other ear being excluded during the test.

The 4-A audiometer and its improved successor, the 4-B instrument, are used for expeditiously screening large groups of pupils who are old enough to write to dictation and for checking younger children by individual tests to disclose those having a significant hearing loss. The latter require a careful otolaryngologic examination including a check up by a pitch-range audiometer whenever possible.

The supervision of such tests, their standardization and the provision for the medical follow up and, in case of indigence, provision for the indicated medical or surgical corrective treatment, constitute a hearing prob-

lem the solution of which should be directed by the state medical service. The closest cooperation between the state board of education and the state board of health is here necessary.

It should be emphasized that the needed medical care, whenever possible, should be rendered by the private practitioner or the otolaryngologist. To counteract the possible apprehension that these state-directed activities may lead to an alienation of the private patient from his physician, it has been suggested by Dr. Burt R. Shurly, an otologist and a member of the Detroit Board of Education, that the name of the family physician be regularly placed on the health records of all public school pupils.

All indigent hard of hearing children should be provided with needed medical care equal in quality to that received by the private patient. The local physicians rendering this service should be adequately compensated in a manner not prejudicial to the interests of the medical profession.

The question of state-operated ear clinics, stationary or ambulatory, is one of local expediency. In certain rural areas they are especially needed.

Audiometric surveys of school children have revealed the important fact that a slight hearing defect, in some cases not recognized by the pupil himself, his parents or his teachers, often causes retardation, speech defects, an inferiority complex and unsocial behavior problems.

Retardation, the pest of the teacher and a burden to the taxpayer, which results from many causes, occurs at least twice as often among children with a hearing defect as among normal hearing children. Speech defects have been shown to occur eight times as frequently among hard of hearing children as among pupils who hear normally.

Statistics for the occurrence of an inferiority complex and behavior problems due to hearing defects are not available, but every experienced teacher and staff member of a child guidance clinic knows the damaging results from diffidence, discouragement and lowered morale in the child who has failed because of an overlooked, neglected or uncompensated hearing deficiency.

The periodic testing of school children with the audiometer in Minneapolis over a ten year period has proved the effectiveness of this procedure in definitely reducing the incidence of hearing impairment in the school population. While this in part has resulted from such factors as immunization, stricter isolation of cases of contagious diseases and better hygiene, the marked drop from 8 per cent in 1926 to 5.3 in 1936 is due chiefly to the production of a greater community ear consciousness, especially on the part of parents.

Defective hearing is definitely more prevalent in rural areas than in communities having an effective school health program. In the rural schools adjacent to Minneapolis, according to a survey made as a University of Minnesota WPA project, the incidence of a significant loss of hearing was found to be 13.6 per cent, while for the same age group, as tested by the same technic, pupils in the city schools showed an incidence of only 5.3 per cent. In this connection it is of interest to note that Minnesota public health nurses carefully testing rural school children by the old methods reported only 2.2 per cent as having a significant hearing loss, as compared with 8 per cent found among Minneapolis school children when the audiometer was first introduced.

Another important problem in education related to the hard of hearing pupil is that of providing instruction

in lip reading and speech correction in the regular schools for all pupils who need it in order to keep up with their classes. Those with a severe hearing loss and having marked speech difficulties who cannot advantageously continue in regular classes must be given this special help in residential and day schools, but they should not be segregated with the totally deaf, which practice, in the opinion of those best informed, is a gross pedagogic error. The determination of the degree of hearing loss requiring special instruction and admission to a special school should be made on the recommendation of a qualified otologist.

A further problem which demands the attention of the educator is the provision of suitable electrical hearing devices for such hard of hearing pupils as can be benefited by their use, in the form both of portable or semiportable individual hearing devices and of multiple aids for use in group instruction in grade subjects and for speech training and correction. Marked improvements recently made in the efficiency of electrical hearing aids has greatly broadened their field of application. Audiometer tests of pupils in schools for the hard of hearing and the deaf disclose the fact that some of the pupils have sufficient residual hearing to have enabled them to pursue their education in the home school, could they have been equipped with a modern hearing aid in early childhood. They had been placed in special schools because of their speech difficulties.

Another hearing problem confronting the educator is the conservation of residual hearing. Even a slight remnant of hearing power in the speech range, when supplemented by lip reading and, in suitable cases, by a hearing aid, is useful in acquiring speech and in preserving rhythm, flexibility, enunciation, accent and other qualities. Therefore it is important to guard all pupils, especially those in day and residential schools, against infections of the upper respiratory tract and contagious and other diseases that are likely to cause further hearing loss.

Two further hearing problems that are related to education are vocational guidance for older children and the provision of instruction in lip reading for adults. The latter is being satisfactorily met in many cities through cooperation between boards of education and local chapters of the American Society for the Hard of Hearing.

The problem of deafness prevention and the best care of the hard of hearing is a national educational and medical problem of large magnitude. The two chief obstacles that stand in the way of its early solution are, first, a general lack of knowledge concerning the fundamental principles involved and the large possibilities of attainment through intelligent, organized effort, and, second, the pathetic lack of needed funds.

The first obstacle can be overcome only by a well directed campaign of education among physicians, educators, parent-teacher organizations, teachers in training, social welfare workers and legislators.

The second obstacle, the urgent need of funds, can be met by well planned, national and state welfare and social security legislation. The necessary leadership to secure effective legislation of this kind can best come from those organizations which are here represented, namely, the American Education Association and the Section on Pediatrics and the Section on Preventive and Industrial Medicine and Public Health of the American Medical Association working in cooperation with parent-teacher groups.

78 South Ninth Street

LIGHT IN THE SCHOOLROOM

EDWARD JACKSON, M.D.

DENVER

The command "Let there be light" was the beginning of creation, and all created life has found it "was good." Plants and animals transform the force of the sun's rays into food and life. The human race, in all languages, has used light to interpret joy, hope, intelligence, information, truth. The contrast of light and darkness explains the contrast of good and evil.

Each day in the past winter I have watched the children running to school, shouting to one another, happy to greet one another, to get together for a few minutes outdoors on the playground. It seemed so different from Shakespeare's picture of "the schoolboy with shining morning face, creeping like a snail, unwillingly to school." There seemed no reason for this contrast except that the playground was out in the sunlight and the schoolroom was in comparative darkness. Perhaps the schoolrooms were even worse in Shakespeare's time than they are today.

The bright joy of childhood comes to the child in the sunlight. There is no reason why he should be deprived of it. Long ago the fear of enemies drove cave dwellers into darkness or into forts for protection or people have been driven into houses for rest. These have made the darkness of the shut in and have made us tolerant of poor lighting. Our churches for introspection and colleges for instruction have given to near-darkness a prestige and toleration that make them suggestive of learning. But the child has lived outdoors in all ages, drawing health, strength, stimulus and joy from the sunshine. It is a serious change from the free, self direction of childhood—the following of race instincts and the outlet in games that have been played for generations until they fit in with the natural development—to the performance of imposed tasks, justified only by their preparation to meet the needs of later life. This change is made more difficult by the requirement of giving up, with freedom of conduct, the stimulus of good light.

If school could begin with two years of supervised play, in outdoor playgrounds, with full light, it would help to get the full cooperation of the child. Loss of the child's hearty, interested cooperation is the first grave error of our educational system. It is a more serious error than we have known. It has set up an opposition between natural desire and suggested tasks, between normal activity and purposeful occupation, between what we want to do and what is expected of us. It sets up a conflict between study and health. Those who most need health sacrifice it for study. Those who most need opportunities of study throw them away to cultivate the natural desire for health and bodily vigor. Failure to recognize the child's inherited need and enjoyment of light outweighs in effect much of our labor on the curriculum and skill in pedagogy.

More than all else, it lowers the child's standards of health as a main objective. This is a loss which even a lifetime study of health and the health interests of patients fails to restore wholly. Let us understand this in preparing to deal with all the health problems in the schools. We, who have to consider the problems of

vision in the schools, are constantly being reminded, and are often baffled, by the low standards of lighting needs that are prevalent in the community

The light standards of the children are the light standards of the human race, the light standards of savage men who hunted and fought and worked under the open sky. They are the light standards of the higher animals that see their food and their enemies by the light of day, not that of the owl, the hyena or even the wolf, guided by the sense of smell and mainly hunting at night. The child's standards must also include those of macular vision, to recognize the minute differences in the forms of letters, textures and structures which require more light than the objects perceived in the peripheral field of vision. The only standards acceptable for the school are those of optimal vision—the highest visual acuity, the easiest and quickest vision, good light on a cloudy day and in the morning and evening.

If we wish to inculcate principles of justice, we must practice equal justice in the essentials of school life. A physician who became the health officer of his city and the president of his state medical society knew, as a boy, that he was near sighted. But his father did not "believe" that boys should wear glasses, and his teacher's ideas of justice did not include peculiarities or disabilities of particular boys. His teacher wrote something on the blackboard and told William to read it from his seat. William said "I cannot see it." "Yes, you can," said the teacher, and told the next boy to read it, who read it promptly and easily. "Now you can see it," said the teacher. "I can't see it," repeated William. Then, as William told it when he was president of the medical society, "he boxed my ears and gave me ten demerits."

With the light meters of the present day, the light that falls on each desk and book can be measured in every part of the schoolroom. Doing this in some of the best lighted schoolrooms of Denver, we found that the light at the bottom of the windows opening to the clear sky was from 100 to 200 foot-candles. On the tops of the row of desks nearest these windows it was from 40 to 50 foot-candles. On the desks farthest from the windows it was from 5 to 10 foot-candles, and on the blackboard smeared with chalk, on which were written things for all the children to read, it was always less than 10 foot-candles, in some parts of the room the eyes had also to contend with glare of the reflections of the windows.

In the School Clinic of the University of Colorado Medical School, we found two sisters who had reached the seventh and eighth grades in school and who kept up with their classes. This doubtless depended on their using very strong light and getting much help from other members of their family, for they each had 15 diopters of hyperopia—more than is commonly left after removing a cataract from an eye that has previously been hyperopic.

Justice requires something more than good light in the schoolroom. But it cannot be done without adequate light for all the children. And this cannot be attained until teachers and parents and pupils understand what is good light and its great importance at all times. When all of these have mastered this essential, school authorities, school architects and school financiers still have to be educated to know that good lighting and justice are worth having in any community.

HEALTH EDUCATION AND HEALTH SERVICES IN SCHOOLS

FROM THE POINT OF VIEW OF THE
"EDUCATOR"

JAMES FREDERICK ROGERS, M.D., DR.P.H.
Consultant in Hygiene U. S. Department of the Interior,
Office of Education
WASHINGTON, D. C.

The term "health education" has been used to cover all conditions and activities influencing the health of the school child. In this sense it includes the school health service but since, in the subject assigned, I have both "health education" and "health service," it must have been the intention of the program makers to limit the former expression to health instruction. The title might then be reworded to read "The Health Service from an Educational or Informational Point of View."

The teacher and the physician or, to be more exact, a few teachers and a few physicians, have always been mutually interested in the welfare of the school child. The first book on hygiene intended for the use of students was written 350 years ago by a physician who was also a teacher. A hundred years ago Horace Mann, an educator, was the leading agent in efforts to improve schoolroom conditions and to furnish instruction in hygiene to all children. But he was ably abetted in his endeavors by a physician, William Alcott, who was the author of an interesting textbook on physiology and hygiene for the use of schools. Alcott urged the adequate training of teachers in "a thorough and practical knowledge of the science of human life and health." Moreover, he expressed his "doubts whether our common schools will ever become what they ought to be as places for the promotion of health until they are brought under the care of judicious medical men. For, say what you will of the novelty of such a plan or proposal, our schools ought to have their regular physicians, as much as our houses of industry, our almshouses or our penitentiaries." He continued, "there will be daily or hourly recurring cases" which "the honest, faithful, enquiring teachers who have had their minds turned to the subject of health will want to present to the medical man at his semiweekly, weekly or monthly visits."

In this prophetic proposal of a school health service, it will be noted that the service was not to be carried on by physicians but by physicians with the assistance of the teachers.

When, a half century later, this dream of Alcott's became a reality, the duty of the fifty "medical visitors" appointed to the schools of Boston was to inspect the children previously selected and sent to them by the classroom teachers as showing signs or symptoms of disease. They made the diagnoses but the teachers did the examining. We sometimes become fretful over the seeming lack of results from our schemes of medical inspection and it is encouraging to remember that in four months 9,000 children were suspected by the Boston teachers as ailing, and the suspicion was confirmed in the case of 5,825 pupils, or nearly two out of three, and 1,033 were sent home. The great majority had skin diseases, but there were fifty-eight cases of diphtheria, nineteen of scarlet fever, forty-two of measles, 178 of whooping cough, thirty-five of mumps, twenty-two of chickenpox and seven of congenital

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syphilis. Considering that the teachers were not at all trained for this function, they had done a good piece of work. The superintendent could well comment "I believe the importance of this work can hardly be overestimated."

This beginning in health services (in which the educator and physician joined forces for the reduction and prevention of disease) was brought to pass after much effort by a public health official who was himself a physician. It was chiefly a police and a protective, and not an educative, measure. In other words it was a service, but it was a service to education in that it reduced absenteeism on account of illness and improved the condition of those who had been plagued, while present, by itch mites, head lice and other signs of insanitation.

Educators had long been more or less concerned over the child with poor vision and the deafened pupil and had sometimes asked the parents to consider the need of seeing a physician. Five years after the systematic search for disease was instituted in Boston, the state of Connecticut passed a law requiring the examination, every three years, of the vision of school children. Here again the examining was to be done by teachers, and when vision was defective the parents were notified, in the hope that something would be done about it. This examination could have been used in connection with health instruction, but the teaching of hygiene was falling to a low ebb since its high water mark in the eighties and the examination proved largely a service, although it helped to impress some children and some parents that there was such a thing as poor vision, which could often be improved.

Beginning with this examination of the most important mechanism of the child having to do with his acquisition of knowledge, the interest of educators, or physicians employed by schools, extended to an appraisal, of various degrees of thoroughness, of other bodily conditions that might affect the child in his school progress. In seven states the responsibility of making these more extensive examinations is laid by law on the teacher and in eleven more the teacher is included among the examiners, although in only two states is any training for this function to be furnished.

Since this was a development from the search for scabies or for scarlet fever, the same afterfinding procedures were followed. While the child was not sent home, a note was sent to the parent telling of conditions that seemed to exist and concerning which a physician should be consulted.

Growing, as it did, out of the search for communicable disease, for which at this time there were, except for smallpox, no preventive measures other than isolation, it did not occur to the examiner that something more than a notification might be desirable. However, some educator, school physician or school hygienist suggested that the medical inspection should be made more of an educational event for both child and parent, and the only way to make this event truly educative is for the examiner to take the person most interested, the parent, into his confidence, first hand, and to ask him to be present at the examination.

Of course, when the process of examination consisted in the scanning of a dozen or so children per minute there was no possibility of having any one present besides the physician, child and possibly a recording angel in the person of a nurse. This speedy process was not the fault of the educator, and the educator in the person of the teacher as first examiner was left out

of account. There was a serious neglect of an important historical precedent.

Attempts have been made in certain grades at school to prepare the child for his physical examination by explaining how it will be done and that its purpose is not merely to find what is wrong with him but to help him to keep fit for work and play. The value of periodic examinations is emphasized. The examination has also been used by many teachers as a hook on which to hang lessons concerning health. Such teaching should produce good results, but it does not compensate for a lack of intimacy and understanding with parents and especially in connection with the examination of children in their earlier years.

The purpose of the health service is not merely to find defects or diseases but to get something done about them. Something had to be done about communicable diseases, but the matter of defects was not taken so seriously. Little attention was paid to the curt note sent by the principal in the earlier days of medical inspection. The parent was not present at the examination and did not know what it was all about. The laborious visits of the school nurse helped to enlighten the parent but, even so, as low as 15 per cent of defects treated or corrected are still reported, which means an enormous waste of time and public funds. Moreover, if at all educative, it would seem to be in the direction of developing a feeling of futility toward the efforts made by the school, for the parent sees that his child usually survives despite his refusal to follow the advice offered.

The child not only survives but gets along in school, for except in a very small proportion of children (those having very gross defects) there is little evident relationship between physical condition and school progress. There may be a relationship between even minor ailments and fitness for work and play sometime in afterschool life, but the medical service might confine itself to conditions which it is certain may prove a menace and are worth the cost and sometimes the risk of treatment.

Here again we need to take the parent and teacher into our confidence to make sure we are right before we go ahead. There is considerable evidence that if this were done not so many tonsils would be sent to the guillotine and the evidence of good results would be less dilute than when 90 per cent are recommended for this not altogether safe ordeal. The same is true for other conditions often labeled defects.

In one of our school systems, two thirds of the glasses prescribed and fitted were found to be residing in a drawer at home instead of on the noses of the children for whom they were intended. In England, of 1,000 children who had been supplied with glasses and who had been out of school six years or more, only 50 per cent were wearing them. Treatment was forthcoming in all these cases, but was the treatment needed or was it followed up to see whether there was need of further treatment?

Of seventy school physicians one, according to Newmayer, pronounced five children out of 1,000 anemic and another 250. Either the former was right and the rest were all wrong or the latter was correct and the others mistaken. Of the same seventy, one found nasal obstruction in 1 per cent, another in 22 per cent. If only five in 1,000 need treatment for anemia, we have no business trying to secure treatment for fifty times that number. Children cannot be standardized, and doctors will always disagree, but if we are not to waste public funds and if we are not to educate in the direction of considering the findings and recommendations of the

medical inspector of slight consequence, we should be conservative and should study the results of our efforts.

Every honest physician will confess that he knows none too much about any child whom he examines and he will be willing to learn all he can from both teacher and parent or from a colleague. The physician is always in need of education.

There is, in our school medical inspection records, a mine of information—a means of comparison of the treated with, for controls, the nontreated—a mine which, save in Philadelphia, Rochester and Minneapolis, has hardly been touched. Unfortunately we have as yet had only a handful of persons in our school health services who were interested in that service professionally and in reducing it to as nearly a science as the art of school medical examination can be made.

A most important reason for being conservative in our observations is the difficulty of securing treatment for those children whose parents cannot afford to pay. The educator and his agent, the medical inspector, have no wish to set up treatment clinics except as they are obliged to do so in order not to waste the efforts put forth in finding the conditions recommended for treatment. In the case of dental defects they are justified by the overwhelming problem of treatment that swamps the dental profession. There is also the matter of refraction. The cost of refraction by a private physician is often prohibitive for a large percentages of cases and some public means for this service and for the supply of glasses is often imperative. However, the school would gladly have this work of treatment done outside its walls. But it wants it done by somebody in order to achieve what it starts out to achieve—the physical betterment of the child.

In the beginnings of the search for conditions in the mechanisms of the child that might possibly be improved, there was no intention of taking this work out of the hands of the private physician. Although this was an innovation in medical procedure, parents were often asked to have the routine examination made at first hand and before the child was sent to school. In the medical inspection law of New York State passed twenty-four years ago, every pupil was required to furnish, annually, at the opening of school, a certificate signed by a duly licensed physician stating whether the pupil "is in fit condition of bodily health to permit his or her attendance at the public schools." If the certificate is not presented, a notice is to be served the parent and if a certificate of physical fitness is not forthcoming within fifteen days the penalty is an examination by a physician employed by the school. Ninety-five out of a hundred parents prefer to pay this money-saving penalty, so that this effort at securing examination by private physicians is a conspicuous failure. It is evident that other than a legal method of approach is necessary if periodic examinations, out of school, are to be secured, even by those who can well afford to pay for such examinations. Dr Smiley¹ has had something interesting to say on this subject, and recently an account was given by Dr Shurly² of progress in the linking of the educator and the family physician in Detroit. It is to be noted, however, from this article, that in some schools only 22 per cent of families have such a medical relationship.

The educator or the school health service has no desire to minimize the work of the private physician,

although it has not always done what it might to emphasize his importance. Nor has the physician any desire to have any child go untreated, or without adequate treatment. There is usually need for more sympathetic and systematic junction of forces to determine in each community where the lines are to be drawn between families that can and those that cannot pay and to see that all children are treated.

As useful as it is, the educator would like to see the health service reduced to a minimum and finally eliminated. It has helped to eliminate itself so far, for defects and chronic ailments are to a considerable extent the result of communicable disease, and the incidence of communicable disease has certainly been reduced. Defects are also a consequence of malnutrition, and while it is late to do anything about nutrition at school age, the educator and his health service hope that their teaching will have some effect on the nutrition of the next generation.

SUMMARY

From this historical review it will be noted that, as suggested a century ago, the teacher is an important agent in the school health service and, as Alcott mentioned, she should be better trained for this service. As a prominent school health officer remarked recently, "the teacher is the keystone of medical inspection." The teacher is the daily examiner, who is as important as the periodic examiner.

In the rapid shift from the isolation of communicable disease to attempts to improve bodily mechanisms, we have only begun to be educational. To be educational we shall need to take the parent into our confidence, and in so doing the medical examiner himself may learn something. He may also educate himself by study of the results of his own work.

It is not educational and it is a waste of time to attempt to do too much, and we need to be conservative in our conclusions and persistent in getting something done about them.

It is a part of education to see that the family physician is given the place he deserves in the social scheme. He should be the periodic examiner if possible. On the other hand, the physician should reciprocate by doing his utmost to provide treatment of the indigent.

The director of the school health service needs to be educated for making the most of his opportunities both for service and for study, in order that his service may be more economical, more effective and more educational.

The educator would, I am sure, be glad if the need for a medical service were a thing of the past, but at present he is in need of a better health service, a service better manned and better managed—one which cooperates fully with the medical profession and which receives the full cooperation of that profession.

U. S. Department of the Interior, Office of Education

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. FERRELL, MCLESTER, NEWHART, JACKSON AND ROGERS

DR. ALLAN G. IRELAND, Trenton, N. J. In facing this problem, it is essential that it be known what is meant by education. Great changes have taken place since our school days. Then it was a three R proposition. Today it is guidance toward human living and all that the term implies. Whatever aims are accepted for education there is one underlying theme: that education seeks first to perpetuate society; that is, the state. The best instrument or institution to date is the public

¹ Smiley, D. F. An Approach to the Problem of School Medical and Dental Service. J. A. M. A. 108: 435 (Feb. 6) 1937.
² Shurly, B. R. The Family Doctor. J. A. M. A. 108: 169B (May 22) 1937.

school Into it each year are placed the raw human material of every community in the nation It is this material we fashion and train to take our places as we pass on It becomes the state of succeeding generations and we hope a better state on increasingly higher levels of human living For this purpose the three R's and allied subjects alone will not suffice We are now in the process of weighing the accumulated knowledge of man We discard some and we save some Where we do this wisely we save those bits which go to give our young successors greater health, security and happiness To this end the core program is basically health—physical, mental, emotional and social The school staff is made up of specialists There are teachers of English, French, mathematics, music, home economics and others We approve of this Why not then such specialists as physicians, dentists, nurses, social case workers, visiting teachers, psychologists, psychiatrists and nutritionists? It is logical in view of the changing concept of education The superintendent of schools is the executive His job is integration, in which he holds the reins to these specialists He has one goal—education of the child in an all-round preparation for socialized human living To attain his goal, he can't drive half a team, leaving the other half to another agency, another executive The physician and the nurse are allies of the teacher They contribute their talents to the whole teaching process To do this with the whole-hearted cooperation that is essential, the specialists must be on the same team with the teacher and under the same captain

DR JOSEPH H KLER, New Brunswick, N J That there is need of a school health program every one will admit However, the scope of this program presents technical problems and problems of integration The processes of education are designed to complement the broad educational program of the home Our form of government did not endow the school with complete control over the bringing up of our children The home is still the unit of our civilization and as such must be the center of all our social processes Since education is dependent on health, a school health program is necessary As such we accept it The controversial points are its scope Why must we commit ourselves to a fixed program that all schools must adopt? We know that practically every community presents health problems peculiar to it Every school will present its individual problems Does it not seem reasonable to ask the cooperation of the medical profession with the school health authorities as well as the cooperation of the school physicians with the medical profession, as represented by the American Medical Association, in the development of an effective and mutually advantageous school health program? School physicians as a group need a helping hand With cooperation alone can we safeguard the health of our children and discharge our social and professional responsibility This cooperation can best be developed through meetings such as this one, where we may discuss our problems I therefore move that we extend our thanks to the committee in charge of this symposium and at the same time request the American Medical Association to arrange for a similar meeting to be held at subsequent annual sessions

DR THURMAN B RICE, Indianapolis I have been much interested in the papers concerning good hearing and vision There is one point which I should like to add to the discussion It has to do with the matter of character formation in relation to underlying physical defects Moderately short sighted children tend strongly to become bookworms and to develop without outdoor life or sports Such persons are likely to develop postural defects, owing to the fact that they do not get sufficient exercise They are inclined to have poor digestions and to be choice about their food, and then such persons become finicky This is due to the fact probably that they do not get a very broad conception of the surrounding world Moderately far sighted children are on the other hand, likely to be considered dull at school though they are bright enough outside Such children often come to be known as motor minded They love outdoor sports and activities but do not sufficiently appreciate the finer details of life, for example Glasses on these persons would tend to correct the underlying physical defect and tend strongly to improve their general reactions to normal living conditions Persons who are deaf are frequently inatten-

tive and strongly inclined to withdraw into themselves Not appreciating the annoyance that noise is to the normal individual, they frequently allow themselves to become unnecessarily noisy With reference to Dr McLester's paper there is one point which I should like to emphasize It is agreed that the modern generation is better fed than any previous generation and, as evidence of this, college students are now from 1 to 2 inches taller than were students of fifty or sixty years ago This seems at first thought to be definitely a good thing but one may wonder a little whether it really is or not If we have assurance that these boys and girls who are 1 or 2 inches taller and have heavier bones and muscles are really better off by being so, so far as I know there is no evidence that their hearts are correspondingly larger or that their kidneys have more tubules or better tubules Much as we admire a fine looking, upstanding young woman or young man, scientific caution compels us to wonder whether the parenchymatous organs are correspondingly developed If it should finally be shown that the heart, kidneys and other related organs are those of a person weighing 150 pounds it would certainly be no advantage for him to weigh 175 It might even be a handicap Nutrition is an extremely complicated phenomenon and cannot be measured in terms of height, weight or even red cell count or percentage of hemoglobin This being the case, it is still impossible to make sure just when nutrition may be said to have been the best

DR D F SMILEY, Ithaca, N Y If the present were the relatively simple civilization of the early Greeks, our schooling might well consist of philosophy to teach us how to think, and physical training Modern civilization has, however, long since outmoded this simple system of education We still try to teach children how to think but we have also added numerous factual and vocational courses We still too often continue to use the 'physical training approach,' forgetting (1) that in modern life physical development per se is not nearly as important as sound health habits, sound health knowledge, sound health attitudes and sound methods of health maintenance, (2) that physical training is only a small part of what school physicians, dentists, nurses, physical educators and specially trained health teachers can provide to protect and promote the health of school children What is most needed in our public schools is a preventive medical program built along lines of the six-point public health program of our city health departments, i e, communicable disease control measures, sanitation, child hygiene measures, vital statistics, public health laboratory services, health education Assuming that this goal was adopted, what would be the essential steps in approaching it? I would suggest five steps 1 Develop short training courses, which will prepare school physicians to attack the health problems intelligently and on the preventive medical basis 2 Develop a standard contract to be used by all physicians in their contractual relations with the public schools, this contract to set certain minimum standards as to the program of activities and the staff to carry it on It would not permit of a half time physician being asked to examine 4,500 children each year 3 Develop among the medical profession the following conceptions of school medical service (a) It is not a treatment service, (b) it is not expected to provide each child with a meticulous medical examination annually (that is the parents' responsibility and family physician's function), (c) it is expected to provide a continuous health supervisory service based on the continuous screening by the classroom teachers, (d) it is expected to provide certain group tests, and (e) if properly organized it can be made a high grade preventive medical service to which any doctor can be proud to contribute through a lifetime of service 4 Train all elementary teachers in the observation of the child's physical condition and in the elements of health instruction suitable to his age 5 Develop at our universities special training courses for health teachers who will superimpose on a foundation of science courses and professional education courses a course in health education which will prepare them (a) to present adequately to high school pupils the facts of modern preventive medicine and (b) to keep their health knowledge abreast of the many changes and additions that are being made to health knowledge from month to month

WOOD TICK PARALYSIS IN CHILDREN

E. J. BARNETT, M.D.

SPOKANE, WASH.

Wood tick paralysis in children¹ is acute and progressive but usually afebrile. The child awakens in the morning feeling entirely well. However, as soon as he attempts to stand alone he collapses. In an effort to walk with support the gait proves ataxic. In a few hours, walking and even standing with support become impossible because of the progressive and increasing muscular weakness. At the beginning of the illness it is generally difficult for the child to feed himself on account of the ataxic movements of the upper extremities, and after a few hours self feeding will probably be impossible.

The tick which has caused the paralysis has usually been feeding and engorging for six days. It may be attached anywhere on the body. Ticks have been recovered in cases of paralyzed children under my care from the axilla, the groin, over the mastoid region and over the lower part of the spine. However, I have most often discovered the ticks in the occipital region of the scalp. Prompt removal of the tick, which is easily accomplished by gentle steady pull, is always followed by rapid improvement, with complete recovery in about forty-eight hours. Delayed removal is, in most cases, without avail, because fatal respiratory paralysis develops. In adults and in larger animals the paralysis is far less likely to be fatal, it may be localized to an extremity and followed by complete recovery even though the tick is not removed promptly. Ticks that I have taken from paralyzed children have been reported to be impregnated female wood ticks. Attempts to reproduce the paralysis in animals, the same ticks being used, have been uniformly unsuccessful. After detachment the engorged female usually refuses to refeed.

Knowledge of tick paralysis has not reached the majority of older physicians or, it seems, even the majority of pediatricians. Recent medical graduates are often without any information on the subject, though they may establish practices in the affected area, where damaging criticism follows missed diagnosis. Physicians frequently confuse tick paralysis with the ascending type of acute poliomyelitis. Tick paralysis in man has been reported from Australia, British Columbia and the five states of Montana, Oregon, Wyoming, Idaho and Washington. Attention has also been directed to the occurrence of the paralysis in animals, usually sheep and cattle, in the same districts, in Crete and in Cape Colony. The range of the wood tick extends outward beyond the Rocky Mountain region and adjacent areas to include a total of thirteen states. It is not unreasonable, therefore, to anticipate the occurrence of tick paralysis in hitherto unreported localities. It is fortunate that the annual wood tick season is about completed by the time of early summer travel. Consequently, cases of tick paralysis are usually limited to permanent residents.

It is interesting to learn that in some countries tick paralysis is transmitted by species of ticks other than the wood tick. In Australia it is due to the common

scrub tick, *Ixodes holocyclus* Newmann, in Cape Colony a still different species, *Ixodes pilosus* Koch, is the offender. Experimental tick paralysis has been produced by laboratory workers² in Germany from the eggs of the brown, or tropical, dog tick, *Rhipicephalus sanguineus* Latreille, although in nature this tick has never been reported to have caused paralysis. This brown dog tick is common in the United States, where, however, it rarely bites man, though in certain other countries it is reported to bite man frequently. In the United States thirteen species of ticks³ are found, of which five species are agents of disease, five potential agents of disease and three only indirectly connected with disease in man. Paralytic effects are limited to the wood tick. It should be noted that in the United States tick paralysis, like other tick-transmitted diseases, such as Rocky Mountain spotted fever, may not always be produced by the Rocky Mountain wood tick alone.

THE WOOD TICK

The Rocky Mountain wood tick is scientifically known as *Dermacentor andersoni* Stiles. This tick is an agent in the transmission or causation of three and probably four distinct disease entities in man, namely, Rocky Mountain spotted fever, tularemia, tick paralysis and Colorado tick fever.

The wood tick lives not only in the Rocky Mountain regions and adjacent areas but to the West in Washington, Oregon and California and to the East in the southwest corner of North Dakota and probably in the Black Hills country of western South Dakota, as well as occasionally in western Nebraska. In Colorado the tick probably does not live far beyond the eastern limit of the Rocky Mountain system. In the extreme south it has been found in at least the northern portion of New Mexico and Arizona. To the extreme north it has been discovered a considerable distance into British Columbia and is present in at least the southern portions of the provinces of Alberta and Saskatchewan.

THE BIOLOGY OF THE WOOD TICK⁴

Like all ticks, *Dermacentor andersoni* Stiles sucks blood and lays eggs. The eggs are normally deposited on the ground during the late spring and early summer. Six-legged larvae soon hatch from the pile of tick eggs, disperse to some extent, climb up grass and other vegetation and attach to passing small mammals, on which they feed. Being fully fed in about six days, the larvae drop to the ground, crawl away for protection, become inactive and soon change to eight-legged nymphs. These nymphs usually crawl into hiding and appear again the following spring, ready to feed on the blood of the same small rodents. After feeding for about a week they drop off, hide away and, after approximately three weeks of quiescence, appear as adults, either male or female. The adult tick seeks to conceal itself under waste, at or near the surface of the soil, until the following spring, when it comes out and begins its search for a new host, and the host it now seeks is one of the larger animals. Ticks are not primarily a parasite of man, and when man is bitten it is merely an accident of nature. The normal feeding season of adult ticks begins usually in March or early April and terminates with the coming of hot, dry

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¹ McCormack, P. D. Paralysis in Children Due to the Bite of Wood Ticks. *J. A. M. A.* 77: 260 (July 23) 1921.

² Regendanz, P. and Reichenow, E. Ueber Zeckengift und Zeckenparalyse. *Arch. f. Schiffs u. Tropen Hyg.* 35: 255-273 (May) 1931.

³ Parker, R. R., Philip, Cornelius B., Davis, Gordon E. and Cooley, R. A. Ticks in the United States in Relation to Disease in Man. Contribution from the Rocky Mountain Laboratory, U. S. P. H. Laboratory, Hamilton, Mont., to be published.

⁴ Cooley, R. A. The Rocky Mountain Wood Tick. *Bull. Montana State College Agricultural Experiment Station, Bozeman, Mont.* November 1932.

weather, generally in June or early July. Copulation takes place on the host. The female, when fully fed, in about nine days, drops to the ground and crawls away to find a suitable place to lay her eggs. The egg laying begins about a week afterward and consumes about three weeks. Approximately 300 eggs are laid each day. Thus the total deposited by one female averages some 6,000. The eggs require approximately thirty-five days for incubation and are hatched during the summer in which they are laid, in time for the larvae to feed on their chosen host. The normal cycle of the tick is two years. It has, however, the remarkable ability to go for as long as from two to four years without food while waiting for an opportunity to attach itself to a suitable host.

THE TICK VENOM

Experimental tick paralysis by attachment of female ticks has been produced in animals in from six to thirteen days, according to the size of the animal or the rapidity of engorgement of the tick. Similar paralysis has never been transmitted by the blood of affected animals or by the injection of the intestinal contents of ticks taken from paralyzed animals. Postmortem observations have been reported negative. Demonstration of specific parasites has not been successful. It has been suggested that poison in the salivary glands is the exciting agent. In this country efforts to transmit paralysis by the injection of eggs of wood ticks have not been attempted.

Brown dog ticks reveal many peculiarities. Regenzanz and Reichenow² in their experiments on this variety found that the eggs contain a venom whose effect is evidently identical with that of tick paralysis. Large amounts of eggs, usually the layings of about fifty ticks, or 150,000 eggs, when thoroughly ground in a small porcelain mortar with physiologic solution of sodium chloride and injected subcutaneously or intraperitoneally, were found to produce weakness in large dogs and paralysis and death in small dogs. Subsequently, the larger dogs, after further injection of tremendous numbers of eggs, acquired paralysis and died. This would seem to indicate a strong resistance to, but a lack of immunity against, tick paralysis. Necropsy disclosed extensive degeneration in all parts of the spinal cord (Marchi staining). Smaller amounts of tick eggs were found to produce paralysis and death in smaller animals, such as rabbits and guinea-pigs. After even smaller injections of eggs, rats and mice were found dead in from one to two days, usually without preliminary paralysis.

Initial symptoms in animals may occur without any incubation immediately after the injection of tick eggs. It seems improbable that any virus or micro-organism is the cause of the paralysis. Introduction of emulsion of eggs into the stomach of animals was tried, but no effect was observed, nor could death in animals be produced by injection of emulsion of larvae. Brown dog tick venom, which is resistant to drying, is not destroyed by alcohol and does not become inactive from high temperatures until heated to 85 C for fifteen minutes or to 100 C for one minute. Attenuation of the poison follows Berkefeld N filtration. The venom has only a weak hemolytic action. Its production in the adult female tick takes place simultaneously with the termination of blood sucking and the maturation of the eggs. Neither the salivary nor the head glands contain individually the poison in demonstrable quantities, although the poison is traceable in these glands as well as in the ovaries.

The venom of the brown dog tick, or *Rhipicephalus sanguineus*, is like the venom of the black widow spider in that it is poisonous and a motor-paralyzing agent for all animals by parenteral administration while it is inactive when given orally. However, the spider venom varies in that it is destroyed by alcohol and by a lower temperature. Spider venom is strongly hemolytic, and immunization is easily obtained.

REPORT OF CASE

The following case history indicates that the onset of tick paralysis may be an irritative lesion of the posterior sensory roots, followed by involvement of the anterior horn cells. Paresthesia, the first complaint, had not disappeared with the onset of the motor paralysis. The paralysis, as was observed in a motion picture taken one-half hour after removal of the tick, is quadriplegia rather than the usually described paraplegia. Another motion picture taken twenty-four hours after removal of the tick showed complete recovery from the paralysis. In this case, as in most all others in children, death from respiratory paralysis would probably have resulted in another two or three days if the engorged tick had not been found and removed.

J. C., a girl, aged 6 years, of Kingston, Idaho, was seen at noon on June 8, 1936. The previous day she had complained of itching and burning fingers and toes but ran around and played as usual. She slept well that night. On the morning of the examination she cried in pain on putting on slippers and 'wilted' when attempting to stand. She was carried around the house in the parent's arms because she was unable to walk. She had become afraid even to attempt to take a step lest she might fall. The history was so typical of wood tick paralysis that the scalp was examined first, an engorged tick 1 cm wide and 1.5 cm long was found and removed. The child complained of pain on passive movements of the legs. She rubbed the feet together to obtain relief from itching and burning. The patellar reflexes were absent. There was ataxia of all the extremities, more marked in the lower extremities, and the muscular power was so weak that, although the child sat up well, when she stood the body swayed and she required support. She could stand or walk only with the feet widespread.

The child returned for examination the following day. The mother reported that by bedtime the preceding evening she had begun to walk fairly well without support. Now she could again kick accurately and firmly. The reflexes were normal. The grip was strong, the movements of the upper extremities were accurate. She could walk and even run normally.

A complete neurologic examination by Dr. Joseph Lynch one and a half hours after removal of the tick revealed a robust child who walked with an extremely ataxic gait, with the trunk swaying laterally and anteroposteriorly, with a broad base. Examination of her head revealed slow nystagmus with the quick component to the right when she looked to the right and to the left when she looked to the left. The pupils were round and equal and reacted normally to light and in accommodation. Examination of the ocular fundi revealed normal optic disk, the outline of the disks being clear and well defined and not edematous. The retinal vessels were normal. The external ocular muscles were normally innervated. There was no diplopia, gross tests of the visual fields revealed no abnormalities. There was no disturbance of the sensation of smell. The sensation of the face was normal to stimulation by pin prick, cotton wool, heat and cold. There was normal contraction of all the muscles of mastication. The muscles of facial expression were normal and bilaterally equal. The platysma was normally innervated on each side. The tongue protruded in midline. There were no fibrillary twitchings. The uvula was retracted in midline, and there was no disturbance in motor power of the soft palate. The voice was normal, high and low tones being pronounced with equal facility. There was no disturbance of hearing. The tick of a watch was detected at normal and equal distances on each side. The sternocleidomastoid and trapezius muscles reacted normally. Examination of the neck revealed no change in sensation and no disturbance in muscular power of any cervical muscles.

Examination of the upper extremities disclosed an absence of both the biceps and the triceps reflex and a marked reduction of the supinator reflex more noticeable on the right than on the left. Hoffman's sign was absent on each side. There was no change in the upper extremities to stimulation of the skin with pin prick, hot or cold, cotton wool or vibration. Muscle and joint sensations in hands, wrists and elbows were likewise normal. However, the grip was reduced about 50 per cent in both the right and the left hand. The finger to nose test revealed marked ataxia in both hands. There was a lack of between 35 and 50 per cent in resistance to passive motion at the wrists and elbows but no lack of resistance at the shoulders. Examination of the chest revealed normal innervation of the intercostal and the pectoral muscles and normal excursion of the diaphragm. There was no impairment in the muscles of respiration or any sensory changes in the chest.

Examination of the abdomen revealed no sensory changes to any of the previously mentioned stimuli. However, the abdominal reflexes, upper and lower on each side, were absent, as was the epigastric reflex. Test of the lower extremities revealed normal sensation with all modalities, but the knee jerk and the achilles jerk were absent on each side. No pathologic reflexes were present in either extremity. There was marked weakness in the two lower extremities and a reduction of nearly 75 per cent in resistance to passive motion in ankles and knees. Muscle and joint and vibratory sensations were normal in both lower extremities. The Romberg sign was strongly positive. The patient was unable to stand alone even with a broad base and the eyes open. Examination of the muscles of the back and pelvis revealed marked weakening of all muscles of the trunk. When the patient attempted to stand or walk, her trunk swayed as if she was ataxic. The heel to knee test was very poorly performed because of marked ataxia of both lower extremities.

Summary.—Neurologic examination revealed that all the cranial nerves were normal. There were marked motor paralysis, characterized by severe weakness of the muscles, and absence of abdominal reflexes and of tendon reflexes in all the extremities. The lesion was of the lower motor neuron type but not of the peripheral nerve and was probably a lesion attacking the lower motor neuron in the region of the anterior horn cells of the spinal cord.

COMMENT

A rich field of research awaits the full investigation of the possibility of venom in wood tick eggs as the cause of tick paralysis in this country. The ticks taken from paralyzed children under my care have been engorged female ticks. In nature the paralysis develops after days of tick attachment, the time of early formation of the eggs. Human experiments in paralysis with tick attachment are unwise. There are two clinical reports of fatal spotted fever and associated paralysis.

The reason children are more often affected by tick paralysis may be not only that they fail to find and brush off ticks as readily as do exposed adults but that, because of their smaller size, less poison is required to produce the paralysis. In adults it is possible that ticks may attach in hairy regions, feed fully and drop off without producing symptoms. Ticks are often not found during attachment and feeding, as they apparently pour into the bite a local anesthetic and coagulant secretion of the salivary glands.

It is peculiar that the occurrence of wood tick paralysis does not yet correspond to the total geographic distribution of the tick. As has been mentioned, the paralysis has been reported in only five of the thirteen states in which the tick ranges.

Although a large number of eggs from many brown or tropical dog ticks produce a paralyzing venom in laboratory animals, it is notable that no case of tick paralysis in nature following the bite of this species has been reported. The egg venom may be so weak that paralysis in nature cannot result from the bite of a single tick. Is it possible that in wood tick paralysis

a single tick produces excessive egg venom early in the formation of eggs and excretes it promptly by the enlarged overactive salivary glands?

It would not be surprising if species other than wood ticks should be found to contribute to tick paralysis in nature in this country. Intriguing it would be to speculate whether tick venom from eggs could be a hormone, neurotoxic to human beings and to animals. We may venture the suggestion that patients with complete tick paralysis with respiratory involvement might be placed in respirators. This has not yet been done.

In spite of the wide range of the different species of ticks in the United States, there is no reason for great alarm, for, although many persons are bitten, relatively few are really afflicted.

SUMMARY

In cases in children clinical evidence indicates that the disease is a mild irritative lesion of the posterior sensory roots and a severe irritative lesion of the anterior horn cells of the cord. The resulting muscular involvement of the extremities is progressive and extensive, with death from respiratory paralysis in cases not properly recognized and treated by removal of the tick. Experimental evidence from another species of tick suggests that the disease is a poison liberated in the tick eggs. With the range of the wood tick extending, and with the possibility that eventually other ticks in this country may produce the paralysis, the subject occasions more pronounced concern. It is recommended that textbooks contain more information on all tick-borne diseases and that pediatric instruction in medical schools include information on tick paralysis.

407 Riverside Avenue

END RESULTS IN FRACTURES OF THE SHAFT OF THE FEMUR

ELDRIDGE L. ELIASON, MD

AND

JOHN PAUL NORTH, MD

PHILADELPHIA

This review deals with a consecutive series of seventy-four cases of fracture of the shaft of the femur, of which 81 per cent have been followed, so that the ultimate anatomic and functional results are known. It presents the results of treatment by numerous surgeons, since, in addition to two chiefs, fifteen assistant surgeons were concerned with the management of these patients. Moreover it is not a series selected to illustrate the results of any one method of treatment for, as will be shown, a variety of methods were employed. The cases were all fractures of the shaft proper, subtrochanteric and supracondylar fractures are not included, as they present distinct problems. Consideration is given only to cases admitted to the hospital within one week of the injury and to those in which the fracture occurred through normal bone. The report of six patients who died in the hospital from associated injuries is omitted, since we are concerned here chiefly with end results. Of the seventy-four patients, twenty-four were over 16 years of age, and in certain respects it is appropriate to separate the adult and juvenile groups.

Read before the Section on Orthopedic Surgery at the Eighty Eighth Annual Session of the American Medical Association, Atlantic City, N. J., June 9, 1937.

The cases here reported are from the services of the senior author at the Hospital of the University of Pennsylvania 1922-1936 and the Presbyterian Hospital 1934-1936 and by courtesy the service of Dr. George I. Muller at the University Hospital 1922-1933.

No single method of treatment has been adhered to, for each case requires treatment according to its individual indications. We have, nevertheless, acquired certain impressions regarding the range of usefulness and also the limitations of the several methods, and these impressions will be briefly discussed. It will be apparent that certain technics now in vogue have not been used. For example, neither the Anderson two pin method nor the Braun frame has been included. While excellent results are being secured by these and other mechanical methods, like results can be obtained by simpler means when fundamental principles are strictly followed. This point should be strongly emphasized in teaching students and interns. The men going out into small communities to handle fractures should be impressed with the ideas, first, that good function is the goal to be achieved and, secondly, that patients can be satisfactorily treated by simple and conservative methods.

THE CRITERIA OF SATISFACTORY REDUCTION

It is apparent in the records of these cases that at the time of admission to the hospital there was often no certainty of opinion as to what method of treatment would be effective. The method instituted at the outset was satisfactory in only 36 per cent of the cases. In the remaining 64 per cent changes were made to improve the position of the fractured fragments. Not uncommonly three or four methods were thus tried. These alterations were time consuming, distressing to the patient and disturbing to the healing process. Probably some of them were unnecessary and certainly many were not beneficial. Correlation of the final position of the fracture fragments with the end results should help to determine the essential criteria of reduction satisfactory for good function, which is our prime aim. Perfect anatomic reposition obviously is an ideal to be sought, but in fractures of the femoral shaft it is often difficult to attain. As a matter of fact, good position—namely, alignment with no more than 15 degrees angulation, apposition of at least one third of the diameter of the bone ends and normal bone length—was obtained in no more than half of the cases. Since the proportion of entirely satisfactory functional results in our series was much higher than this, something short of perfection in anatomic restoration may still be compatible with a good functional result. The practical problem to decide is how much deviation from the ideal is permissible. As might be anticipated, no patients with good reduction, as defined, had residual disability, except the few impaired by stiffness of the knee, which stiffness was due to late treatment and not related to the accuracy of reduction. Displacement without overlap, even though sometimes there was no end to end apposition whatever, likewise was followed by favorable union and function in ten followed cases. Imperfect alignment with angulation up to 30 degrees generally did not interfere with the ultimate outcome. Greater amounts than this may result in actual shortening of the limb and especially if there is a lateral bowing will produce disturbance in gait. Alignment accordingly should be favorable for an assured good result. Abnormality in the length of the bone was the deformity responsible for most of our unsatisfactory results. In seven out of fifteen patients who had shortening at the time of union, a permanent functional disability exists. The essentials of satisfactory reduction appear therefore to be the restoration of accurate length and approximate alignment.

The Prognosis With Shortening—In this series fifteen cases presenting shortening of the femur at the time of union have been followed for a sufficient period (from one to twelve years) to determine the ultimate results. It is common belief that, whereas any shortening in adults will be permanent, children may be expected to compensate with growth and thus regain equality in the length of the two limbs. Our experience shows that this statement is only partly true. In the adult group two patients with one-half inch overlap in the x-ray films showed no disparity when measured respectively six months and three years after their injuries. Three others, however, had constant and permanent shortening of from one-half to 2 inches. Among the children seven with an overlap of from one-half to 1¼ inches showed complete restitution of length, usually within a year after uniting. One with an original inequality of a full inch has now only a half inch of shortening. The three remaining children have shown no improvement whatever following union with respectively one-half, 1 and 1½ inches of overlap. It is apparent from this that any prediction with respect to the outcome in these cases must be made with reservation.

Osseous Union—The securing of firm union in fractures of the femoral shaft is not a great problem. The time required is variable and it may be prolonged, but eventual bony union is the rule. Premature removal of apparatus or too early weight bearing must be guarded against. There were five instances of refracture in this series occurring one at four, one at six, two at eight and one as late as eighteen weeks after the original injury. Union will occur, however, even with such marked displacement of the fragments that there is no end to end apposition whatever. This emphasizes the fact that the important points in reduction are length and alignment without too great concern about other displacements. Indeed, the formation of callus may be retarded by repeated attempts to secure accurate replacement.

COMPARISON OF METHODS OF TREATMENT

Traction Methods in General—Certain fundamental principles must be strictly adhered to with any method of traction, whether skin or skeletal. Any deviation from these fundamentals should be regarded as a failure on the part of the surgeon in charge rather than as a failure of the method itself. 1 The mechanics of the application of the traction must be sound. 2 Traction must be uninterrupted. 3 Sufficient force must be applied to meet the needs of the individual case. In a femur this may be 4 pounds or 40. 4 Constant supervision must insure that the original intentions of the apparatus are being maintained. 5 Traction must be continued until firm union ensues.

Bryant Traction—The Bryant or Schede method of traction with both legs suspended from an overhead frame is the method that we prefer in children under 7 years of age. It greatly facilitates the nursing and hygiene of these patients, is easily applied and requires little attention. Our results have been good in fourteen cases with three exceptions in which union with shortening occurred. Perhaps in this group of young patients almost any method would give equally good results, but overhead traction is recommended mainly on the basis of the facility of its application and management. It is important that the traction weight be sufficient to elevate the pelvis off the bed and that proportionately greater weight be applied to the injured limb. Care must also be taken to prevent rotation.

deformity, and this may be done by affixing a slotted rider to the spreader of the injured side in such a way that any tendency toward rotation is checked by the traction rope affixed to the well leg

Russell Traction—We favor this method of traction because of its simplicity. It requires little in the way of special equipment, save for an overhead frame, and may be used in the home as well as in the hospital. There is no interference with nursing care and no danger of sepsis. Moreover, and this one should not overlook in fracture therapy, the patient is very comfortable.

Nonetheless our experience with it has not been as satisfactory as that reported from other clinics. In half of the twenty-two instances in which we used it in children, and in five out of eight adult cases, satisfactory reduction by the Russell method has not been obtained and we turned to other means. In one of these instances, muscle interposition was found to account for the difficulties. Proponents of Russell traction have acknowledged difficulties in dealing with fractures of the lower third of the femoral shaft. Most of our disappointments have been with the involvement of the middle of the bone and only once with the lower portion. In muscular adults with a considerable amount of shortening, no method employing skin traction with adhesive tape can be depended on. In simpler cases presenting moderate displacement, the Russell method can be used with satisfaction. Wherever a brief trial of the Russell method showed satisfactory reduction of the fragments, we have been able to predict good ultimate results. In those cases in which trial is unsuccessful, other methods should be attempted without delay.

Skin Traction with Suspension on Thomas-Pearson Splint—Simple traction applied to the thigh alone by adhesive tape is seldom adequate for the entire period of treatment. In about one third of our cases it was employed at some time, but largely as an adjunct to other methods. It was used often during the period of shock and was sometimes continued for several days as a temporary dressing. In a few instances a reduction successfully obtained under anesthesia with fluoroscopic control was maintained by skin traction. The only adult case that was satisfactorily managed by skin traction alone was one of a fracture in an amputation stump in which little traction was required.

Skeletal Traction—For efficiency in securing and maintaining good apposition, skeletal traction is surpassed only by operative reduction and is without the risk of infection at the fracture site entailed by open operation. It does necessitate a certain amount of apparatus, strict asepsis and close supervision. Skeletal traction need not be employed as a routine, for many cases do not require it. On the other hand, if repeated measurement of the limb and roentgenologic checks reveal that the desired reduction is not being obtained, skeletal traction should be employed without further delay.

Skeletal traction was tried in fourteen cases and gave satisfactory results in all except three. In two of these, muscle was found interposed between fragments at operation. The third patient was not operated on but there were clinical and x-ray evidences of separation of the fragments suggestive of soft tissue interposition. Under such circumstances no closed method could produce results. In each of these methods ice tongs, a means we no longer employ, were used. There were no instances of frank osteomyelitis, although in one

instance chronic necrosis of bone resulted from a Steinmann nail, and the opening in the skin remained two years after discharge. Necrosis of soft tissue has occurred, generally from improper introduction of the nail or wire, in that undue tension was placed on the skin, but this has not been serious or unduly slow in healing.

Several means of securing skeletal traction are available. While ice tongs were used in some of our earlier cases, they were apt to slip, with injury to soft parts as well as loss of traction. Recently we have used only the Steinmann nail or the Kirschner wire, and the choice between the two is a matter of personal preference and available equipment. The wire needs special apparatus to introduce and to keep taut, but if this is available it affords a very simple and effective means of applying skeletal traction.

Plaster Spica Casts—These have a very limited field of usefulness in fractures of the femoral shaft. Any fracture that requires continuous traction to overcome shortening or angulation is ill suited for treatment in plaster. On the other hand, fractures without serious displacement, those which remain in good position after manipulation and those in which early callus formation has served to fix the fragments may, under certain circumstances, be satisfactorily treated in a plaster spica which fixes the hip and knee on the affected side. In uncooperative patients this means of fixation may be the only one possible. Fragments may slip even in a cast, and one of the best means of insurance against this is to apply the cast with the limb in a position of muscle equilibrium, namely, with the hip and knee flexed. In our series casts were employed frequently as an adjunct to operative reduction with internal fixation, as well as in the other types of case mentioned. By encasement in plaster the period of hospitalization may be shortened, but continued observation is required. There is a finality about plaster encasement which makes the method dangerous unless adequate supervision is provided. Particular attention must always be paid to securing mobility of the knee at an appropriate time. We have discharged patients in casts only to find that the immobilization was continued far too long, with resulting functional impairment. All six of the cases showing permanent disabling restriction of knee motion were treated by plaster casts. One of these cases occurred in a child, although many claim that prolonged immobilization is not crippling to young patients.

Operative Reduction—This was performed on eighteen patients in this series. In four of these debridement was done for compound fracture. Excluding these, the incidence of operative intervention in simple fractures was 14 per cent in children and 33 per cent in adults. This we believe to be unnecessarily high. The indication for operation in seven cases was the failure of Russell traction to secure or maintain satisfactory reduction. We now feel that a trial of skeletal traction might well have given equally good results without the risks attendant on operation. Two patients were operated on because of delay in union and the operations did nothing to hasten its development. Once refracture occurred at five weeks and again closed methods might well have been used. In the remaining four cases, open reduction was the only course possible, once because the slipping of tongs had injured the soft tissues and three times because evidence of muscle interposition foretold failure for any closed method.

The mechanical difficulties of access to a bone surrounded by muscle, as is the shaft of the femur, and the

securing of reduction and adequate internal fixation are always great, and the risk of infection is not negligible. In the experience of this series of cases the results have not justified the procedure. The cases chosen for operation were not necessarily the worst fractures, but the results have been inferior to those with closed methods and complications have been multiplied. Five children are known to have a good result but one child has a stiff knee. Among the adults, three out of seven patients with simple fractures have a good functional result. One had osteomyelitis with a short limb, another developed persistent lymphedema of the leg and now has an inch of shortening and a stiff knee. Two others have disability from impaired knee motion. Surely the seriousness of these complications outweighs the advantages of operation.

This discussion is a survey of the experience of several years and not an attempt to draw final conclusions, yet, were this experience to be repeated, we should probably operate in four cases instead of fourteen and we would employ skeletal traction much more extensively than in the past.

RESULTS AND CONCLUSIONS

1 The emphasis in fracture therapy should be on restitution of function.

2 In fractures of the femoral shaft, perfect anatomic reduction is not necessary for normal function of the limb.

3 Simple closed methods of treatment will give good results in this fracture, provided fundamental principles are respected.

4 Of the several methods of traction employed, that of adhesive tape on the thigh was least effective in producing satisfactory reduction of the fragments. It had to be displaced by other means in all but 13 per cent of children and 11 per cent of adults. Skeletal traction, on the other hand, proved satisfactory in 67 and 62 per cent respectively. Russell and Bryant traction were each effective in 41 per cent of cases in children, although in adults the Russell traction fulfilled the surgeon's requirements in only 25 per cent of patients.

5 Length and alignment should be obtained to assure an ultimately good result. Shortening of the limb is apt to be permanent even in children.

6 Whereas in this series there were 92 per cent of perfect function results in children, only 64 per cent of adults escaped disability. The disappointing results in the latter are largely due to the permanence of shortening, stiffness of the knee from prolonged immobilization and the unsatisfactory results of operative reduction.

326 South Nineteenth Street—1907 Spruce Street

ABSTRACT OF DISCUSSION

DR. FREDERICK C. KIDNER, Detroit. There are so many reports of fancy surgical methods of reduction of fractures that I think we sometimes lose our sanity. Such a paper as this recalls one to sanity by stating that satisfactory results in a considerable number of fractures of the shaft of the femur can be obtained by simple means. During the war, in England, it was my privilege to be the consultant in orthopedics. On one occasion the American hospital unit installed in a hospital just outside London received a trainload of freshly wounded men from France. I had taught the unit the use of adhesive plaster traction with the Thomas splint and Balkan frame. In the trainload of wounded there were ninety-four compound fractures of the femur. When I visited the hospital after forty-eight hours, the whole ninety-four fractures were satisfactorily reduced and the greatest shortening was a half inch. This was accomplished with adhesive plaster traction only. On the

other hand, in the last bed in this fracture ward was a boy of 16 who had been run over by the ambulance in the hospital yard the night before and received a fracture of the left femur. He had no Balkan frame or Thomas splint but was lying in an old fashioned long DeSault splint. His fracture was sharply angulated and there was 2 inches of shortening. When I asked why he had not been put up as had been the ninety-four battle fractures I was told that one did not treat civilian fractures according to war methods. I think that 95 per cent of the fractures of the shaft of the femur can be treated satisfactorily throughout their whole course by adhesive plaster traction on a Thomas splint, by a man who has not the skill or equipment to use skeletal traction properly. As to operative treatment, it seems to me that the authors had rather hard luck in the number of accidents. It is occasionally necessary to reduce a fracture of the shaft of the femur by an open incision. In a modern, well organized hospital, this procedure should be free from accidents.

DR. P. H. SCARDINO, Houston, Texas. Since a great number of fractures are being treated by the general surgeon and the practitioner, it is the master surgeons who have tried to simplify the methods used to obtain the best functional results and make them as fool proof as possible. Every effort should be made in the reduction of fractures of the long bones, especially in the shaft of the femur, to use some of the so-called closed methods, the operator using the method with which he is the most capable. I am inclined to use the method that seems to be best adapted to the individual case. With either open or closed reduction, traction is the prime requisite, of which we have the choice of (1) manual, (2) adhesive and (3) skeletal. In the hands of a master the manual method can sometimes be used in an irregular transverse fracture, but it is difficult to hold the reduction in a plaster spica. Adhesive traction is no longer tenable because of its cumbersome overhead apparatus, ropes, pulleys and weights together with its daily checking and reraying. Skeletal traction is by far the most acceptable. The methods of obtaining skeletal traction are numerous: the Roger Anderson or one of its many modifications is the most satisfactory. The two Steinman pins or Kirschner wire (claimed by Putt, Foster et al.), the Bryant or Schede method of traction for children, and the Russell traction may be used. In my hands the Roger Anderson anatomic splint method has proved most satisfactory. Failure to obtain a proper and sufficient reduction should not permit the surgeon to wait too long before using some method of open reduction. Here the procedure may be admirably facilitated, in the absence of a fracture table, by the preliminary application of the Roger Anderson well leg traction splint, by which shortening is easily overcome and alignment is facilitated with use of pins through fragments or any of the well known methods. All internal fixation must be preceded by careful reduction, and correct alignment maintained by sufficient and adequate external splinting. The Anderson well leg apparatus is excellent when used in place of the Hawley table in open reduction and may be left in situ and the body cast added. The splint helps to keep the alignment, and constant traction prevents breakage of the internal fixation. It should lend itself admirably in bone graft for cases of nonunion. First aid in fractures is usually rendered by the general practitioner and often followed by bad end results unless he has made a special study and has had wide experience in fracture work. Too much stress is placed on the x-ray examination and too little on the physical examination in suspected fractures. The x-rays should be used as a check up on a diagnosis, and the end results sought should be good functional ones rather than x-ray perfection. The master surgeons should strive to give us simplification and not standardization of treatment of fractures.

DR. WILLIS C. CAMPBELL, Memphis, Tenn. In treatment of fractures of the shaft of the femur I see no reason why the same principles should not be employed as in fractures of other long bones. In 1924 I reported a method of treatment particularly for transverse fractures of the shaft of the femur by this method at least 75 per cent of transverse fractures of the shaft can be manually reduced and maintained by a plaster cast. Instead of obtaining reduction entirely by traction the fragments are angulated under slight traction until the ends of the bone impinge and can be locked after which the thigh is gradually

straightened until normal anteroposterior and lateral alignment is obtained. A double spica cast is applied with the knee and hip partially flexed. Roentgenograms should be made at the end of one week and three weeks to assure maintenance of position in the cast. If there is some doubt of maintaining end to end engagement, a Kirschner wire is inserted through the condyles of the femur and incorporated in the cast. Then, if displacement occurs, the anterior half of the cast is removed and skeletal traction applied. This method of treatment enables a patient to conserve his finances, as prolonged hospitalization is unnecessary. After ten days the patient is dismissed, to return at variable intervals of from three to four weeks and from six to eight weeks respectively for x-ray check up and removal of the cast. No untoward complications have been noted, as stiffness of the knee, and as a whole the results have been most satisfactory. In children there is practically no shortening. Of 153 cases treated by this method up to 1924, only 5 per cent in adults and 18 per cent in children had poor results (shortening over 1 inch or excessive deformity).

AIR EMBOLISM VERSUS PLEURAL REFLEX AS THE CAUSE OF PLEURAL SHOCK

THE FRANK BILLINGS LECTURE

JOSEPH A. CAPPS, M.D.

CHICAGO

In accepting the invitation to deliver the Frank Billings lecture, I do so with humility and deep appreciation. The honor is the more highly valued because, in an association of over thirty years with Dr. Billings, I owe so much to the influence of his teaching, his example and his inspiring personality.

In all operative procedures involving the pleural cavity, whether pneumothorax therapy, draining an empyema, the withdrawal of fluid by means of an aspirating needle or merely an exploratory thoracentesis, there lurks the danger of so-called pleural shock. This may take the form of faintness, or at times loss of consciousness with a pulse that becomes weaker and weaker until it can no longer be detected by the finger. Rarely convulsions occur and death. When the patient recovers, there may be a transitory hemiplegia or weakness on one side.

It is my purpose in this paper to consider the explanation of this syncope and perhaps to clarify the physiologic mechanism responsible for its occurrence.

INCIDENCE

For many decades clinicians have described these cases of syncope, often fatal, which occur during thoracentesis. When postmortem examinations were made, rarely emboli or thrombi were found in the pulmonary or coronary arteries and even more rarely in the cerebral arteries. Air embolism was sometimes considered to be a causal factor, as in Janeway's¹ report of syncope following irrigation of the pleural cavity with hydrogen peroxide. However, as one reviews the literature one is impressed with the failure of the pathologist to discover (in the great majority of casualties) any anatomic lesions that would explain the cause of death.

Leichtenstern² collected twenty-four fatal accidents; four patients died suddenly during thoracentesis.

fifteen died a few minutes after operation, five died during irrigation of the pleural cavity. Some of these patients had convulsions.

Weill³ also described convulsions during irrigation of the chest.

Russell⁴ observed three deaths during exploratory puncture.

Sears⁵ relates a number of casualties that occurred during thoracentesis, and he emphasizes the danger of lung puncture pneumothorax.

Prendergast⁶ reports two cases in which death occurred while exploratory puncture following pneumonia was being performed.

The older writers thought that if cerebral embolism could be excluded the chief factors in producing death in these cases were anemia of the heart or brain, sudden heart failure or some unexplained reflex action of the circulatory centers excited by irritation of the lung or pleura.

Fresh interest in the subject has been stimulated by the general use of pneumothorax therapy. Forlanini⁷ has seen twelve cases of syncope in 10,000 punctures on 134 patients treated by pneumothorax—all serious, but all with final recovery. Sachs⁸ encountered twenty-two instances in 1,122 patients thus treated, Sangmann⁹ only two instances in 5,500 injections. Matz¹⁰ encountered pleural shock eighteen times in 588 treatments, Bruns¹¹ sixteen times in giving 12,700 injections, with seven deaths. Cocke¹² describes four such accidents in his experience of more than 4,000 air injections. Andrews¹³ reports six instances of shock in 8,528 needle punctures of the chest, in 8,085 of these air was injected. One patient died.

MECHANISM OF SHOCK

Two hypotheses have been presented to explain this phenomenon of syncope, air embolism, and shock from a pleural reflex. In recent years the theory of air embolism has gained adherents, especially among the surgeons.

CLINICAL EVIDENCE OF AIR EMBOLISM

Let us consider the evidence that supports the theory of air embolism—clinical and experimental.

Clinical—A number of observations have been recorded in which the aspiration of air into the pulmonary vessels has been accompanied by symptoms of shock. Thus Wever¹⁴ while cauterizing a bronchus, noted a hissing sound of air with the collapse of the patient. Other observers have described the presence of air bubbles in the retinal arteries, simultaneously with syncope, in the course of surgical operation on the lungs. Again, air bubbles have been discovered post mortem in the coronary arteries in a patient who died suddenly during surgical drainage of a pulmonary abscess. It should be stated that most of this evidence of air in the arteries has been found in association with operations on the lungs.

Experimental—By injecting air directly into the left side of the heart or aorta, convulsions, paralysis and death have been produced.

3 Weill. *Rev. de med.* 7: 33, 1887.

4 Russell. *St. Thomas Hosp. Rep.* 28: 465, 1899.

5 Sears. *Tr. A. Am. Physicians* 21: 177, 1906.

6 Prendergast. *D. Arc.* Canad. M. A. J. 23: 54 (July) 1930.

7 Forlanini. *Gaz. d. osp.* November 1882.

8 Sachs. cited by Cocke¹².

9 Sangmann. *Beitr. z. Klin. d. Tuberk.* 31: 571, 1914.

10 Matz. *P. B. Am. J. M. Sc.* 176: 87 (July) 1928.

11 Bruns. *E. H. Colorado Med.* 27: 237 (July) 1930.

12 Cocke. *C. H. Am. Rev. Tuberc.* 24: 545 (Nov.) 1931.

13 Andrews. *C. H. Am. Rev. Tuberc.* 23: 435 (April) 1931.

14 Wever. *Beitr. z. Klin. d. Tuberk.* 31: 159, 1913.

The Eighth Frank Billings Lecture read before the Section on Practice of Medicine at the Eighty-Eighth Annual Session of the American Medical Association, Atlantic City, N. J., June 9, 1937.

1 Janeway. *E. G. Tr. A. Am. Physicians* 13: 87, 1898.

2 Leichtenstern. *Otto. Deutsche Arch. f. klin. Med.* 25: 325, 1879.

Rukstina and LeCount forced air into the lungs under high pressures and caused death in guinea-pigs. Postmortem examination under water revealed some pneumothorax, air in the aorta, carotid, bronchial and iliac arteries, and frothy blood in all the heart chambers. Always they found air in the coronary arteries, and to this tamponade the authors attributed the fatal outcome.

It is well known that considerable quantities of air can be introduced into the systemic veins without causing any circulatory disturbance. Air thus introduced travels to the lungs, which to a great degree prevent the further passage to the left side of the heart. However, if air is injected into the pulmonic veins, it is logical to assume that it may enter the coronary or cerebral arteries. It is argued that in pneumothorax therapy the needle may pierce the lung and that air may be forced into the pulmonary veins. Likewise, it is reasoned that in surgical manipulation of the lungs air may be sucked into the pulmonary veins.

OBJECTIONS TO AIR EMBOLISM THEORY

Without denying that air embolism does occur and that it may produce syncope or even death, certain facts do not support this explanation of the ordinary accidents.

1 The syncope phenomenon is not encountered sufficiently often in procedures that involve the injection of air, viz., pneumothorax therapy. Considering the enormous number of such injections, the incidence of syncope is small.

2 Syncope occurs most often in simple exploratory puncture where no air is introduced. Chabaud,¹⁵ in a review of 114 cases of pleural shock, states that two thirds of the accidents were observed during exploratory or aspiratory puncture, less than one third during lavage and only a small number during pneumothorax therapy.

3 Numerous individuals who have succumbed to pleural shock have shown (post mortem) no evidence whatever of air embolism in the brain or coronary arteries.

THE PLEURAL REFLEX

Let us now consider the evidence relative to a pleural reflex as the cause of syncope. In 1907 Dr. Dean Lewis and I had an experience that aroused our interest in this subject. A clinic patient with an acute pleural effusion was prepared for drainage. As the needle entered the pleural cavity and only a few cubic centimeters of serum had been withdrawn, the patient went into collapse. Pallor, weak pulse, unconsciousness and death ensued. At the necropsy no penetration of the lung could be found and no air was present in the heart or brain. Dr. Lewis and I¹⁶ then undertook some experiments on animals and obtained the following results:

1 Irritation of the visceral pleura of healthy dogs by mechanical, thermal and electrical means and by certain chemicals produces little or no effect on the blood pressure, except over the roots of the lungs, where mechanical and electrical excitations produce long strokes of vagal type.

2 In dogs with pleurisy induced by injections of turpentine or of oil contaminated with bacteria excitation of the inflamed visceral pleura by mechanical and chemical irritants gives varying results. In some cases there is no marked change in blood pressure, in others there is a considerable fall in pressure which may even be fatal.

3 These reflexes conform to two types which, as a rule, occur singly but which may be combined. (a) The cardio-inhibitory type, in which the heart is slowed and the pulse tracings make violent excursions with a great range between systolic and diastolic pressure. Respirations also are usually slowed and may be inhibited. This type of reflex when it occurs alone is seldom fatal. (b) The vasomotor type, in which the pulse tracings show a steady rapid decline of pressure without a great difference in systolic and diastolic pressure, frequently this type terminates in death. Respirations as a rule are shallow and may be rapid. In fatal cases the blood vessels of the abdominal viscera are much engorged from acute vasodilatation. The brain shows no evidence of embolism or hemorrhage.

4 The cardio-inhibitory reflex is central, because it is prevented or stopped by cutting both vagus nerves in the neck. Atropine paralyzes the cardio-inhibitory fibers and destroys the reflex.

5 The vasomotor (dilator) reflex may be central or peripheral. If central, the afferent impulses reach the medulla by way of the thoracic sympathetic, the white ram and the cord, and not by the vagosympathetic cord. This is proved by the failure of section of the vagosympathetic cord to alter or abolish the reflex. If peripheral, the reflex goes from the pulmonary fibers to the pulmonary plexus, and thence to the thoracic sympathetic nerves and downward through the splanchnics to the celiac and other plexuses in the abdomen. This reflex is more direct than the central form but seems to me inconsistent with the views generally accepted as to the course and direction of impulses in the sympathetic nerves. Epinephrine is the physiologic antagonist to the vasodilator reflex and is often life saving.

6 These types of reflexes occur also in man during operative procedures on the inflamed pleura. The cardio-inhibitory type is manifested by a slow intermittent pulse, with a great difference between systolic and diastolic pressures, the vasomotor type, by a steady fall in blood pressure, with no marked difference in systolic and diastolic pressures, and by a pulse that grows steadily weaker until it cannot be felt.

OTHER EXPERIMENTS

Schlaepfer¹⁷ failed to obtain any circulatory reflexes by applying various forms of irritants to the pleura of normal animals and concluded that the shock observed in human beings could not originate in the pleura. His results were similar to those in our own experiments related in the previous paragraphs, but his conclusions were quite different. We also found that the normal pleura gives no such circulatory response to irritation. To make the animal experiment resemble the clinical picture, however, we repeated the experiments after producing an acute pleurisy. We found that the inflamed pleura often gives such a circulatory response, similar to that observed in man. Several times during an aspiration of pleural effusion in human beings I have purposely irritated the visceral pleura with the end of the trocar and have observed a significant fall in blood pressure.

COMMENT

We are now in a better position to determine the mechanism of pleural shock. Granted that the injection of air under pressure in the pulmonic veins may cause symptoms of syncope and convulsions, we find confirmation of this hypothesis in very few necropsies.

15 Chabaud. *Rev. tuberc.* 7: 742 1926.

16 Capps, J. A., and Lewis, Dean. *Am. J. M. Sc.* 124: 868 1907.

17 Schlaepfer. *K. Bull. Johns Hopkins Hosp.* 31: 321 (Sept.) 1922.

Furthermore, we should expect air embolism to be relatively common in pneumothorax therapy, in which air is forced into the pleural cavity under pressure. Such is not the fact, as witness Cocke's experience of only four such accidents in more than 4,000 air injections. On the contrary, we find that pleural shock is most commonly encountered in simple thoracentesis for exploration or aspiration, when little or no air is introduced into the cavity. No doubt this is explained by the fact that exploratory thoracentesis is usually performed in the presence of an active pleuritis, which is sensitive to vascular reflexes. In the chronic tuberculous patients treated by pneumothorax, the pleura is not often acutely inflamed and, therefore, is less subject to reflex symptoms.

Formerly there was much skepticism concerning the physiologic basis for a pleural reflex with dangerous manifestations. The understanding of this phenomenon is illuminated by the analogous vasovagal reflex induced by pressure on the carotid sinus in certain sensitive individuals.¹⁸ The symptoms arising from these two locations, carotid sinus and pleura, are almost identical, viz, fainting, slow pulse, fall in blood pressure, often unconsciousness and convulsions. The mechanism involved apparently is the same, viz, vagal, slowing the pulse, sympathetic, lowering the blood pressure.

Another analogy between pleural shock and carotid sinus syncope is that both are decidedly exaggerated by the upright position.

SUMMARY

1 The experimental evidence supporting the theory of air embolism is based on the effects of direct introduction of air under pressure into the lungs, heart or carotid arteries.

2 The clinical observations in favor of air embolism are chiefly concerned with operations on the lung with exposure of large veins.

3 Necropsy reports of fatal cases occurring after thoracentesis have rarely, if ever, revealed any signs of air embolism.

4 If we accept the hypothesis of air embolism, we would expect syncope to take place most frequently in procedures requiring the injection of air, whereas, actually, the incidence of syncope is relatively infrequent in pneumotherapy.

5 Clinically the majority of instances of pleural shock are encountered in simple thoracentesis in which no air is introduced.

6 In experimental animals we have succeeded in producing by irritation of the inflamed pleura the syndrome of syncope and a slow pulse, a pulse of low pressure or both. In man, identical results have been obtained by intentional irritation of the inflamed pleura.

7 Attention is called to the parallelism of the pulse changes seen with pressure on the carotid sinus of sensitive individuals and the pulse changes observed with irritation of the inflamed pleura in sensitive individuals.

8 Considering the sound physiologic basis for a depressor circulatory reflex from irritation of the inflamed pleura, it seems to me that a true pleural reflex is the logical explanation for the great majority of such accidents, viz, syncope and collapse. In exceptional cases in which air is forced directly into the lung or the lung is subjected to surgical operations, the possibility of air embolism must be recognized.

122 South Michigan Avenue

18 Weiss, Soma, Capps, R. B., Ferris, E. B., Jr. and Munroe, Donald. Syncope and Convulsions Due to a Hyperactive Carotid Sinus Reflex. Arch. Int. Med. 55: 407, 1936.

ANAPHYLAXIS DURING ETHER ANESTHESIA

L. M. QUILL, M.D.

CINCINNATI

For a number of years it has been a regular procedure in the surgical department of the Cincinnati General Hospital in accident cases to administer prophylactic antitoxic serum while emergency operative procedures are being carried out with the patient under ether anesthesia. This has been done without previous skin testing for sensitization to foreign serums and without fear of anaphylactic reaction in accordance with the belief that anaphylactic reaction cannot occur in a patient under ether anesthesia. Recently, this procedure was carried out on a patient whose case history is herewith presented.

On Nov. 29, 1936, at 3 a. m., a colored man, aged 26, was brought to the receiving ward with a gunshot wound in the abdomen incurred one-half hour prior to admission. His general condition was considered good; the temperature was 98 F. and the blood pressure 100 systolic and 60 diastolic. In the right lower quadrant of the abdomen a bullet wound was noted with the point of exit over the right trochanter. It was believed that the abdominal cavity had been penetrated.

Nitrous oxide-oxygen anesthesia was begun at 4:55 a. m., and open drop ether anesthesia was substituted shortly thereafter. An exploratory laparotomy was started at 5:05. Four penetrating wounds of the ileum were found. A blood transfusion was begun, although the condition of the patient was good. It was decided immediately to do an end to end anastomosis of the intestine, and about 6 inches of the ileum, which included all perforations, was resected. This operation was completed at 6:15 a. m. The general condition of the patient following the procedure was pronounced good by the anesthetist. The blood pressure was recorded at 100 systolic and 80 diastolic. Approximately 350 cc. of whole citrated blood had been given, with no evidence of reaction. Fifteen hundred units of anti-tetanus serum was now administered subcutaneously. A reaction took place immediately. The pulse became imperceptible and the respirations ceased. The patient became cyanotic, and despite emergency stimulative therapy he died on the operating table within three minutes after the administration of the serum. Complete exploration of the abdomen was done, and except for a moderately sized retroperitoneal hematoma no further evidence of injury could be discovered.

Postmortem examination confirmed the abdominal condition recorded at operation. Examination of the thorax revealed marked edema and congestion of the lungs. The heart and other viscera, however, presented no remarkable changes.

Since it was considered that the patient had died of an anaphylactic reaction taking place while he was under ether anesthesia, an attempt was made to determine the basis of the belief that anesthesia inhibits such reactions. In addition, a questionnaire was forwarded to the larger clinics in the country asking for an opinion on this subject and information as to the practices followed. The questionnaire was completely filled out and returned to us by eight surgical clinics. Briefly analyzed, the answers given were as follows: Fifty per cent of the writers maintained definitely that anaphylactic reaction cannot occur during ether anesthesia. Consequently, in their clinics (Johns Hopkins, Duke, Tulane, Louisiana) serum is regularly administered to patients under anesthesia without fear of anaphylactic response. Twenty-five per cent maintained the opposite view (the Massachusetts General Hospital, and the Barnes Hospital, St. Louis) and one of these reported the occurrence of anaphylactic reaction in 1.

From the Department of Surgery, University of Cincinnati College of Medicine and the Cincinnati General Hospital.

patient under ether anesthesia. The remaining 25 per cent (the New York Hospital, and the Strong Memorial Hospital, Rochester, N. Y.) replied that they had had no experience on the subject and were therefore undecided whether anaphylaxis could take place under ether anesthesia.

The concept that anesthesia inhibits or suppresses anaphylaxis apparently originated with Besredka.¹ As early as 1907 he reported that the symptoms of anaphylactic reaction could be suppressed by the administration of ether to the sensitized guinea-pig. He has maintained even in his most recent publications that anaphylactic reaction is suppressed by various anesthetics (ether, chloroform, alcohol, ethyl chloride).

Bronfenbrenner² developed the theory that the action of anesthetics which protect the animal from anaphylaxis is the setting free of antitryptic ferment by the anesthetic agent. This enzyme retards or neutralizes proteolytic ferments liberated on the introduction of antigen into the sensitized animal. Anaphylactic reaction, thus, cannot take place except to a limited degree and perhaps over a greater period of time.

In the meantime numerous workers in the field of anaphylaxis, which was rapidly developing, were producing and recording anaphylactic reactions in sensitized animals under anesthesia. Voegtlin and Bernheim³ studied the anaphylactic reaction of sensitized and dehepatized dogs anesthetized with ether. Auer⁴ reported the occurrence of fatal anaphylactic shock in sensitized rabbits under ether anesthesia. Schultz⁵ described the anaphylactic response of various organs of rabbits, dogs and guinea-pigs under ether anesthesia. Simonds⁶ produced anaphylactic reactions in dogs anesthetized with ether and made kymographic records of the induced shock. Weil,⁷ aware of the previous view on the subject, declared that anaphylactic reaction in dogs is not in the least degree inhibited by ether anesthesia. This open declaration stands in direct opposition to Besredka's contention, whereas the previous experimenters had produced anaphylaxis in anesthetized animals apparently without commenting on the fact that anesthesia might possibly inhibit or suppress the phenomenon they were laboring to produce.

Kopazewski and the Roffos⁸ stated that they were able to protect guinea-pigs sensitized with horse serum from anaphylactic reaction by the intravenous administration of ether or chloroform. They advanced the theory that anaphylaxis is suppressed by the alteration in surface tension of the blood serum produced by the anesthetic and the resultant nonflocculation of the anaphylatoxin.

However, contributors to the field of anaphylaxis continued to report the occurrence of anaphylactic shock in anesthetized animals. Prominent among this group, and the animals used by them, were Manwaring and his associates,⁹ Webb,¹⁰ and Dragstedt and his associates,¹¹

dogs, Hanzlik and Stockton,¹² pigeons, Bally,¹³ rabbits, and Krafka, McCrae and Vogt,¹⁴ cats.

In 1934 Scimone¹⁵ reported a series of observations made on rabbits. He concluded that ether anesthesia exercises a protective action against the occurrence of anaphylactic shock in these animals. Ether anesthesia was administered during both the sensitizing and the shocking procedures.

Dragstedt,¹⁶ a vigorous opponent of the theory of desensitization by anesthesia, in a communication to THE JOURNAL in July 1935 concluded with the following statement: "However, the experiments on laboratory animals together with the evidence that anaphylactic shock is largely a histamine intoxication (Gebauer-Fuelnegg and Dragstedt, *Am J Physiol* 102:520 [Nov.] 1932) and that ether anesthesia (Dale, *Brit J Exper Path* 1:103 [April] 1920) increases the susceptibility to histamine not only lend no support to the idea that anesthesia would diminish anaphylactic shock but actually indicates the reverse."

Most recently, Re,¹⁷ following the work of his fellow Italian Scimone, but working with a different species of animal (guinea-pig), has reaffirmed Scimone's conclusion that ether anesthesia exercises a protective action against anaphylaxis whether administered during the sensitization or the shocking procedure. He referred the antianaphylactic action of narcosis "to the inhibition of certain functional relationships of the nervous system with the biologic and immunitary structure of the blood."

EXPERIMENTAL WORK

The purpose of the experimental procedures undertaken was to produce anaphylactic reaction in sensitized animals under ether anesthesia. Three species of animals, viz., dogs, rabbits and guinea-pigs, were included in the experiment because of the known variation in the anaphylactic response of these animals. Series of the animals were sensitized to foreign serum (sheep's) according to the procedures outlined by Gay and his associates.¹⁸ Five-tenths cubic centimeter of antigen per kilogram of body weight was administered to the dogs both subcutaneously and intravenously for three doses at daily intervals. Skin tests done prior to the sensitization procedure gave negative results. After the sensitization period (from three to four weeks), intradermal skin tests showed definite positive reactions, as evidenced by erythema and edema about the site of the injection. Sensitization of the rabbits was produced by the administration of 3 cc of the antigen subcutaneously for eight injections at daily intervals. Skin tests of these animals proved unsatisfactory. An incubation period of fourteen days was found adequate. The guinea-pigs were given 0.5 cc subcutaneously and intracardially each for only one dose. An incubation period of twenty days was allowed. Skin tests of the animals of this series likewise proved unsatisfactory.

After the sensitization or incubation period the sensitized animals were anesthetized by the open drop ether method (no previous medication being given), and

1 Besredka, Alexandre. *Ann Inst Pasteur* 21:950 (1907). *Anaphylaxis and Antianaphylaxis*. London: William Heinemann Ltd. 1919. *Le choc anaphylactique et le principe de la desensibilisation*. Paris: Masson & Cie. 1930.

2 Bronfenbrenner, Jacques. *J Lab & Clin Med* 1:573 (May) 1916.
3 Voegtlin, Carl, and Bernheim, B. M. *J Pharmacol & Exper Therap* 2:507 (1911). *Proc Soc Exper Biol & Med* 12:110 (1914).

4 Auer, J. *J Exper Med* 14:476 (1911).

5 Schultz, W. H. *Bull. 80 U S P H S*, January 1912.

6 Simonds, J. P. *J Infect Dis* 19:746 (Dec.) 1916.

7 Weil, Richard. *J Immunol* 2:525 (Oct.) 1917.

8 Kopazewski, W. Roffo, A. H., and Roffo, H. L. *Anesthesia and Anaphylaxis*. *Compt rend Acad Sci* 23:1409 (1920).

9 Manwaring, W. H., French, W. O., and Brill, S. *J Immunol* 8:211 (May) 1923.

10 Webb, K. A. *J Path & Bact* 2:79 (Jan.) 1924.

11 Dragstedt, C. A., Gebauer-Fuelnegg, E., and Mullenmix, R. B. *Proc Soc Exper Biol & Med* 29:1084 (June) 1932.

12 Hanzlik, P. J., and Stockton, A. B. *J Immunol* 13:395 (June) 1927.

13 Bally, L. H. *J Immunol* 17:223 (Sept.) 1929.

14 Krafka, Joseph Jr., McCrae, F. D., and Vogt, E. *J Physiol* 68:292 (Nov.) 1929.

15 Scimone, Ignazio. *Anaphylaxis and Anesthesia*. *Minerva med* 2:845 (Dec. 15) 1934.

16 Dragstedt, C. A. *Anaphylaxis and Ether*. *J A M A* 105:300 (July 27) 1935.

17 Re, Carlo. *Gior di batteriol immunol* 16:458 (March) 1936.

18 Gay, Frederick P., and others. *Agents of Disease and Host Resistance*. Springfield, Ill.: Charles C. Thomas, 1935.

anesthesia was maintained for a minimum period of fifteen minutes at moderate depth prior to injection of the antigen. A cannula was placed in the femoral artery of the dogs with aseptic technic and the blood pressure recorded on a kymograph. With the animal under careful observation, the shocking dose of the antigen as recommended by Gay and his associates was administered intravenously. The reaction of each animal was closely studied. Anesthesia was maintained for at least fifteen minutes after the administration of the antigen in the animals in which the signs of reaction subsided quickly. In the remaining surviving animals anesthesia was maintained for one-half hour. On reaction from etherization, all the animals exhibited signs and symptoms of having undergone some degree of anaphylactic shock. During this period of recovery the manifestations noted were great weakness and marked hypotonia of the skeletal musculature, vomiting, marked loss of control of the sphincters, and convulsions.

The animals recovering from the anaphylactic reaction were permitted to rest for a short period (minimum, six days) to regain their sensitivity. The shocking procedure was then repeated and the animals observed as indicated. The intravenous dose of antigen was now increased, and this factor was probably responsible for the occurrence of fatal anaphylactic reactions on this occasion.

The normal anaphylactic response was demonstrated by the intravenous administration of the antigen to animals of each series without ether anesthesia. An essentially identical syndrome was observed (fall of blood pressure with marked rapidity and irregularity of the pulse and respiratory difficulties with dyspnea and cyanosis). Fatal reactions during ether anesthesia occurred in 50 per cent of the dogs (three of six dogs),

the heart was noted in the rabbits, while in the dogs interstitial hemorrhage and marked congestion were observed throughout the gastro-enteric tract.

The nontoxicity of the serum antigen was proved by the intravenous administration of the material to non-sensitized animals. The quantity given was generally at least twice the maximum shocking dose given the sensitized animals. In addition, this procedure was carried out with animals under ether anesthesia and without anesthesia. No reaction was noted. The procedure is indicated in the accompanying table.

CONCLUSIONS

A review of the literature of anaphylaxis amply provides one with records of anaphylactic reactions occurring during ether anesthesia. This is particularly true in the case of the experimental animal. However,



Typical kymographic tracing of the blood pressure of a dog under ether anesthesia during anaphylactic reaction. The figure 1 indicates the point at which the antigen (30 cc) was given intravenously. 2 an intentional break in the tracing for administration of artificial respiration. 3 a second break for artificial respiration and 4 the death of the animal. Two hours elapsed between administration of the antigen and death. Administration of the anesthetic was discontinued after one half hour.

probable instances of anaphylaxis in man during ether anesthesia have been observed at the Cincinnati General Hospital and at one other clinic.

Laboratory experimental evidence as supplied by three species of animals, is in favor of the conclusion that anaphylaxis does take place during ether anesthesia. I do not believe that anaphylaxis with the subjects under ether anesthesia is inhibited to any degree, although this question is debatable. Since at the present time sensitivity cannot be quantitatively measured, the yard stick by which this question might be answered is not available. Until the degree of sensitivity is measurable, the absolute value, if any, of ether anesthesia as a desensitizing agent cannot be determined.

However, since the precept as originally laid down by Besredka that ether anesthesia protects against anaphylactic reaction is maintained by many clinics and since a case in which a fatal anaphylactic reaction is believed to have taken place can be cited, it is reasonable to state that ether anesthesia is valueless as a desensitizing agent. Certainly the practice of administering antitoxic serum to patients under ether anesthesia with the expectation that the anesthetic will protect the patient (if he is sensitive to the foreign serum) from anaphylactic reaction should be discontinued.

Procedures Used to Prove Nontoxicity of the Serum Antigen

Animal	Anesthetic	Sheep s Serum	How Given	Reaction
Dog 543	Ether	60 cc	Intravenously	None
Dog 568	None	60 cc	Intravenously	None
Dog 607	Ether	40 cc	Intravenously	None
Dog 623	None	40 cc	Intravenously	None
Dog 643	Ether	40 cc	Intravenously	None
Dog 644	None	40 cc	Intravenously	None
Guinea pig 10	Ether	10 cc	Intracardially	None
Guinea pig 11	None	10 cc	Intracardially	None
Guinea pig 12	Ether	5 cc	Intracardially	None
Guinea pig 13	None	5 cc	Intracardially	None
Guinea pig 14	Ether	10 cc	Intracardially	None
Guinea pig 15	None	10 cc	Intracardially	None
Rabbit 7	Ether	10 cc	Intravenously	None
Rabbit 8	None	10 cc	Intravenously	None
Rabbit 9	Ether	10 cc	Intravenously	None
Rabbit 10	None	10 cc	Intravenously	None
Rabbit 11	Ether	10 cc	Intravenously	None
Rabbit 12	None	10 cc	Intravenously	None

in 100 per cent of the guinea-pigs (five of five guinea-pigs) and in 100 per cent of the rabbits (five of five rabbits). A less violent but nevertheless definite anaphylactic reaction was noted in the surviving dogs.

Postmortem examination of the animals that died of anaphylactic reaction revealed the characteristic changes of anaphylaxis in the individual animals. The guinea-pigs exhibited marked emphysema of the lungs, which constituted the only remarkable change in this species. There was no evidence of trauma to the heart in any of the animals as a result of the intracardiac administration of the antigen. Engorgement of the right side of

What Havoc We Make of Our Chances —In the wards, where quiet and order reign, he has further opportunities for insight, and for more deliberate observation. He learns, with higher exactness, to trust and to distrust himself to be slow to find fault with other men and quick to help them. He becomes acquainted with heavy responsibility, with the full bitterness of a bad mistake, the full delight of pulling people out of death's way. He begins to be able to read characters, and to see, by the scars on the lives allotted to his care what havoc we make of our chances —Paget, Stephen. *Confessio Medici*, New York, Macmillan Company, 1931.

THE OCCURRENCE OF RENAL CALCULI AND THEIR POSSIBLE RELATION TO DIET

AS ILLUSTRATED IN THE SOUTH AFRICAN NEGRO

VINCENT VERMOOTEN, M.D.
JOHANNESBURG, SOUTH AFRICA

For many years calculous disease of the urinary tract has been looked on as a surgical problem. Since the advent of aseptic surgery and the invention of the modern cystoscope, other methods of relief have hardly been considered.

The many failures to correct the disease surgically and the frequency of recurrence after surgical removal of the stone have demanded a more thorough investigation into cause and effect. From time to time many theories have naturally been advanced regarding the formation of urinary calculi. In the light of recent observations on this matter I will interpret my observations on the huge biologic experiment that is being enacted at present in the Union of South Africa.

STASIS

As early as 1914 Fowler¹ described ureteral stricture and the subsequent urinary stasis as an etiologic factor in the formation of kidney stones. In 1924 Hunner² emphasized this with tremendous force in the description of a patient with recurrent renal calculi.

A woman, aged 36, seen in April 1917, had a calculus in her lower right ureter, which was passed after several ureteral dilations. She was seen again in January 1922 with a normal uninfected left kidney and extensive calculous pyonephrosis on the right side, for which a right nephrectomy was done. In August 1922 she was readmitted, this time with calculous anuria. The calculi were removed, and the patient went home well, only to return three months later (November 22) with another attack of calculous anuria. The new calculus was removed, and a nephrostomy was done. She was discharged a month after the operation with a nephrostomy tube but no calculus. When she arrived home the tube was removed with the result that she had to return to the hospital three weeks after her discharge (Jan 13, 1923), two more calculi having developed in her only remaining kidney. One was causing a partial obstruction. These were removed January 15. After this operation she was not allowed out of the hospital before her ureter had been thoroughly dilated.

Recently I spoke to Dr. Hunner about this patient, only to find that she still comes in for periodic ureteral dilation and, after fourteen years, is still free from further recurrence of the calculi. A case report such as this must convince even the most skeptical of the importance of ureteral stricture and stasis in the occurrence and recurrence of renal calculi.

INFECTION

Infection has always played a leading role. That it actually has been an important part was demonstrated in 1922 by Rosenow and Meisser.³ By embedding streptococci isolated from a stone-forming patient into the socket of a recently extracted dog's tooth, they were able in a high percentage of instances to cause stones to be formed in the kidneys of these animals. This, then, definitely established for the first time a very positive

cause and effect. The only objection to this work from the clinical standpoint is that frequently patients with stones are seen with no renal infection or, if infection is present, there may be no evidence of the specific streptococcus of Rosenow.

PRECIPITATION FROM SUPERSATURATED SOLUTIONS

Taking for granted that stasis or the presence of a urea-splitting streptococcus or *Proteus ammoniae*⁴ or both may be responsible for the formation or at least for the growth of a calculus, one is still at a loss to explain the existence of a large number of calculi which obviously do not depend on these two factors. On account of this, organic and physical chemists suggested the precipitation of crystalloids and colloids from supersaturated solutions as a basis for the formation of renal calculi. Proof of the existence of the nidus necessary to start the precipitation was, however, lacking. This has recently been furnished by Randall⁵ and by Hellstrom.⁶ Not much more than ten years ago this was apparently the most popular and acceptable theory, for it is the chief topic of discussion on the subject of urinary calculi in the 1926 edition of Young's "Practice of Urology."⁷ It has been supported experimentally by Keyser,⁸ among others, has published researches from 1920 to the present on the experimental production of renal calculi. He has been able to produce calculi (1) by feeding of oxamide, (2) by producing an artificial excessive excretion of calcium oxalate, (3) by excessive doses of parathyroid extract and of viosterol and (4) by formation of uric acid calculi in dogs with Eck's fistulas. He divided calculi into two groups, the hyperexcretory and the infectious.

CALCIUM METABOLISM

One must not neglect to consider the part played by disturbance of the calcium metabolism, especially in cases of hyperparathyroidism. Attention was directed to this first by Barr, Bulger and Dixon⁹ and more recently by Albright, Aub and Bauer.¹⁰ These authors emphasized that the inability of the bones to retain calcium is the outstanding clinical manifestation of hyperparathyroidism, together, not infrequently, with progressive calcification of the renal cortex accompanied by the formation of renal calculi.

DIET

It was not until 1933 that Higgins¹¹ drew attention to the work of Osborne, Mendel and Ferry,¹² who in their experiments on vitamin A deficiency found a large incidence of renal and vesical calculi and also to the work of Fujimaki,¹³ who confirmed the work of Osborne, Mendel and Ferry and further noted that in all rats in which calculi developed the urine was alkaline and that the calculi were invariably dissolved when these rats were fed vitamin A. Higgins in 1933 was able not only to confirm these observations but to make the further observations that, as a rule, urinary infection was present and that keratinization of the urinary

Read before the Medical Society of Waterbury, Conn. Feb. 11, 1937.
1. Fowler, O. S. Ureteral Obstruction Causing Urinary Stasis. *J. A. M. A.* 62: 367 (Jan. 31) 1914.
2. Hunner, G. L. Ureteral Stricture. *J. A. M. A.* 82: 509 (Feb. 16) 1924.
3. Rosenow, E. C. and Meisser, J. G. Nephritis and Urinary Calculi After Production of Chronic Foci of Infection. *J. A. M. A.* 78: 266 (Jan. 28) 1922.

4. Hager, B. H. and Magath, T. B. The Formation of Vesical Calculi. *J. A. M. A.* 90: 266 (Jan. 28) 1928.
5. Randall, Alexander. Surg. Gynec. & Obst. 64: 201 (Feb.) 1937.
6. Hellstrom, J. Staph. Stones. Stockholm 1936.
7. Young, H. H. and Davis, D. M. Practice of Urology. Philadelphia, W. B. Saunders Company, 1926.
8. Keyser, L. D. Recurrent Urolithiasis. Etiologic Factors and Clinical Management. *J. A. M. A.* 104: 1299 (April 13) 1935.
9. Barr, D. P., Bulger, H. A. and Dixon, H. H. Hyperparathyroidism. *J. A. M. A.* 92: 951 (March 23) 1929.
10. Albright, Fuller, Aub, J. C. and Bauer, Walter. Hyperparathyroidism. *J. A. M. A.* 102: 1276 (April 21) 1934.
11. Higgins, B. C. Urol. 29: 157 (Feb.) 1933.
12. Osborne, T. B., Mendel, L. B. and Ferry, Edna L. The Incidence of Phosphate Urinary Calculi in Rats Fed on Experimental Rations. *J. A. M. A.* 60: 32 (July) 1917.
13. Fujimaki, Y. Japan M. World 6: 29 1926.

epithelium coexisted. In 1935 he¹⁴ presented evidence that the same experiments could be repeated on dogs with chronic vitamin A deficiency.

Higgins has been able to translate his dietary experiments to human beings and claims not only that with the aid of vitamin A and an acid ash diet he has been able to reduce the recurrence of calculi in his patients from 16.4 per cent to 4.7 per cent but that he actually has complete reports of twenty-three cases¹⁵ in which stones in the kidney have entirely disappeared under medical (dietary) management.

In contradistinction to this, one may read such articles as that from Dr Edwin Beer's service at the Mount Sinai Hospital, New York, by Oppenheimer and Pollack,¹⁶ who found that in five of twenty-seven patients observed from six to sixteen months the stones increased and that in none did they disintegrate or even diminish in size.

EMBRYONIC RENAL CALCULI

Randall,⁵ of Philadelphia, and, independently of him, Hellstrom⁶ made the interesting observation that plaques of pure calcium are frequently deposited under the epithelium of the renal papillae. Presumably, stones develop on these plaques when the surface epithelium has been eroded. This exceedingly important observation may give an entirely new concept, not alone of the origin of renal calculi but also of their subsequent development.

GEOGRAPHIC DISTRIBUTION

Apart from all these most fascinating studies, it is known that the incidence of urinary calculi varies from one country to another and even within different parts of the same country. It is also known that there are marked racial differences. According to Hoffman,¹⁷ statistician for the Prudential Life Insurance Company, for persons over 30 years of age the incidence of deaths due to calculous disease of the urinary tract is 23.9 per million of population in Utah and only 2.4 in Vermont. In England and Wales (1914-1918) the death rate from urinary calculi (all ages) was 7.5 per million of population, while in Uruguay and Chile (1914-1918) it was only 1.3. Similarly, in Victoria, B. C. (1916-1920), the mortality rate from this cause per million of population was 26.2, in London (1915-1920) 7.9, in Amsterdam (1914-1918) 3.2 and in Mexico City (1916-1919) only 1.8.

Hoffman's most interesting figures, however, are those having to do with racial differences. Mortality statistics for the United States registration area show, per million of population, white males 9 and colored males 7, white females 4.1 and colored females 2.7. This is of the utmost importance in the light of my data regarding the South African Negro, for it indicates only a slightly lower incidence in the Negro than in the white race.

Hinman,¹⁸ in discussing the geographic distribution of urinary calculi, says "The most notable stone districts (India, Mesopotamia and South China) lack proper sanitation and suitable food, but the African Negro, similarly deficient, is almost immune to stone," and "in general the higher the standard of living the

lower the incidence." Except so far as the African Negro is concerned these statements are not necessarily correct, as the aforementioned statistics prove.

INCIDENCE OF URINARY CALCULI IN THE SOUTH AFRICAN NEGRO

Living in the Union of South Africa, I soon noticed that statements similar to the foregoing regarding the lack of urinary calculi in the African Negro seemed to be correct despite the fact that I could find no accurate statistics on the matter. With this in mind I consulted A. J. Orenstein, chief medical officer for the Chamber of Mines. At my request he had the records of the admissions to the various mine hospitals analyzed. The patients admitted to the mine hospitals are all Negroes who when recruited for work on the mines were apparently physically well. In this analysis he found that in a series of one million admissions, in only one case was the diagnosis made of renal calculus. This discovery was so striking that with the permission of the superintendent of the Johannesburg General Hospital I examined their records covering the fourteen years from 1922 to 1935 inclusive. During this time 126,000 white and 91,000 colored patients were admitted to the wards. Of these, 273 white and only four colored patients were proved to have had renal or ureteral calculi. Of the four colored (non-European) patients, one was an Indian, two were half-caste and only one was a full-blooded Negro. She was a Masuto, a domestic servant, aged 30, who was admitted to the hospital in 1927, having been ill for four months with pain in the lower part of the abdomen. She had missed her previous menstrual period. Her urine contained a few pus cells and a trace of albumin. X-ray examination, however, showed a small shadow in the course of the right ureter, presumably a ureteral calculus. A calculus was not passed, and as cystoscopic examination was refused I am unable to say definitely whether the shadow represented a calculus. These figures indicate that about one white patient in 460 admitted to the Johannesburg General Hospital has a renal or ureteral calculus. In contradiction to this, in over 90,000 admissions to the non-European section of the hospital there was only one Negro who may possibly have had a renal or ureteral calculus.

DIFFERENCES IN THE NEGRO AND THE CAUCASIAN KIDNEY

Is the Negro kidney different from the Caucasian in its anatomy or its physiology? Does the calcium metabolism differ markedly in the two races or does diet play a part?

From the aforementioned statistics one is almost led to believe that the difference in incidence of renal calculus is not due to an anatomic or a physiologic difference in the Negro kidney, for in the United States the mortality from calculous disease is apparently only slightly lower in the Negro than in the white population. If one were to collect data on only the pure-blooded American Negro, one might of course get a different picture.

HEALTH AND DIET OF THE SOUTH AFRICAN NEGRO

Between 1920 and 1933 Burton¹⁹ examined some 30,000 Xosa and Fingo natives in the Kingwillamstown area. From this study he came to the conclusion that the men of those tribes must be regarded as very healthy, the majority were of good physique, and among them he found a standard of muscular develop-

14 Higgins B. C. *Tr. Am. A. Genito-Urin. Surgeons* 1935 p. 157.
15 Higgins B. C. *New England J. Med.* 213: 1007 (Nov. 21) 1935.
16 Oppenheimer G. D. and Pollack Herbert. *Attempted Solution of Renal Calculi by Dietetic Measures*. J. A. M. A. 108: 349 (Jan. 30) 1937.
17 Hoffman F. L. *M. Rec.* 101: 532 (April) 1922.
18 Hinman Frank. *Principles and Practice of Urology*. Philadelphia W. B. Saunders Company 1935.

19 Burton A. W. *South African M. J.* 8: 327 (May 12) 1934.

ment equal to or surpassing that seen among Europeans. He estimated that only 10 per cent could be classed as physically unfit. Their bony structure is as a rule densely calcified, and their teeth rarely if ever show any caries.

According to the 1932 report of the medical officer of health for the Bechuanaland Protectorate, one finds malnutrition not so widespread among the Negroes as among the poor white population.

According to Fox,²⁰ the Negro on the whole finds no difficulty in satisfying his simple requirements, which consist of various combinations of maize (chiefly eaten cooked as a cereal in the form of corn meal, with sugar and with some milk when available), meat, yellow pumpkin and various edible plants which are to be found growing as weeds on the veld. A similar diet has been worked out for the Negroes who work in the Rand Gold Mines. It consists of corn (maize) meal, meat and/or milk, beans or peanuts, and green vegetables. Dr. Fox, the biologist for the South African Institute for Medical Research, told me that his chief difficulty in computing this diet was to arrange one which the Negro would be willing to eat and which would also satisfy (apart from the necessary organic constituents) at least the minimum maintenance requirement of 0.45 Gm of calcium per day. This he has not been able to do, and outside of the mine compounds the Negro, he feels sure, exists on less than one tenth of this minimal daily requirement. In analyzing this simple standard diet, on which three and one-half million Negroes living in the Negro reserves, two and one-half million Negroes living on farms belonging to their white employers, and the half million town dwellers all exist and remain healthy, one finds several striking characteristics: (1) an extremely low calcium content, (2) an acid ash base and (3) a high vitamin A content. What more ideal diet could one find to comply with Higgins's experimental work?

SIGNIFICANCE OF DIET AND VITAMIN A

In view of these facts, when one summarizes all the data that have been accumulating so rapidly the past few years, one feels that diet must and does have an important part in the formation of renal calculi, as is also well illustrated by the frequent formation of renal calculi in patients on a Sippy diet. It cannot be a matter of the standard of living or of proper sanitation, as intimated by Hinman¹⁸ in his recent textbook, nor can it be, one is inclined to feel, merely a matter of a high vitamin A and an acid ash diet, as is so well shown by the recent article by Oppenheimer and Pollack.¹⁶

Jeans, Blanchard and Zentmire,²¹ in describing a new photometer for detecting the vitamin A deficiency of their patients, again bring to one's attention the fact that a large percentage (from 19 to 35) of apparently healthy children, chiefly in the higher social classes, suffer from vitamin A deficiency. They also point out that the administration of vitamin A does not necessarily cure all these patients. This indicates that vitamin A, although taken in sufficient quantity, is not always assimilated by the body. It makes one feel that certain foods may inhibit and others aid in the assimilation of vitamin A. This might well account for the difference between the results obtained by Higgins and those of the Mount Sinai Hospital. If the Jeans and Zentmire photometer were used on patients with urinary

calculi before and after the administration of vitamin A, one might obtain the answer to some of the marked differences that are being observed clinically.

CONCLUSIONS

1 The South African Negro (Bantu) does not form renal calculi, as illustrated by examination of the hospital admission records of 1,091,000 Negro patients.

2 Members of the white population of South Africa, as illustrated by the examination of hospital records of 126,000 admissions, form renal calculi in the ratio of one in 460 admissions.

3 The South African Negro lives on a simple, stable and uniform diet. This diet is rich in vitamin A, has an acid ash base and is extremely low in calcium.

4 Urinary stasis and infection have an important part in the formation of renal calculi.

5 The efficacy of the administration of vitamin A should regularly be checked by studying the regeneration of the visual purple, so that one can be certain that it is available for assimilation.

132 Lister Building

THE DIAGNOSIS AND TREATMENT OF THE COMMONER FORMS OF CEREBRAL TRAUMA

CHALMERS H. MOORE, M.D.

BIRMINGHAM, ALA.

The diagnosis, prognosis and treatment of cranial injury after head trauma are in an unsettled state. The more modern devices of treatment, such as the use of intravenous hypertonic solutions, repeated lumbar puncture, and even subtemporal decompression of the brain are all methods not as yet proved to be either essential or even valuable in the treatment of this condition.

These words are quoted from an editorial in the *New England Journal of Medicine* for April 1933.¹

In the same year Dandy² stated that 20 per cent of the total number of patients with severe head injury must be regarded as beyond redemption by any rational means available and that another 10 per cent can be saved only by a subtemporal decompression.

Coleman,³ in a recent contribution on the management of acute head injuries, said:

In my own experience with dehydration it was found that if the dehydration were carried to the extent where fluid was removed from the brain in sufficient amount to cause marked reduction of intracranial pressure the condition of the patient was made worse rather than better.

On the other hand, Munro⁴ in 1934 stated:

The diagnosis of craniocerebral trauma is firmly established on a pathological basis. One treatment for the usual forms of brain injury has been standardized. It consists of the preliminary treatment of surgical shock, when present, followed by therapeutic dehydration [by means of a hypertonic solution of dextrose administered intravenously] and repeated lumbar puncture for decompression.

These divergent views all from sources whose authority demands respectful attention, justify critical

Read before the Section on Surgery, General and Abdominal at the Eighty-Eighth Annual Session of the American Medical Association, Atlantic City, N. J., June 9, 1937.

1 Editorial, *New England J. Med.* 208:909 (April 27) 1933.

2 Dandy, W. E., *Diagnosis and Treatment of Injuries of the Head*, J. A. M. A. 101:772 (Sept. 2) 1933.

3 Coleman, C. C., *The Management of Acute Head Injuries*, South. M. J. 30:196 (Feb.) 1937.

4 Munro, Donald, *The Diagnosis, Treatment and Immediate Prognosis of Cerebral Trauma*, *New England J. Med.* 210:287 (Feb. 8) 1934.

20 Fox, F. W., *South African M. J.* 10:25 (Jan. 11) 1936.

21 Jeans, B. C., Blanchard, Evelyn and Zentmire, Zelma, *Dark Adaptation and Vitamin A*, J. A. M. A. 108:451 (Feb. 6) 1937.

possibility I have not as yet had the opportunity to confirm this in a sufficiently large number of cases to warrant an opinion. Unless used with the greatest caution and checked by frequent pressure readings, dehydration may prove a dangerous boomerang.

On the other hand, repeated spinal drainage will reduce brain volume because the intracranial pressure is lowered, thus tending to restore the cerebral circulation to normal. This mechanical decompression promotes the absorption of excess intracellular and perivascular fluids and permits the brain tissue once again to begin to receive its required amount of oxygen. In addition to the removal of excess fluids, much of the extravasated blood incident to the contusion and laceration of the brain is removed, creating in this manner more space in the overcrowded cranial cavity.

For these reasons, in all cases in which the pressure is increased as indicated by manometric observation, and in which the fluid is found to contain blood, one performs drainage as often as in one's judgment the particular situation demands. In the presence of bloody fluid, drainage is repeated at intervals of eight, twelve or twenty-four hours, depending on the richness of the mixture, until it is clear. The condition is never the same in any two cases, and I feel very strongly that one should not attempt to establish a routine.

If, after sufficient time has elapsed, signs of progressive improvement in the patient's condition do not appear, one is quite justified in presuming that, in addition to one or more of the conditions in this fundamental group, more serious damage is present, such as subdural or extradural bleeding. In this event one is justified in making subtemporal burr openings to ascertain whether such is the case. In experienced hands this is easily done with local anesthesia and does not jeopardize the patient's welfare in any way.

It is not in the province of this paper to discuss the treatment of the more unusual conditions, but I would emphasize the fact that unless one is equipped with an efficient suction apparatus, as well as an electric coagulation apparatus, one is courting disappointment and a high mortality rate in attempting any operative procedures, however simple, on the brain.

The principles of treatment herein outlined have succeeded in reducing the total mortality rate in 1,056 cases, seen during less than a three year period, from the former very high percentage of 46 to 14.6. If only the fundamental group is considered, the percentage drops to less than 8.4.

1023 South Twentieth Street

ABSTRACT OF DISCUSSION

DR. WALTER E. DANDY, Baltimore. In cerebral injury in the acute stage, the first consideration is the preservation of life. When life is safe, preservation of cerebral function engages the attention. If a patient is in shock, he should be at absolute rest, nothing is done except to clean and close a compound wound, this should practically always be done immediately. Depressions are left to a period when life is no longer at stake. The estimation of a patient's condition is dependent on a careful bedside study, study of the pulse, respiration and temperature, as Dr. Moore said, one should know these at fifteen minute intervals. In fact there isn't any condition in intracranial surgery that requires such close and accurate study as injuries of the head. Most patients get along better if they are left absolutely alone, i. e., if they are not dehydrated and if they do not get lumbar punctures and x-ray examinations. Roentgenograms mean nothing and should not be taken until the patient is well out of danger, and even then there is no point in x-ray examinations except for medicolegal reasons.

I do not think there is any medical treatment that adds to the patient's welfare during the acute stages of intracranial pressure. There is a great rebound in the use of intravenous dextrose and intravenous hypertonic salt. One thinks one is getting results, but the patient is paying for it by the rebound. The same holds true with lumbar punctures. Nature removes the fluid by passing it into the blood, and in much better fashion. There is only a small percentage of cases in which an operation is indicated, and that operation is usually a simple, subtemporal decompression. When intracranial pressure becomes so high that one can be certain that nature unaided can no longer save the life, the only hope lies in a direct relief of pressure by surgical means. My own method is to make a small perforator opening over the right parietal region, and if that shows no blood or extracerebral fluid the left side is similarly punctured. The effects of trauma will usually be disclosed by blood or fluid over one or the other cerebral hemisphere. A rapid subtemporal decompression under local anesthesia produces permanent relief, not relief over a period of a few hours, but permanent relief during the period of intracranial pressure. It sounds well to expect relief in other ways, but there just isn't any other way. In safe hands, this is a perfectly safe procedure. My firm belief is that the patient must be left absolutely at rest. Fluids should not be restricted. These patients need and should be given fluids if they are able to swallow. One should watch the pulse, temperature and respiration and, above all, the state of consciousness and the state of restlessness, which is the borderline between coma and consciousness. These bedside studies tell when one is in the danger zone. When life hangs in the balance, a decompression is the only safe method of relief.

DR. R. GLEN SPURLING, Louisville, Ky. Dr. Moore has expressed a safe, conservative point of view on this subject. Certainly the results of this treatment have been as satisfactory as in any large series of cases with which I am acquainted. There are several minor points in his arguments, however, with which I find myself in disagreement. The first of these is the incidence of traumatic shock seen after head injury. I have been impressed by the frequency of this state except when there are other associated injuries. Second, the effect of spinal puncture for the reduction of intracranial pressure impresses me as being so transient that its therapeutic value from this point of view is almost negligible. I agree, however, that spinal puncture when done for the purpose of diagnosis, for measurement of intracranial pressure or for the removal of blood when there are signs of meningeal irritation is a valuable procedure. Third, dehydration by hypertonic dextrose is, I believe, of questionable merit. That the absorption of dextrose by the brain tissue causes a secondary wave of edema has been amply demonstrated both clinically and experimentally. When vigorous dehydration is indicated, and I believe this is of relatively infrequent occurrence, sucrose is a far better drug because it is not associated with the undesirable pressure effects of dextrose. Severe dehydration by a greatly reduced fluid intake over a period of days is to my mind harmful rather than beneficial, for if one actually restricts the fluid sufficiently to reduce the size of the brain, one must likewise dehydrate every other soft tissue of the body to a like degree. I do not believe that this state is a desirable one. I am glad to hear Dr. Moore stress strongly the subject of Coleman's postural drainage. This is one of the most important contributions to the subject of head trauma in recent years. Having experimented for a good many years with most of the advocated methods of treatment of head trauma, I have about concluded that the most essential features are as follows: 1. Good nursing care. 2. Careful repair of scalp lacerations and compound skull fractures with or without underlying brain damage. 3. Postural drainage to prevent pulmonary complications in the unconscious patient. 4. Constant alert observations by the physician to recognize focal complications such as extradural and subdural clots and increased intracranial pressure. 5. Prompt operative intervention when neurologic examination indicates the presence of a surgical lesion. 6. Careful examination of the patient for associated injuries. 7. Withdrawal of bloody spinal fluid when signs of meningeal irritation appear. 8. Most important of all perhaps when one is in doubt as to indications for treatment, confining one's efforts to general nursing care and close observation.

Clinical Notes, Suggestions and New Instruments

MYOCARDIAL INFARCTION COMPLICATING PREGNANCY IN A YOUNG WOMAN

PAUL D WHITE MD R EARLE GLENDY MD
AND
PAUL GUSTAFSON MD
BOSTON

A Jewish woman, aged 22, consulted us May 4 1936 because of some uncertainty about the significance of chest pain occurring eight days before. She had always been in excellent health except for scarlet fever at the age of 10 years and tonsillitis followed by tonsillectomy at 12. She had worked hard and played tennis without any symptoms. At the time of the occurrence of the pain she was at the end of the second month of her first pregnancy. There had been no evidence of infection or of an attempt to interrupt the pregnancy.

Her father, mother, four sisters and one brother were alive and well.

April 26, on getting out of bed she had been seized by a moderate paroxysm of coughing which was at once followed by a rather severe oppressive pain across the front of the upper part of the chest, radiating equally down the two arms to the wrists. She coughed no more and there was no sputum, but nausea developed and she vomited three times that day. There was no blood in the vomitus. Because of the persistence of the disagreeable chest pain she went to see her physician in the afternoon and he found nothing apparently wrong. However, he gave her some medicine (capsules) for the pain and advised rest in bed for four days. This she carried out and then got up and about feeling somewhat weak and having a poor appetite. No note was made of any fever. While in bed she was seen by a consultant, who took an electrocardiogram the day following the occurrence of the pain, which showed late inversion of the T waves in lead 1, of this we learned only several weeks later.

rate and rhythm. There were no murmurs. The pulse rate was 76 and the blood pressure measured 115 mm of mercury systolic and 70 diastolic.

Fluoroscopic examination showed no abnormalities of the heart, great vessels or lungs. By orthodiagram the transverse diameter of the heart measured 91 cm and the internal diameter of the thorax 22.8 cm.

A tentative diagnosis of chest muscle strain and acute respiratory infection was made until the electrocardiogram was seen at the end of the examination. This occasioned considerable surprise and was repeated for certainty. It showed normal rhythm, with a rate of 90, with late inversion of the T waves in lead 1, high T waves in lead 3 and upright T waves in lead 4, indicative of infarction of the myocardium in the region

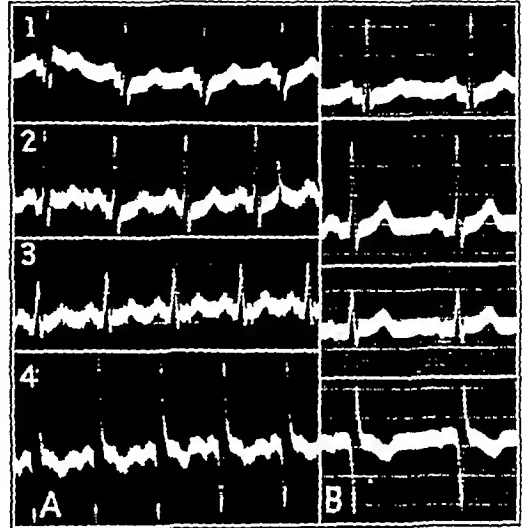


Fig 2—Tracing taken at the time of delivery, December 13, 1937, at 12:25 a.m. during the second stage, fully dilated, pulse rate from 127 to 146. B at 1:40 a.m. one hour post partum, pulse rate 90. Note the normal T waves in all leads in both records.

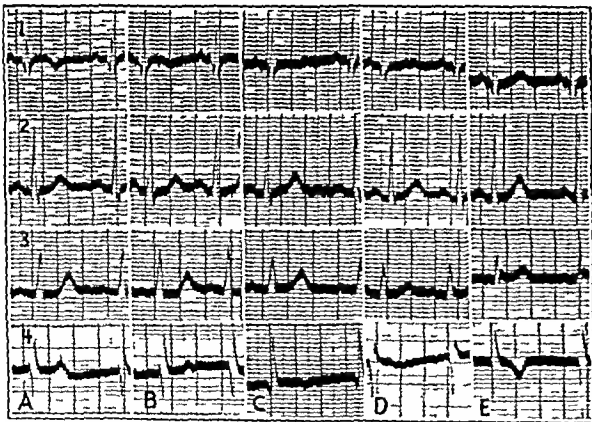


Fig 1—Tracings (four leads) following the attack of chest pain. A, May 4, 1936, eight days after the attack of pain. B, June 4, one month later. C, July 3, two months later. D, September 3, four months later. E, November 6, six months later. Note the late inversion of the T waves in lead 1, the high T waves in lead 3 and the upright T waves with persistence of the Q waves in lead 4. May 4 and June 4. There is a slight decrease in these abnormalities in the second tracing, July 3. The T waves in lead 1 are lightly diphasic, almost flat, while the T waves in lead 4 have become very slightly inverted with a level ST segment. September 3, the record is more normal, and November 6, the record is completely normal, with a return of the T waves in lead 1 to an upright position, a decrease in the height of the T waves in lead 3 and normal T waves in lead 4.

At the time of examination in our office, May 4, she felt a bit weak and nervous but otherwise well. Physical examination was entirely negative, save for slight pallor and an oral temperature of 99°F. The heart was normal in size, sounds

From the Cardiac and Obstetrical Clinics of the Massachusetts General Hospital. Presented in part before the meeting of the New England Heart Association, Massachusetts General Hospital, Nov. 9, 1936.

of the apex of the left ventricle (fig 1). The abnormal electrocardiogram which had been taken several days earlier, was not then known to us.

A convalescent period of several weeks in bed was prescribed and the patient rapidly regained a state of perfect health, with but one unpleasant episode, consisting of a paroxysm of tachycardia for half an hour, May 10, six days later, at the time of some nervous excitement. She continued in excellent health after that, with normal manifestations on physical examination at intervals of every few weeks. The electrocardiogram gradually returned to normal in the course of six months.

The pregnancy progressed uneventfully and on December 12, seven and one-half months after the attack of chest pain, labor began after spontaneous rupture of the membranes. The patient was kept asleep and quiet with the aid of hydrochlorides of the alkaloids of opium, principally morphine and pentobarbital sodium throughout the first stage of labor, which lasted seven hours during which time there were no symptoms or signs of cardiac embarrassment. As soon as the os was fully dilated she was delivered with central episiotomy and low forceps, and the placenta and membranes were expressed a few minutes later. The puerperium was uneventful. The mother and child were in excellent health Feb. 17, 1937, two months after childbirth. The electrocardiogram was then normal, as shown in figures 1E and 2B.

Electrocardiograms taken during labor (fig 2A) and post partum (fig 2B) showed no abnormalities of the T wave; the QRS waves in lead 2 decreased sharply in voltage for a few beats at the time of the actual delivery.

The persistence of the Q wave in lead 4 indicates the probability that the infarct in this case was not on the septal and anterior wall of the left ventricular apex but rather on the lateral wall.

There has been no evidence of coronary embolism, myocardial infection or trauma or pericardial disease.

SUMMARY AND CONCLUSIONS

A woman, aged 22 has been observed with clinical and electrocardiographic evidence of acute myocardial infarction, undoubtedly the result of coronary thrombosis (coronary embolism is a very remote possibility). So far as we know she is the youngest woman who has ever been reported as having this lesion.¹ We have encountered one man of the same age (22 years) with excellent recovery after coronary thrombosis, and four other patients, all men under the age of 30 (23, 26, 26 and 29 years). The youngest person on record was a youth aged 18 years.²

In the case reported here the coronary thrombosis complicated pregnancy in the second month with no harmful effect on the normal course of the pregnancy, childbirth and puerperium. There is one other published case of coronary thrombosis complicating pregnancy, this was in a woman, aged 45, with marked hypertension and congestive failure.³

Our case strongly suggests that coronary thrombosis and myocardial scarring may easily escape notice in a young person and this, with our other experience, indicates that myocardial infarction may after all not be very rare in young adults. Electrocardiographic evidence is essential for diagnosis in view of the fact that recovery even after extensive infarcts is the rule in youth.

PRIMARY SUPPURATIVE CHOLANGEITIS

REPORT OF A CASE AND THE VALUE OF LIVER
REHABILITATION IN THERAPY

ANTHONY BASSLER, M.D. NEW YORK

Suppurative cholangitis is considered to be secondary to conditions allowing of infections, such as gallstones, obstructions of the bile ducts from various causes, parasitic worms and carcinoma and from wasting conditions, such as typhoid, cholera and pneumonia. The bacteria isolated have been streptococci, staphylococci, *Escherichia coli*, *Bacillus typhosus*, pneumococci and *Clostridium Welchii*, the latter sometimes occurring as a primary infection. The onset is usually vague and the condition not suspected until septic symptoms appear. It may begin with attacks of jaundice simulating catarrhal jaundice in which it is insidious or begins acutely as a septic process without jaundice. As a rule pain is absent until late in the disorder. In most instances the condition resembles malignant disease, from which it differs in the diffuse and regular enlargement of the liver, septic symptoms including a marked leukocytosis and polynuclear cytolysis, and rapidly developing serious illness. Even in the presence of jaundice from involvement of the periradicular tissue in the liver, the diagnosis of the primary form is especially difficult. In the presence of gallstones or recent severe infectious disease, when pyrexia, chills, jaundice, leukocytosis with high polymorphonuclears and enlargement and tenderness of the liver occur, the diagnosis may be assumed with considerable degree of accuracy. I have seen thirty-one cases in the last five years and in all but two the suppurative process in the liver was judged as accompanying or secondary to other pathologic conditions. One of these two was multiple small abscesses of the liver due to *Clostridium Welchii* infection in a prominent New York internist who died recently and the second, the case reported here strongly suggests that it may occur as an ascending infection and without other pathologic change or cause.

REPORT OF CASE

Dr. de R., aged 42 was born in Colombia, South America but lived most of his life in the United States. About ten years before admission he had a cough that lasted for several months it was diagnosed as due to pulmonary tuberculosis but cleared up without special attention in about ten weeks. He was operated on for rectal fistula in 1934. Four years before, when living in New York, he became jaundiced. Other than a slight

degree of anorexia, this ran a course similar to acute catarrhal jaundice. In February 1936 he became jaundiced again and the course was again characteristic of acute catarrhal jaundice. This cleared in four weeks under bland diet, bismuth and medical bile aspirations. One of the features of the latter was the constant presence of blood in the A fraction. The present illness began six weeks afterward and followed the shock of a fire and considerable worry over financial affairs. The illness lasted uninterruptedly up to the time of the operation. For the first three weeks the jaundice kept deepening with characteristic gray stools and deep bile-stained urine, intense itching, anorexia, loss of weight and physical weakness. The icterus index during this time varied between 18 and 37, dropping rapidly and the jaundice cleared during the week before operation. During the three weeks before the operation there was



Fig. 1.—Section of liver tissue. A small necrotic foci. B small bile ducts compressed by cuboidal cells. C periphery of lobules and normal liver tissue.

associated with the illness for the first time a rise in temperature. For the first week this was nominal, then rising and diphasic in character between 100 and 105. In the ten days before operation there were distinct chills followed by an abrupt rise in temperature and a drop to 100 in a few hours. During the time of the pyrexia the liver enlarged noticeably, was tender on pressure but remained smooth, the edge never being palpable. The white blood cell count began at about 10,000 with the polymorphonuclears about 80 per cent and gradually rose to 22,000 with polymorphonuclears of 92 per cent. The hippuric acid and blood phosphatase tests were normal before the onset of the septic symptoms and during all the time of septic state three estimations of hippuric acid, two blood phosphatase, one galactose and two urobilinogen estimations were done, all of them being but slightly positive. The comparison of the blood phosphatase and the urobilinogen tests, however, somewhat suggested an involvement of liver tissue. Two days before

1 Since this paper was written we have read a report published a few months ago by W. J. May on *Coronary Infarction in Young Adults* (South African M. J. 10: 763 [Nov. 28] 1936). Four patients under the age of 40 years are described in this paper with clinical and electrocardiographic pictures of coronary thrombosis. The youngest was a youth aged 19 years and the next youngest a woman aged 20. The latter had electrocardiographic evidence of a basal infarct. The other two cases were men aged 38 and 39 years respectively.

2 Jamison, S. C. and Hau, G. H. *Angina Pectoris in a Youth of Eighteen*. J. A. M. A. 85: 1398 (Oct. 31) 1922.
3 Reis, R. A. and Frankenthal, L. E., Jr. *Labor in the Cardiac Patient with a Report of the Occurrence of Coronary Occlusion in Pregnancy and Labor*. Am. J. Obst. & Gynec. 29: 44 (Jan.) 1935.

operation the blood examination was erythrocytes 2,700,000 hemoglobin 9.3 Gm (54 per cent), color index 1.0, leukocytes 18,800, polymorphonuclears 90 per cent, lymphocytes 5 per cent, mononuclears 4 per cent and basophils 1 per cent, sugar 89 mg, urea nitrogen 14 mg, chlorides 789 mg, and icteric index 20. The urine showed a trace of albumin and was bile negative. The fall of the icteric index and the urine negative for bile are probably explained in the distinct clearing of the jaundice in the week before operation.

Operation was done October 22 by Dr. John F. Erdmann at the Doctors Hospital. Abdominal exposure revealed liver spotted with multitudinous gray to pronounced yellow spots from pinpoint size to the size of two or three bank pinheads. Both lobes of the liver were greatly enlarged. No tumors were found. Courvoisier's gallbladder was found. The cystic duct was partially flexed. The terminal cystic duct was markedly distended. The common duct was distended to three-eighths inch in diameter. Search for stones revealed none in the common duct except a very small piece of soft material the size of a pinhead. The gallbladder was palpated with the finger, and instrument and no stones were found. Choledochostomy was accomplished with a T tube. Cholecystogastrostomy was performed. A densely adherent appendix was found and removed. One cigaret drain was left down to the choledochostomy with four retention sutures. A preliminary transfusion of 500 cc of blood was given.

A pathologic report was made by Dr. Henry R. Muller, October 26. Grossly, a piece of liver tissue 2 cm by 0.5 cm in the fixed condition and after cultures were made from it did not show the spots seen in the fresh state. A dome shaped specimen from the fundus of the gallbladder showed the walls thickened and the mucosa granular. The appendix was 6 cm long, its lumen packed with feces and the wall was thinned out.

Microscopically, sections of the liver showed small foci of necrosis with polymorphonuclear infiltration. In addition there was a marked inflammatory reaction around the portal canals consisting of fibrosis and polymorphonuclear and round cell infiltration. The wall of the gallbladder showed an active inflammatory process in the mucosa and in the wall itself. This was a chronic inflammation consisting chiefly of plasma cells and a deposit of fibroblasts. The appendix showed a mild chronic inflammation in the wall. The diagnosis was chronic cholecystitis, acute periportal hepatitis, miliary abscesses of the liver and chronic appendicitis.

Bacteriologically, liver culture yielded no growth, bile culture yielded *Escherichia coli* and *B. subtilis*. Subsequent examinations of bile drainage specimens all contained *Escherichia coli* and occasionally *Pseudomonas*.

After operation the temperature and pulse rate gradually subsided for seven days, becoming 99 and about 100 respectively. On the eighth day the pulse rate shot to 140, the temperature rose a degree or two, emesis came on and a postoperative dilatation existed, which was controlled by continued gastric drainage and lavage. After this the temperature and pulse remained for days slightly higher than before the gastric dilatation; the temperature gradually subsiding to normal and the pulse to about 105. For the first two or three days the bile drainage was practically clear and normal looking. It then suddenly became muddy with pus, this lasting for a day or two and then clearing. This continued in repeated ways for three weeks the bile then being quite clear and remaining so. After numerous items of treatment, mostly dextrose injections and liver injection therapy, his manhood deepened and he lost weight rapidly and became vitally weakened and markedly anemic. About three and a half weeks after the operation the blood protease and hippuric tests for the first time showed a marked hepatic deficiency, and the possibility of a liver death was imminent. At that time he had been hiccupping for seven days, a distinct diarrhea was present and the stomach was intolerant to fluid and food. At this time a conjoint program of liver rehabilitation was inaugurated which in twenty-four hours changed the whole serious aspect of the case. The fluids were forced by subcutaneous and rectal drip to dilute the excessive toxins in their passage through the liver, adrenals and kidneys; when the stomach became more tolerant the proteins were reduced to meet the lowered detoxicating ability of the liver, the carbohydrates were increased both in diet and by dextrose injections intravenously to build up the liver glycogen reserve; calcium

gluconate was given intravenously to build up liver function, in the fluids introduced there was liberal use of sodium chloride and dilute hydrochloric acid given by mouth to replenish blood and tissue chloride depletion and maintain normal water balance and adrenal cortex extract intramuscularly to aid in supporting the adrenal cortex. This program was modified as recovery was definite. In about two weeks after this the patient was well enough to leave his bed and improved slowly but definitely day by day. Bile drainage was kept up steadily for about ten days, and after this the tube was clamped off alternate hours, one hour on and one hour off, this being modified to one hour on and four hours off as time went on. From the time of the operation to November 27 when the T tube was removed, there was always a frank flow of bile. At the time of its removal the liver had markedly reduced in size and the patient had

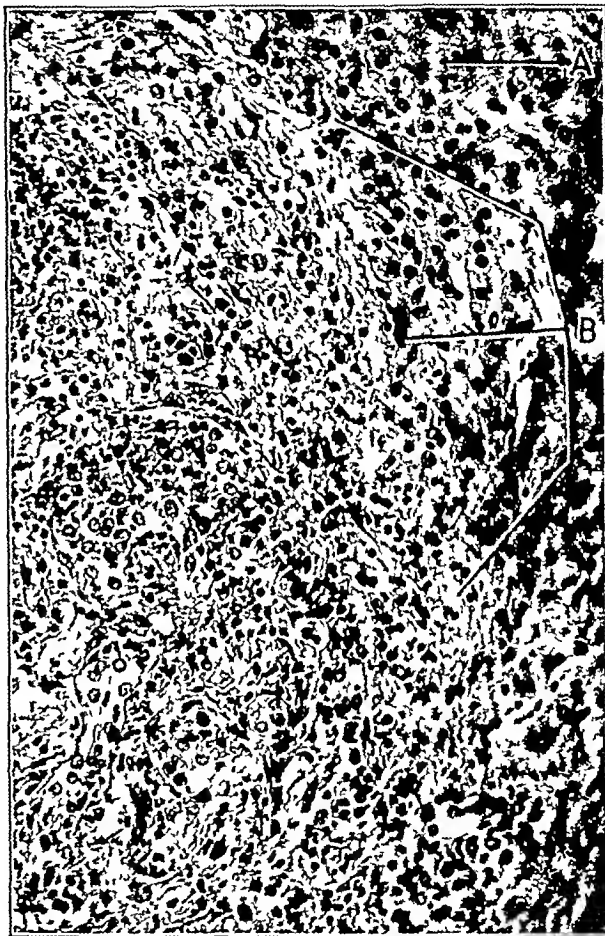


Fig 2.—Section of liver tissue. A normal liver tissue. B edge of the area of necrosis which comprises all that is left of this showing degeneration of liver cells and infiltration with polymorphonuclears monocytes and fibroblasts.

gained strength to walk a little and was definitely on the way to recovery. During the convalescence and about three weeks after the operation diarrhea of acholic stools developed and he ceased to gain. The diarrhea mounted up to from ten to twenty stools a day with considerable urgency. At that time the liver rehabilitation program had been discontinued for about two weeks. A modified plan was then inaugurated consisting of considerable amounts of dextrose, calcium hydrochloric acid and increase of fluids by mouth. Within twenty-four hours of its institution the diarrhea was controlled far more effectively than it had been by bismuth and opium. The patient was seen December 18 in the office and was gaining weight and feeling quite well. Dextrose by mouth was being continued. A biliary fistula persisted it being too soon to expect closure. March 16, 1937, the patient was perfectly well following no treatment during the last month. He has gained 42 pounds (19 Kg) since he has been out of bed; the liver is not palpable and he is back at work putting in full days.

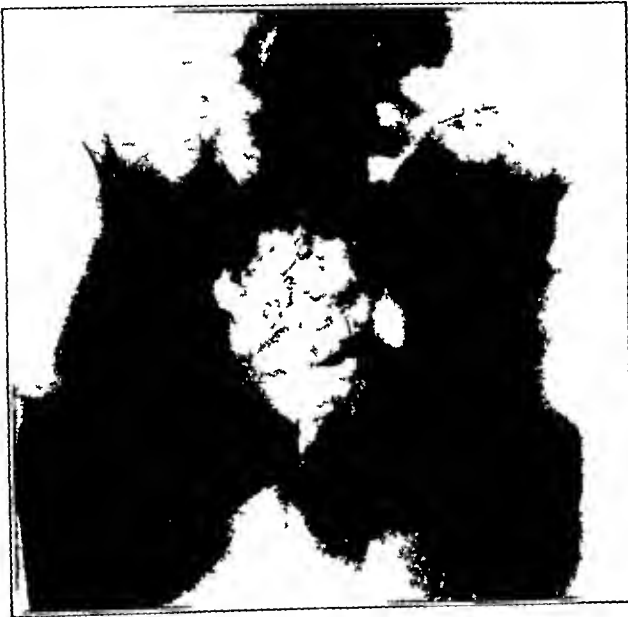
An interesting speculation now comes forward as to the possibility of a cirrhosis of the liver from the amount of fibrous tissue repair from the necrotic areas in the liver tissue and the periradicular inflammation as well as how much of a metabolic problem will be present in the months to come

121 East Seventy-First Street

FRACTURE OF THE ANTERIOR SUPERIOR SPINE
OF THE ILIUM

VOIGT MOONEY M.D. PITTSBURGH

Fracture of the anterior superior spine because of muscular violence is not frequent. With reports in the literature by Carp, Conwell, Christopher and several foreign writers, the number of cases had been brought up to fifty-eight



Fracture of anterior superior spine of right ilium

Searching the literature since Conwell and Alldredges report,¹ I found no other reference in the literature, so I am reporting the fifty-ninth case

W. H., a healthy Negro youth, aged 16, who was carried into the Allegheny General Hospital, May 25, 1936, complained of pain in the right side and inability to walk. He stated that while running down a hill he had experienced a sudden very sharp pain in the right side, which caused him to drop to the ground.

The patient was muscular and was in evident pain. The right thigh was held in the everted position. There was tenderness and crepitus over the anterior portion of the right ilium. Movements of the right hip and pelvis caused discomfort. X-ray examination revealed a fracture of the anterior superior spine of the right ilium.

I cut down on the fracture and replaced the loose fragment. A plaster-of-paris hip spica was applied with the thigh and knee flexed. Recovery was uneventful, the cast being removed at the end of six weeks.

A second case was that of a colored girl, aged 13 years, who participated in a track meet May 25, 1937. About five minutes after running she arose and found that she could not bear weight on the right leg. She was removed to the Allegheny General Hospital, Pittsburgh, Pa., where the examination showed that the right ilium and hip were tender to touch. All the hip movements, both active and passive, caused pain. X-ray examination of the right ilium revealed a fracture of the anterior superior spine.

8034 Jenkins Arcade Building

1. Conwell, H. E. and Alldredge, R. H. *Am. J. Surg.* 33: 114 (July) 1936

PENETRATION OF TISSUE BY FUEL OIL UNDER
HIGH PRESSURE FROM DIESEL ENGINE

C. E. REES, M.D., SAN DIEGO, CALIF.

A recent query¹ in *THE JOURNAL* concerns injury resulting from the penetration of tissue by fuel oil from a Diesel engine. Since the reply indicates that no such cases have been reported in the medical literature, the present case report and discussion may be of interest.

A motor mechanic, aged 47, was testing the jet of a Diesel engine. He was holding the jet which he had removed from a cylinder head, about 1 inch from the tip of his right middle finger when he tripped the valve. Oil was forced from the jet into the finger at a pressure which he estimated to be about 4,000 pounds. There was immediate slight bleeding from several points in the finger-tip and pain, which gradually became intense. When I first saw the patient twenty-four hours later opiates were necessary to relieve the pain. At this time the finger and hand were edematous, swollen and tense, and the epitrochlear and axillary lymph nodes were enlarged and tender. A round area of epidermis about 1 cm. in diameter at the end of the finger was loose and was removed. The tissue beneath the skin was a dusky red.

The patient was sent to the hospital, where the hand was elevated and hot compresses were applied. A blood count at this time revealed a hemoglobin concentration of 95 per cent, 4,500,000 erythrocytes and 11,500 leukocytes, of which 80 per cent were polymorphonuclears and 20 per cent small lymphocytes, and many poikilocytes. The urine was acid in reaction and contained many amorphous urates, from 4 to 8 leukocytes and an occasional red blood cell per high power field. There was no albumin and no sugar.

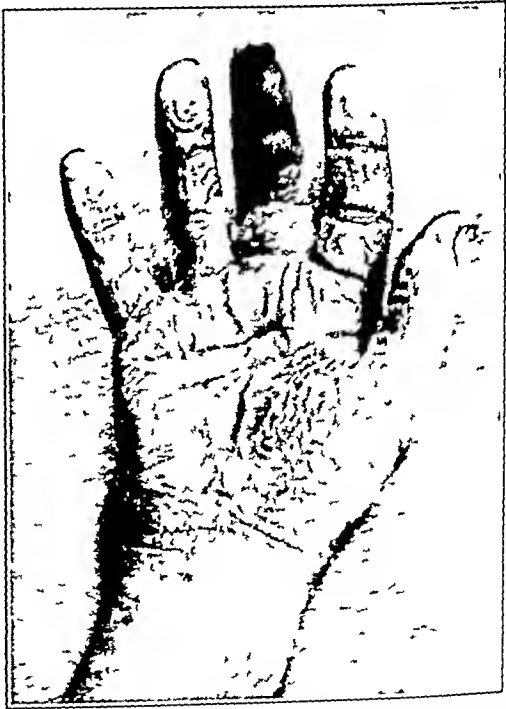


Fig. 1.—Epidermis of third finger denuded to first interphalangeal joint showing dry gangrene. Area of destruction extends to darkened area in midpalmar space. Maceration of remainder of hand due to wet packs.

The pain in the finger and in a triangular area in the palm and dorsum of the hand at the base of the middle finger persisted, but the pain and swelling in the remainder of the hand subsided somewhat. Within the next twenty-four hours the epidermis on the distal half of the finger loosened and was removed, and again a deep red color in the underlying tissue

From the Rees Stealy Clinic.
1. Penetration of Tissue by Fuel Oil from Diesel Engine queries and minor notes. *J. A. M. A.* 108: 225-226 (Jan. 16) 1937.

was revealed. Dehydration of this area resulted in dry gangrene, which began at the tip of the finger and extended down to the first interphalangeal joint. The epidermal skin over the first phalanx and the base of the finger then loosened and the same dusky red that was seen at the tip of the finger before the onset of the gangrene was disclosed in the sub-jacent tissue.

Involvement of the bone was not demonstrable on the x-ray plate taken seven days after the injury. Exploratory incision



Fig 2—Dorsal view. Discoloration of nail of fourth finger due to former injury.

over the first phalanx at this time showed that all the tissue in this area had undergone liquefaction necrosis with secondary infection. A thick creamy pus was present in which an occasional gram-positive coccus was found. The tissue of the palm and dorsum of the hand at the base of the finger was of the same dusky red previously noted in the finger. Bleeding was very slight. The pain was still severe. During this time he had a gradually subsiding temperature range between 101.2 and 97 F.

It was decided to amputate the finger and remove if possible all the involved tissue. Amputation was performed through a palmar and dorsal wedge-shaped incision over the metacarpal bone. Dusky and edematous tissue with small pockets of pus extended into the midpalmar region. The metacarpal bone was sectioned in its middle third. Only the lateral digital artery required ligation. The wound was left open on the dorsal side and was closed by loose silk worm sutures on the palmar side. The swelling and pain in the remainder of the hand subsided immediately. There was considerable suppuration in the area of amputation following operation and it was not until eight weeks later that healing was complete. When the patient was seen again, two years after his accident, the function of the remaining fingers was good.

COMMENT

The introduction of the use of high pressures in industry has led to a number of injuries which are unique to accidents caused by such pressures. The normal operation of certain types of Diesel engines adds a new agent which is capable of producing injury when misapplied. These engines differ in principle from the well known gasoline engines in that the fuel in the explosion chamber is ignited not by an electrical spark but by heat generated from compression of the mixture of fuel and air. The fuel is supplied directly into the cylinder of the engine where it becomes mixed with air, compressed and fired. In one type of Diesel engine which uses the heavier fuels

the oil is forced into the cylinder through a jet where it is fragmented by air under very heavy pressure—from 1200 to 5000 pounds per square inch. Such pressure is capable of forcing fuel oil into tissue.

There are two types of oil used in Diesel engines. One is a light oil which is used in automotive engines such as tractors, and the other is a heavy, less refined oil which is used largely in marine engines. The light oil is composed of a multitude of hydrocarbons but has been considerably refined. The heavy oil contains a small amount of phenol, which is probably largely extracted from the light oil.

I have been informed that crude oil has been implanted in tissues through accident with apparently no more irritating effect than that of any other simple foreign body. It is quite conceivable however, that the forcing of such material into tissue under pressure might cause a gangrenous condition even though the constituents are not particularly toxic.

A similar accident has been reported to me which occurred to a Japanese fisherman while at sea. My informant states that the finger was incised after the accident by a member of the crew and that it healed shortly thereafter without loss of finger or function.

From the little information I have been able to gather it would seem that the severity of these accidents is dependent on the character and quantity of the oil and on the pressure under which it is introduced into the tissues. Conclusions cannot be drawn from experience with one case, but it is my impression that in an accident similar to the one reported in which the local reaction is marked, early and liberal incisions over and into the area should be considered. Such incisions would allow the escape of the irritant which apparently remains localized, and would relieve the edema, which is intense and may be destructive in itself if allowed to persist.

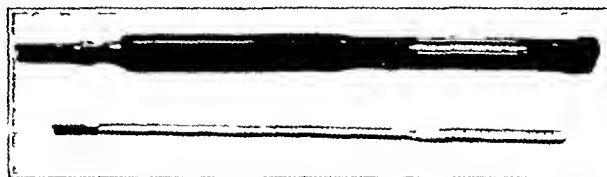
2001 Fourth Avenue

AN INSTRUMENT FOR THE CONTINUOUS READING OF RECTAL TEMPERATURE

WILLIAM BIERMAN, M.D., NEW YORK

During the period of fever produced by physical means, it is essential that the systemic temperature be known at all times. This is best determined by observation of the temperature in the rectum. The most commonly used technique is the insertion of a clinical thermometer at short intervals. This procedure disturbs the patient and is tiresome to the attendant.

The use of a continuous recording device such as a resistance thermometer is of great value. It allows of continuous observation—which is very important in that it permits the careful modulation of the thermal energies applied so as to maintain



Continuous indicating rectal thermometer

the desired temperature. Resistance thermometers have a time lag, require careful adjustment, are expensive and occasionally get out of order. Thermocouple devices have similar objections.

A continuous indicating mercury thermometer permits visualization of the rectal temperature at all times. I employ a specially designed instrument $13\frac{1}{2}$ inches in length and three-eighths inch in diameter. The last 4 inches of the thermometer is flattened so that the width of this part is about five eighths inch. Etched lines on the flattened portion indicate temperature values in fifths of one degree F, subdivisions extending from 98 to 112 F. Prisms on each side of the mercury column in the flattened portion of the instrument magnify this column so that it can be read readily at a distance of several feet.

The thermometer has been placed in a special housing to protect it from breakage and yet permit of its easy reading. The first 3 inches of this housing is made of thin shell

aluminum designed so that the thermometer fits snugly into the metal casing. Metal is used so that the temperature of the tissue may be readily transmitted to the thermometer bulb. The remainder of the housing is made of hard rubber or of bakelite surrounding the thermometer except for a window to permit visualization of the figures in the flattened portion of the thermometer. This type of material interferes with the transmission of the heat of the fever cabinet to the more thermal receptive portion of the thermometer. About 2 inches from the tip, the metal portion is expanded into a small bulb which facilitates retention of the instrument in the rectum.

The device is kept in place by resting the portion that protrudes on a small pillow. If the patient turns, a simple adjustment is all that is required to keep the mercury in the line of vision.

471 Park Avenue

Special Clinical Article

THE COMPLICATIONS OF PEPTIC ULCER AND THEIR TREATMENT

CLINICAL LECTURE AT ATLANTIC CITY SESSION

FRED H. KRUSE, M.D.
SAN FRANCISCO

As the usual complications of gastric and duodenal ulcer are not simple but are intimately interrelated, a brief consideration of their nature and treatment as a single problem is of value. Some of the complications that occur are not always preventable, such as hemorrhage in an arterio-sclerotic subject, alkalosis in a subject with damaged kidneys, or sudden perforation in a subject with acute ulcer of infectious origin. However, most of the complications that arise represent a breakdown of medical control and management, partly the fault of the physician in not sufficiently educating his patient in the nature and dangers of his ulcer but primarily that of the patient in failing to follow his instructions rigidly.



Fig. 1—Organic and permanent obstruction.

Most of the complications considered here occurred in patients who were previously under some form of medical treatment that had not been sufficiently heeded.

The person with peptic ulcer must be educated as to the nature and permanence of his diathesis, just as the tuberculous and diabetic patient is taught to understand and care for himself. His instruction must include not

only dietary requirements and certain specific medical procedures but self management and environmental control.

As to specific medical procedures, it is becoming more and more apparent that the newer therapeutic agents being used, such as histidine, foreign proteins (with or without lipoids and emetine), mucin, mercurials



Fig. 2—Organic obstruction with active peristalsis which yielded later to treatment of edema and congestion.

(as metaphen) and other corrosives and disinfectants have only a limited and occasional value in the treatment of peptic ulcer. On the other hand, the recent work in the development and treatment of experimentally produced peptic ulcers (Stalker, Bollman and Mann) demonstrating the efficacy of alkaline therapy encourages the attempts to control acidity as well as motor spasm and a generally hypertensive nervous system.

During the last ten years, from April 1927 to April 1937, 575 persons with peptic ulcer were admitted to the University of California Hospital. Of these 399 had duodenal ulcer and 146 gastric ulcer, a ratio of about 3 to 1. Males numbered 441 and females 134, a proportion of 3.3 to 1. A slightly higher proportion of males had duodenal ulcer and a slightly higher proportion of females had gastric ulcer than is indicated by this ratio. Thirty patients, or 5 per cent, had gastrojejunal ulcer. The mortality in the hospital, as expressed by twenty-nine deaths to 575 entries, was 5 per cent. The main features of the 575 cases are summarized in table 1.

It has been estimated that from 20 to 25 per cent of patients who enter hospitals with peptic ulcer require surgical intervention. Over the ten year period 33 per cent of these patients were sent to operation, many more in the first five years than in the last five years, there being a distinct swing of late toward more prolonged and rigid medical treatment and a much more conservative selection of patients by surgeons for operation.

The most common complications, which I shall consider briefly, are given in table 2.

INTRACTABILITY

In considering intractability, I shall be brief, for the subject is involved and exhaustive consideration would necessarily include a review of the various methods of treatment.

The intractable ulcer should be studied in detail. The type of ulcer, as to location and mechanical aspects, and any possible gain by further medical treatment should be considered. In some cases surgical aid alone offers hope. Systemic causes, such as focal infections, a diseased gallbladder, metabolic disturbances and allergic or deficiency states should be investigated. Nervous factors, the wear and tear of life and the patient's mental outlook and psychologic make up should be taken into consideration. Most important by far is a careful analysis of the interval history and of the



Fig 3—Retention

procedures the patient is following. This analysis will frequently reveal that failure of medical treatment has been due chiefly to a lack of intelligent and whole-hearted cooperation on the part of the patient in the management and control of his condition. Only painstaking education, specific indication of errors in diet and in living habits and more frequent supervision by the physician can insure success.

HEMORRHAGE

In the University of California Hospital series of 575 cases of peptic ulcer recently reviewed, hemorrhages occurred in 28 per cent of the cases of duodenal ulcer and in 28 per cent of the cases of gastric ulcer, average, 28 per cent. Brown reported the incidence of hemorrhage as 25 per cent in 1,225 cases of peptic ulcer in which the Sippy treatment was used. Probably a true incidence of hemorrhage to all ulcers would be nearer 10 per cent.

The mortality of gross hemorrhage has usually been estimated as 5 per cent in the statistics of this country, but Leon Goldman found a mortality of 10 per cent

for 1,025 patients with peptic ulcer in the San Francisco Hospital while Tage Christiansen of Denmark reported a mortality in most countries of 10 per cent or more. There seems to be a general agreement that persons over 40 with peptic hemorrhage are more likely to die than younger persons (a ratio of 8 to 1) and that twice as many males as females die.

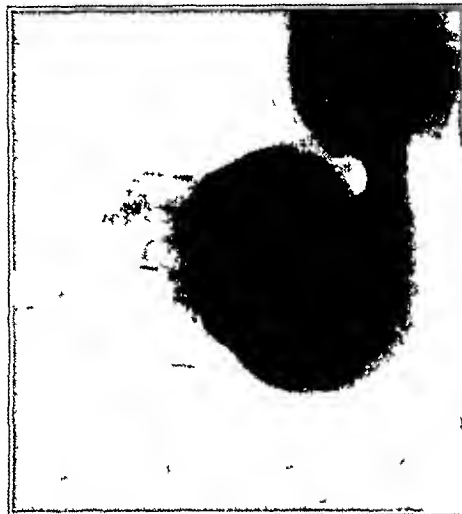


Fig 4—Obstruction that has yielded to lavage and medical management

The hemoglobin level is an important factor in prognosis. When it is below 60 per cent the death rate is almost four times that when it is above 60 per cent. Arteriosclerosis is an important factor affecting the incidence and mortality of this condition. Two or more gross hemorrhages indicate the likelihood of recurrences and show an abrupt rise in mortality after the second hemorrhage.

Symptoms and Diagnosis—When a chronic peptic ulcer bleeds, the source of the blood is generally a small blood vessel, most frequently an artery that has become eroded. In cases of massive hemorrhage, a ruptured vessel on the lesser curvature or posterior wall of the stomach or on the posterior wall of the duodenum is usually the cause.

The tendency to bleed is frequently a characteristic of the individual patient due to early scurvy or a so-called bleeding diathesis not directly related to any demonstrable blood dyscrasia.



Fig 5—Air bubble under diaphragm in case of acute perforation

The diagnosis is apparent when one notes either hematemesis or melena or both, pallor, rapid pulse, faintness, sweating and falling blood pressure. Hematemesis occurs only if the distention of the stomach caused by the hemorrhage is comparatively sudden. Owing to relief of local congestion any pain present usually disappears as the bleeding becomes more profuse.

The initial result of hemorrhage is diminution of blood volume, which causes a sudden fall in blood pressure. As the hemorrhage ceases the blood pressure rises, and the blood plasma increases as a result of

absorption of water from the tissues, thus causing a fall in the hemoglobin content. The total loss of blood can, of course, be judged only by the percentage of hemoglobin when at length it reaches its lowest level. The cessation of bleeding and any recurrence can be determined by frequent reading of the blood pressure. A single severe hemorrhage may cause the hemoglobin content to drop to 60 or even 40 per cent, and if it is repeated the hemoglobin may drop to 20 per cent.

If the vomited blood is bright red and alkaline, it is a clear indication that the hemorrhage has been profuse and rapid, if it is dark brown, coffee ground material and acid, the bleeding has been less abundant and comparatively slow.

Faintness, thirst, vertigo, tinnitus, palpitation, tremor, coldness of the extremities, nausea and profuse sweating, with rapid pulse and pallor, complete the clinical picture. Temporary blindness in one or both eyes is a rare sequel of severe hemorrhage.

Only after very severe hemorrhage from rupture of a large vessel is death likely to occur as an immediate result and this is indeed rare. In Goldman's series of

it ought to be performed at once. Except under these circumstances, the advisability of transfusion must depend on the indications in the particular case involved.

The management of severe hemorrhage complicating peptic ulcer is a subject commanding a great deal of attention and exciting a lot of controversy. The essential features of treatment, such as diet, starvation, intravenous and parenteral injection of fluids to combat dehydration, nitrogen retention and alkalosis and the use of transfusions as well as the indications for surgical intervention, have been productive of a wide and positive difference of opinion among the leading authorities.

So confusing are the statements of proper procedure and management that it is well not to pin one's faith on any stereotyped method but with certain principles in mind to individualize the treatment according to the needs of the patient and the individual problem presented.

For instance there has been considerable controversy about the dangers and advantages of blood transfusions in cases of peptic hemorrhage. Sippy taught that the



Fig. 6—Chronic perforation with the perforating sac seen as A a canal B a bud and C a pouch

patients who died of exsanguination, approximately twice as many had duodenal ulcer as had gastric ulcer.

Essential Considerations in Treatment—Experience teaches that the treatment of moderate or even of extensive hemorrhage should be medical. The mortality from surgical intervention is high. Too frequently the surgeon cannot locate the bleeding vessel. An arteriosclerotic vessel can sometimes be found and closed successfully in the case of an old chronic ulcer, or by cautery, excision or resection when possible, the site of hemorrhage may be eradicated, although this is often impossible and recurrence of hemorrhage later ensues. With few exceptions indication for surgery exists chiefly in the arteriosclerotic patient with recurring or persistent hemorrhage and in the person with a deeply penetrating ulcer on the posterior wall of the duodenum, eroding through a large arterial branch. Repeated recurrence and persistent oozing are indications for surgery if they continue in spite of proper medical treatment. In almost all cases bleeding will cease spontaneously without any treatment by drugs and will not be fatal. One must however, consider the patient over 40 with more than two hemorrhages in the danger zone and decide whether or not he can stand another hemorrhage. The favorable time for surgical intervention is after the hemorrhage has ceased. A hemoglobin percentage below 60 indicates that a transfusion may be required; a percentage below 40 signifies that

intravenous administration of fluids might start hemorrhage anew and that it was even dangerous to take the blood pressure for fear of raising the systolic pressure. Most physicians have feared that transfusions, especially large ones, of 500 cc or more, might increase the systolic pressure to such an extent, even up to normal or above that further bleeding would be encouraged since tarry stools are sometimes seen even after a blood transfusion of 500 cc. MacGuire, Unger and others expressed the opinion that such an occurrence is only a temporary condition and that blood added in large amounts is very beneficial to the patient. They questioned the benefit of small transfusions and discounted the dangers of the larger ones, claiming that the systolic pressure declines after repeated transfusions of whole blood, never coming up to normal, and is usually from 10 to 20 degrees below it. Such transfusions, they claimed, promote better clotting of the blood.

On the other hand, Christiansen (Scandinavia) said that in the past five years the mortality was almost twice that of the previous five years, despite the much wider use of blood transfusions. Eight of thirteen patients who had recently been given transfusions died. He expressed the belief that transfusions have not reduced the number of deaths from massive hemorrhage and have even contributed to its increase.

Usually no fluids are given and the patients are starved after peptic hemorrhage. The dangers of such a procedure have been clearly shown by the work of L. Meyler (Holland), which demonstrated that enormous toxic destruction of protein takes place after massive hemorrhage, with an accumulation of nitrogenous end products, thus elevating greatly the blood urea and nonprotein nitrogen content without lowering the blood chlorides or elevating the carbon dioxide con-

TABLE 1—Complications of Peptic Ulcer Cases Observed at the University of California Hospital from 1927 to 1937

Peptic Ulcer	Number	Hemorrhage	Obstruction	Vomiting	Night Pain and Hypersecretion	Acute Perforation	Subacute and Chronic Perforation	Previous Surgery	Surgery	Alkalosis
Duodenal	301	113	204	100	218	8	65	43	110	Evidence noted in diagnosis since 1933
Gastric	146	42	77	60	40	11	22	17	66	
Gastro Jejunat	30	7	12	12	12	2	5	20	13	
Total	575	162	293	232	270	21	92	80	189	
Average %		28	51	40	47	4	16	16	33	

tent of the plasma, thereby indicating a condition of uremia and not of alkalosis. Unless the condition of dehydration is speedily corrected and balanced feeding instituted, death by uremia may follow.

Aside from severe gross hemorrhage, one often has the problem of continuous small loss of blood or oozing. With the aid of a standard capillary fragility test used in investigating scurvy, it has been found that preclinical and even severe scurvy is frequently present but unrecognized in adults. This condition is often induced by food restrictions imposed in cases of peptic ulcer and colon disorder and is probably due to diets deficient in vitamin C. At first there is no gross evidence of scurvy, but later frank hemorrhage may occur from the gums and intestine and under the skin. Oozing of blood may occur, associated with changes in the smaller vessels and due to increased fragility of their walls. Crystalline vitamin C (cevitamic acid) and liver extract may be injected repeatedly in cases of peptic hemorrhage under such conditions.

Finally, much evidence is accumulating that the liver suffers severely in many cases of prolonged peptic ulceration and hemorrhage, so that the intravenous injection of small amounts of dextrose solution of from 25 per cent to 50 per cent concentration, for its protection must be considered.

Medical Treatment—In the light of the aforementioned known conditions and reasons apparently favoring certain procedures, a rational treatment for hemorrhage might be stated as follows:

1 Complete rest, quiet and immobility of the patient should be secured, enough morphine to keep him drowsy and to control restlessness being used.

2 Fluids should be given as soon as it is necessary to combat dehydration to get rid of toxic nitrogenous products. These may be given as physiologic solution of sodium chloride by hypodermoclysis or as this solution alternated with 4 per cent dextrose in 300 cc rectal retention enemas, every four or six hours. Fluids by mouth as well as intravenously should be avoided at first unless a transfusion is indicated. Ice given by mouth is of no advantage. By the second

day, intravenous injections of 50 cc of from 20 per cent to 25 per cent dextrose solution may be given to maintain the liver glycogen.

3 Starvation for forty-eight hours at least, according to indications of control of the hemorrhage, would seem the safer course, particularly if the first two procedures are carried out. During this period the mouth should receive great care and the flow of saliva be kept free by having the patient chew a substance such as paraffin gum to avoid parotitis. The membranes of the mouth and throat should be kept moist.

4 Contraction of the stomach is desirable. If evidence of hemorrhage continues and it is suspected that food remnants or clotted blood are distending the stomach, a small tube may be put down from 16 to 20 inches (from 40 to 50 cm) with the terminal end just inside the cardia, and repeated lavage with 120 cc of ice water or with a 1:1,000 solution of ferric chloride, iced, may be carried out as indicated. From 4 to 12 cc of a 1:1,000 solution of epinephrine may be left in the stomach.

5 The blood pressure, the hemoglobin content and the red blood cell count should be observed. A further fall in the blood pressure may indicate need for washing out the stomach.

6 Transfusion is usually unnecessary in the average case of hemorrhage. If the hemoglobin content reaches 60 per cent or below it must be considered, and it is imperative if there is doubt that the patient can survive another hemorrhage or if the hemoglobin reaches 40 per cent or below. To administer from 300 to 500 cc of whole blood seems the most safe and conservative procedure unless there is very severe exsanguination, in which case 1,000 cc should be given and a second transfusion in a day or two may be necessary.

7 The value of neutralizing the increasing acidity of the gastric contents to prevent irritation is apparent. Along with Sippy and Huist, I myself like to use a powder composed of the tribasic calcium phosphates and magnesium phosphate. Beginning about the fourth or fifth hour from the start of the hemorrhage, 4 Gm of this powder is given every hour when the patient is awake, until regular ulcer management can be instituted. A thick mucin solution given frequently by Levine tube has also been used with considerable success.

TABLE 2—Common Complications of Peptic Ulcer

1 Intractability due to type of ulcer systemic causes nervous factors failure of cooperation in treatment	
2 Hemorrhage	25%
3 Retention and obstruction	51%
(a) Functional achalasia—spasm	
(b) Edema and congestion	
(c) Fibrosis and pyloric hypertrophy	
4 Hypersecretion and night pain	41%
5 Alkalosis	10% (?)
6 Acute perforation	4%
7 Subacute and chronic perforation	16%

8 For the immediate purpose of arresting hemorrhage, surgical intervention should be recommended but rarely. If it is indicated, the optimal time is after the patient has recovered from the immediate effects of the bleeding.

9 Feeding by mouth—when it should be begun, and how liberal the diet should be—creates much difference of opinion. The usual procedure has been to starve the patient for from three to five days and then cautiously to begin feedings with milk and cream, enlarging the diet with cereals, eggs, and purées slowly for several weeks.

The observation that dehydration and starvation may lead to serious kidney, liver and constitutional complications and the report of Meulengracht of Copenhagen of the treatment of 251 patients with hemorrhage by use of rest in bed and liberal diets from the first day, with only a 1 per cent mortality, as against the usual 5 or 10 per cent, should lead to a critical test of the wisdom of starvation, with its concomitants of exhaustion and anemia as its least serious aspects. Furthermore, Kellogg and Mettier have shown that anemia may persist after hemorrhage, owing to the alkalinization of the gastro-intestinal tract, with a modified Sippy regimen (interfering with utilization of dietary iron), unless large doses of inorganic iron are administered.

Certainly one must be alert to supply sufficient vitamins and the proper nutritional value to the diet as soon as safe. I still favor the conservative procedures but feel that their limits must be more accurately gaged.

ALKALOSIS

In the past, physicians have become more or less familiar with the picture of pyloric obstruction or obstruction of the upper part of the intestine accompanied by vomiting and evidence of renal insufficiency and with frequent culmination in attacks of so-called gastric tetany. Studies of the blood chemistry in such cases show a high plasma carbon dioxide combining

TABLE 3—Laboratory Evidence of Alkalosis

Blood plasma carbon dioxide	High	65 to 125 volumes per cent
Blood urea nitrogen	High	20 to over 50 mg
Blood nonprotein nitrogen	High	40 to over 100 mg
Serum sulfate	High	
Blood chlorides	Low	
Sulfate clearance	Low	20 or below
Phenolsulfonphthalein excretion	Low	
Urine—albumin and casts		

power and nitrogen retention and a low content of blood chlorides. Albuminuria and a deficient phenolsulfonphthalein output complete the picture. This is alkalosis well established.

The loss of hydrochloric acid by persistent vomiting in cases of obstruction, or whatever else may lead to continuous vomiting, renal disease, hemorrhage, low salt intake, excessive perspiration, hepatic disease and excessive doses of alkalis can all impair the acid-base regulating mechanism. Persons with impaired renal function are invariably sensitive to small doses of alkalis. It seems probable that alkalosis can develop in persons with normal renal function only if one or more additional factors besides excessive intake of alkalis are present. Something happens to the chlorides of the blood, rendering them no longer available, and this leads to withdrawal of tissue chloride and fluid, with consequent degrees of dehydration. The onset of alkalosis appears to precede that of vomiting and may occur in its absence. The occurrence of tetany in cases of pyloric obstruction depends on the degree of alkalosis present, it generally occurs when the plasma carbon dioxide rises above 100 volumes per cent. The blood calcium content is sometimes slightly reduced, but the reduction is much less than that found in cases of infantile tetany, parathyroid tetany, or tetany associated with chylous diarrhea.

When alkalosis develops in the course of intensive treatment with alkalis, symptoms may occur from the first to the fourteenth day, though they are generally noted from the fifth to the tenth day. Occasionally these symptoms disappear spontaneously. Anorexia

and depression are the first to appear. A distaste for milk becomes evident. The patient shows irritability, introspection and nervousness and may often be considered neurotic. Headache, nausea and often severe vomiting follow. Dizziness and vertigo may be evident. Excessive dryness of the throat develops early although neither atropine nor belladonna is used. Aching pains in the muscles and joints are of common occurrence, with pruritus and dryness of the skin. Eventually the patient becomes apathetic and drowsy, and coma may develop. Weakness and prostration with profuse perspiration precede this stage. The laboratory evidence of alkalosis is summarized in table 3.

Treatment—The treatment would appear to be obvious. Occasionally death ensues, but, as a rule, the symptoms never become very severe if recognized reasonably early, and they disappear rapidly when the administration of alkalis is discontinued.

- 1 All treatment with alkalis is stopped at once.
- 2 (a) Physiologic solution of sodium chloride is administered by hypodermoclysis, to supply fluids and chlorides. (b) Dextrose solution, 10 per cent, is given by vein, as indicated for vomiting and nutrition.
- 3 No food or fluid is given by mouth.
- 4 Stomach lavage is given every evening and often two or three times daily, this controls the degree of hypersecretion and overcomes dilatation.
- 5 Ammonium chloride is used as needed. 300 cc of a 2 per cent solution by rectum every three or four hours or 10 or 12 Gm by mouth.
- 6 The clinical signs and chemical status by the end of three or four days usually allow feeding again, possibly with emptying of the stomach at night.
- 7 The progress of the patient and the past history will determine then whether surgical treatment should follow or medical treatment with insoluble alkalis, such as tribasic calcium phosphate and magnesia or mucin, and dietary therapy.
- 8 In cases of alkalosis arising from the use of alkalis or in the presence of even a slight degree of renal disease, only the neutral or insoluble alkalis should be used.

RETENTION AND OBSTRUCTION

As judged by some form of retention of barium sulfate or food in the stomach beyond the normal time, 51 per cent of peptic ulcers show some obstructive characteristics, yet further analysis of these cases indicates that organic factors producing chronic obstruction exist in only about 20 per cent.

Obstruction in cases of peptic ulcer may be acute and temporary or chronic and prolonged. All grades of obstruction are produced by the varying factors of (1) spasm, (2) edema and inflammation or (3) the more permanent type of pyloric fibrosis and hypertrophy. The first of these factors, spasm, is functional and therefore curable, the second, edema and inflammation from an active ulcer, is organic but often curable medically, the third, pyloric fibrosis and hypertrophy, produces a stenosis that is organic and incurable, but while complete relief can be obtained only by surgical intervention, many patients obtain palliative relief by proper medical treatment and emptying the stomach by tube periodically. In some patients the stomach compensates for the narrowing at the pylorus, and with the healing of the ulcer and the subsidence of spasm they may have relatively little more trouble. I have under observation a considerable number of such patients past 50, with gastric retentions averaging 50 per cent in six hours, who, unless they abuse their diet prescription, suffer no discomfort.

In cases in which compensation of the stomach fails or the degree of stenosis becomes too extreme, the fol-

lowing symptoms and signs develop an increase in the cycles of pain, with night pain, hypersecretion, with vomiting, dilatation of the stomach, distress, nausea and emaciation, and toxic effects, due to alkalosis.

Treatment—Patients in whom this syndrome develops should be placed at rest in a hospital. Evacuation of the stomach by tube, a dietary regimen and medical management should be instituted. As soluble alkalis may be contraindicated because of alkalosis they should be used with great caution, the neutral or tribasic powders may be used instead. Under such therapy, with regular lavage at 10 p. m., the spasm is usually relieved, the edema and congestion disappear, gastric compensation is restored, the volume of evacuation at night drops from over 1,000 cc to 200 cc or less, and the patient may be restored to an ambulatory state.

If there is, however, a considerable degree of organic stenosis due to pyloric fibrosis and hypertrophy, while all the symptoms may be relieved the night volume of evacuation may remain large. The persistence of retention of a large quantity after ten days usually means marked obstruction. The patient must choose between continuing the regular emptying at night by stomach tube and submission to surgical treatment. Mechanical relief is advisable.

It is pertinent to point out here, however, that the degree or permanence of the obstruction cannot be determined by one x-ray examination. Only by repeated visualization after treatment and by noting the amount of the day's retention, after emptying the stomach at night, can one be certain of this. Retention alone is not evidence of organic obstruction, because lack of peristalsis may cause complete retention. Migraine headaches, worry and fatigue may stop peristalsis and cause such retention.

HYPERSECRETION

Hypersecretion, with its typical accompaniment of nocturnal pain and the duodenal syndrome, is practically always associated with the circumstances described in the discussion of obstruction. Duodenal ulcer and obstruction of some type are the usual causes, but now and then one encounters an unusually "hyper-tonic" person with marked peristalsis, a neurotic make-up and excessive pylorospasm who exhibits functional influences to a marked degree without much evidence of six hour retention of barium sulfate. In such a case, rest in bed, management of the ulcer, evacuation by tube at night and liberal use of derivatives of belladonna and sedatives are necessary for control.

PERFORATION

Peptic ulcers perforate or break through the parietal peritoneum in various ways. Perforations are designated acute, subacute or chronic. The first type is sudden and dramatic, the last is insidious and hardly recognizable clinically.

Acute Perforation—Probably no other disease develops with such dramatic suddenness as does acute perforated ulcer. In the series of 575 cases of peptic ulcer there were twenty-one acute perforations, or 4 per cent. Acute perforated ulcer presents one of the most definite and classic clinical pictures in medicine. There is the first stage, shock, of one or two hours' duration characterized by sudden agonizing abdominal pain and boardlike rigidity, immobility of the patient, vomiting, subnormal temperature and other signs of shock. The second stage, reaction, follows, lasting from two to

twelve hours. The pain lessens, the pulse improves and the temperature comes back to normal, but the abdominal rigidity remains the same, tenderness increases, diminishing hepatic dulness and signs of pneumoperitoneum may be noted, and by x-ray examination an air bubble under the diaphragm may be discovered. The third stage, peritonitis, supervenes. There are a rapid, shallow pulse, fever, thirst and dehydration. Paralytic ileus with meteorism is evident. The hippocratic facies, cyanosis and lividity and other evidences of circulatory failure develop, and death follows in from two to five days. If the patient is first seen in the reactionary period, the signs may be confusing and the diagnosis difficult.

This outline summarizes the signs and symptoms from onset to general peritonitis unless surgical intervention is secured in the early hours of the catastrophe.

Vomiting is common with gastric perforation but occurs with only about 25 per cent of duodenal perforations. Pain often occurs at the top of one or both shoulders.

Immediate surgical intervention is imperative for such a condition, and the mortality should not exceed 5 per cent in patients operated on within eight hours of perforation. After eight hours the mortality rises rapidly.

The San Francisco Emergency Service considers these patients excellent risks if operated on within ten hours, irrespective of the type of anesthesia used. In a series of 155 patients, thirty-eight were operated on more than ten hours after the onset, with a gross mortality of 64 per cent.

Subacute Perforation—In our series of 575 cases of ulcer, subacute and chronic perforation occurred in ninety-two, or 16 per cent. Although subacute perforation presents symptoms identical with those of acute perforation, they are less intense. The shock is less. The temperature is not subnormal. From the first the rigidity and tenderness are most marked in the neighborhood of the ulcer, and after some hours they generally become localized in the right upper quadrant, simulating the signs of acute inflammation of the gall-bladder, for which the condition is often mistaken. No symptoms of general peritonitis develop, but a localized abscess may form later.

All this means, of course, that the perforation is protected. Generally it is at once plugged by a tag of omentum, or fibrin may begin to form outside the ulcer before perforation is complete, so that a protective layer is present to cover the hole as soon as it appears.

Usually if the patient is starved and kept quiet all the symptoms subside and in twenty-four hours he is fairly comfortable, although local pain and tenderness and a certain amount of rigidity may persist for days and even continue until a local abscess is drained. If this is present it should be allowed to wall off first. It is usually best not to operate unless later developments indicate the need clearly.

Chronic Perforation—Chronic perforation occurs only in cases of old, chronic ulcers, and it is often very difficult to tell whether one is dealing with only a deep crater or penetration into the wall of the viscus or whether the ulcer has completely passed through the organ, with a walled off perforation beyond.

Statistical figures show that there are about twice as many chronic as acute and subacute perforations of peptic ulcer. Probably from 8 to 12 per cent of all chronic ulcers develop into chronic perforation. These

perforations are located at the lesser curvature or near the pylorus, and are shown by x-ray examination as canals, buds or pouches

The clinical picture is recognizable only as intractable or unimproved ulcer, although there may be slight evidence of some localized peritonitis or more rarely a deep abscess

Roentgenograms are the only diagnostic resource with any degree of certainty, and even with them a deep crater or penetration without perforation is difficult to differentiate from actual slow perforation. In chronic perforation there is a leisurely destruction of the coats of the stomach or duodenum, and by the time the peritoneum is penetrated the site is protected by lymph, fibrin and adhesions, so that general peritonitis rarely occurs and only occasionally a sub-diaphragmatic or other type of local abscess. The treatment is usually medical or whatever is needed for the type of chronic ulcer found

I have never felt the size or location of a crater should be accepted categorically as an indication for or against surgical treatment rather than medical treatment. The merits of the situation must be studied individually, but I believe the axiom can be laid down that whatever the treatment for peptic ulcer the results, to be satisfactory, must afford complete relief of the symptoms in a short time and that if distress continues the procedures being followed immediately be challenged or disastrous progression will continue

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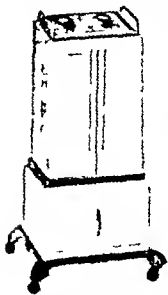
Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT
HOWARD A CARTER Secretary

BURDICK SWD MAGNETHERM ACCEPTABLE

Manufacturer The Burdick Corporation, Milton, Wis

The Burdick Magnetherm is a combination two frequency deep wave apparatus intended for medical and surgical diathermy. The 25 meter electromagnetic induction circuit is used with a 12 foot cable for medical purposes. A long wavelength, 70 meter, circuit is supplied for electrosurgical procedures such as cutting, coagulating, desiccating, and under-water cutting.



Burdick SWD
Magnetherm

It may also be utilized with metal electrodes for conventional diathermy. The unit is available without the 70 meter circuit. The cabinet is made of furniture steel with chrome-plated handles. The upper part of the Magnetherm may be lifted from the base to form a portable unit. The shipping weight is 150 pounds.

The oscillator uses two large size tubes in a push-pull Hartley circuit. The plate voltage transformer has two balanced secondary coils providing full wave rectification of the 60 cycle line supply. A filament voltmeter is calibrated with a special dial to indicate the proper tap on the plate transformer to correspond to the prevailing line

supply. It is tapped for line voltage variations from 105 to 125 volts. There is a separate transformer for filament supply and filament voltage. The latter is kept within proper limits, as indicated by filament meter, by means of a continuously variable control on panel.

The surgical circuit has its own control panel with three outlets and controls "Inactive", "Coagulation" and "Dissection". The coagulation current output is controlled by a switch giving three intensities of current.

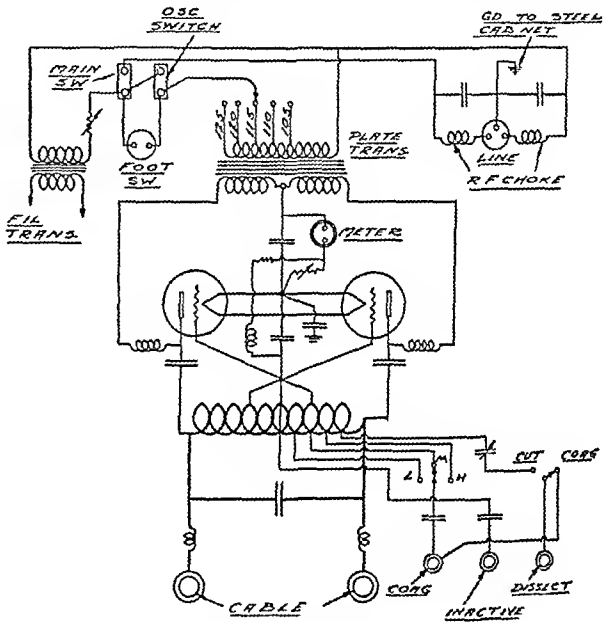
The input, when the machine is operating at full output, is 870 watts, 94.5 per cent power factor at 115 volts. Since no

reliable method has been devised for measuring output energy available to the patient, this value is not given.

It is licensed under patent Nos 1,377,405, 1,452,339, 1,507,016, 1,507,017 by the Electrical Research Products Company.

The transformer temperature rise and the rise within the cabinet taken at various levels come within the limits of safety prescribed by the Council. Burns are possible with this unit as with any other short wave machine but may be avoided by the use of proper precautions.

The firm furnished evidence with regard to the heating ability of the unit when applied to the thigh of living subjects. A reliable investigator tested the Magnetherm with coil technique, making six observations to determine its ability to produce deep heat. Two vigorous male medical students, weighing 180 and 198 pounds respectively, were the subjects for the experiments. A trocar placed in a hard rubber cannula was inserted into the thigh, perpendicular to the femur and directed through the muscular layers for a depth of 2 inches or until the bone was encountered. The trocar was removed, the rubber cannula being left in place. Temperature measurements were then taken



Schematic diagram of circuit

with a hypodermic needle thermocouple introduced through the cannula. A Leeds and Northrup Portable Potentiometer was used to measure the difference in temperature of the junctions. The thermocouples were calibrated in degrees Fahrenheit against a Bureau of Standards certified thermometer. Initial temperatures were taken and then each subject underwent a twenty-minute application of the maximum current intensity consonant with skin comfort. At the end of this period, readings were again taken until the temperature began to drop. The highest temperature was recorded as the final temperature in each instance. Oral temperatures were also recorded.

Averages of Six Observations Coil Technique

Deep Muscle		Oral	
Initial	Final	Initial	Final
98.6	105.1	98.6	98.9

Four turns of the cable were wound around the thigh with a one-half inch thickness of felt for spacing and each coil approximately 2 inches from the adjacent one. The averages of the six tests are given.

The unit was tried out in a clinic acceptable to the Council. It was found to be satisfactory. It was also employed in various electrosurgical procedures and found to give efficient service.

In view of the favorable report on the Burdick SWD Magnetherm both for general heating and for electrosurgical techniques, the Council on Physical Therapy voted to include this unit in its list of accepted devices.

Council on Pharmacy and Chemistry

PRELIMINARY REPORT OF THE COUNCIL

THE LEGERLE LABORATORIES PRESENTED FOR THE COUNCIL'S CONSIDERATION ITS ANTIPNEUMOCOCCIC SERUM CONTAINING ANTIBODIES OF TYPES V AND VII PNEUMOCOCCI. AN ASSOCIATE OF THE COUNCIL'S REFEREE MADE A STUDY OF THE EVIDENCE WHICH IS CONTAINED IN THE FOLLOWING STATEMENT. AS A RESULT OF THE ASSOCIATE'S STUDY THE COUNCIL VOTED TO POSTPONE CONSIDERATION OF THE LEGERLE PRODUCT TO AWAIT DEVELOPMENT OF FURTHER CORROBORATIVE EVIDENCE. THE COUNCIL AUTHORIZED PUBLICATION OF THE FOLLOWING PRELIMINARY REPORT.

PAUL NICHOLAS LEECH, Secretary

REFINED AND CONCENTRATED ANTI-PNEUMOCOCCIC SERUM, TYPES V AND VII-LEDERLE

TYPE V

Finland and Tilghman¹ observed ninety-three cases of type V pneumococcus pneumonia in patients over 12 years of age from June 1, 1935, to July 1, 1936, the specific organism being identified in the sputum or by blood culture. Twenty-six of these patients were treated with serum varying in potency from 2,500 to 5,000 units per cubic centimeter, beginning in no case later than four days after onset, and four of those treated with serum died. During the same period sixty-seven cases were treated without serum because serum was not available, the disease was of more than four days' duration or there already was evidence of recovery, and of these patients not treated with serum twenty-six died. Of 130 patients not treated with serum during six years previous to the period of study, sixty-nine died. The mortality of the serum-treated patients was therefore approximately one-third that in those receiving no serum. Apparently even more significant was the favorable effect of the serum on the clinical course of the disease, since changes similar to those of spontaneous crisis seemed to follow serum treatment with fair regularity.

Bullowa and Wilcox² divided their cases into two groups, those observed from 1928 to 1933 and those observed from 1933 to 1936, the average unitage of the serum used in those periods being 782 and 3,163, respectively. In the earlier group the mortality in twenty-six cases treated with serum was three, and in 108 cases treated without serum it was twenty-three, while in the latter group the mortality in forty-one cases treated with serum was two and in fifty-five cases treated without serum it was eleven. Of seventeen bacteremic patients treated with serum four died, while of forty-three bacteremic patients treated without serum twenty-six died. The mortality rate was therefore approximately half that of the controls in the earlier series and one fourth in the later series. The clinical observations indicated clearly that the duration and severity of the disease was lessened by serum treatment.

The combined mortality statistics of the two reports and more particularly the favorable effect on the clinical course of the disease indicate that type specific serum is a valuable therapeutic agent in the treatment of type V pneumonia.

TYPE VII

Finland, Rueggsegger, Dowling and Tilghman³ observed 160 cases of pneumonia from Nov. 1, 1929, to June 30, 1936, in which type VII pneumococci were identified in the sputum. In sixty-seven of the cases type VII pneumococci were obtained from the lung, blood or pleural fluid as well as from the sputum and in thirty-eight of the remaining ninety-three cases in which the sputum was the only source of the pneumococcus a second specimen was positive usually one or more days later. Thirty of the 160 cases were treated with serum and three were fatal.

1 Finland, Maxwell and Tilghman. R. C. Clinical and Immunological Observations in Cases of Pneumococcus Type V Pneumonia Treated with Specific Antibody. New England J. Med. 215: 1211 (Dec. 24) 1936.

2 Bullowa, J. G. M. and Wilcox, Clare. Therapeutic Serum for Pneumococcus Type V (Cooper) Pneumonia. J. Clin. Investigation 15: 711 (Nov.) 1936.

3 Finland, Maxwell, Rueggsegger, J. M., Dowling, H. F. and Tilghman, R. C. Infections with Pneumococcus Type VII. Am. J. M. Sc. 193: 48 (Jan.) 1937.

while of the 130 cases treated without serum fifty were fatal. In cases in which recovery occurred, the mean duration of illness was five days when serum was used and eight days when it was not used.

The same authors⁴ gave a more detailed analysis of the thirty serum-treated cases of this series and showed that definite clinical improvement consistently followed serum treatment except under well defined conditions. The three cases resulting in death were complicated, respectively, by (1) mastoiditis and late treatment (ninth day), (2) delirium tremens, pericarditis and cardiovascular syphilis, and (3) pulmonary tuberculosis. Immunologic studies indicated that a presumably significant balance of agglutinins and mouse protective substances was established and maintained in the blood of the patients by serum therapy.

Bullowa and Greenbaum⁵ observed type VII pneumococcus pneumonia during the seven years 1928-1935 in 218 patients, of whom fifty-one were treated with serum. Excluding three fatalities because of complications from the group treated with serum and three fatalities for the same reason from the group treated without serum, 62 per cent died when serum treatment was used and 171 per cent when it was not used. Of the bacteremic patients, one died of four treated with serum and twelve died of seventeen treated without serum.

Although the mortality rates of the serum-treated cases are favorable, the alteration in the clinical course of the disease should be regarded as a more significant indication of the therapeutic value of specific serum in the treatment of type VII pneumococcus pneumonia.

COMMENT

Although the volume of information now available regarding the use of antipneumococcus serum types V and VII is, of course, much smaller than that for types I and II serums, the author's observations apparently have been made with care and the evidence is qualitatively approximately as favorable. As nearly as can be determined from the clinical response, the potency of the types V and VII serum used in these studies has reached a level comparable to that of types I and II serums now available commercially. The product has the disadvantage that serum reactions are encountered, but they apparently were not more frequent than have been encountered in the use of types I and II serums and were not of sufficient frequency and severity to contraindicate its use. On the whole, there apparently is reasonable evidence that types V and VII antipneumococcus serum are valuable therapeutic agents and that their value is comparable to serums now being used in the treatment of types I and II pneumonias.

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEECH, Secretary

ANTIPNEUMOCOCCIC SERUM, TYPE I (See New and Nonofficial Remedies, 1937, p. 381)

E. R. Squibb & Sons, New York.

Antipneumococcus Serum Type I (Refined and Concentrated)—An anti-pneumococcus serum prepared according to the method of Lloyd D. Felton. Marketed in syringes containing 10,000 units and in syringes containing 20,000 units of the type I pneumococcus.

CAFFEINE WITH SODIUM BENZOATE (See New and Nonofficial Remedies, 1937, p. 153)

The following dosage form has been accepted:

Ampoules Caffeine with Sodium Benzoate 2 cc.—An aqueous solution containing in each 2 cc. caffeine with sodium benzoate U. S. P. 0.5 Gm. (7½ grains).

Prepared by Abbott Laboratories, North Chicago, Ill.

4 Finland, Maxwell, Tilghman, R. C., Rueggsegger, J. M. and Dowling, H. F. Clinical and Immunological Observations in Cases of Pneumococcus Type VII Pneumonia Treated with Concentrated Type Specific Antibody. Am. J. M. Sc. 193: 59 (Jan.) 1937.

5 Bullowa, J. G. M. and Greenbaum, Evelyn. Pneumonias Due to Pneumococcus Type VII (Cooper) and Specific Therapeutic Serum Treatment (unpublished).

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SATURDAY, SEPTEMBER 11, 1937

VENEREAL LYMPHOGRANULOMA

Since the etiology of the disease described by this title is distinctly and definitely venereal, the term venereal lymphogranuloma is to be preferred to the numerous other eponyms or descriptive names that have been applied. The most common of the latter, which should now be relegated into the background and should be of interest only from the historical point of view, are lymphogranuloma inguinale, syphilitic bubo, Durand, Nicolas and Favre disease, climatic bubo, non-tuberculous granuloma, granulomatosis lymphatis and tropical bubo. The avoidance of the confusion caused by this unnecessary multiplicity of terms is now especially important in view of the great extension of the disease, which is spread over every quarter of the globe and is found along the coasts of Africa, in the two continents of America and in Asia, as well as in Australia.

The disease is probably due to a virus, but the specific agent has not as yet been identified with any great certainty. The greater part of the detailed investigations on this subject have been, according to Hellerstrom,¹ without result. Several investigators have been able to demonstrate the presence of microorganisms—usually differing in character with each investigator. The bacteria which have been reported most frequently are the pseudodiphtheria bacilli. From the standpoint of animal experiments, the only result gained by the attempts to transmit the disease to animals is the certainty that venereal lymphogranuloma has nothing to do with tuberculosis. This aspect of the etiology, therefore, awaits definite proof. Certain it is, however, that the disease is truly venereal and is spread by sexual congress. The period of incubation before the appearance of the primary lesion has been estimated, according to Prehn,² at from three to seven days. In patients with a positive Frei reaction the

period of incubation was from two to nine days. Frei and Hofman, however, according to Hellerstrom, distinguish between two periods of incubation, the one extending from the time of the infecting coitus to the appearance of the primary lesion and the other from the coitus to the first demonstrable swelling of the lymphatic glands. The first of these periods, in Hellerstrom's cases, has varied from a few days to approximately three weeks but for the most part was about two weeks, the second averaged about two weeks and varied from about ten days to a month or even longer.

The pathologic anatomy of the disease as described by Hellerstrom, and based on twenty-eight of his forty-seven cases, is quite characteristic. Macroscopically, the extirpated glands consist of conglomerations, with the cut surface in many instances of a red to violet tinge. Abscesses are sometimes observed, even macroscopically. The microscopic examination of the glands discloses the picture of a subacute or subchronic lymphadenitis, a typical description of which, he states, is as follows: "The highly fibrously altered gland is larded with numerous larger or smaller, round, oval or ramified abscesses, surrounded by narrower or broader zones of epithelioid cells, frequently arranged in palisade form. In addition, the gland is as good as completely filled with a granulation tissue consisting of lymphocytes, plasma cells, fibroblasts, epithelioids and fairly large cells, with one or two round or oval, highly colorable nuclei, together with a few medium large giant cells of Langhans type, which are usually situated at the edge of the border of epithelioid cells." Other descriptions conform in the main to that of Hellerstrom. Phylactos distinguishes four clinical types, a grouping which has been followed by Hellerstrom, namely, an ulcerous type, a nodular form, a papulous form and a specific urethritis. This classification is further modified by Wien and Perlstein,³ who reported three cases which illustrated various types of clinical ulceration that may occur in venereal lymphogranuloma: ulceration of the skin only (lymphitis), ulceration of the skin secondary to a previous lymph gland involvement, and ulceration developing on an existing esthiomene. The general symptoms are almost constant and consist of fever, anorexia, emaciation and a feeling of general weakness. After the adenitis has existed for some time, the temperature is usually subfebrile.

The most valuable diagnostic and differential diagnostic sign is the Frei intracutaneous test. Qualified opinion is almost unanimous in accepting this procedure as a reliable diagnostic criterion, although there is some difference of opinion as to the most satisfactory antigen to use in the test.⁴ Thus all of Hellerstrom's forty-seven patients reacted positively to Frei's test carried

1 Hellerstrom Sven. A Contribution to the Knowledge of Lymphogranuloma Inguinale. Acta dermat venereol supp 1 1929 pp 5224.
Hellerstrom Sven and Wasson E. Epidemiology and Etiology of Lymphogranuloma Inguinale. Wasson & Cie 1934.
2 Prehn D T. Lymphogranuloma Venereum and Associated Diseases. Arch Dermat & Syph 35 231 (Feb) 1937.

3 Wien M S and Perlstein M O. Ulcerative Lesions of the Skin in Lymphogranuloma Inguinale. J A M A 108 27 (Jan 2) 1937.
4 Grace A W and Suskind Florence H. Lymphogranuloma Inguinale. Arch Dermat & Syph 34 65 (July) 1936. The Use of Standardized Mouse Brain Antigen. J A M A 107 1359 (Oct 24) 1936.
Howard M E and Strauss M J. Influence of Serum on Frei Test. Arch Dermat & Syph 34 816 (Nov) 1936.

out with seven different antigens. In more than 60 per cent of Hellerstrom's cases, the intracutaneous test was carried out within a period of from one week to two months after the adenitis had been observed. Since not all strumous buboes are venereal lymphogranuloma, the specificity of the Frei test is of exceptional importance.

Opinions with regard to therapy are numerous and conflicting. Since the disease has a considerable tendency to spontaneous healing, the results of treatment must be judged conservatively. Although many drugs have been used in treatment, the results as yet remain uncertain. Hellerstrom believes that the course of the disease can be shortened considerably by early operative measures aimed at total enucleation of the involved lymph glands. Various tartrates (Hellerstrom) and the intracutaneous administration of graded doses of potent Frei antigen every other day for at least eight doses injected near the site of the lymphadenitis² seem to offer the most promising of the nonsurgical treatments. Although the prognosis as to life is good, the usual lengthy course of the disease and the apparent increase of its incidence and distribution necessitate continued investigative effort aimed at more adequate control.

CERVICAL RIB AND SCALENUS ANTICUS SYNDROME

Descriptions of supernumerary cervical rib may be found in the writings of Galen and Vesalius. In 1860 Willshire described symptoms produced by the pressure of the cervical rib on the brachial plexus and the subclavian artery. Because the vertebral column in the embryo grows faster than the spinal cord, the nerves and plexuses issuing from the latter must assume an oblique course in order to reach the extremities. They thus interfere with the growth of the ribs. Consequently the ribs in the new-born come to be represented in the cervical region by the transverse processes of the vertebral bodies. The supernumerary cervical rib may therefore be regarded as a developmental anomaly. It springs as a rule from the seventh cervical vertebra but may occasionally arise from the sixth or the fifth. The rib may extend just beyond the transverse process of the vertebra or even touch the first rib, it may reach the cartilage of the first thoracic rib as a fibrous band or even as a true cartilage. If the rib attains sufficient length the brachial plexus and the subclavian artery may be compressed in the angle formed by the rib and the scalenus anticus muscle, giving rise to nervous and circulatory disturbances.

The incidence of cervical ribs is variably given as between 0.03 and 0.1 per cent. When they are present, from 67 to 80 per cent are bilateral. Two supernumerary ribs on the same side have been reported only three times. Adson and Coffey¹ state that cervical rib is found more often on the left side but that symptoms

are more common on the right. The reason, they believe, is the greater use of the right arm, because the right plexus is in closer connection with the corresponding rib than the left, and because there is a greater drop of the right shoulder in right-handed persons. The classic clinical syndrome is met much oftener in women than in men. In reviewing the histories of a series of 540,413 patients registered at the Mayo Clinic between 1910 and 1926, Adson and Coffey found 303 cases in which cervical rib was diagnosed, an incidence of 0.056 per cent. There were eighty-four males and twenty-nine females. X-ray examination revealed a cervical rib on the right side in seventy, on the left in ninety-one, and bilaterally in 143. In 167 (55 per cent) the presence of cervical ribs was symptomless and was discovered accidentally. In 100 the symptoms were mild and of such a character that surgical treatment was inadvisable. Operation was performed in thirty-six cases. Among these there were eleven males and twenty-five females.

The most prominent symptom is pain, which may be felt in the shoulder, in the supraclavicular fossa or along the ulnar aspect of the forearm. When characteristic, it is aggravated by rotation of the head toward the affected side or by a downward pull of the shoulder. There may be various disturbances of sensation, such as hyperesthesia, paresthesia or anesthesia. Atrophy of the small muscles of the hand, of the ulnar or median type, may likewise be present. The nervous manifestations are those of involvement of the first thoracic and the seventh cervical roots and of the lower cord of the brachial plexus, although occasionally the entire brachial plexus may be involved. The circulatory disturbances are rarely severe and may be absent. The most characteristic sign of the compression of the subclavian artery is the diminution of the pulse volume on the affected side. Other vascular manifestations consist of decrease in surface temperature, numbness, coldness and formication, mild trophic changes in the tips of the fingers and, rarely, gangrene of one or more fingers.

A contribution to both the genesis of the symptoms and their surgical relief was made by Adson and Coffey¹ when they found that severance of the scalenus anticus muscle from its insertion into the rib caused immediate relief of pressure and irritation from the brachial plexus and the subclavian artery. They operated on four patients, dividing the tendinous attachment of the scalenus anticus muscle without removing the existing cervical rib. Symptoms were completely relieved in all instances. This demonstration of the importance of the scalenus anticus muscle accounts for the development of the symptoms in adults and its rarity in children. It also explains the greater frequency on the right side and the production of paresthesia and obliteration of the pulse at the wrist on elevation of the chin or extension or rotation of the neck toward the affected side.

¹ Adson, A. W. and Coffey, J. R. Cervical Rib. *Ann. Surg.* 85: 839 (June) 1927.

The fact that an identical syndrome of brachial plexus and subclavian artery compression occurs in the absence of a supernumerary cervical rib led many observers to believe that the anatomic relation of the first thoracic rib to the subclavian structures was responsible. Abnormally high position of the first rib with regard to the subclavian structures or abnormally low descent of the shoulder with a resulting pull on the plexus could furnish the mechanical conditions necessary. Thus Todd believes that the cervical rib syndrome occurs more frequently in females than in males because the descent of the shoulder is greater in the female, owing to lack of development of the suspensory muscles of the shoulder, especially the trapezius. The rectus abdominis muscle, being relatively poorly developed in the female, exerts less pull on the sternum, causing early high fixation of the anterior extremities of the clavicle and ribs. Jones believed that the symptoms occurred only in cases in which a considerable portion of the lower cord of the brachial plexus is derived from the upper thoracic segments of the cord, symptoms being due to compression and strangulation of these nerves over the first thoracic or cervical ribs. Naftziger, according to Ochsner, obtained complete relief in two cases with cervical rib syndrome without the rib by performing a scalenotomy as advocated by Adson and Coffey. Carrol reported two cases of cervical rib syndrome without cervical ribs and obtained complete relief of symptoms in one case by operation of scalenotomy. Ochsner, Gage and DeBakey² observed six cases with typical symptoms of compression of the brachial plexus and the subclavian artery in the absence of a cervical rib. All were in females. Four of the patients were operated on by resection of the lower portion of the scalenus anticus muscle, with complete relief. Ochsner suggests that the scalenus anticus syndrome is a definite clinical entity, the symptoms of which are identical with those of cervical rib. The symptoms are the result of compression of the brachial plexus and subclavian artery on the first thoracic rib. This compression may be due to abnormally low position of the shoulder, to high fixation of the sternum and ribs, to low origin of the brachial plexus and to elevation of the first thoracic rib due to spasm of the scalenus muscles, resulting from brachial plexus irritation. The first three conditions are predisposing, whereas the last is an exciting factor. The original contribution made by Ochsner is that irritation and stimulation of the brachial plexus by pressure of the first rib causes spasm and shortens the scalenus anticus muscle, resulting in elevation of the first rib, thus establishing a vicious circle.

Craig and Knepper³ point out that resection of the scalenus anticus muscle will relieve symptoms in cases in which cervical ribs cannot be demonstrated and that

in the presence of a cervical rib without tendinous attachment to the first rib scalenotomy is all that is necessary. Only in the cases in which there is evident pressure from the cervical rib or its tendinous attachment does removal of the rib become necessary. They report six cases requiring operative intervention for pressure symptoms, in three of which cervical ribs were not present, in two of which there were bilateral ribs, and in one of which there was a large right cervical rib. Relief from pressure on the subclavian structures in the first five was obtained by scalenotomy, while in the last case the cervical rib was removed because of the evident pressure on the brachial plexus and the subclavian artery.

Current Comment

SEED AND POLLEN SENSITIVITY

It seems evident from the recent studies of Farmer¹ that there is an organ-specific difference in plants from the point of view of allergic properties. He found that patients who were highly sensitive to aqueous extract of timothy, orchard grass or rye pollen often show no trace of cutaneous sensitivity with the aqueous extracts of the homologous seeds. Although at least half of the chromosomes are apparently identical in both pollen and seeds of the same plant, these observations suggest a complete divergence in protein specificity. Although Farmer has not formulated any biologic or chemical theory to account for this phenomenon, the observations are already of some practical clinical importance.

THE SEDIMENTATION RATE IN RHEUMATIC INFECTION

The urgent need for a reliable clinical method for determining the presence and degree of rheumatic infection in patients, particularly children, is generally recognized. As there is an increased rate of sedimentation of erythrocytes in certain severe infections, several investigators have studied the phenomenon in patients with rheumatic manifestations. The results of these studies, while suggestive, have not been convincing because of the lack of sufficient numbers of cases. Recently, however, the problem has been reinvestigated in a group of 140 children with rheumatic infection entering the Children's Memorial Hospital in Chicago.¹ At the time of admission the erythrocyte sedimentation rate and the complete blood count and Schilling differential count were determined by standard procedures. A general examination of the patient was also made, particular attention being paid to the detection of swollen or tender joints, annular erythema, cardiac damage and chorea. The results of the study, grouped according to the diagnosis, were rather striking. Chorea was the only rheumatic manifestation in which a normal sedimentation rate was found. Active rheumatic infection was characterized by a rapid sedimentation rate, this being equally true whether the arthritis or carditis

² Ochsner A, Gage M and DeBakey M. Scalenus Anticus (Naftziger) Syndrome. *Am J Surg* 28: 669 (June) 1935.
³ Craig W, McK. and Knepper P. A. Cervical Rib and the Scalenus Anticus Syndrome. *Ann Surg* 105: 556 (April) 1937.

¹ Farmer Laurence. *J Allergy* 8: 338 (May) 1937.
¹ Clifton W. M. The Rate of Sedimentation of the Erythrocyte in Rheumatic Infection in Children, *Am J Dis Child* 52: 1093 (Nov) 1936.

occurred alone or was accompanied by chorea. Acute pericarditis as a part of rheumatic carditis was accompanied by an extremely rapid sedimentation rate, and increased rates were observed also in patients with rheumatic nodules and with annular erythema during the period of activity of the infection. Only in cases of active rheumatic infection complicated with congestive heart failure and a resulting extreme degree of venous stasis was a normal sedimentation rate observed. Even in the normal subject, however, venous stasis tends to decrease the rate of erythrocyte sedimentation. In all instances there was a uniform decrease in the values toward normal with the subsidence of the infection and the disappearance of the clinical symptoms. The decrease in sedimentation velocity to normal, however, occurred two weeks or more after the clinical manifestations had disappeared, whereas the Schilling differential count tended to parallel the clinical course. For this reason the authors believe that the sedimentation test is more reliable than the Schilling differential count in determining the activity of the rheumatic process. These results add further support to the view that the rate of sedimentation of the erythrocyte may serve as a reliable diagnostic and prognostic measure in determining the activity of rheumatic infection.

GRANTS TO STATES UNDER TITLE V, SOCIAL SECURITY ACT

Under title V of the Social Security Act, federal grants are made available to the states for the conduct of maternal and child health work, services to crippled children, and child welfare services. The maternal and child health services are administered within the states by the several state boards of health, the crippled children's work by various state agencies according to the laws in the several states, and the child welfare services through state departments of social welfare. The United States Children's Bureau is charged with the administration of federal funds, the approval of state plans for their use, and the certification of payments to be made to the states under the act, through the United States Treasury Department. The Children's Bureau has furnished *THE JOURNAL*¹ with the following figures as to the actual grants to the states for the fiscal year ended June 30, 1937:

Grants to States		States † Participating	Payments
	Federal Funds Available *		
Maternal and child health services	\$4 379 849 40	51	\$2 989 014 72
Services for crippled children	3 527 675 98	45	2 011 606 04
Child welfare services	1 823 017 08	45	969 827 23

* Including balances available from 1936 allotments.

† Including Alaska, the District of Columbia and Hawaii.

Since July 1 the Hawaii and South Carolina plans for child welfare services for the fiscal year 1938 have been approved, giving a total count of forty-seven participating in grants for child welfare services.

The figures given represent participation of forty-seven out of fifty-one state and territorial units entitled to federal subsidies under the program of child and maternal health, crippled children's services and child welfare authorized by the Social Security Act. Physicians whose practice is related to all the activities arising out of the expenditure of these funds should keep well

informed through state and local medical societies. The Children's Bureau has expressed frequently the desire to have the counsel of the medical profession. A general advisory committee to the Children's Bureau includes many physicians, and an official representative of the American Medical Association.

THE NATURE OF FATIGUE

Collier¹ provisionally defines fatigue as a state of the human organism in which there is a significant lack of balance between intake and output of biologic energy. This absence of harmony may exist between the organism and its environment or between the various subordinate parts within the organism itself. It is frequently manifested by deterioration of efficiency, feelings of tiredness, physiologic changes in the bodily organism (pulse rate, pulse pressure and so on) or as combinations of all these. It is not a disease, but it may be prodromal to disease. The human organism, he says, begins to suffer from fatigue whenever the available reserves required for any particular kind of activity have become dangerously depleted. The degree of the exhaustion of the reserves of energy of a part or the whole of the organism may be so profound that a brief rest serves only partially to restore those reserves. It is clear, however, that chronic morbid fatigue, even when it occurs among industrial workers, is not always due to the industrial activity. Neither illness nor fatigue is ever due to single isolated causes, but both are the outcome of a number of causes acting together. The diagnosis of morbid industrial fatigue is suspected by the experienced practitioner when faced with a patient who looks tired, whose eyes are heavy, who yawns, whose shoulders droop, who moves slowly and whose complexion is pallid. The individual usually complains of tiredness in the morning, saying that he sleeps heavily but is unrefreshed. The patient frequently suffers from headache and complains of vague pains in some part of his body. Differential diagnosis must take into account and exclude illness, normal tiredness and learning fatigue. After exclusion of these other disorders, if inquiry fails to reveal any reasonable explanation of fatigue from which the patient is suffering because of personal factors, a tentative diagnosis of industrial fatigue may be made. As soon as this diagnosis has been made it is necessary to be able to discover the actual (industrial) cause or causes of the fatigue in the particular group of workers. The latter may be roughly classified into conditions within the factory, composed of physical causes such as temperature, humidity, hours of work and exposure to industrial poisons, or to emotional components such as monotony of work, group harmony and psychologic fitness. Furthermore, industrial conditions operating largely outside the factory must be studied, including the regularity and adequacy of meals, the selection of personnel, night work and traveling to and from work. The problem of industrial fatigue is as important as it is complex. It requires an impartial scientific study in all its aspects by a team of trained specialists. Thus only will it be possible to abolish morbid fatigue from industry.

1 Lenroot Katherine L. Unpublished communications Aug 14 and Aug 23 1937.

1 Collier H E. The Recognition of Fatigue with Special Reference to the Clinical Diagnosis of Morbid Fatigue in Industry. *Brit M J* 2 1322 (Dec 26) 1936.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH)

ALABAMA

Health Department Activities—A full time health department has been organized in Choctaw County with Dr Herbert A McClure, Double Springs, as health officer. Dr McClure has been health officer in Winston County and has been succeeded in this post by Dr Thomas T Box, Double Springs. Choctaw is the fifty-ninth county in the state to establish a local health unit, leaving only eight unorganized counties, newspapers reported. Dr Albert S Dix, Mobile, has been named health officer of Jackson County, succeeding Dr George E Newton, formerly of Scottsboro, who was appointed to a similar position in Lauderdale County. Dr George E Maddison, Moncton, N B, has been appointed health officer of Monroe County, following the resignation of Dr Martie F Parker, Boaz, to begin the private practice of medicine. Dr Elihu F Sloan, Shannon, has been appointed in Shelby County, succeeding Dr Hugh C Nickson, formerly of Columbiana who also resigned to enter private practice. Dr Thomas M Towns, Clarence, has been appointed health officer of Blount County, succeeding Dr Samuel D Sturkie, Oneonta, who accepted a similar position in Calhoun County.

CALIFORNIA

Syphilis Survey of Volunteer Citizens—A serologic survey of 500 volunteer citizens was conducted by the San Francisco Department of Health, August 18, to determine the extent of syphilis in the city. For diagnosis only, the tests were conducted at the Central, Park, Harbor, Mission and Alemany emergency hospitals. Results of the tests will be reported later, the San Francisco *Bulletin* announced.

Course on Venereal Diseases—A special course on the handling of venereal diseases was begun at the University of California Medical Center, San Francisco, August 23, to continue for five weeks. It consists of ten sessions, the first two sessions devoted to bacteriology and pathology, the next three to the pharmacology of the drugs concerned, the next four to the practical clinical management and the final session to the public health aspects of the problem. There is no charge for the course, which is open to any qualified physician.

COLORADO

State Medical Meeting at Colorado Springs—The sixty-seventh annual session of the Colorado State Medical Society will be held at the Antlers Hotel, Colorado Springs, September 22-25 under the presidency of Dr Arthur J Markley, Denver. The program includes the following speakers:

Dr James P Rigg Grand Junction Nasal Hemorrhage Its Cause and Treatment
Dr Roderick J McDonald Jr Denver Erysipelas
Dr John R Evans Denver Short Wave Therapy in the Pelvis
Dr Clyde T Knuckey Lamar Respiratory Problems in the Dust Bowl
Dr Alfred R Masten Denver Tuberculosis Control in Colorado
Dr Wilford W Barber Denver Modern Infant Feeding
Dr Guy H Hopkins Pueblo Reading Defects in Children
Dr Clifford Lee Wilmoth Denver Inguinal Hernia
Dr Gerrit Heusinkveld Denver Some Toxemias of Late Pregnancy
Dr William P McCrossin Jr Colorado Springs Treatment of Pelvic Infections
Dr Thomas Leon Howard Denver Present Status of Urinary Bactericides
Dr Joseph Raymond Plank Denver Treatment of Intestinal Obstruction Its Chemistry and Physiology
Dr Kenneth D A Allen Denver Radiation Therapy of Selected Non-malignant Diseases
Drs James J Waring and William A H Retthberg Denver Sulfanilamide Clinical Trials
Dr Douglas W Macomber Denver Recent Developments in Plastic Surgery
Dr Casper F Hegner Denver Practical Approach to the Cancer Problem
Dr Roy L Cleere Denver The Changing Concept of Public Health
Dr Ralph H Verploeg Denver Differentiation of the Rash Producing Epidemic Diseases
Dr James Rudolph Jaeger Denver Intervertebral Disk Injury Its Relation to Sciatica and Intervertebral Neuralgias

A clinicopathologic conference will be conducted by the El Paso County Medical Society and guest speakers will include Dr Walter M Simpson Dayton, Ohio on 'Fever Therapy', Ruben G Gustavson, Ph D, Denver 'The Influence of Endo-

crine Secretions on the Etiology of Cancer,' and Dr Arno B Luckhardt, Chicago, 'Academic or Unsuccessful Research'. The guest speakers will also conduct round table discussions. At the annual banquet, Saturday evening, Hon Haslett P Burke, chief justice, supreme court of Colorado, will give an address entitled 'A String of Pearls'.

DISTRICT OF COLUMBIA

Annual Alumni Extension Course—The second annual alumni extension course of Georgetown University School of Medicine will be held September 13-17 at the university, Washington. There will be general sessions and clinics in various branches of medicine and the specialties. Guest speakers will include:

Dr Maurice C Pincoffs professor of medicine University of Maryland School of Medicine Baltimore
Dr Irving S Wright assistant professor of clinical medicine New York Post Graduate Medical School and Hospital New York
Dr Irvine H Page Rockefeller Institute for Medical Research New York
Dr Sanford M Rosenthal National Institute of Health Washington

A feature of the course on obstetrics will be an address by Dr Emil Novak, associate professor of obstetrics, University of Maryland School of Medicine, Baltimore, entitled 'Endocrinology as Related to Obstetrics and Gynecology'. Entertainment will include the annual banquet and golf tournament.

FLORIDA

Malaria Study Course—A course for malaria study opened August 2 at the Florida State College, Tallahassee, for public health workers and engineers, newspapers announce. Said to be the first of its kind ever given in the United States, the course is one of four being conducted in different parts of the country by the U S Public Health Service. In Tallahassee it is given in cooperation with the station for malaria research, which has been maintained on the state college campus for six years by the Rockefeller Foundation and the state board of health. According to the report, other parts of the instruction are offered at the Henry Carter Memorial Laboratory, Savannah, Ga., the U S Bureau of Entomology Laboratory, Orlando, and the Tennessee Valley Authority, Wilson Dam, Ala. Dr Louis L Williams Jr, Washington, D C, is in immediate charge, Dr Mark F Boyd, director of the malaria research station, local supervisor, and Dr Charles M McGill, U S Public Health Service, administrative officer in charge of students. The course will continue through September.

GEORGIA

Personal—Dr Thomas F Abercrombie, Atlanta, was guest of honor at a dinner at the Capital City Club, August 11, to celebrate his completion of twenty years as state health officer. He was presented with a gold watch by the assistant state health officer, on behalf of the staff of the health department. —Dr Thomas O Vinson, Macon, formerly assistant health officer in Bibb County, has been appointed health officer of Spalding County.

New Cancer Facilities—A new clinic for the treatment of cancer has been made possible at Emory University Hospital, Emory University, by a recent donation, newspapers report. It covers the ground floor of one wing of the hospital and is equipped with the latest facilities in the treatment of cancer. Dr James Elhott Scarborough Jr, formerly of Mount Willing, Ala, is director of the new clinic, which, under the terms of the gift, will be a memorial to the late Robert Winship, an Atlanta business man.

IOWA

District Meeting—The first meeting of the combined Austin Flint-Cedar Valley Medical Society and the societies of the first, second and sixth districts of the Iowa State Medical Society was held at the Cedar Valley Hospital, Charles City, September 9. The following program was presented:

Dr Harold C Hahen Rochester Minn. Indications and Use of Sulfanilamide
Dr Myne G Peterman Milwaukee Convulsions in Childhood
Dr Elmer L Sevringhaus Madison Wis. Practical Endocrinology
Dr Jacob R Buchhinder Chicago Address in Surgery

KANSAS

Society News—A new county medical society has been organized in Barber County with Dr Joseph D Warrick, Kiowa, as president and Dr Kenneth R Grigsby, Medicine Lodge, secretary. —Dr Victor E Chesky, Halstead among others addressed the Golden Belt Medical Society in Manhattan, July 1, on 'The Heart in Relation to Thyroid Diseases'.

State Ophthalmologist Appointed—Dr Clifford J Mullen, Kansas City has been appointed state ophthalmologist for the Kansas Social Welfare Board. According to the state medical journal, this office, which is required by the federal social welfare board, will be part time and will consist mainly of administrative activities in the handling of assistance to the blind under the social security act. Dr Mullen graduated from Creighton University School of Medicine, Omaha, in 1923 and has practiced in Kansas City since 1930. He served as secretary of the Wyandotte County Medical Society in 1936.

KENTUCKY

State Medical Meeting at Richmond September 13-16—The annual meeting of the Kentucky State Medical Association will be held in Richmond, September 13-16, at the Eastern Kentucky State Teachers' College. Drs Irvin Abell, Louisville, President-Elect of the American Medical Association, and Arthur T McCormack, Louisville, president of the American Public Health Association, will be the guests of honor at the annual banquet Wednesday evening, at which Dr Henry W Cave, New York, will be the guest speaker. Dr Cave will give an address on "Chronic Ulcerative Colitis, with Special Reference to Surgical Management." Dr James A Ryan, Covington, will deliver the annual oration in surgery and Dr Asa W Nickell, Louisville, the oration in medicine. Among Kentucky physicians who will appear on the program are:

- Dr Morris Flexner, Louisville: Sulfanilamide
- Dr Charles N Kivanaugh, Lexington: The Role of the Electrocardiograph in Cardiac Infarction
- Dr Adolphus D Butterworth, Murray: Management of Eclampsia
- Dr John MacMillan, Townsend: Present Trends in Prostatectomy
- Dr Elmer L Henderson, Louisville: Some Observations in Abdominal Surgery
- Dr Marion C Spradlin, Somerset: Management of the Acute Diarrheas
- Dr William Clark Bailey, Harlan: Doctors and Their Relation to Malpractice Groups
- Dr William B Atkinson, Campbellsville: Where Private Practice Ends and Public Health Begins

LOUISIANA

Dr D'Aunoy Appointed Dean at Louisiana Medical Center—Dr Joseph Rigney D'Aunoy, professor of pathology and bacteriology, Louisiana State University Medical Center, and executive adviser, Charity Hospital, New Orleans, has been appointed dean, succeeding Dr Arthur Vidrine, resigned. Dr D'Aunoy graduated at Tulane University of Louisiana School of Medicine, New Orleans, in 1913. In 1933 he was awarded an honorary fellowship by the Gorgas Medical Society of New Orleans for his work on electrocardiography. In 1931, three years after he had been appointed superintendent of Charity Hospital, New Orleans, Dr Vidrine was made dean of the newly organized school of medicine of Louisiana State University. In 1936 he resigned his post at Charity Hospital to devote his full time to the medical school, where he was also professor of surgery. He graduated at Tulane in 1921. He will remain as professor of gynecology at the medical center.

MARYLAND

First State Owned Hospital for Negroes—The dedication of a group of three buildings for the care of feebleminded Negro children took place in Crownsville, Anne Arundel County, July 23. Erected at a cost of about \$283,000, the hospital is said to be the first state owned institution of its kind in Maryland. Equipped with 100 beds, half for boys and half for girls, the buildings were laid out so as to facilitate enlargement to care for 500 children. They are of the cottage dormitory type, connected by covered corridors. The unit is about half a mile from the Crownsville Hospital, the superintendent of which Dr Robert P Winterode is head of the division for feebleminded children. Twenty children were admitted July 26.

MASSACHUSETTS

New Surgical Building Completed—The new Dr John J Dowling Surgical Operating and Ward Building at the Boston City Hospital, named in honor of the late superintendent, was to be opened to patients the latter part of August. The ten story structure at the corner of Albany Street and Massachusetts Avenue, cost about \$1,300,000, will accommodate 300 patients. It contains twenty operating rooms, six on the seventh and eighth floors, one for eye operations on the second floor, two for first aid operations on the ground floor and the remaining ones for tonsil and adenoid, mastoid and x-ray operations. There are ten examining rooms, ten sixteen bed wards and the remaining wards are divided into two and four bed wards.

The amphitheater for lectures and meetings will accommodate 264 students. The building was begun two and one-half years ago, it was reported and was made possible with the assistance of a PWA grant. At the time of his death, July 10, 1935, Dr Dowling was medical director and superintendent of the Boston City Hospital.

MINNESOTA

Society News—Dr Roger L J Kennedy, Rochester, was elected president of the Northwestern Pediatric Society of Minnesota, August 21, at its annual meeting in Duluth and Dr Robert Rosenthal, St Paul, secretary-treasurer. Dr John M Adams, Minneapolis, addressed the society on "The Conservative Treatment of Appendiceal Peritonitis in Children."

Personal—Dr Francis E Harrington, health commissioner of Minneapolis, has been appointed a member of the Hennepin County Sanatorium Commission, succeeding Dr Solon Marx White. Recently newspapers reported that Dr Harrington had resigned as director of hygiene of Minneapolis schools and that Dr Malvin J Nydahl had been appointed to succeed him (THE JOURNAL, July 24, p 282). Later reports indicate that Dr Harrington will continue in this position and that Dr Nydahl will be assistant director.

NEW JERSEY

Maternal Welfare Program—The committee on maternal welfare of the Medical Society of New Jersey, in cooperation with the state department of health, has announced its program for 1937-1938. According to the plans, a field physician will be appointed in every county and adequate provision will be made for antepartum care and for hospitalization. Hospitals are to be open to general practitioners to attend their own cases subject to supervision by an obstetric staff and with rules for consultation in abnormal cases. The committee recommends regular conferences of maternal welfare groups with all physicians interested in obstetrics; this year the committee will on request send an experienced obstetrician to lead discussion at these conferences. It also urges investigation of every maternal death to check the diagnosis and cause of death. Free nursing delivery service and free consultation for the low wage group of patients and free consultation for midwives are also to be furnished. Other points in the program are refresher courses for physicians, a maternal welfare article each month in the state medical journal and continuation of statistical studies. Dr Arthur W Bingham, East Orange, is chairman of the committee.

NEW MEXICO

Fluorine Study—The state department of health and the chemistry department of the University of New Mexico are conducting a study of municipal water supplies for the presence of fluorine. Mottled enamel of the teeth, believed to be the result of drinking water containing fluorine, is known to exist in certain areas of the state.

Changes in State Health Department—Dr Elroy F McIntyre, Santa Fe, has been appointed state epidemiologist to succeed Dr Leonard A Dewey, who resigned to become state epidemiologist of Washington. Dr Frank W Parker Jr, formerly of Clovis, succeeded Dr McIntyre as health officer of the first district. A division of health education has been established in the department under the direction of Mr Charles M Cree.

NEW YORK

Interstate Meeting at Chautauqua—The Medical Society of Chautauqua County sponsored the sixth annual Interstate Medical Meeting at Chautauqua July 28. At the morning meeting there were addresses by Drs Winfield W Scott, Rochester on "Hematuria: Its Significance," Russell L Cecil, New York, "Influenza and the Common Cold" and Walter C Alvarez, Rochester, Minn "Abdominal Pain." In the afternoon the meeting was open to the public. Dr Cecil spoke on "The Plight of the Arthritic" and Dr Alvarez on "Nervous Indigestion."

Air Conditioning Test for Allergic Patients—A practical study of the effects of air conditioning on allergic conditions of the respiratory tract has been arranged by the chairman of the committee on public health of the Medical Society of the County of Erie. Three rooms of a model home on the main floor of the Electric Building, Buffalo, conditioned to a degree that pollen is almost entirely removed from the air, will be used for the study, which will last six weeks coinciding with the hay fever season. The rooms will accommodate twelve patients and nurses and attendants will be present. Applications of patients must be accompanied by a written recommen-

ation from the physician, limited to members of the society, and the patient agrees to report back to the family physician. A report will be presented at the October meeting of the society.

Court Decides Pledge to Hospital Must Be Paid—Payment of a pledge of \$7,200 made in 1929 to the Tioga County General Hospital, Waverly, was ordered in a decision by Supreme Court Justice Andrew J. McNaught, August 18. The decision held that there had been no misrepresentation in the solicitation of the subscription, as the defense had contended, that there was a consideration for the promise to pay, the consideration being that an x-ray room be constructed in memory of the donor's father, that there was a sufficient note or memorandum of the promise in the subscription card and the endorsement thereon, and that the hospital had a sufficient interest in and was in possession of the obligation on which the action was based to maintain its position and was a real party in interest. The record indicated that the donor canceled his subscription at the solicitation of another hospital, the judge's decision stated.

Society News—Drs. David M. Kydd and John H. Powers, Cooperstown, addressed the Otsego County Medical Society, Oneonta, recently, on "The Use of Protamine Insulin" and "Mandelic Acid in the Treatment of Infection of the Urinary Tract" respectively. Dr. Joseph H. Green, Rochester, addressed the Canandaigua Medical Society, recently, on "Differential Diagnosis of Chest Conditions by X-Ray."—At a joint meeting of the Wayne County bar and medical societies in Newark, June 22, Dr. Floyd S. Winslow, Rochester, spoke on malpractice.—At a recent meeting of the Orange County Medical Society in Newburgh the speakers were Drs. Harold H. Snyder, Newburgh, on "Tuberculosis of the Genito Urinary Tract", Ian G. Macdonald, Cornwall, "Tumors of the Neck" and David Tolmie, Tuxedo Park, "Amnesia-Analgesia in Labor."—Speakers at a meeting of the Medical Society of Washington County in Fort Ann July 6 included Dr. Harold A. Peck, Glens Falls, on "The Friedman Modification of the Aschheim-Zondek Test for Pregnancy."

New York City

Tuberculosis Hospitals Overcrowded—A recent survey of tuberculosis hospital service showed that the number of patients being cared for was 4,980 and the total normal capacity in the city's tuberculosis hospitals and wards in twenty-one public and private institutions was 4,578. In addition, the admission bureau of the department of hospitals has knowledge of 392 cases waiting for hospital care. The department now has in progress four building projects that will add 1,000 beds to the supply now available. They include 250 in a new children's building at Sea View, Staten Island, 150 in new wards at Bellevue Hospital, a hospital adjoining the new Queens General Hospital for 500 patients, and a project for more wards in the Bronx.

Pneumonia Control Program—The board of estimate has appropriated about \$100,000 for a pneumonia control program to be carried out by the New York City Health Department during the remainder of 1937. The department will be able to provide clinical assistance by a corps of trained advisers to physicians and hospitals on request, they will demonstrate the technique of administering the serum and give advice as to the size and frequency of the dose. Facilities for typing serum are to be established in each borough to supplement the service already available in Manhattan, instruction in typing will also be provided for technicians. Therapeutic serum of types I, II, V, VII and VIII will be generally available through typing stations and for hospitals. Limited supplies of serum of some of the rarer types will be distributed as rapidly as possible.

OKLAHOMA

New Health Officers—Dr. Maurice L. Peter, Blackwell, has been appointed medical director of a new health unit established in Kay County.—Dr. Glen W. McDonald, Ada, has been appointed health officer of Pontotoc County and Dr. James T. Lowe, Mangum, of Greer County.

Plans for Fall Clinical Conference—The Oklahoma City Clinical Society will present its eighth fall clinical conference November 1-4 at the Biltmore Hotel, Oklahoma City. The guest speakers will be Drs. John H. J. Upham, Columbus, Ohio, President of the American Medical Association, John W. Ames, Denver, William L. Benedict and Claud F. Dixon, Rochester, Minn., William Boyd, Toronto, Ont., Cyrus E. Burford, St. Louis, Frederick Christopher, Evanston, Ill., H. Earle Conwell, Birmingham, Ala., Walter T. Dannreuther, New York, Frederick D. Weidman and Chevalier Jackson,

Philadelphia, Samuel A. Levine, Boston, Bernard H. Nichols and Ernest Perry McCullagh, Cleveland, Norman F. Miller and Cyrus C. Sturgis, Ann Arbor, Mich.

PENNSYLVANIA

Hospital Appointments—Dr. Walter I. Buchert, Cleveland, has been appointed head of the department of the Geisinger Memorial Hospital, Danville, and Dr. Reed O. Dingman, formerly of St. Louis, who is also a doctor of dental surgery, has been made head of the department of oral, maxillofacial and plastic surgery.

Plan Pneumonia Control Campaign—The commission on pneumonia control of the Medical Society of the State of Pennsylvania and the state health department will sponsor a luncheon during the annual session of the Medical Society of the State of Pennsylvania in Philadelphia, October 4-7, to plan a campaign for the fall and winter. County medical societies have been asked to create pneumonia control committees to be represented at the luncheon. Seventeen counties had done so up to the publication of the August issue of the *Pennsylvania Medical Journal*. Points in the program will be to develop laboratories throughout the state for diagnostic typing and to have the state, in cases properly certified, furnish pneumonia serum to those unable to pay for it. Dr. Edward L. Bortz, Philadelphia, is chairman of the commission. Members are Drs. Edward W. Bray, Wilkes-Barre, Mathew H. Sherman, Harrisburg, Clifford W. Skinner, Meadville, Clifford C. Hartman and George J. Kastlin, Pittsburgh, Leon H. Collins Jr., Thomas Grier Miller, Henry K. Mohler and Hobart A. Reimann, all of Philadelphia. The advisory board of the state health department at a meeting July 26 adopted a regulation making pneumonia a reportable disease.

RHODE ISLAND

Personal—Dr. Hilary J. Connor, of the staff of the state department of health, Providence, has been appointed superintendent of State Sanatorium, Wallum Lake, to succeed Dr. Robert Lemley Garrard, resigned.

WEST VIRGINIA

Personal—Dr. J. W. Ruckman, West Liberty, has been appointed college physician to the West Liberty Teachers College.

Society News—Dr. Royd R. Sayers of the U. S. Public Health Service, Washington, D. C., addressed the Preston County Medical Society at a meeting at the Hopemont Sanatorium, near Terra Alta, July 23, on silicosis.

WISCONSIN

Personal—Dr. Henry H. Christofferson, Colby, has been appointed to the state board of medical examiners to succeed Dr. Bartholomew E. McGonigle, Ableman.—Dr. Frank O. Hunt, Fall River, was honored on his seventieth birthday June 27 by 1,200 of his patients, who came from many states, according to the *Wisconsin Medical Journal*, and presented him with a watch.

GENERAL

Dr. Clarke Returns to Social Hygiene Association—Dr. Charles Walter Clarke, formerly medical director of the American Social Hygiene Association, New York, who was lent to the New York City Department of Health in 1935 to organize its bureau of social hygiene, has returned to active duty with the association with the title of executive director. Dr. William F. Snow is general director of the association.

Military Surgeons' Meeting—The forty-fifth annual meeting of the Association of Military Surgeons of the United States will be held in Los Angeles at the Hotel Ambassador, October 14-16. Among the speakers will be:

Capt. George F. Cottle, Medical Corps, U. S. Navy Fleet Medicine.
Lt. Comdr. Albert G. Bower, U. S. Naval Reserve Corps, Glendale.
Calif. Modern Typhoid Treatment.
Lt. Comdr. Howard L. Updegraff, U. S. Naval Reserve Corps, Los Angeles.
Emergency Plastic Surgery.
Col. Howard C. Naffziger, U. S. Army Medical Reserve Corps, San Francisco.
Surgical Treatment of Low Back Pain.
Capt. Charles Leroy Lowman, U. S. Army Medical Reserve Corps, Los Angeles.
Physiotherapy in the Next War.

The Funeral of Dr. Simmons—In the chapel at Graceland Cemetery in Chicago numerous friends of Dr. George H. Simmons, Editor and General Manager Emeritus of the American Medical Association, paid their last respects, September 2. The casket was all but covered with floral tributes, and telegrams and cablegrams expressing condolence were received from almost the entire world. The impressive service was conducted by the Reverend Herbert W. Prince, Episcopalian minister,

Lake Forest, Ill., who also gave a brief address. Following the services, the body was cremated. The ashes were later returned to Lincoln, Neb., where Dr. Simmons practiced medicine for many years previous to his appointment in 1899 as Secretary of the American Medical Association and Editor of *THE JOURNAL*.

Warning Against Worthless Checks—An optical goods firm in Chicago reports that several physicians in Wisconsin and upper Michigan have been swindled by a man who orders glasses and gives worthless checks for them. He has his eyes examined and asks the physician to mail the glasses to his rural address. In most cases he selects glasses that cost from \$12 to \$15 and tenders a check for from \$30 to \$40, asking the doctor to reimburse him for the difference in cash. When the glasses are mailed to the name and address given, they are returned. A representative of the optical firm gives the following description of the man: about 46 years old, about 5 feet 8 inches tall, weighs about 190 pounds, has a tendency to baldness and dresses 'like a farmer dressed to go to town'. He tries to buy glasses for reading as glasses are not needed for his distance vision. One check was signed J. P. Dyer.

Bequests and Donations—The following bequests and donations have recently been announced:

Woman's Medical College of Pennsylvania Philadelphia \$25,000 and Jefferson Medical College Philadelphia \$10,000 by the will of Mrs. Jane M. Jenks, Southern widow of Dr. Frank L. Southern, an alumnus of Jefferson.

Roper Hospital Charleston S. C. \$12,000 by the will of James R. Roper.

Wisconsin Anti-Tuberculosis Association \$25,000 by the will of the late Howard E. Mitchell, Milwaukee.

Orange (N. J.) Memorial Hospital \$1,000 from an anonymous donor. Hackensack Hospital Association \$15,000 by the will of the late R. Blecker Rathbone, New York.

St. Francis Hospital Hartford Conn. \$5,000 from the estate of the late John J. Brady.

The late Richard Greene Jackson, Miss, left his residuary estate, estimated at about \$350,000, to build a free hospital for Negroes or wards for Negro patients in some established hospital.

New York Nursery and Child's Hospital, \$30,000 by the will of Miss Emma Elizabeth Conner.

Presbyterian Hospital Philadelphia, \$5,000. Lankenau Hospital Philadelphia \$1,000 and Pennsylvania Institute for the Blind Overbrook \$3,000 by the will of Frederick A. Rakestraw, Overbrook.

Annual Congress of Physical Therapy—The sixteenth annual session of the American Congress of Physical Therapy will be held in Cincinnati, September 20-24, at the Netherland Plaza Hotel. At the opening session Dr. Frederick L. Wahrer, Marshalltown, Iowa, will be installed as president and deliver his official address on "The Future Development of Physical Therapy." Dr. Melvin S. Henderson, Rochester, Minn., will speak on "Deformities Following Fractures: Their Prevention and Treatment," and Dr. Anton J. Carlson, Chicago, The Physiologist Looks at Physical Therapy." Tuesday evening, September 21, the congress will hold a joint session with the Academy of Medicine of Cincinnati with the following speakers:

Dr. J. Van Breemen, Amsterdam, Holland: The Conception of Reaction in Physical Treatment.
Dr. Eugen Weissenberg, Vienna, Austria: Ultrashort Wave (Diathermy) Low Intensity Treatment.
Dr. Harry A. Mock, Chicago: Physical Therapy—What Is It and What Will It Do?

There will be symposiums on hyperpyrexia, x-ray therapy, ionization fractures, vascular diseases and short wave therapy. Thursday evening an educational conference will be held with the following as the speakers:

Dr. William H. Schmidt, Philadelphia: The Function of the County Medical Society in Physical Therapy: Education of the General Practitioner.
Dr. Oswald N. Andersen, Chicago: Function of the Council on Medical Education and Hospitals in the Standardization of Schools for Physical Therapy Technicians.
Dr. Joseph A. E. Syracuse, Buffalo: Ten Years of Hospital Physical Therapy.

Among other speakers in the general sessions are included: Dr. Francis H. Redewill, San Francisco: Electrotherapy and Chemotherapy: Including Sulfanilamide in Gonorrhea and Its Complications.
Dr. Burton E. L. Hyde, Troy, Ohio: Clinical Observations on the Uses of Irradiated Blood.
Dr. Charles S. Venable, San Antonio, Texas: Electrolytic Action Between Metals as Used in Bone Surgery.
Dr. Upton W. Giles and Mr. A. L. Harvey, New Orleans: Experiments in Sterility of Male Animals Induced by Radiant Heat.
Dr. Richard Kovacs, New York: Ultraviolet in Secondary Anemia.
Drs. William C. Menninger and Byron L. Shifflet, Topeka, Kan.: Psychological Aspects of Physical Therapy.

Tuesday and Wednesday mornings will be devoted to section meetings.

Prevalence of Infantile Paralysis—The U. S. Public Health Service reported September 1 that 4,053 cases of infantile paralysis had been reported for the first thirty-four weeks of 1937 as compared with 1,618 for the corresponding period of 1936. For the week ended August 28 with no reports from North Dakota and South Carolina, 621 cases were listed as against 133 cases for the corresponding week of last year, and

807 for the corresponding week of 1935.—Chicago newspapers reported September 7 that there were sixty-four new cases and seven deaths during the week ended September 5. Ninety-five cases with eight deaths had been reported since August 1. Opening of public and parochial schools was postponed.—Buffalo also postponed the opening of schools for two weeks because of twenty cases with three deaths since August 4, newspapers reported September 3.—Children under 7 years of age are barred from attending school or appearing in public places until September 20, in Milwaukee, twenty-five cases, seven nonresident, were reported under treatment September 1.—The opening of schools was also deferred in Kansas City, Mo., and in Fort Collins, Colo., most of the sixty-two cases in Colorado are said to be in the Fort Collins area.

CANADA

The Poliomyelitis Epidemic in Ontario—Reports dated September 5 showed that 1,145 cases of poliomyelitis with thirty-nine deaths had occurred in the province of Ontario since the beginning of the present outbreak in June. Toronto has had 347 cases. School and county fairs have been canceled in several counties and the opening of schools was postponed in a number of towns. The annual baby show at the Canadian National Exposition in Toronto was also canceled. Several thousand children have received preventive treatment with the nasal spray of zinc sulfate. Montreal has begun the collection of blood serum from recovered patients to provide treatment for those stricken in Toronto. Arrangements have been made to bring patients from remote districts by airplane to Toronto hospitals and the planes will also be used to transport serum and other medical supplies to outlying districts.

Government Services

Civil Service Examinations for Bacteriologists

The U. S. Civil Service Commission announces open competitive examinations for the positions of associate and assistant bacteriologist in the U. S. Public Health Service at salaries of \$3,200 and \$2,600 a year, respectively. Optional branches of the subject are brucellosis, anaerobes, physiology of bacteria and viruses. The duties of the positions are to conduct research in these branches and present the results in reports or papers for publication. Applications must be received by the civil service commission in Washington not later than September 20 or, if from Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington and Wyoming, not later than September 23. Application forms may be obtained from the Secretary, Board of U. S. Civil Service Examiners, at any first class post office from the commission at Washington or from its district offices in any of the following cities: Atlanta, Boston, Chicago, Cincinnati, Denver, New Orleans, New York, Philadelphia, Seattle, St. Louis, St. Paul, San Francisco, Honolulu, Balboa Heights, Canal Zone, and San Juan, Puerto Rico.

New Buildings for National Institute of Health

Three new buildings will be erected on a site in Bethesda, Md., to provide improved facilities for the National Institute of Health, it is announced. Construction is expected to begin immediately. An allotment of \$1,143,000 from the emergency construction program acts of 1934 and 1936 is available for erection of the buildings which will serve as a nucleus of a national medical center. Until they are completed headquarters of the institute will remain at Twenty-Fifth and E streets, Washington, D. C. The site is a forty-five acre tract of wooded land on the Rockville Highway near Bethesda, which was donated to the U. S. Public Health Service for this purpose in 1935 by the late Luke I. Wilson, a Washington business man. The new units will include a central administration building flanked on each side by an industrial laboratory building and a public health methods building. This last unit will house numerous activities, including child hygiene and chronic disease work, and provide space for the inoculation of animals in the preparation of various vaccines. The structures will be of Georgian design with exterior brick walls, stone trim and pitched hip slate roof fireproof throughout. There will be a modern air conditioning and air heating system. Each building will consist of basement, sub-basement, three stories and attic, it was stated. According to the report, it is expected that the new National Cancer Institute which was recently authorized by Congress, will be erected on the same property.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Aug. 13, 1937

Precautions Against Air Raids

The elaborate scale on which precautions against air raids are being taken is illustrated by the case of Sunderland, a shipbuilding town of 185,000 inhabitants on the northeast coast. An emergency organization 3,500 strong, including 2,000 volunteer air wardens, is being formed. Preparations are being made for the treatment of casualties, rescue work and demolition of unsafe buildings, decontamination of streets, repair of damage to roads and sewers, fire fighting, gas detection, emergency communications, protection of the public, and lighting restrictions. Control of these arrangements will be delegated to the chief executive officers of the town corporation, who will be responsible for their being kept down to date and ready for use. Headquarters will be arranged in various public buildings, and portions of them will be rendered gas and splinter proof, with living and sleeping accommodation. These men must have their telephones manned day and night in time of war, so that prompt warning of air raids shall be received. Arrangements for the darkening of the streets and houses will be drawn by the electrical engineer. The air raid wardens will be leaders and advisers of the public, who will occupy posts previously selected and be provided with fire extinguishing equipment. A large emergency fire department is to be organized. The police and others will be instructed in gas detection, but there will also be twenty-nine special gas detection officers, who will be recruited from chemists, chemistry masters in schools and sanitary inspectors. They will undergo a course of training. Medical services will be organized under the health officer of the town. There will be thirty first aid parties, of four men each, for treating casualties in the streets and bringing them to first aid posts. The hospitals will be used as casualty clearing stations. It is estimated that a maximum of 400 beds will be required, and to provide these patients will be moved out of the hospitals in the danger area. For ambulance work the corporation ambulances will be called into use, with improvised ambulances in busses and private vehicles. Arrangements will be made with the local laundries for the treatment of contaminated clothing, selected members of their staff having been trained in this work. Each householder must set aside a room and equip it as a gas-proof shelter and store sand for use on incendiary bombs.

Cancer of the Breast

In the Skinner lecture delivered before the British Association of Radiologists, Dr. Francis Herniman-Johnson said that the five year survival statistics have been greatly improved by postoperative irradiation of cases of cancer of the breast but that the ultimate mortality had not been affected. Great advances, however, had been made in alleviating the lot of these patients. By after-care he meant the care of the patients after the primary growth had been dealt with. He preferred surgical removal provided it was not too drastic. An axilla in which the glands were not palpable was best left alone. If there was microscopic invasion it could be dealt with by irradiation. He preferred operation, because it made radiologic access to the inside of the thorax easier and one did not have to deal with a large area of tissue, much of which had already been irradiated to the limits of safety.

Efficient supervision of all breast cases from the time of operation was best carried out by one man and as the radiotherapist would inevitably be called on to deal with them when

they go wrong, he should have the supervision of them from the beginning. There should be a special clinic to which all patients are sent as soon as possible after operation. For purely prophylactic treatment in the sort of case which, if treated by surgery alone, would stand a good chance of some years' survival, heavy doses of x-rays, carried to a point at which healthy tissues might be damaged or severe constitutional symptoms produced, was not justified. Prophylactic x-ray treatment should be of wide distribution but of low intensity, and be given with the idea of increasing resistance, both local and general. When there was localized recurrence not of a kind that could be suitably dealt with by operation, heavy dosage over a strictly localized area was valuable as a palliative and might prolong useful life for many years. The later stages of breast cancer must be treated as a general disease, the rapidity of its progress being determined to a large extent by constitutional factors. This particularly held when there were multiple small metastases in bones. Change of air and scene might temporarily avert the decline. Ultraviolet treatment might have a truly remarkable result in prolonged arrest of the disease, with gain of weight and strength.

Isolated recurrences in the skin were of little importance from the prognostic point of view. They could be dealt with by surface radium or by the Chaoul tube and did not tend to come back. A recurrence in the axilla might be held in check for years by irradiation alone, but if it appeared reasonably discrete it was best eventually removed surgically. Malignant invasion of supraclavicular glands was more serious because it was practically impossible to deal with it surgically. But heavy localized x-ray dosage might maintain the status quo for long periods. Isolated metastasis in the pelvis or long bones was often quite amenable to treatment. Spontaneous fractures might be caused to unite and the patient be restored to active life for years. For generalized metastases of bones he could recommend only Todd's method (administration of selenium). Even cases of thoracic invasion were not beyond radiotherapy. It was astonishing how dyspnea might be relieved for a long time. But in his experience invasion of the liver was beyond human aid. Swelling of the arm might make life completely miserable. The patient was by no means necessarily near the end even if the swelling was due to actual growth. If she did not improve under heavy doses of x-rays, surgical intervention was worth considering. Sir Harold Gillies had devised an operation for these cases. In a case of lymphatic obstruction of the right arm, with no evidence that it was due to secondary carcinoma, he short circuited the lymphatic blockage in the right axilla by transplanting the left breast, with its lymphatics, to the right, in such a way as to leave untouched the drainage of the left axilla. The edema of the hand and forearm almost disappeared.

Should Orchidectomy Be Performed in Pseudohermaphroditism?

In a letter to the *Lancet* Mr. Kenneth Walker (genito urinary surgeon) criticizes the recorded treatment of the following case. A child of 7, externally apparently a female, had two testes with epididymides, which were discovered during exploration of a supposed bilateral inguinal hernia. As usual in such cases, the operator could not resist the temptation of removing the offending organs. He commented, "It might be considered that the bilateral orchidectomy was unwarranted and too radical a procedure, but it is in accordance with the teaching of Blair-Bell that when the external genitalia and secondary characteristics are feminine and the child had been brought up as a girl, removal of the testes is the correct practice." Mr. Walker considers that this view is based on three misconceptions that are extraordinarily prevalent: (1) that the only function of the gonads is the determination of the secondary sex characteristics, (2) that these characteristics arise simply

as the result of the action of the sex hormones on a neutral body, (3) that if the testes are left, male characteristics will inevitably appear later

The pseudohermaphroditism described is almost certainly explained by failure of the body to respond to male hormones in the direction of maleness. Hence the body is carried by its natural bias in the direction of femaleness. Why therefore should it be assumed that in later years the child will develop maleness? Certainly this has happened, but more often than not the failure to react to the male hormone persists through life. Should however signs of maleness develop later, castration can then be carried out. Castration in the first instance is not the correct treatment and may upset the metabolism of the body. In the case of a good looking girl of 25 it caused her rapidly to put on two stone (13 Kg) in weight and only as the result of a year's work and administration of much anterior pituitary and thyroid was the upset of metabolism to some extent readjusted.

PARIS

(From Our Regular Correspondent)

Aug 14, 1937

Abuse of Free Medical Care Becomes More Prevalent

The present crisis in the medical profession here is due in great measure to the admission to public hospitals and dispensaries of patients whose circumstances permit them to enter private institutions or to be treated in the offices of local practitioners. So far, this abuse has been confined to larger cities, especially Paris, and the country practitioner has suffered less than his city colleague. In a complaint addressed to the editors of the *Concours medical* which appears in the July 11 issue, it would seem as though this abuse of free medical care is extending to smaller communities. The correspondent states that the mayor of a small community maintains that, in the future, all persons covered by social insurance must be admitted to the nearest hospital as indigents. Two seriously ill persons who required emergency treatment were recently placed on the free (indigent) list. According to the correspondent, these patients were amply able to pay for medical attendance and hospital service. The correspondent asks what can be done under such circumstances. In the answer it is stated that the law governing those covered by social insurance is quite different from that of medical care for the indigent. The former are reimbursed for any outlays on presentation to the local caisses or disbursing offices, of certificates signed by physicians or others as to how much they have paid for medical and hospital services. Such an insured person has the right to choose his medical attendant and the hospital, provided the latter has a contract with the social insurance organization. If, in emergency cases, the mayor sends an insured person to the nearest hospital as a free patient, such admission is subject to revision by the departmental (county) committee on complaint being received from a physician. This is the only method by which those able to pay for medical care can be prevented from entering as free patients. It would appear, however, as though this is another example of locking the stable after the horse is stolen.

A Symposium on Decrease in Population of France

The June 29 meeting of the Académie de médecine was devoted to the discussion of the decrease in population, which is causing much concern in France. Two of the papers were read by Professors Couvclaire and Brindeau leading obstetricians, and the third by Dr Renault, a well known pediatrician. Professor Couvclaire, in discussing the measures to raise the natality rate, stated that the voluntary restriction of the number of births has been responsible for the lack of increase in French population for more than a century hence a policy in the opposite direction was urgently necessary. Immigration will be of little help unless care is taken not to let in every one who

wishes to settle here. A strict moral and physical control of every newcomer is indispensable, before naturalization is permitted. The solution to the question of denatality lies in bringing home to young couples their own interest and duty in maintaining the existence of the country. An average of three children per family is the minimum to overcome the disproportion between the number of births and deaths. If the state wants children, it should be its duty to see that young couples should have some interest in the matter. Material advantages check, at least temporarily, contraceptive methods, as has been shown several times for nearly the past century and a half in France. Measures taken to lighten the financial burden for heads of families at present includes either reduction of taxes or a direct payment. The Strauss law in France allows maternity premiums to be paid and there are four other laws to encourage natality by financial aid for large families. A movement which began in the industrial region of northern France to make extra payments to employees who have children was made obligatory for all employers in 1932. Nearly two billion francs was paid up to May 1937 and the natality rate is 22 per cent higher than the average in the families of such workers. The reductions in income tax for heads of families have been insufficient. The sales tax which retailers pay affects the head of a family in proportion to the number of children and is still quite an unwelcome addition to the daily outlay for food. Instead of relative deductions on income taxes and allowances for large families it would be better, according to Professor Couvclaire, to adopt the methods now employed in Italy and Germany. A loan is made to newlyweds, which is reduced by increasing percentage with each birth until, after the fourth child, the remainder of the loan is converted into a gift. Assistance and encouragement are necessary but these measures will not be adequate to solve the denatality problem until a moral social environment is created which favors family life. The problem of natality is intimately related to the education of young girls. Professor Brindeau spoke on the decrease in population from the obstetric point of view. The campaign against involuntary sterility has made a great deal of progress. Secret abortion is one of the most frequent causes of denatality, and the complications incident to such procedures often render women sterile for life. Although the medical profession is almost powerless in combating induced abortion, much can be done to prevent the spontaneous form, in treating the more common causes, such as syphilis, endometritis, uterine displacements and endocrine dysfunction. One should not place too much reliance on a negative Wassermann reaction. A second source of denatality is death of the fetus at term. The causes of intra-uterine death are about the same as those of spontaneous abortion, syphilis having the predominant part. In many cases, death of the fetus during birth is the result of hereditary stigmas on the maternal side, such as syphilis, albuminuria and organic or infectious diseases, the enfeebled fetus being less capable of tolerating obstetric trauma than a normal one. Statistics which show only the number of deaths at term do not give an accurate picture, because more infants die during the first ten days from premature birth effects, syphilis, meningeal hemorrhage and amniotic infections than at birth. The number of deaths at birth and during the first ten days shows a steady decrease, as the result of better antepartum care and of the progress made during recent years in obstetrics. Better technique and asepsis combined with the more widespread use of operative methods have had an important influence in saving many a mother and child. The social insurance law compels every expectant mother to attend antepartum clinics at least twice during every pregnancy. Brindeau protested against the indiscriminate use of anesthetics and of oxytocics during labor as not being free from danger to both mother and child.

The third paper in the symposium was by Dr Jules Renault and Miss Labeaume on the development of the movement for the protection of infants. The best way to aid the mother was to permit her to remain at home and to nurse her child. Various organizations, one more than 150 years old, have devoted their energies toward reaching this goal. Instead of creating creches, the present tendency is to give ample remuneration to mothers to stay at home and nurse their infants. The lack of team work between government bureaus and societies founded to aid home care of the new-born has been improved by two comparatively recently organized associations, the League Against Infant Mortality and the Bureau of Maternal and Infantile Protection. More than 60,000 new-born infants still remain under the care of wetnurses. Their surveillance has been better since the passage of the Roussel law, but there is still room for improvement.

BERLIN

(From Our Regular Correspondent)

Aug. 9, 1937

The Treatment of Agranulocytosis

Dr. H. E. Bock discussed, in the Frankfurt Medical Society, the treatment of agranulocytosis on the basis of investigations carried on at the Frankfurt University Medical Clinic, of which Professor Volhard is director. Agranulocytosis is a disease entity first described by Werner Schultz in 1922. The discovery of aminopyrine agranulocytosis, the importance of which according to the German point of view is greatly exaggerated, not only contributed substantially to the explanation of the pathogenesis but constituted an important landmark in therapeutics, since it demonstrated that, like barbituric acid preparations, aminopyrine preparations are to be avoided in disturbances resembling agranulocytosis. Aside from this discontinuation treatment and the enormous importance of nursing care there is also an active therapy. Whereas protein substance, epinephrine, thyroxine and liver substance (the last named important because of its general effect) represent only subthreshold granulotactic stimuli, induced turpentine abscess has a more durable effect. The three principal therapeutic procedures in agranulocytosis are roentgen stimulation-irradiation of the medullated bones, blood transfusions and administration of pentnucleotide. Although nucleotide in large doses has heretofore represented the most effective medication for the building up of leukocytes, a blood transfusion exerts the optimal general effect. Copious and frequent transfusions should be performed and the utmost caution exercised in the selection of donors. Cases have been reported in which three transfusions of 675 cc each were given and in other cases the quantity even reached 1,000 cc per transfusion. Satisfactory bridging over of the most dangerous four initial days, that is, an effective compensation for granulocyte deficiency in the face of the threatening sepsis, is however not always achieved even by maximal transfusions if normal blood is used. Schittenhelm attained favorable results in a single case by utilization of the blood of a patient with myeloid leukemia. Bock's employment of a similar procedure, undertaken without knowledge of Schittenhelm's case, was also successful. At the Volhard clinic a woman typist, aged 40, who presented a severe agranulocytosis, was placed out of danger within nineteen days by twelve 500 cc transfusions of leukemic blood. The patient on admission exhibited all signs of the disease in its most exaggerated form, for five days no granulocytes could be observed, the total number of leukocytes fluctuated between 200 and 1,100 and there was no monocytosis. The patient was highly feverish, the erythrocyte sedimentation rate was elevated, and marrow of the tubular bones exhibited a purely myeloblastic-reticular high grade cell-deficient character. Further complications were pneumonia and necrosis of the gums. The total value of leuko-

cytes transplanted corresponded to that contained in 250 transfusions of normal blood. The transfusions were unaccompanied by any incident. The colossal consumption of leukocytes was especially exacerbated by a femoral abscess, which was opened at the end of the third week. Only in the fourth week did the leukocyte balance become positive. The high grade destruction of the myeloid tissue and the regeneration of myelopoiesis toward normal under the influence of the leukemic blood could be observed at all stages of the illness both in the hematogram and in the histologic section of the sternal punctate.

Changes in the Blood During Pregnancy

The Berlin hematologist Prof. Werner Schultz pointed out in a session of the Medical Society of Hamburg that, whereas changes in the blood are frequent enough during pregnancy, defective states of the blood are seldom manifested. Nearly one half of all gravidas present declines in the hemoglobin and erythrocyte values of some 10 per cent below normal. This is an innocuous phenomenon that does not require treatment. More recent investigations have disclosed that these alterations in blood, usually designated "pseudo-anemias," may vary within the course of the same pregnancy, at one time the blood values may be normal at another depreciated. The water economy of the pregnant organism plays a part in these phenomena, however, this aspect of the problem has been studied but little as yet. Even the amount of plasma can fluctuate a good liter in the same gravida. The borderline between this benign pseudo-anemia and genuine "essential anemia of pregnancy" is therefore flexible. Symptoms that first permit a diagnosis of the anemia of pregnancy to be established are severe fall in the hemoglobin and erythrocyte values, pronounced malaise, spells of syncope and vertigo. The anemia of pregnancy is rare. Strictly speaking, an anemia cannot be regarded as conditioned by the pregnancy unless the physician possesses a record of the pregravidic and postpartum blood value. One should also consider cases of pernicious appearing anemias of pregnancy and cases of pregnant pernicious anemia patients. Then too, women affected with "poorly regenerating hemorrhagic anemias" and "essential anemias" may become pregnant, a fact to be considered in the differential diagnosis of true anemia of pregnancy.

The Chiasma Syndrome

The Berlin Medical Society met recently in joint session with the Society of British Neurological Surgeons. Prof. A. A. McConnell of Dublin spoke first on the chiasma syndrome. The most important symptom is impaired vision either unilateral or bilateral. Especially characteristic are the central scotoma and the limitation of the visual field. He mentioned, among other conditions, the chiasmal aneurysms, subdural cysts, meningiomas, hypophysial adenomas, craniopharyngiomas, chiasmal gliomas and internal hydrocephalus. A predominant symptom in all cases is an impairment of vision that usually first causes the patient to consult a physician. Other symptoms are headache, vertigo and syncope. Total blindness of one or both eyes often eventuates. Of great significance is the observation that not infrequently the sight returns following removal of the pathologic process. Operative treatment, if at all feasible, is indicated. Differential diagnosis often presents formidable difficulties, as there is no group of symptoms indicative of a particular type of chiasmal process. Accordingly, each individual case represents a special problem. As diagnostic aids ventriculography, arteriography and the roentgenogram are to be utilized. The prognosis in many cases is favorable.

In the discussion that followed Dr. McConnell's lecture Professor Olivecrona of Stockholm spoke on aneurysms of the internal carotid artery. Smaller aneurysms produce a central scotoma and impairment of the temporal field of vision on the affected side. By way of contrast, larger aneurysms give rise

to a homonymous hemianopia and bilateral central scotoma Professor Foerster of Breslau reported seventy one cases of chiasma syndrome among a material of 12,000 neurologic cases covering a period of sixteen years The most frequent cause was hypophysial tumor, although arachnitis also loomed large as an underlying condition Foerster observed several cases in which surgical intervention for a hypophysial tumor was followed by an unequivocal manic syndrome Operation often discloses a much more extensive area of deterioration than preliminary examination would lead one to anticipate Occasionally chiasma syndrome is merely a consequence of pressure exerted by more deeply situated processes such as ventricular cysts, neurocytomas at the base of the brain and deep-lying tumors along the hypophysial infundibulum In one case it was possible to terminate completely a diabetes insipidus by means of operation Professor Tonnis of Berlin has treated seventy-three patients who presented chiasma syndrome Frequently the anamnesis reveals a history of psychic disturbance reminiscent of Korsakoff's psychosis Careful observation of the condition of the fundus oculi is indispensable The variations in the incidence of particular types of tumors according to age groups is a further important consideration craniopharyngiomas tend to be manifested in the second decade of life, hypophysial adenomas in the third decade and meningiomas in the fourth The tumor presses on the chiasma from above, thus causing a scotoma in the inferior-exterior region Puncture of the shadows situated in the region of the sphenoid sinus which appear suggestive in the roentgenogram may under certain circumstances be extremely dangerous (as cerebrospinal fluid may be aspirated) According to the observations of Tonnis, the prognosis of operative treatment is most favorable in adenomas, the mortality of patients who presented this type of tumor was 25 per cent, against 20 per cent in cases of meningioma In conclusion Nonne of Hamburg pointed out that chiasma syndrome may also be of syphilitic origin He has observed several cases of hereditary syphilis in which the syndrome was present A syphilitic endarteritis as well as the gummas form the morphologic substrata of this interrelation, at the same time the Wassermann reaction of the fluid may be negative Antisyphilitic therapy often affects such cases favorably

Can Short Wave Irradiation Impair the Germinal Factors?

Injuries to the germinal factors, caused by roentgen rays, has become the subject of vigorous discussion Since short waves have come to be utilized extensively in the treatment of inflammatory disorders, especially in gynecology, it is necessary to determine whether the high frequency waves are capable of producing genetic effects similar to those produced by roentgen rays A Pickhan director of the roentgenologic section of a Berlin hospital, has conducted an investigation of this problem and reports his observations in the *Deutsche medizinische Wochenschrift* He selected the fruit fly *Drosophila melanogaster*, since in the entire animal and vegetable kingdoms no other creature is more suitable for the study of experimental genetics The basic laws of genetics, the durability of germinal factors, the manifestation of spontaneous mutations and the elicibility of hereditary changes by certain irradiations are, as Pickhan emphasized identical for all members of the animal and vegetable kingdoms At the same time the dose that is harmful to man is of only secondary importance *Drosophila* was tested in two series of experiments, for its reaction both to the short waves alone and to a combined short wave and roentgen irradiation A wave of 6 meters was used throughout In the course of a year more than 6,000 cultures of 100 flies each were developed The results of these experiments may be summarized as follows Treatment with a high frequency current did not produce a statisti-

cally certain increase in the rate of mutation An increased sterility in the second filial generation (F₂) was not observed The high frequency field exhibited no statistically demonstrable influence on the mutation-eliciting effect of roentgen irradiation For clinical purposes it may be concluded that the 6 meter waves thus far studied do not influence the genes even if applied in great intensities No heightening of the mutation-eliciting effect of roentgen irradiation was observed to follow combined roentgen and short wave irradiation Naturally, this does not mean that an increase in both physiologic and biologic reactions of another sort may not be present

JAPAN

(From Our Regular Correspondent)

June 26, 1937

The Nation's Health Control Bill

The home office has decided to submit to the next regular session of the imperial diet a bill providing regulations for the compulsory physical examination of the population from infancy up to 40 years of age The principal object is to gather data on national health conditions Measures, based on this, to expand the state health provisions will be devised The home office and the war office are expected to go hand in hand in the way of the national health promotion campaign that was recently started This bill is reported to be a first preparatory step toward completion of the army's national mobilization scheme According to the draft plan, infants four months after birth will be ordered by the state to undergo a health examination at the city, town or village office and enrolled on the national health list The primary schools will be in charge of the matter while children are attending schools The health examination will be conducted every year for those who have finished the primary school and do not reach the conscription age, and young women For the others, the examination will be carried out every three years Health cards will be prepared at the city, town or village offices, and detailed records will be kept concerning the health of every person The administration of this project will be by the ministry of health, which is expected to be newly established in the cabinet

Hundreds of New Health Centers

The chief object of the 550 health centers which are to be newly established during this fiscal year is to give instruction in preventive medicine The centers are to make the people health conscious through improvement of nutrition and the selection of wholesome food, in which the housewives are to be instructed, hygienic clothing, sanitation in dwellings, enlightened treatment of pregnant women and of infants, and the prevention of tuberculosis, venereal diseases and parasitic diseases The health centers will be established and maintained by the prefectures, the local governments, and the appointed greater municipalities They will have, if necessary, branches in the country There will be at least two medical experts one pharmacist, one clerk and three women The government will grant half of the expense to the establisher for its foundation, and one third of the annual working expenses will be granted by the government At the health center any kind of treatment is free of charge

New Gymnasiums to Commemorate the South Manchurian Railway

The thirtieth anniversary of the foundation of the South Manchurian Railway will be celebrated by establishing seven gymnasiums as a memorial, with the aid of the Manchukuo government The memorial was limited to medical work because the authorities consider that the most important business for the Manchukuo empire at present is the promotion of the health of the people there The gymnasiums will benefit the Japanese residents there as well as the Manchurian natives Special attention will be paid to equipment for use in winter

when outdoor sports and games are prohibited by the extreme cold. Another memorial of this kind is the establishment of five tuberculosis sanatoriums. There are about 20,000 tuberculosis cases among the 500,000 Japanese residents there. Four hundred beds will be newly furnished and ready for use in 1939.

Notification of Tuberculosis Cases

The revised regulations for the prevention of tuberculosis were expected to be put in force July 10. Among others, one of the most important changes is the notification to the authorities of the name, address, age and the diagnosis. By "the authorities" is meant the chief of the local government under whose control the doctor is. If the doctor fails to give notice to the authorities he will not be punished, for no penal law is announced, all being left to the conscientiousness of the doctors. A good result, however, is expected on all sides.

BELGIUM

(From Our Regular Correspondent)

July 22, 1937

A National School of Aerial Protection

Since Belgium is in an exposed and crucial position with respect to any general European conflict, it is necessary to pay the utmost attention to the problem of defense against aerial attack. The government has accordingly just initiated a complete innovation: the foundation at Brussels of the *Ecole Supérieure pour la Protection Aérienne*—the first institution of the kind. Previously activities in this sphere had, generally speaking, depended on mutual agreements between various well intentioned officials and there was a marked lack of scientific discipline and administrative coordination.

Prof. Lucien Dautrebande, who conceived the idea of this school, had in mind the abolishment of these administrative difficulties. In the dedicatory address delivered at the war college he enunciated three principal national objectives with respect to aerial protection. These were (1) unity of purpose, (2) improved coordination of efforts and (3) consolidation of progress achieved. The new school will be essentially a scientific institution. Not only will it seek to profit by the experiences of the World War but it will in addition keep constantly abreast of the latest relevant innovations in the fields of chemistry, physics, physiology and therapeutics. The school plans to organize a central library in which a collection of international material will be housed. The creation of practical research laboratories is also contemplated. The curriculum will include courses in (1) international law, (2) general and specific chemistry of war gases, (3) general and specific pathology of war gases, (4) therapeutic measures employed in gas casualties, (5) identification and dosage, (6) principles of individual and group protection and (7) organization of general protective measures. Students are selected from among physicians, pharmacologists, chemists and engineers. Graduates will serve as expert advisers in various centers throughout the country. The ministry of the interior hopes in this way to build up a substantial scientific defense armament for Belgium and this in turn will tend to make all classes of society conscious of the importance of protection against aerial attack.

The Diagnosis of Intoxication

Dr. Leduc, in the *Société de Médecine légale en Belgique*, discussed measures undertaken for evaluation of the state of intoxication by the amount of alcohol consumed. The importance of eliminating inebriates from services which involve the safety of the public and of fellow employees has led the medical department of the National Railway Association to undertake systematic detection of the existence of alcoholism among railway employees.

The immediate superior of an employee suspected of drunkenness must call in a physician to examine the suspect or send

the latter to the dispensary. The boss will first of all have the employee write down a simple dictated text as a test of motor coordination. The medical examination consists of simple tests and observations: writing, orientation in time and space, efficiency, equilibrium, pulse and respiration and finally blood and urine examination by means of Nicloux's bichromate method. The physician should keep in mind that either evaporation or fermentation of the urine is a possible source of errors which require correction. Above all, the evaluation of a state of alcoholic intoxication is arrived at on the basis of the clinical picture.

As a general rule, clinical ebriety exists in those cases in which 15 per thousand parts of alcohol has been found to be present in the blood. The author cites numerous examples which illustrate the paramount diagnostic importance of the clinical picture.

Museum of Dermatosyphilographic Models

A museum of models has been opened in connection with the dermatologic and syphilographic clinic of Professor Dujardin. In the presence of a distinguished audience, Professor Ley congratulated Dr. Deleeuw on his admirable execution of some 500 splendid models which he has so generously contributed to the university. Deleeuw's work, said Ley, reflects remarkable artistic talent and rare powers of observation. The speaker further recalled that Deleeuw's first surgical collection of 400 models executed between 1904 and 1910 was destroyed by fire at the time of the Brussels exposition of 1910. He then made an apt allusion to the importance of the new collection, assembled since 1924, for the study of pathologic anatomy, dermatosyphilography and cancerology. He also praised the fine drawings and photographs with which Professor Dustin and his laboratory staff have enriched the Deleeuw collection.

Professional Disability of Radiologists

The National Antituberculosis Foundation points out that, although nurses and the lay personnel of hospitals and sanatoriums are eligible for disability benefits, the law does not provide similar insurance for the physician. The executive committee of the foundation suggests that the *Fédération Médicale Belge* propose to the minister of labor and public welfare the grant of regular disability compensation to radiologists who become incapacitated through the exercise of professional functions. The committee has agreed that, if proper contracts exist, the same obligations with regard to disability insurance which an employer assumes toward the lay personnel can be made applicable to a physician.

Marriages

HENRY BUNTING, Madison, Wis., to Miss Mary A. Ingraham of Brooklyn, in Northport, L. I., N. Y., June 22.

MORGAN SARGENT, Quincy, Mass., to Miss Margaret Louise Crane of Stamford, Conn., June 23.

CHARLES H. LAMON to Miss Jean Elinor Mains, both of New Kensington, Pa., July 31.

MAURICE L. LE BAUER to Miss Carolyn Weill, both of Greensboro, N. C., June 19.

HENRY DOWS STEBBINS, Boston, to Miss Rebecca Rhodes of Brookline, Mass., June 26.

JESSE A. RUST JR. to Miss Janet Hazen Dodds, both of Burlington, Vt., July 10.

CARL S. LYLE, Dunnellon, Fla., to Miss Carolyn Endsley of Brooksville, May 30.

NORMAN VAN WEZEL to Miss Hannah P. Wainman, both of Cleveland, July 11.

JOHN ELMER LEWIS to Miss Josephine Carter Barney, both of New York, June 5.

JARRETT WILLIAM PALMER to Miss Marie Peterson, both of Ailey, Ga., June 22.

Deaths

Minor McDaniels ♂ Ithaca, N Y, University of Buffalo School of Medicine, 1904, formerly member of the state legislature, consultant in medicine on the staff of the Tompkins County Memorial Hospital, member of the Tompkins County Alcoholic Control Board and of the Tompkins County Welfare Board, vice president of the board of managers of the Tompkins County Laboratory and a member of the board for nine years, served during the World War, aged 65, died, June 4, of cerebral thrombosis and arteriosclerosis

Munford Smith ♂ Los Angeles, University of Maryland School of Medicine, Baltimore, 1919, past president of the American Sanatorium Association, a director of the National Tuberculosis Association, fellow of the American College of Physicians, medical director of the Barlow Sanatorium, on the staffs of the Los Angeles General Hospital and the Hospital of the Good Samaritan, aged 45, died, June 28, of cerebral thrombosis, on board the *M S Canada* en route to Panama and England

Mitchell P Warmuth ♂ Philadelphia, Medico-Chirurgical College of Philadelphia, 1894, at one time lecturer of surgery and demonstrator of operative surgery at his alma mater, aged 66, for many years on the staffs of the Eastern State Penitentiary, Philadelphia General Hospital, Friends Hospital and the National Stomach Hospital, where he died, June 15, of chronic myocarditis

Charles Dexter Ball ♂ Santa Ana, Calif, University of Bishop College Faculty of Medicine, Montreal, Que, Canada, 1884, past president and secretary of the Orange County Medical Society, for many years president of the library board and the city board of education, formerly county physician and health officer, at one time member of the state legislature, aged 77, died, June 16

Freas Benjamin Kleintob, Wyoming, Pa, Jefferson Medical College of Philadelphia, 1916, member of the Medical Society of the State of Pennsylvania member of the school board, aged 51, on the staff of the Pittston (Pa.) Hospital, where he died, June 6, of an infection of the jaw and pulmonary embolism following the extraction of teeth

Hazley Thomas Groody ♂ Manhattan, Kan, Chicago College of Medicine and Surgery, 1913, past president and secretary of the Riley County Medical Society, for many years assistant student health physician to the Kansas State Agricultural College, aged 53, died, June 2, in St Luke's Hospital, Kansas City, Mo, of heart disease

Forbes Robert McCreery ♂ New York, College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1888, an Affiliate Fellow of the American Medical Association, aged 72, died, June 29, in Cornwall, Conn, of arteriosclerosis, cerebral hemorrhage, pneumonia and diabetes mellitus

Jacob Fowler Avery ♂ Minneapolis University of Minnesota College of Medicine and Surgery Minneapolis, 1899, fellow of the American College of Physicians, served during the World War, on the staffs of the Northwestern and Abbot hospitals, aged 64, died, June 25, at La Jolla, Calif, of heart disease

John Francis Bigony, Hinton W Va, National Normal University College of Medicine Lebanon Ohio, 1892, member of the West Virginia State Medical Association, for many years member of the school board, formerly city and county health officer, aged 68, died, June 12, of coronary thrombosis

George Edward Reynolds, Providence, R I, Georgetown University School of Medicine, Washington, D C 1906 member of the city school board served during the World War, on the staff of St Joseph's Hospital, aged 55, died suddenly, June 6, probably of coronary thrombosis and angina pectoris

Ernest Guthrie Mark ♂ Kansas City Mo University of Louisville (Ky) Medical Department, 1899 member of the American Urological Association fellow of the American College of Surgeons on the staff of the Research Hospital, aged 59, was found dead, June 7 of potassium cyanide poisoning

Joseph Michael Scanlon, Lawrence Mass, Tufts College Medical School, Boston, 1914 member of the Massachusetts Medical Society, served during the World War, on the staffs of the Massachusetts Eye and Ear Infirmary and the Boston City Hospital, aged 50 died June 14 of pneumonia

Henry Lincoln McClusky, Worcester, Mass, Jefferson Medical College of Philadelphia 1896 member of the Massachusetts Medical Society, at one time physician for the county

jail, formerly on the staff of the Hahnemann Hospital, aged 69, died, June 2, of cardiorenal degeneration

Erastus Hardy Tubb, Cordova Ala, Medical Department of Grant University, Chattanooga, Tenn, 1903, member of the Medical Association of the State of Alabama, aged 56, died in June at a hospital in Jasper of gangrenous cholecystitis and stone in the common duct

Henry Arthur Greenebaum ♂ Chicago, Rush Medical College, Chicago, 1929 assistant in medicine, University of Illinois College of Medicine, associate attending physician to the Cook County Hospital, aged 34, died, June 24, of meningitis and pyelonephritis

D Watson Grear ♂ Anna, Ill, Missouri Medical College, St Louis, 1890, formerly coroner of Union County, for many years on the staff of the Southeastern Hospital for the Insane, North Madison, Ind, aged 74, died, June 5, of angina pectoris and chronic myocarditis

Louis William Schwindt ♂ Philadelphia, Medico Chirurgical College of Philadelphia 1911, for many years police surgeon, aged 51, on the staff of the National Stomach Hospital, where he died, June 15, of brain tumor of the right frontal lobe and bronchopneumonia

Maurice D Kefauver, Smithsburg, Md, Baltimore Medical College, 1904, member of the Medical and Chirurgical Faculty of Maryland, aged 57, on the staff of the Washington County Hospital, Hagerstown, where he died, June 19, of carcinoma of the kidney

Isaac Errett Graham, Mechanicsburg, Ohio, Western Reserve University Medical Department Cleveland 1889, formerly demonstrator of anatomy at St Louis University Medical Department, aged 71, died, June 19, at the McClellan Hospital, Xenia

Winfred Lee Reid ♂ Phoenix, Ariz, Northwestern University Medical School, Chicago, 1924, associated with the Phoenix Clinic, aged 39, died in June of a skull fracture and fracture of the left clavicle and pelvis, received in an automobile accident

Green Herschel De La Perriere, Irving, Texas Kansas City College of Medicine and Surgery, Kansas City, Mo, 1919, member of the State Medical Association of Texas, aged 54, died, June 14, in Hoschton, Ga, of coronary thrombosis

Meyer Joseph Epstein, Jonesboro, Ark, Missouri Medical College, St Louis, 1877, member of the Missouri State Medical Association, aged 80, died, June 17, in Chicago of arteriosclerotic heart disease and acute pulmonary edema

Shelby Mumaugh, Lima, Ohio, Medical College of Ohio, Cincinnati, 1888, member of the Ohio State Medical Association, formerly on the staffs of the Lima Memorial and St Rita's hospitals, aged 70, died, June 3, of heart disease

Barnet Lemchen, Chicago, St Louis University School of Medicine, 1908, member of the Illinois State Medical Society, for many years connected with the Chicago State Hospital, aged 66, died, June 18, of coronary thrombosis

James R Phillips, Preston, Md, University of Maryland School of Medicine, Baltimore, 1869, formerly member of the state legislature, aged 92, died, June 18, of primary benign hypertrophy of the prostate and arteriosclerosis

John Henry Moore, Liberty Center, Iowa, Keokuk Medical College, College of Physicians and Surgeons, 1906, member of the Iowa State Medical Society, aged 66, died, June 10, in a hospital at Osceola, of cerebral hemorrhage

Eugene C Gordon, Columbus, Texas, Jefferson Medical College of Philadelphia, 1882, member of the State Medical Association of Texas, county health officer, aged 75, died, June 10, of chronic myocarditis and arteriosclerosis

George Alexander Wagner ♂ Van Horne, Iowa, University of Illinois College of Medicine, Chicago, 1913, past president of the Benton County Medical Society, aged 59, died, June 5 probably of coronary occlusion

Alonzo Burton Eckerdt ♂ Kaneohe, Hawan, College of Physicians and Surgeons, Baltimore, 1911 member of the American Psychiatric Association, medical director of the Territorial Hospital, aged 50, died, June 18

Walter A Murphey, Parkersburg Pa, University of Pennsylvania Department of Medicine, Philadelphia 1878, formerly school director and member of the board of health in Parkersburg, aged 82, died June 18

Robert Paul Jones, Norfolk Va University of Virginia Department of Medicine Charlottesville, 1900 formerly member of the city health department, aged 60, died, June 3, in the Norfolk General Hospital of uremia

Ernest Frederick Apeldorn, Philadelphia, Jefferson Medical College of Philadelphia, 1881, Hahnemann Medical College and Hospital of Philadelphia, 1904, aged 78, died, June 12, of chronic myocarditis and nephritis

Peter Jurgens Pothuysje @ Denver, Starling Medical College, Columbus, 1893, fellow of the American College of Physicians, on the staff of St Joseph's Hospital, aged 71, died, June 4, of bilateral pyelonephritis

George Fred Hart, Webster, Mass., University of Vermont College of Medicine, Burlington, 1884, member of the Massachusetts Medical Society, formerly state senator and bank president, aged 77, died, June 1

Seth Eugene Miller @ Oberlin, Ohio, Starling Medical College, Columbus, 1896, formerly coroner of Lorain County, aged 66, on the staff of the Allen Hospital, where he died, June 10, of chronic myocarditis

George Frederick Laidlaw, New York, New York Homeopathic Medical College and Hospital, 1890, aged 66, died, June 22, of carcinoma of the bladder with metastases to the lungs, pubic bones and skin

Joseph Patrick O'Reilly, Staten Island N Y, University and Bellevue Hospital Medical College, New York, 1909, on the staff of the Richmond Memorial Hospital, aged 63, died, June 6, of heart disease

William Beckwith Fuqua Jr, Radford, Va., Medical College of Virginia, Richmond, 1931, college physician at the Radford State Teachers College, aged 34, died, June 29, in the Gale Hospital, Roanoke

Lila Gertrude Schieffelin, Buffalo, Woman's Medical College of the New York Infirmary for Women and Children, New York, 1891, aged 69, died, June 6, of carcinoma of the uterus with metastases

Isaac W Young, Langston, Okla., Flint Medical College of New Orleans University, 1900, past president of the Agricultural and Normal University, at one time mayor of Boley, aged 63, died, June 8

Hugh Hodge Hill, Locust Dale, Va., University of Pennsylvania Department of Medicine, Philadelphia, 1895, member of the Medical Society of Virginia, aged 79, died, June 16, of cerebral hemorrhage

William Grant Huffman, Richmond, Ind., Western Reserve University Medical Department, Cleveland, 1896, served during the World War, city physician, aged 68, died, June 21, of chronic myocarditis

Reinhold Willman, St Joseph, Mo., Ensworth Medical College, St Joseph, 1902, member of the Missouri State Medical Association, aged 81, died, June 14, in Kansas City, of chronic myocarditis

Howard W Day @ Monessen, Pa., Northwestern University Medical School, Chicago, 1899, formerly member of the state legislature, aged 66, died, June 1, of carcinoma of the liver and intestine

Philip Francis O'Hanlon, New York, University of the City of New York Medical Department, 1886, formerly police surgeon, served during the World War, aged 74, died, June 10, of heart disease

Harvey Alexander Price @ Port Carbon, Pa., Medico-Chirurgical College of Philadelphia, 1916, aged 49, died, June 17, of a compound fracture of the base of the skull and suffocation, due to a fall

John Edward Medley @ Philadelphia, Medico-Chirurgical College of Philadelphia, 1898, served during the World War, aged 63, died, June 4, of carcinoma of the pancreas with metastasis to the liver

Frederick Carl Rawolle Jr, Greenwich, Conn., Johns Hopkins University School of Medicine, Baltimore, 1937, aged 27, was found dead, June 11, in Stamford of a self-inflicted bullet wound

Edmund Peyton Lowe, New Orleans, Tulane University of Louisiana Medical Department, New Orleans 1885, aged 77, died, June 24, of myocarditis, angina pectoris and arteriosclerosis

Frank S Furman @ Lincoln, Neb., University of Nebraska College of Medicine, Omaha 1930, on the staff of the Bryan Memorial Hospital, aged 37, died, June 6, of sepsis and pneumonia

Benjamin Edel Helprin, Brooklyn, Long Island College Hospital, Brooklyn, 1903, served during the World War, aged 57, died, June 28, in the Jewish Hospital of morphine poisoning

Charles David Rawson, Des Moines, Iowa, Medical College of Ohio, Cincinnati 1880, member of the Iowa State Medical Society, aged 85, died, June 19, of lobar pneumonia

Karl Louis De Sombre, Fond du Lac, Wis., University of the City of New York Medical Department, 1889, aged 75, died, June 28, of myocarditis, arteriosclerosis and nephritis

Plato W Robinson, Osawatomie, Kan., Ensworth Medical College, St Joseph, Mo., 1897, served during the World War, aged 60, died, June 17, at Carbondale, of heart disease

Edwin Louis McAuliffe, Woodstock, Ill., Rush Medical College, Chicago 1882, aged 80, died, June 23, in the Michael Reese Hospital, Chicago, of carcinoma of the pancreas

Frederick Edward Marscheider, New York, Bellevue Hospital Medical College, New York, 1895, aged 63, died, June 10, in St Luke's Hospital, of chronic bronchitis

Alice A Stoddard McCullough, Rochester, N Y, New York Medical College and Hospital for Women, 1878, aged 81, died, June 1, of bronchopneumonia and arteriosclerosis

George Francis Roberts, Allison Park, Pa., Western Pennsylvania Medical College, Pittsburgh, 1902, aged 60, died, June 14, of coronary occlusion

Israel L McInnis, Edmonton, Alta., Canada, Manitoba Medical College, Winnipeg, 1892, aged 77, died, June 8, of hypostatic pneumonia and heart disease

Thomas Jackson Davis, La Center, Ky., Vanderbilt University School of Medicine, Nashville, Tenn., 1894, aged 71, died, June 7, of carcinoma of the colon

Charles Dake, Hot Springs National Park, Ark., University of Tennessee Medical Department, Nashville, 1881, aged 76, died, June 12, of arteriosclerosis

John Wyatt McClain, Pelham, Ga., University of Georgia Medical Department, Augusta, 1889, aged 69, died, June 10, of arteriosclerosis and diabetes mellitus

George J Eblen, Van Wert, Ohio, Eclectic Medical Institute, Cincinnati 1880, aged 83, died, June 2, in the Van Wert County Hospital, of pneumonia

Alexander F McDonald, Wickford, R I, Medico-Chirurgical College of Philadelphia, 1898, aged 71, died, June 7, of heart disease and pneumonia

James T Elder, Farmington, Ga., Georgia College of Eclectic Medicine and Surgery, Atlanta, 1887, aged 75, died, June 7, of bronchopneumonia

Wyatt Farmer Simpson, Hot Springs National Park, Ark., University of Arkansas School of Medicine, Little Rock, 1913, aged 54, died May 28

Frank B Craddock, Sheridan, Wyo., Barnes Medical College, St Louis, 1903, aged 76, died, June 5, in the Sheridan County Memorial Hospital

Frank Ageton Remde, Bottineau, N D, Rush Medical College Chicago 1933, aged 36, was shot and killed, June 17, by an intoxicated patient

Charles Baxter Harwood, Houston, Texas, Rush Medical College, Chicago, 1905, aged 63, died, June 6, of carcinoma of the face with metastasis

Laurie Longley Harrison, Halifax, N S, Canada, McGill University Faculty of Medicine, Montreal, Que., 1904, aged 57, died suddenly, June 30

John Elijah Underwood, Waveland, Ark. (licensed in Arkansas in 1903), aged 72, died, June 1, in a hospital at Russellville

Robert William Dress @ Tamaqua, Pa., Jefferson Medical College of Philadelphia, 1923, aged 38, died, June 7, of coronary sclerosis

Newbern Nuckolls Brown @ Bakersfield Calif., College of Physicians and Surgeons, Los Angeles, 1905, aged 54, died, May 30

John C Graham, Trinity, Ky., Kentucky School of Medicine, Louisville 1897, aged 69, died, June 2, of cerebral hemorrhage

George W Mayfield, Bruceville, Ind., Kentucky School of Medicine, Louisville, 1892, aged 79, died, June 15, of senility

John Jonas Kerr, Baltimore, Maryland Medical College, Baltimore, 1905, aged 55, died, June 9, of coronary thrombosis

James Atkin Sewell, Rockwood Tenn., College of Physicians and Surgeons, Baltimore 1879, aged 88, died, June 5

Alonzo Martin, Bellmore Ind., College of Physicians and Surgeons, Keokuk, Iowa 1878, aged 85, died June 14

William Clifford De Forest, Clarksburg W Va., Baltimore Medical College, 1896, aged 71, died, June 13

Ewing W Miracle, Loyall, Ky., Hospital College of Medicine, Louisville, 1898, aged 64, died, June 19

John B Huff, Taylorsville, Miss. (licensed in Mississippi in 1889), aged 71, died in June

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS BUT THESE WILL BE OMITTED ON REQUEST.

OXIDATION AND TOXIC EFFECTS OF ALCOHOL

To the Editor—1 A pamphlet issued by the National Distillers Products Corporation New York says that from 90 to 96 per cent of the alcohol taken is oxidized in the body. Is this statement true? If not what percentage is oxidized? 2 In a lecture on alcohol which I attended the speaker stated that alcoholic beverages according to one observer have produced albuminuria. 3 If this is true what is it due to and what change does this substance undergo on aging?

MD Massachusetts

ANSWER—1 The statement concerning the amount of alcohol oxidized is correctly quoted from Atwater and Benedict (*Nat Acad Sci* 8 231, 1902). However Voeltz and Baudrevel claim that as much as 12 per cent of the ingested alcohol may escape oxidation if the amount taken is large, for example 3 cc per kilogram of body weight (*Emerson Alcohol and Man* p 8).

2 Alcohol itself does not produce albuminuria although this condition is commonly found during the acidosis of delirium tremens.

3 Almost any foreign substance may gain entrance into alcoholic beverages, producing deleterious effects. Also raw distilled liquors usually contain small amounts of aldehydes such as formaldehyde, acetaldehyde, butyl aldehyde and amyl aldehyde which by proper aging are oxidized to their corresponding acids. These acids combine with alcohol to produce esters which are relatively nonirritating and nontoxic. The aldehydes in raw liquors are probably responsible for some gastrointestinal irritation but there is no evidence of kidney damage (*Emerson Alcohol and Man*, pp 211 and 221).

TOXICITY OF MATERIALS USED IN LINING BEER CANS

To the Editor—I have a patient working for the American Can Company engaged in handling chemical preparations used in lining the beer cans. He is suffering from a marked degree of secondary anemia apparently a toxic type. The preparations used are known as LAC V21B and Methyl Ethyl Kuprin (MEK) solvents each having pronounced ethereal odors. I would appreciate knowing whether any industrial hazard exists and what measures are advised as a safeguard for health. Reference to articles or experts acquainted with the subject will be appreciated.

MD California

ANSWER—In the lacquer and solvent trade MEK commonly refers to methyl-ethyl-ketone and not to methyl-ethyl-kuprin. The latter is not known as a chemical term but may constitute a particular trade name. The toxicity of methyl-ethyl-ketone is kindred in nature and extent to that of dimethyl ketone, commonly known as acetone. From animal experiments it is concluded that acetone possesses acute narcotic action stronger than chloroform. The Bureau of Mines has reported experiments in which death took place when the concentration of acetone in the air reached 110 mg per liter. Other workers such as Flury and Zernik have exposed animals to much higher concentrations without fatal outcome and apparently with increasing tolerance. Recently a group of Russian investigators (*J Indust Hyg* 18 117 [Feb] 1936) reported that acetone is more toxic than methyl alcohol under certain specific conditions. However, it is to be doubted that either acetone or methyl-ethyl ketone is correspondingly as toxic for man. Acetone being a marked solvent for fats may lead to a dermatitis from defatting but as a general rule acetone is rather freely used in various industries without unusual precautionary measures and without known cases of intoxication. However MEK is probably somewhat more toxic than acetone. Commercial products possibly may contain impurities of a character to complicate intoxication possibilities.

LAC V21B is believed to be a vinylidene synthetic resin solution prepared for the American Can Company by Stoner and Mudge of Pittsburgh. The exact nature of the material as applied to beer cans is not known. The statements now following are somewhat speculative but may serve to indicate the order of toxicity. Vinyl resins chemically are polymers derived from vinyl acetate which in turn may be derived from acetylene. These resins are likely to be primarily dissolved in substances represented by the following possibilities: hexone (2 methyl 4 pentanone), cellosolve acetate, carbital acetate, N-butyl acetate, methyl cellosolve acetate, methyl acetate, ethyl acetoacetic ester,

also methyl, 2-ethyl hexyl acetate, butyraldehyde and numerous other compounds. After solution of the resin further thinning may be accomplished through the use of a wide range of diluents, including benzene, toluene, xylene, solvent naphtha, ketones, acetates and other esters, special petroleum fractions, hydrogenated naphthas and many others. Since the solvents and thinners used conceivably may vary from time to time under conditions of special needs, it is impossible precisely to appraise the extent of health hazard. In general, it may be recognized that some degree of hazard obtains, as the vapors of no solvents are entirely innocuous. In the absence of very harmful agents such as benzene, toluene, xylene, solvent naphtha, butyl alcohol, methyl alcohol and chlorinated solvents the general order of toxicity is low and apparently may be exemplified by the toxicity of ethylene glycol, which is believed to be limited to minor respiratory tract irritation, irritation of nasal passages and eyes as commonly applied. Reference should be made to the article cited and to Hamilton's 'Industrial Toxicology,' published by Harper & Brothers in 1934. It is believed that the Division of Industrial Hygiene of the United States Public Health Service or the Bureau of Mines may best be in position to supply additional information. A somewhat pertinent article entitled 'Response of Guinea-Pigs to Vinyl Chloride Gas' by F A Patty, W P Yant and C P Waite appeared in *Public Health Reports* (45 1963 [Aug 22] 1930).

PERIOD OF POTENCY IN MAN

To the Editor—What information can you impart concerning cases coming to the attention of the family physician wherein domestic felicity is beginning to be upset by men between the ages of 50 and 70 unable to perform the sex act to the satisfaction of their wives? These men apparently have considerable prostatic involvement but not sufficient to warrant surgical procedures. Can it be truthfully stated in the office to a wife making this complaint regarding impotence on the part of her husband that married life should have been fairly well carried out in this respect if a good sized family presents itself as evidence of a family duty being carried out faithfully and sufficiently for all reasonable demands? Are we to uphold the ideas that a husband to be really in love with his wife must during his entire life be a potent cave man? Please omit name and place.

MD Maine

ANSWER—The fact that a man has been able to impregnate his wife several times during their married life is absolutely no indication that his married life has been fairly carried out. It is a common experience that men who are suffering from rapid ejaculation, that is, that as soon as the penis has entered the vagina, ejaculation takes place are repeatedly impregnating their wives without the latter experiencing any orgasm or deriving any sexual pleasure at all from the coital act. These women are in a worse situation than single girls, because they are sexually excited and are left in an ungratified sexual condition which at times reacts severely on the nervous system.

While it is not necessary for a husband to be a cave man, a normal man ought to be able to indulge in coitus satisfactory to his wife and himself, beyond the age of 50. If not, his prostatic condition (as well as other functions) should be investigated, and if as is generally the case, a marked congestion of the prostate and prostatic urethra is found this should be treated not by operation but by gentle prostatic massage and instillations of weak silver nitrate solutions into the prostatic urethra. Of course there are other pathologic conditions leading to impotence in the male which should be diagnosed and properly treated.

OPERATIONS FOR BUNIONS

To the Editor—Is the operation on the foot for removal of an enlarged joint ever successful? What are the chances of getting a stiff joint and what are its dangers?

WARREN W ALGER MD Detroit

ANSWER—It is inferred that the inquiry refers to enlargement of the metatarsophalangeal joint of the great toe, usually called a bunion. However, hallux valgus may exist without a bunion. A bunion is merely a painful and inflamed bursa while hallux valgus is a valgus deformity of the joint and often exists without any pain. There are a number of different but quite successful and useful operations for bunions and none of them should leave a stiff joint.

Each type of operation has its definite place depending on the size of the enlarged joint and to a certain extent on the type of foot. For the more severe cases the Mayo operation consisting of excision of the head of the first metatarsal and turning in the bursal sac as a flap to make a new joint is satisfactory. The foot with a long first metatarsal and great toe is better suited for the Mayo operation than is the short broad foot with a short first metatarsal and short great toe. For the less severe cases other operations are advisable such as the Lapidus operation in which the inner side of the first

metatarsal is exposed and the projecting portion of the enlarged head is excised and the base of the metatarsal is fused to the cuneiform and the second metatarsal, thus preventing spreading of the first metatarsal inward and away from the second.

There are other operations in which the enlargement and marginal overgrowths about the inner side of the head are excised. In the McBride operation the adductor tendon insertion is transplanted from the base of the first phalanx of the great toe to the outer side of the head of the metatarsal bone, the action of the transplanted adductor muscle bringing the first metatarsal toward the second and thus preventing the spread between these two bones. When this spread exists the two sesamoid bones in the flexor tendons slip over into this interspace and at each step tend to increase the distance between the metatarsals.

In mild enlargements the wearing of shoes that will cause no pressure on the head of the first metatarsal often will give relief and prevent the development of a bunion. Hallux valgus need cause no discomfort even though quite a marked deformity is present. It is the wearing of shoes that causes the trouble. The rubbing of the foot against the shoe causes a bursa to develop over the head of the first metatarsal and as it becomes enlarged, thickened and inflamed the bunion is the result. If it were possible for people to go without shoes no such bursa would be produced and the hallux valgus would be of importance only because of its unsightliness.

HOUSE DUST ASTHMA AND ABDOMINAL DISTENTION

To the Editor—A woman aged 53 has had asthma for eight years. At the onset a sensitivity to house dust was noted. An antigen prepared from house dust appeared to aggravate the symptoms and was stopped. The early relief from epinephrine was replaced by reactions to it and ephedrine although giving some relief was also unpleasant. Five or six years ago she was given one-fourth grain (0.016 Gm.) of morphine sulfate and $\frac{1}{160}$ grain (0.4 mg.) of atropine sulfate for the attacks. They are now so frequent that she may take as many as four or five such tablets hypodermically daily. For the past year her abdomen has progressively enlarged. She is extremely nervous and cannot sit quiet for more than a few seconds. Her memory is impaired. Her weight is 95 pounds (43 Kg.) which is 30 pounds (13.6 Kg.) underweight. The pupils are dilated and equal but do not react to light or in accommodation. The lungs are at times full of wheezes and rales and at other times clear. The heart is in good condition. There is a postoperative hernia in the right lower quadrant at the site of an appendectomy scar. The superficial abdominal veins are dilated. There is marked tympany. A fluid wave can at times be found. Peristalsis has been noticed once. Borborygmus is marked. Her appetite is poor but the bowels are regular and described as watery and dark. There is occasional vomiting with relief. An x-ray plate of the abdomen showed generalized distention. A barium sulfate enema could not be carried out. Is this a case of chronic atropine poisoning causing a generalized ileus? The patient is receiving 1 cc. ampules of prostigmin twice daily. Can relief be expected? The atropine has been discontinued. Will morphine alone for the attacks help? What treatment might be given to relieve this chronic distention?

MD New York

ANSWER—If the aggravation of symptoms was actually due to injections of house dust, this must be considered an important factor in the condition. Under such circumstances proper elimination of house dust by covering the mattress and pillows with rubberized covers and eliminating completely overstuffed furniture from the room should be of benefit. In addition house dust injections should be of help if used in doses below those producing aggravation of symptoms. It is generally true that an antigen which can aggravate symptoms can produce relief if properly used in the right dosage. Since the patient was studied from an allergic point of view eight years ago it is advisable to restudy her if she can be relieved for a sufficient time so that no drugs are necessary. Many drugs will interfere with the skin reactions. In addition, however it is necessary to study the patient's general medical condition. The possibility of a gastro-intestinal malignant condition or of cirrhosis of the liver is suggested. Complete gastro-intestinal x-ray and stool examinations should be made. A more specific diagnosis of the cause of the abdominal distention is necessary before any effective treatment can be given for the condition.

It is not likely that either the atropine or the morphine used is responsible for the abdominal distention described as no note is made of other symptoms of atropine poisoning (tachycardia, marked drying up of the secretions). The use of morphine to relieve asthma is contraindicated for two reasons. First, there is a real danger of death from the use of morphine in asthma because of the depression of the respiratory center. When morphine is combined with atropine, this danger is greatly increased because of its synergistic action and the drying of the bronchial secretions, making them more tenacious and therefore more difficult to bring up. The other danger from the use of morphine in a chronic condition such as asthma is that

of addiction. The most important factor in giving relief in a case of this type is several nights of sufficient sleep. Chloral hydrate is frequently effective. After such rest is obtained, epinephrine solution subcutaneously used frequently (every two hours if necessary) in the minimum dose to produce relief will often work even in the face of previous failure.

CARDIAC ARRHYTHMIA AND INSURANCE

To the Editor—A man aged 29 was recently rejected for life insurance because of a cardiac arrhythmia. His past history is negative for all infectious diseases and symptoms of myocardial disease. Physical examination does not reveal evident foci of infection. There is no cardiac enlargement or murmurs. The pulse rate averages eighty beats per minute with about twenty-two premature contractions which always disappear with exercise only to return on rest. The blood pressure is 118 systolic 80 diastolic. Fluoroscopic examination of the chest is negative. An electrocardiogram reveals no structural disease and no other abnormalities except the ectopic beats. The Wassermann reaction is negative. Since he is entirely symptomless (except for the anxiety resulting from his rejection for insurance) is any treatment indicated and if so what? Is smoking contraindicated despite the fact that complete abstinence for months did not alter this condition? Would the condition have any bearing on his longevity? Would he be considered a bad risk if insured?

MD New Jersey

ANSWER—No treatment whatever is indicated in this case. With the examination as negative as it is, there is no reason for assuming an organic basis for the premature ventricular contractions. If absence from smoking for several months did not alter the condition, there is no reason for giving up smoking except that equally there is no reason for smoking. The premature ventricular contractions of themselves would not have any bearing on the longevity of the patient. It has been shown that the minute volume in these cases is not decreased, and if there are no organic changes responsible for the premature ventricular contractions there is no reason why he should not be considered a good life insurance risk.

DIABETES

To the Editor—Please give me a definition of diabetes mellitus. How many grams of dextrose in the form of a balanced diet must a patient successfully metabolize in twenty-four hours to be considered nondiabetic?

MD Louisiana

ANSWER—In a recent monograph on diabetes (Joslin, E. P. *The Treatment of Diabetes Mellitus*, Philadelphia: Lea & Febiger, 1935) the disease is defined as follows: "Diabetes is an hereditary disease, characterized by an increase of sugar in the blood and the excretion of sugar in the urine, it is dependent upon disease of the pancreas, particularly of its islands of Langerhans, which are functionally interrelated with other endocrine glands and the liver, the secretion of the islands of Langerhans, insulin, not only promotes the normal accumulation of glycogen in the liver, muscles and skin, and the combustion of glucose in the tissues, but also exerts a control upon the metabolism of protein and fat."

No exact number of grams of dextrose even with a balanced diet could be given to prove a patient nondiabetic. Too many other factors enter into the problem. The following statement, taken from page 249 of the last edition of the same monograph might furnish the information desired.

Test for Recovery—Glycosuria and hyperglycemia shall be absent, while the patient is without diabetic medication both before and an hour after a meal. This meal must contain at least two-fifths of the carbohydrate for the day. The carbohydrate for the twenty-four hours shall comprise at least two-thirds of the calories necessary to provide 30 calories per kilogram body weight. Better still, the carbohydrate tolerance shall be unimpaired as judged by a normal glycemic curve following the oral administration of 50 to 100 grams of glucose to the patient in the postabsorptive state.

Establishment of Recovery—A proved case of one or more months duration, which conforms to the test for recovery at the beginning and end of an interval of five or more years shall be considered cured."

As an introduction to the foregoing statements occurs this paragraph:

Curability of Diabetes and Criteria for Cures—It is yet too early to state that recovery from diabetes takes place. Just as a time limit is set before one speaks of recovery from cancer, so it should be in diabetes. But the problem in diabetes is not so easy as in cancer. A cure from cancer dates from the day of operation in a diabetic's story no such definite date is available. Quite arbitrarily, therefore the writer proposes the following standards to which cures from diabetes should conform and by which they should be classified:

URTICARIA AND PYURIA

To the Editor—A man aged 58 has had chronic urticaria for the past five years. Shortly before the hives made their appearance pus was found in his urine. This condition has persisted along with the hives. At times he has had chills and fever when urinary dyes such as pyridium (phenylazo-2,6-diaminopyridine monohydrochloride) were administered. The patient is a dynamic high pressure type of individual. Many urticarial lesions are present at all times in their various stages. His teeth reveal a moderate degree of pyorrhea; the tonsils have been removed and a general physical examination was otherwise essentially negative. The laboratory studies included blood count, the routine serologic test for syphilis and x-ray examinations of the chest and gallbladder, all of which revealed nothing of importance. A test meal revealed normal gastric acidity. Skin tests for hypersensitivity to foreign proteins were all negative. Urinalysis revealed the presence of pus from 200 to 300 cells per low power field in all examinations. The prostate is not enlarged but the smears also revealed the presence of pus. I have felt that the nervous element and the pyuria are the important factors in the production of the patient's urticaria. All the urinary antiseptics have been tried in an attempt to clear the genito-urinary tract. Elimination diets have been tried. The patient has received all the known forms of therapy and each time the result has been disappointing. I should like to have your comments on this case. Do you feel that a cystoscopic examination is indicated?

M D New Mexico

ANSWER—With regard to the appearance of such large quantities of pus in the urine of this patient a complete urologic investigation should be instituted. First of all an excretory urogram should be made and then a cystoscopic examination with catheterization of both ureters. The specimens from the kidneys as well as the one from the bladder should be stained for the ordinary infecting organisms and also for acid-fast organisms.

With regard to the urticaria and its relationship to the pus in the urine it is difficult to state whether or not there is any connection between the two conditions. There is a form of urticaria which is on an infectious basis, but this is an extremely rare condition.

MICROCEPHALY

To the Editor—I delivered a baby Dec 31 1935 with microcephaly. The fontanel closed soon after birth and the baby appears perfectly normal otherwise. She was the second child and was delivered as a vertex presentation without forceps. Both parents have negative Wassermann reactions, and there is no history of any importance in their families. The baby has been examined by two child specialists who advised that nothing can be done and that it is not an extreme case. To satisfy the parents I am writing for any possible suggestion that may be of benefit.

A P GUTTMAN M D Winnipeg Manito

ANSWER—In microcephalic infants it is usual for the fontanels and the sutures to be closed at birth or shortly thereafter. In these cases there is usually arrested development of the brain or it may be imperfectly formed in portions or degenerated. A condition of microgyria (abnormal smallness of the convolutions of the brain) is frequently observed. The mental power of these infants is defective; muscular rigidity is sometimes present, and convulsions may occur.

When the microcephalus is of only slight degree, spasticity does not occur and some mental development may take place. It is obvious that a patient with a small cranium containing a small brain with retarded growth is not amenable to treatment. Craniotomy has been tried though without benefit.

SHOULDER INJURY

To the Editor—Two months ago a man aged 53 was struck on the shoulder by a heavy bag. A subglenoid dislocation took place without fracture but the circumflex nerve was injured. The dislocation was replaced easily but there is no sign of nerve regeneration as yet. There is an area of numbness over the deltoid some muscle wasting and an inability to extend the arm from the body. What treatment would you advise and what is the prognosis? Please omit name.

M D Wisconsin

ANSWER—Before answering the question satisfactorily it would be necessary to determine the degree of fixation from pericapsular adhesions that now are present in the shoulder. A severe injury to the shoulder of a person more than 40 years of age commonly leads to a rather marked degree of limitation of humeral scapular motion. If such limitation of motion is present the adhesions should be broken up by manipulation under complete anesthesia. After this manipulation or if there is no limitation of motion this arm should be placed in the strap-hanger position (90 degrees abduction and 180 degrees external rotation) by means of a splint. This position relaxes tension on the nerves and the muscles which are necessary for abduction, external rotation and extension of the arm from the body.

The splint should be worn for at least six weeks but should be removed for an hour each day during which time heat and

massage may be employed and the arm gently moved through as much of a range of motion as is possible without occasioning severe pain.

Unless the clinical examination indicates a rupture or avulsion of the tendon of the supraspinatus muscle, open operation is not indicated. Better results and a greater degree of recovery following a crushing injury or partial avulsion of the nerves that supply the shoulder muscles will be obtained if the more conservative program is adhered to. Prognosis for a useful shoulder after three or four months may be considered a reasonable expectation.

WEIGHT REDUCTION

To the Editor—A man aged 42 whose height is 67 inches (170 cm) and weight 210 pounds (95 kg) reports that he must of necessity reduce his body weight to 172 pounds (78 kg) by July 1 in order to meet the physical requirements of the position he now holds. He has always enjoyed the best of health, his weight has remained around 200 pounds (91 kg) continuously for the past twenty years and his appetite is moderate. His position necessitates a moderate amount of physical exercise. Physical examination is negative; the blood sugar and basal metabolic rate are normal and the blood pressure is 122 systolic/80 diastolic. He does not present the picture of obesity but rather one of a well proportioned stocky muscular individual. Please comment on any possible dangers in the contemplated reduction in body weight and any medication that may be used to supplement diet and exercise.

M D Maryland

ANSWER—Authorities in nutrition and life insurance companies have taken the position that the best approach to an estimate of the ideal weight of the body is to permit a 10 per cent deviation from the weights given for height and age in the actuarial tables. In stocky persons the weight is considered satisfactory if it is 10 per cent over the figure in the actuarial tables.

In the case cited, the man being a "well proportioned stocky, muscular individual," 170 pounds (77 kg) might be considered as the ideal weight. Therefore it would be unwise for this person to reduce more than to 170 pounds but it should not be dangerous to effect this degree of reduction.

The treatment of obesity is ineffective unless the calories of the intake are lowered significantly below the requirement for the twenty-four hour metabolism. The rate of reduction will depend on how small the intake of calories is. Recently it has become the practice of many physicians to supplement low calorie diets with a vitamin concentrate and calcium phosphate. Detailed directions for such a procedure are given by Russell M. Wilder (*The Treatment of Obesity, Internat Clin* 4:1 [Dec] 1933).

PREMENSTRUAL ASTHMA

To the Editor—A patient is suffering from asthma. She is sensitive to many foods and to timothy. Her worse attacks and those most intractable to treatment however are present during the week preceding the menses. At this time the asthma increases in severity reaching a maximum on the day preceding or the first day of the catamenia. There have been two pregnancies. The first terminated in the birth of a son about nine years ago and was accompanied by complete relief from asthmatic attacks which returned within two weeks from the time the patient left the hospital in other words at the first postpartum menses. A second pregnancy during the past summer which terminated at the fourth month showed a similar state of affairs while it endured. What prospect of cure of these attacks (premenstrual) is held out by x-ray sterilization and what clinical background is there for such treatment?

M D Connecticut

ANSWER—Unfortunately, we know of no statistical inquiry on a sufficiently large number of patients to supply us with a good answer to the question. The problem is similar to that in cases of severe migraine especially when it comes premenstrually and disappears during pregnancy. From an unpublished investigation of a fairly large series of cases of this type of migraine it appeared that an artificial menopause brought relief to about a third of the patients. The impression was that relief was obtained more often by the older women who were about due for a menopause anyway.

Some physicians who have experimented with the induction of the menopause in patients with premenstrual asthma have not been encouraged by the results and unfortunately, in a number of the cases the condition was worse. In deciding what to do one must take into account at least two things: one the present age of the patient, and the other her nervous and psychic status. Asthmatic patients are commonly unstable and unstable women often have a stormy menopause. A stormy menopause is more likely to make asthma worse than to cure it.

Doubtless efforts have been made to give this woman relief by administration of an estrogenic preparation. Occasional patients have been helped in this way. An effort might be

made also to raise the nervous threshold before the menstrual period by prescribing rest and perhaps a little phenobarbital.

Probably in these cases three factors unite to produce the asthmatic attack: one perhaps a dust or other allergen, another, an increased irritability of the nervous system and third, perhaps some toxic internal secretion. One is reminded of the cases of asthma in which in the fall certain pollens plus some food such as wheat will unite to produce the bronchial spasm. At that time the removal of wheat from the diet will bring relief. At other times of the year, when pollen is absent, wheat can be eaten with impunity.

LOSS OF HEARING AFTER ELECTRIC SHOCK

To the Editor—A patient received a minor shock by coming in contact with an electric wire. There was no loss of consciousness. He claimed no injury except complete deafness of the left ear beginning immediately after the shock was sustained. Deafness of the right ear had been present long before as a result of chronic purulent otitis media. Examination of the left ear on the day following the injury revealed complete conduction deafness for Hartmann's tuning forks but all the forks were heard by bone conduction. The left ear drum was normal and there were no signs of labyrinthine involvement. The left eustachian tube was normal. There was no history of previous trouble with the left ear. The condition has remained unchanged during the past several months. Is it likely that the electric shock caused this condition?

M D West Virginia

ANSWER—It is possible that an electric shock of great intensity might involve the auditory nerve. Judging from the history in this case, in that there was "no loss of consciousness" and "merely a minor shock," it is difficult to make a definite statement. The fact also that there were no signs of labyrinthine involvement, and that bone conduction is still preserved, would incline one somewhat to the conclusion that no serious injury was sustained. It is possible, of course, that the bone conduction is perceived by way of the right ear, which has had a chronic purulent otitis media.

PIRETHRUM OINTMENT IN SCABIES

To the Editor—I am advised that pyrethrum ointment is effective in the treatment of scabies. Will you comment on the suggested use of the widely used fly and insect spray fluids said to consist of a light petroleum oil impregnated with pyrethrum extract in the treatment of scabies? Is there any danger in its use? It would seem to be readily available, inexpensive and an acceptable means of treating this often embarrassing infestation.

H S BUCKINGHAM, M D Berwick, Pa

ANSWER—Pyrethrum ointment, which is usually prepared by dissolving from 25 to 30 per cent of pyrethrum extract in liquid petrolatum and then incorporating this in an inert ointment base, has been used in the treatment of scabies. It is stated that the physician may encounter a sensitivity to pyrethrum in "no more than one case in six hundred."

The widely used fly and insect spray liquids usually consist of ground flowers from which the pyrethrum is extracted with a petroleum distillate. "To this distillate extract are added 'camphor-sassafrassy,' methyl salicylate and traces of other compounds, the result being a powerful insecticide, the strength of which is standardized by testing on insects. A similar extract of pyrethrum flowers made with a heavier petroleum distillate and di-ethyl phthalate is made to use as a cattle spray to repel flies" (Skin Hazards in American Industry, Pub Health Bull 215, Washington, D C, p 52).

Cases of dermatitis have been reported from contact with these insecticides. The sensitivity in some of the cases tested was to the Japanese insect flower from which the pyrethrum was extracted and to the petroleum distillate. In the report mentioned, twenty cases of dermatitis occurred during a period of two years in a factory employing about 100 people. This indicates a high degree of sensitivity as compared to the use of pyrethrum ointment and would make it dangerous for general use.

VISCOSITY OF BLOOD IN HYPERTENSIVE DISEASE

To the Editor—Is there an increase of viscosity of the blood in high blood pressure cases? Many authors assert that there is and some do not. I should like to know the latest thought on the subject.

CHARLES PER, ROEBI S M D Winona Minn

ANSWER—The general consensus is that in hypertensive arterial disease appreciable and significant increase in the viscosity of the blood does not occur. This statement applies to hypertensive arterial disease, but there are hypertensive states in which increased viscosity is presumed to be a factor. In the rare condition polycythemia vera hypertension is common and is considered to result from the increased friction offered the flow of blood. In one series of cases of arterial

hypertension this accounted for one case in 750. The hypertension associated with eclampsia and preeclampsia may be due in part to greater blood viscosity, although arterial spasm is responsible for the greater portion of the rise. In eclampsia the blood is highly concentrated and more viscous than normal. These two exceptions to the general rule however, must not be considered as being hypertensive arterial disease (so called essential hypertension).

FRIEDREICH S ATAXIA

To the Editor—Have you anything in your files on the treatment of Friedreich's ataxia? There is nothing given in textbooks unless there is something newer than textbooks possibly in exercises or therapy. If anything is available where? I have a patient here with this and the parents would at least like to try something if it has any possible merits.

ARTHUR J GRIOT, M D Chadron, Neb

ANSWER—This disease is chronic, it is familial, and it usually occurs in pairs in sisters or brothers. The prognosis for life is good and for cure is poor. The only treatment outside of symptomatic therapy that can be recommended is that for the ataxia. This is usually carried out by means of reeducation exercises, starting with simple maneuvers and gradually increasing to more complicated exercises. The amount of change that may take place in the ataxia will of course depend on the extent of the damage to the cerebellar and spinocerebellar tracts. Goldscheider in an article entitled "Anleitung zur Uebungsbehandlung der Ataxia" Leipzig, 1904 has collected and described the Frenkel exercises very clearly. One should not become too enthusiastic with regard to these exercises because they do not cure the disease. The parents should be informed of this point.

TUTOCAIN HYDROCHLORIDE IN SEASICKNESS

To the Editor—Will you kindly inform me of the use of tutocain in the external auditory canals (and ear drums) for the prophylaxis and treatment of seasickness? Some time ago an article appeared in *Time* magazine about its use with almost magical results and if such really is the case I should like to be in on it.

JOHN SEALY PEEK M D, Brownsville Texas

ANSWER—Tutocain hydrochloride is used to produce local anesthesia on mucous membranes. As the mechanism whose stimulation produces vertigo and seasickness consists of the semicircular canals and other structures of the vestibular mechanism in the inner ear, it is inconceivable how instillation of a solution of tutocain into the external auditory canal or against the drum membrane can in any way influence the static apparatus. From time to time miraculous measures are cited or medicaments proclaimed for use in the prevention or relief of seasickness. While it is true that sedatives taken internally may lessen the sensitivity of the vestibular mechanism to a certain degree, the greatest measure of relief as a rule is found in having the individual lie perfectly flat. Then with the rolling of the boat only the horizontal canals will be stimulated rather than the vertical, and it is the latter whose stimulation gives the greatest degree of vertigo. As stated before, the local application of tutocain or any similar drug to the external auditory canal would not be likely to have any beneficial effect.

COMPENSATION IN EYE INJURIES

To the Editor—I am writing to you for information concerning a compensation case. A man, aged 29 whose left eye is normal injured his right eye about a year ago and since that date a cataract has slowly developed. What improvement should I expect from an extraction and proper refraction of this eye? Also from an industrial standpoint is this operation advisable?

JAMES W FRAZIER M D Charleston, W Va

ANSWER—This brings up a much discussed question that has never been decided satisfactorily. From the ophthalmic standpoint, removal of the traumatic cataract is advisable for several reasons. 1 It provides a good reserve eye in case of accident to the other. 2 It permits of lateral vision beyond the field of the other eye, which vision, although not clear, is of use. 3 It prevents the amblyopia of disuse. In contrast to these advantages, there is the possibility of subsequent diplopia, a rather rare occurrence, but extremely unpleasant when it does happen. Of course, the two eyes cannot be used simultaneously, although work now under way is in the direction of providing a minimizing glass for the eye that has been operated on which will permit of the simultaneous use of an aphakic and a nonaphakic eye. From an industrial standpoint the operation is advisable. From a compensation standpoint the boards do not differentiate between an eye with a traumatic cataract and the same eye with the lens removed, regardless of the final vision.

TOXICITY OF SOLDERING PROCESS

To the Editor—During the last few weeks I have been seeing several patients with upper respiratory symptoms who have been working with a soldering sal that is manufactured by the L. B. Allen Manufacturing Company of Chicago. This particular preparation in soldering casts off fumes that are quite irritating in the nasal and respiratory passages. Will this preparation the contents of which I do not know cause any chronic condition from prolonged exposure? Also would there be any scientific way of eliminating its immediate irritation?

J W EBERT MD Everett Wash

ANSWER—This reply is without particular reference to any one product. Soldering is such a general term that its mere mention fails to reveal the type of operation that possibly may be involved. Soldering may be hard (brazing) or soft (usually with lead and tin), soldering may unite copper, lead, tin, zinc, iron or aluminum. In each instance different fluxes may be employed. The assumption is that the soldering leading to this query makes use of the customary lead and tin mixture. In this case the flux may be a liquid paste or salt. The salt in commonest use is zinc chloride. Zinc chloride fume may be produced but more likely the fume of hydrochloric acid is present. Such fume is irritating to the respiratory tract. Acute inflammatory disease may arise and is common among solderers. Near sighted persons working closely at hand soldering are especially apt to become involved. No specific chronic disease is known to arise—rather an endless series of repeated minor acute episodes. Conditions are now much better in this trade, owing to an increased extent of automatic soldering. Suction systems can be so constructed as to remove the irritant fume at the point of origin.

HEMIPLEGIA AFTER ELECTRIC SHOCK

To the Editor—A man aged 55 received 2,300 volts while repairing an electric transmission line. His face was burned and his forehead and ears became swollen and there was a discharge for several months. Six months later a right sided hemiplegia developed. From a legal standpoint what connection does this accident have directly or indirectly on this hemiplegia?

MD Indiana

ANSWER—The amount of injury caused by electric currents depends on the voltage and ohmic resistance, on the duration and extent of the contact, and also on the presence of clothing or gloves. The query does not state whether there was unconsciousness, slow pulse, vomiting convulsions or twitchings. In exposures to electric current, transient paralyses may follow the convulsions or appear in their absence. The paralytic signs may not be evident at once but develop gradually weeks or months after the accident. If one can show a causal relationship between the electrical exposure and the onset of cerebral symptoms at once or very soon after the accident, one may say that the hemiplegia was the result of multiple small hemorrhages and softenings in the brain superinduced by electricity.

TONSILLECTOMY IN SYPHILIS

To the Editor—What contraindication would there be if there is any at all to tonsillectomy in a girl aged 18 years who has been receiving arsenicals during two months for a positive Wassermann reaction? It has not been definitely determined whether infection was acquired or congenital. The general condition of the patient is very good.

MD South Carolina

ANSWER—For many years the consensus has been that no operation of the throat should be performed during the time the Wassermann reaction is positive. In an emergency, of course, an operation might be undertaken the patient carefully watched at that time, and treatment vigorously carried out. But a tonsillectomy is certainly no emergency, and therefore the operation should be done only if the Wassermann reaction is negative.

PNEUMOPERITONEUM

To the Editor—In pneumoperitoneum that is introduction of air inside the peritoneal cavity, how do we know that the tip of the needle is already free in the peritoneal cavity? Kindly give me information as to the manometer readings.

JOSE A MENDIOLA MD Pateros Philippine Islands

ANSWER—The simple method is to employ a syringe with a fine cannula, filled with physiologic solution of sodium chloride. The needle is cautiously inserted and at the same time pressure is made on the piston of the syringe. Prompt flow of the saline solution indicates that the needle has reached the abdominal cavity. With the patient turned on one side preferably the right, the site of puncture is chosen in the middle of the rectus muscle from 3 to 5 cm below the umbilicus. The bladder should be emptied just before the insertion

of the needle and the skin thoroughly cleansed with tincture of iodine. The needle is slowly advanced as far as the fascia, when very gentle pressure will ease it through the fascia and the peritoneum into the peritoneal cavity.

BOOKS ON ELECTROTHERAPY AND ELECTROCOAGULATION

To the Editor—What books do you recommend for (1) electrotherapy (2) showing methods of removal of warts by electrodesiccation (3) treatment of ulcer of the skin by electrocoagulation and (4) electrocoagulation of the tonsils.

E S COSTER MD Solomons Md

ANSWER—The following books are recommended to cover the points mentioned.

Kovacs Richard. *Electrotherapy and Light Therapy*. Philadelphia Lea & Febiger 1935 \$7.50 reviewed in THE JOURNAL Feb 8 1936 p 492.

Handbook of Physical Therapy. Chicago American Medical Association 1936 \$2.

Mock H E. *Principles and Practice of Physical Therapy*. Hagerstown Md W F Prior Company 1934 vol 3 \$35 reviewed in THE JOURNAL April 7 1934 p 118.

Andrews G C. *Diseases of the Skin*. Philadelphia W B Saunders Company 1930 \$12 for removal of warts by electrodesiccation p 879 and treatment of ulcer of the skin by electrocoagulation chapter 10 p 251.

TOLERANCE TO ETHER

To the Editor—A dental surgeon has asked me to test an asthmatic patient for ether before he attempts the extraction of many abscessed teeth. Is there any way of doing this except by starting an anesthesia? Is a person ever allergic to ether? This patient is slightly allergic to procaine hydrochloride.

MD Illinois

ANSWER—The best way of testing a person's tolerance for ether is to administer by inhalation a very small quantity diluted. Certain persons may not tolerate ether but they are not known to be allergic to it, for example, soldiers who have been gassed in warfare do not tolerate ether well but show no evidence of allergy to it. The fact that the patient is slightly allergic to procaine would not indicate that there would be a tendency to be allergic to ether.

CONTROL OF EFFECTS OF PERIVASCULAR INJECTION OF CALCIUM CHLORIDE

To the Editor—Kindly let me know what has been found most effective to control the pain and the sclerotic effect produced by the accidental perivascular injection of a 10 per cent solution of calcium chloride.

MD Los Angeles

ANSWER—Whenever an irritative intravenous injection, such as that of calcium chloride, is given, one should have at one's elbow a dish of sterile water, which might contain a small proportion (0.1 per cent) of procaine. Should perivascular injection occur one should inject immediately and through the same needle enough of this fluid to distend the tissue liberally so as to dilute the noxious solution as much as possible. It is of course advisable, before doing this to aspirate as much of the paravenously deposited fluid as one can.

BLOOD TYPING

To the Editor—1 In what type or group of direct blood matching is the probability of error most commonly encountered? 2 In the event that a small spot of blood approximately one-fourth inch in diameter was found on a piece of cotton or silk and rayon material and such a spot had been on this garment for a period of ten to twelve days and then the material had been placed among dirty clothes and then exposed to some sunlight and heat of normal temperature in a residence with some dampness usually found in a basement of such residence what is the probability of error in typing this blood and is there more probability of error in typing I II III or IV Moss classifications? 3 Is there any possible way of determining the type of blood on a piece of cloth that has been washed in water the red stain remaining?

V L CHAMBERS MD Huntington W Va

ANSWER—1 In the hands of competent investigators there should be no error in blood typing at all. The most frequent mistake is to assign incorrectly a blood to group AB owing to failure to recognize pseudo-agglutination. On the other hand, blood of group AB, particularly the subgroup A B may be taken for group B by overlooking weak A reactions.

2 Under the conditions described, the determination of the blood group may be difficult or even impossible. However a mistake should not be made because the absence of any positive reaction would not warrant a conclusion. In other words unless a clear cut result is obtained no opinion can be offered.

3 The determination of the blood group will probably not be feasible in such material.

EFFECTS OF TOBACCO ON CIRCULATION

To the Editor—Would tobacco be a possible etiologic factor in occasional numbness of the distal parts of both upper and lower extremities, coming on as an exaggeration to a similar numbness caused by cramped positions in healthy individuals? Does tobacco contribute to impairment of the vestibulomotor system causing periodic dizziness noted particularly while in the act of smoking? Does it cause labyrinthitis? (It is assumed that patients complaining of these symptoms are what would be considered excessive smokers)

M D, Ohio

ANSWER—The act of smoking tobacco causes diminution of the circulation to the extremities and might in certain hypersensitive individuals be responsible for the symptoms of numbness of the acral parts. It should not, however, be considered an etiologic factor until all other possibilities have been surveyed. Many persons who smoke have noted a sensation of dizziness and unsteadiness of gait while smoking. Excessive smoking might stimulate the labyrinths but it is not certain that it might produce definite organic changes, although amblyopia from tobacco smoking is well known.

JOINT PAINS IN SERUM SICKNESS

To the Editor—In THE JOURNAL, Nov 28, 1936 on page 1830 you published a letter concerning atrophic arthritis contracted through serum disease. In your answer you made the statement that joint pains have been known to exist for quite some time following serum sickness. Will you kindly let me know by letter what your authorities are for that statement and for what lengths of time joint pains have been known to continue.

M D New York

ANSWER—The statement with reference to the length of time which joint pains may persist following serum disease was confusing. A careful search of the literature shows that they usually last but a few days and rarely as long as three weeks. In an occasional case the joint pains, without swelling, occurring during a serum reaction have persisted longer.

PRECIPITIN SERUM FOR TESTING FOR HUMAN BLOOD

To the Editor—I am writing you for some information. Police officers submitted several bits of flesh and bone marrow to me for examination. To make possible identity as to whether bits of flesh were of human origin or not, I purchased human precipitin serum which was used in the test. The results were not satisfactory. Can human precipitin serum be purchased to be used for determining the identity of human blood? If you would make suggestions on how this examination should be handled I would be grateful.

HARRY FALCONER, TECHNICIAN, SIOUX FALLS, S D

ANSWER—Precipitin serum for testing for human blood can be purchased. The potency of such serum must be determined beforehand in every case in which it is used. Directions for the preparation of precipitin serum are given in textbooks on immunology, see also Hektoen, Ludvig. The Precipitin Test for Blood, THE JOURNAL, May 4, 1918, p 1273, and Biologic Tests for Medicolegal Purposes, NEW ENGLAND J MED 199 120 (July 19) 1928.

DESENSITIZING TO MOSQUITO BITES

To the Editor—Do you know of any material that can be given orally or by injection which will desensitize persons to the undue effects of bites by mosquitoes? I am referring to the toxic manifestations of the bite itself.

ELMORE R BAILEY, M D, Lakewood Ohio

ANSWER—There have been many attempts to desensitize man to the ill effects due to bites of the mosquito and in a high percentage of these tests the results have been entirely negative. There are no successful preparations available, for either oral or hypodermic use, which will diminish the intensity of reaction following the bite. Most persons seem to acquire considerable resistance after frequent bites, and reactions are usually less severe late in the mosquito season than early.

CYSTITIS WITH IMPOTENCE

To the Editor—With reference to the question sent in by a physician from Illinois entitled Cystitis with Impotence—Addiction to Hypnotics (THE JOURNAL August 14 p 527) I wish to take exception to the answer given to the doctor's inquiry regarding the first patient (cystitis with impotence). In the first place nowhere in the answer do you suggest that an attempt be made to make a definite diagnosis in other words a complete cystoscopic examination. Here is a patient 53 years of age with about 1 1/2 ounces of residual urine. This may easily indicate a middle lobe enlargement of the prostate or at least a median bar. I believe a very good way to get any drug into disrepute is to recommend its promiscuous use such as has been done here with ammonium mandelate without careful investigation of the patient's genito-urinary tract.

JAMES H BORRELL, M D, Buffalo.

Medical Examinations and Licensure

COMING EXAMINATIONS

STATE AND TERRITORIAL BOARDS

Examinations of state and territorial boards were published in THE JOURNAL September 4 page 814.

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS Parts I and II Sept 13 15 Ex Sec Mr Everett S Elwood 225 S 15th St Philadelphia

SPECIAL BOARDS

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY Written examination for Group B applicants will be held in various cities throughout the country in April. Oral examination for Group A and B applicants will be held at San Francisco in June. Sec Dr C Guy Lane 416 Marlboro St Boston.

AMERICAN BOARD OF INTERNAL MEDICINE Written examination will be held in different centers of the United States and Canada Oct 18. Chairman Dr Walter L Biering 406 Sixth Ave, Rm 1210 Des Moines Iowa.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY Written examinations and review of case histories for Group B candidates will be held in various cities of the United States and Canada Nov 6 and Feb 6. Application must be filed at least sixty days prior to these dates. General oral clinical and pathological examinations for all candidates (Groups A and B) will be conducted in San Francisco June 13 14. Application for admission to Group A examinations must be on file before April 1. Sec Dr Paul Titus 1015 Highland Bldg Pittsburgh (6).

AMERICAN BOARD OF OPHTHALMOLOGY Chicago Oct 9 and San Francisco June 13. All applications and case reports, in duplicate, must be filed at least sixty days before the date of examination. Sec Dr John Green 3720 Washington Blvd St Louis Mo.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY Los Angeles Jan 14 15. Sec Dr Fremont A Chandler 6 N Michigan Ave Chicago.

AMERICAN BOARD OF OTOLARYNGOLOGY Chicago Oct 8 9. Sec Dr W P Wherry 1500 Medical Arts Bldg Omaha.

AMERICAN BOARD OF PEDIATRICS Chicago Oct 17 Los Angeles Nov 7, Boston Nov 14 and New Orleans Nov 30. Sec Dr C A Aldrich 723 Elm St Winnetka Ill.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY New York Dec 28 (tentative). Sec Dr Walter Freeman, 1028 Connecticut Ave, N W Washington D C.

AMERICAN BOARD OF SURGERY Part I (written) Oct 20. Sec Dr J Stewart Rodman 225 S 15th St Philadelphia.

Louisiana June Report

Dr Roy B Harrison, secretary, Louisiana State Board of Medical Examiners, reports the written examination held at New Orleans, June 3-5, 1937. The examination covered 12 subjects and included 100 questions. An average of 75 per cent was required to pass. One hundred and forty nine candidates were examined, 148 of whom passed and one failed. Ten physicians were licensed by reciprocity. The following schools were represented:

School	PASSED	Year Grad	Per Cent
Emory University School of Medicine	(1937)	84.6	
Louisiana State University Medical Center	(1936)	82.8	
(1937) 81* 81.5 81.8* 81.9* 81.9* 82 82.1			
82.2* 82.8* 82.9* 83* 83.3* 83.4* 83.6* 83.7*			
83.7* 83.8 83.8* 83.9* 83.9* 84 84.1 84.2* 84.3*			
84.3* 84.4* 84.4* 84.4* 84.6* 84.7* 84.7* 84.7*			
84.8* 84.8* 84.8* 84.8* 84.9* 85* 85.2 85.2			
85.2* 85.3* 85.4 85.4* 85.6 85.6* 85.8* 85.9*			
86.1* 86.2* 86.3* 86.4* 86.5* 86.8* 87.3* 89.3*			
Tulane University of Louisiana School of Medicine	(1936)	81.1,	
(1937) 78.7 78.8 79.8 80 81 81.1 81.3 81.3			
81.5 81.7, 81.7 81.7 81.8 81.9 81.9 81.9 82 82.1			
82.5 82.5, 82.6 83 83 83.1 83.2 83.2 83.2 83.3			
83.4 83.4 83.4 83.5 83.7 83.8 83.8 83.8 83.8 83.8,			
83.9 83.9 84 84 84 84.2 84.2 84.2 84.3 84.4 84.4			
84.4 84.4 84.4 84.5 84.6 84.6 84.7 84.7 84.9			
85, 85 85 85 85.2 85.2 85.3 85.5 85.5 85.6			
85.6 85.7, 85.7 85.8, 85.8 85.8 85.9 86.6 87.1 87.2			
87.3			
St Louis University School of Medicine	(1931)	85.5	
University of Oregon Medical School	(1936)	78.3	
University of Pennsylvania School of Medicine	(1936)	80.1	
University of Tennessee College of Medicine	(1937)	78.2	
Marquette University School of Medicine	(1937)	84.5	

School	FAILED	Year Grad
University of Illinois College of Medicine	(1937)	

School	LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
University of Arkansas School of Medicine	(1935)		Arkansas
University of Colorado School of Medicine	(1931)		Colorado
University of Illinois College of Medicine	(1930)		Illinois
University of Louisville Medical Department	(1910)		Arkansas
Johns Hopkins University School of Medicine	(1932)		Maryland
Harvard University Medical School	(1933)		Maine
University of Michigan Medical School	(1929)		Michigan
McHARRY Medical College	(1934)		Missouri
University of Tennessee College of Medicine	(1933), (1935)		Tennessee

* This applicant has received the M B degree and will receive the M D degree on completion of internship. License has not been issued.

Book Notices

The Fundamentals of Electrocardiographic Interpretation By J. Bailey Carter M.D. Clinical Instructor Department of Medicine Rush Medical College the University of Chicago With a foreword by Horatio Burt Williams M.D. Dalton Professor of Physiology College of Physicians and Surgeons Columbia University New York Cloth Price \$4.50 Pp 326 with 251 illustrations Springfield Illinois & Baltimore Charles C. Thomas 1937

This new book on clinical electrocardiography has been prepared for the beginner in the subject. Its arrangement is good and its text is clear and simple. The case histories in chapter XXXIII, the glossary and the bibliography of recent contributions to electrocardiographic literature arranged according to subject (for example, alternation, angina pectoris, diphtheria, low voltage, nicotine and T wave) should be especially useful. The book begins with a statement of the value of the electrocardiogram in clinical practice, goes on to discuss the principles and technique of electrocardiography, and presents the normal waves, or complexes, and the intervals between them, in the first section of the volume, comprising thirty-five pages. The second section, comprising nearly a hundred pages, deals with the individual wave changes or abnormalities, axis deviation and ventricular preponderance and the various arrhythmias, including disturbances of conduction of all kinds. A third part of the book of some sixty pages discusses the electrocardiographic observations in various clinical conditions, beginning with coronary occlusion in chapter XXII and including a chapter on chest leads. The book closes with a chapter on the clinical value of electrocardiography, twenty-five brief case histories with illustrative electrocardiograms, an appendix on certain technical aspects of electrocardiography, a glossary, and a bibliography of seventy-five pages.

The weakest part of the book is its illustrations, in which it should be strongest. There seem to be far too many. One hundred excellent, well selected characteristic electrocardiograms, including some of those already in the book, would be preferable to the bulk of the present 240, a good many of which are distinctly mediocre or practically duplicates, and a few open to question as to interpretation. With fewer illustrations there would doubtless be the added advantage of a lower price for the book. Incident probably to the multiplicity of illustrations, a few errors have crept in, for example, figure 143 is reversed from left to right.

The author follows the classic opinions throughout most of the book, incidentally holding to the old view concerning the axis deviation of bundle branch block and premature beats. He makes too much, however, of very slight slurring of the QRS waves, as in figures 43, 74 and 176, which most workers in the field would now consider within the range of normal and not evidence of myocardial damage. Also he makes too much of the so-called Q wave in lead 3, which is a not uncommon occurrence in the case of obese but otherwise normal adults. One might take exception to a few statements such as that "thrombosis is the commonest cause of interference with the coronary circulation," page 129 (undoubtedly atherosclerosis with narrowing of the coronary artery lumen holds that role long before thrombosis takes place), and regret the omission in chapter XXIII of the contribution of Thomas Lewis and of Frank Wilson to the study of chest leads between the early days of electrocardiography and the routine introduction of the chest leads in 1932. For the most part, however, one may attest to the soundness of the text, which in its conciseness and clearness should be helpful to the beginner in electrocardiography.

Manuel de biochimie Par Pierre Thomas de l'Institut Pasteur professeur de chimie biologique à la Faculté de médecine de Cluj. Cloth Price 180 francs Pp 978 with 51 illustrations Paris Masson & Cie 1936

This book is intended for physicians, biologists and those for whom biochemistry is 'an indispensable science'. The introductory chapter gives some of the modern views on atomic and molecular structure, valence and isotopes without the development of the fundamental facts in supporting them and without emphasis on their biologic significance. The chapter on the colloidal state has practically no application to biology. The author develops the idea of the building up of molecules of high

molecular weight, such as proteins, polysaccharides and isoprene polymers, and a consideration of their x-ray structures. One wonders what this treatment can mean without first developing the organic chemistry of the simpler units of these colloids. The same criticism may be made of the too early presentation of special chapters on adsorption, surface tension, viscosity, osmosis, Donnan equilibrium, catalysis, cell permeability, enzymes and enzyme action. A series of excellent chapters cover the chemistry of amino acids and proteins, phospholipins, cerebrosides, carotenoids, sterols, fats and carbohydrates, and the distribution and function of inorganic elements in tissues and body fluids. The third part of eight chapters is devoted to the synthesis of tissue constituents and to their utilization. Here is a good treatment of the synthesis of carbohydrates and proteins in plants. There are separate chapters on the formed elements of the blood, the blood plasma, the vitamins, the hormones, digestion, muscle chemistry, the nervous system, the skin and skeleton, the reproductive organs, excretory products in animals and plants, with special emphasis on glucosides, terpenes, tannins and alkaloids. On the whole, the subject matter is presented clearly. The least satisfactory chapters are on vitamins, hormones and digestion. Each chapter is followed by instructions for a limited number of preparations and of qualitative and quantitative experiments. In most cases these instructions are given too briefly and uncritically to be of specific value. The author does not cite the specific references, but at the close of most chapters he gives a list of general works or monographs. These recommendations do not appear to be the best for critical consideration. The book is well indexed.

New and Nonofficial Remedies 1937 Containing Descriptions of the Articles Which Stand Accepted by the Council on Pharmacy and Chemistry of the American Medical Association on January 1 1937. Cloth Price \$1.50 Pp 557 Chicago American Medical Association 1937

The substantial row formed on the library shelf by the successive volumes of *New and Nonofficial Remedies* represents a valuable service to the medical profession for more than thirty years. *New and Nonofficial Remedies* is being used by various purchasing agencies, hospital superintendents and others as a guide in authorizing purchases of nonofficial drugs. Somewhat paradoxically, a great many brands of official preparations are listed as "acceptable" in *New and Nonofficial Remedies*. These have been considered by the Council at the request of manufacturers who desire the added prestige of Council acceptance for their products. Heretofore such brands, when marketed under the official names, have been included by name in the "List of Articles and Brands Accepted by the Council but Not Described in N. N. R." Such accepted brands when marketed under a name other than the official one have been described in the body of the book. As a new departure the Council has this year transferred to the body of the book all accepted official products of which there is a brand marketed under a proprietary name. A striking example of this is found in the various brands of Solution of Posterior Pituitary. For years a well known brand of this preparation has been accepted by the Council as marketed under the name Pituitrin.

The following new drugs have been added in the 1937 edition: Kephrene Hydrochloride, another vasoconstrictor resembling Epinephrine; Botulinus Antitoxin, an antitoxic serum prepared from the toxin of *Clostridium botulinum* for prophylaxis and treatment of botulism; Tetanus Toxoid, Alum Precipitated, another alum precipitated toxoid; Oleum Percomorphum, a fish liver oil preparation of high potency in vitamins A and D. There are some noteworthy changes in classification. The various vasoconstrictors, Benzedrine, Ephedrine, Epinephrine and Neo-Synephrin, have been grouped together as phenylalkylamine derivatives under the heading "Epinephrine and Related Preparations." This terminology is in keeping with the Council's policy of avoiding therapeutically suggestive names. Another similar change is the abandonment of the classification "Medicinal Foods" and substitution of a chapter titled "Carbohydrate Foods Chiefly Dextrose." The classification "Vitamin Foods" had been set up as an independent chapter under the title "Vitamins and Vitamin Preparations for Therapeutic and Prophylactic Use" in the previous edition. The consideration of other classes of food preparations was long ago transferred to the Council on Foods. The chapter

"Organs of Animals," which has heretofore included only endocrine preparations, has been expanded by transfers to this heading of the chapters Liver and Stomach Preparations, and Insulin

Physicians who wish to know why a given proprietary is not described in New and Nonofficial Remedies will find the "Bibliographical Index to Proprietary and Unofficial Articles not Included in N N R" of much value. In this section (in the back of the book) are given references to published articles dealing with preparations that have not been accepted. These include references to the Reports of the Council, to Reports of the A M A Chemical Laboratory and to articles that have appeared in *THE JOURNAL*.

Out of the Test Tube By Harry N. Holmes Ph.D. Second edition. Cloth. Price \$3. Pp. 301 with 102 illustrations. New York: Emerson Books, Inc., 1937.

No lesser adjective than "fascinating" describes this book adequately. Greeting his readers as modern Caesars, who enjoy the comforts of modern civilization by virtue of chemistry, from the soap in their morning baths to the motor cars and the fuel by which they are whisked to work, the author proceeds to show how chemistry is at the basis of everything we use. With chapter titles he woos the reader to look just a few pages further no matter how late the hour. "With Fire Man Rose Above the Beasts" is the story of oxygen, "The Importance of Nothing at All" deals with vacuums and the behavior of gases, "Language and Tools" is his approach to chemical symbols, weights and measures, "The Lightest Substance Known" is, of course hydrogen, and "The Elixir of Life," water. The chapters devoted to "atom smashing" bring ionization and allied phenomena within the comprehension, at least in a general way, of the reader whose chemistry is far behind him or who never had any. Numerous chapters are devoted to the chemistry of the objects of our everyday life—motor cars, steel and gasoline, aluminum, silks and cellulose, high explosives, insect poisons, dyestuffs and what has come out of their chemistry, sugars, fats, vitamins and minerals essential in the diet, bodily secretions, especially hormones, minerals and world power, and lastly a list of Nobel prize winners in chemistry. The author has an eye for that which will appeal to the average reader. He has a breezy style, with a bit of humor here and an incisive observation there, which leaves no dull page. For a better understanding of chemistry and what it means to us in our everyday life, as a contribution to general information, and for a delightful few hours of reading, this book cannot be too heartily recommended. Even the structural symbols of the carbon compounds are presented in a manner to stimulate curiosity. The book should be useful to teachers or to any one who desires a bird's-eye view of chemistry today.

Studies on the Bacterial Flora of the Respiratory Tract in Acute and Chronic Bronchitis, Bronchial Asthma and Lung Gangrene By Sverre Dich-Henriksen from the Bacteriological Laboratory of the Norwegian Army. Skrifter utgitt av Det Norske Videnskaps Akademi i Oslo I. Mat. Naturf. Klasse 1936. No. 11. Paper. Price 18 kroner. Pp. 241, with 14 illustrations. Oslo: Jacob Dybwad 1937.

The author of this monograph has attempted to study the occurrence and significance of bacteria in certain pathologic conditions of the respiratory tract. The observations were made during the years 1933 to 1936 in the bacteriologic laboratory of the Norwegian army. While there have been excellent reports on special phases of the bacteriology of the respiratory tract, none have comprehensively evaluated the entire bacterial flora of the tract in relatively common ailments such as bronchitis and asthma.

The work is reported under three major divisions. First, the technic and methods are discussed. In this connection the author presents an account of his attempts to isolate gram-negative anaerobes by selective bacteriostasis with dyes. In thirty specimens of sputum the author was able to isolate fifteen strains of *Fusiformis* by cultivating the specimens in broth containing a piece of sterile raw potato and varying amounts of brilliant green or crystal violet. The second part of the monograph is devoted to the bacterial flora of the sputum in acute bronchitis, fetid infections of the bronchi and lungs, chronic bronchitis and bronchial asthma. The author discusses the bacterial flora of the respiratory tract in normal conditions

and in the acutely infected state. Similar work reported in medical literature is reviewed and critically surveyed.

Of sixty-eight cases of acute bronchitis studied, the largest number of cases fell in a group in which one or two pathogenic organisms predominated and the normal saprophytic flora was displaced. The most important causal factors were *Haemophilus influenzae*, the pneumococcus and the hemolytic streptococcus. These bacterial species were found to be the most frequent cause of acute bronchitis. The demonstration of antibodies against these organisms in a few of the cases seems to strengthen the author's belief of the etiologic relationship. In a few specimens, intestinal bacteria were found and the author explains their presence as embolic from infections in the gastrointestinal tract.

A chapter is devoted to fetid infections of the lungs and bronchi. The number of cases reported is small. Spirochetes seemed to have a minor role and the author cites the experimental evidence that fetid infections may be produced by injecting material that contains no spirochetes. The specific causation was not determined by this study. The occurrence and significance of bacteria in chronic bronchitis and asthma is next discussed. A short account of each case is given at the end of the monograph.

In addition to the bacteriologic investigations of the sputum, the author presents supplementary studies on serology, allergy and experimental work which are pertinent to the investigation. He concludes that *Haemophilus influenzae*, *Diplococcus pneumoniae* and *Streptococcus haemolyticus* are the most frequent causes of acute bronchitis and assigns an important role to *Haemophilus influenzae* as a primary factor in predisposing to fetid infections of the lung. Three different types of bacterial flora were demonstrated in asthma and chronic bronchitis. The pertinent literature, while not exhaustively reviewed, is well handled.

Carcinoma of the Female Genital Organs By M. C. Mallinowsky and E. Quater. Translated from the Russian by A. S. Schwartzmann. A. B. M. D. Cloth. Price \$5. Pp. 255 with 50 illustrations. Boston: Bruce Humphries Inc. Publishers 1936.

This Russian volume, which presumably presents the views of the present Russian leaders in a special branch of medicine, has been read with interest. The *Cumulative Index Medicus* has been scanned over a period of six or seven years in an effort to identify the eleven authors who have contributed to the work, with failure to secure any enlightenment as to their hospital positions or previous researches and publications. It would seem that the translator has missed an opportunity in not furnishing this kind of information in an introduction, however short. He or the publishers also should have given the date of publication of the original Russian edition. The practical as well as the scientific value of the eleven monographs would be greatly enhanced if they had been accompanied by an index and by accurate documentation. While there is frequent reference throughout the entire book, by name and sometimes by location to various experts, many of them German, there are practically no bibliographic references to enable the reader to refer to the originals. The printing is well done but the illustrations are mediocre, three are taken from Thomas S. Cullen's monograph on Cancer of the Uterus, written many years ago. There is much repetition, a common defect in books written by multiple authors, and while the style varies from author to author, it is, in general, involved. This may be, perhaps, a necessary consequence of translation. The general impression made on the reader is that, in this particular branch, Soviet medicine is well advanced and that there is also adequate information as to foreign work.

In addition to dealing with the usual forms of gynecologic cancer, there is a chapter devoted to mammary carcinoma. The sections dealing with the general etiology of cancer, with the especial symptomatology and diagnosis of cancer of the various organs, is well covered. In chapter V, on metastatic cancer of the ovary, Dr. Thomas J. Pajarski thoroughly reviews the literature and incorporates some original work on the lymphatics of the abdomen which throws some light on the reason for the ovary being such a common focus of metastatic malignancy. From the point of view of treatment, the sections dealing with the surgical procedures in uterine and mammary

cancers are much more thoroughly done than the corresponding sections on ray treatment. Ray therapy seems to be based mainly on the methods of Wintz and Dessauer, and radium therapy on the procedures of Lahm. The American reader will find little new information as to either theory or practice. It is impossible, within a volume of this size, to present the subject completely so that a student of medicine, or a general practitioner, could read it and secure a working knowledge of how to deal with these conditions in practice, nor does it go into sufficient detail to be of any great value to the specialist.

Perhaps the most interesting chapter of all is the last, dealing with the question of disability. The author speaks of medical valuation commissions. Apparently there is a corps of doctors whose duty it is to estimate the disability of patients and to decide as to the amount of pension they should have, and the duration of the pension. These doctors, in contrast to those practicing in the hospitals, the physicians-clinicians, are called physicians-experts. It is frankly stated that medical examination, which he terms "valuation," should be placed under the control of the working masses that they have constructed new foundations in the Soviet Union, and that the problem with these patients, as well as with all others, is to restore them to the capacity for effectual work and to insure that they are not a burden on those who are not sick and who can work. The author seems extremely proud of the social insurance laws of his country and mentions the yearly outlay in this direction as being enormously greater than that of any other country. This outlay seems small, indeed, when compared with the public and private charitable outlay in the United States of America at the present time.

The Biochemistry of the Lipids. By Henry B. Bull, Ph.D. Assistant Professor of Physiological Chemistry, Northwestern University Medical School, Chicago. Cloth. Price \$2.75. Pp. 189 with 63 illustrations. New York: John Wiley & Sons, Inc. London: Chapman & Hall. Limited 1937.

This is a revision and extension of the mimeographed edition that appeared under the same title in 1935. Numerous typographic errors and omissions have been eliminated. The material has been rearranged and extended so that the physiologic aspects are discussed in connection with the chemistry of each type of lipid. Much use is made of interpretations and presentation of data from x-ray analyses and of recent work on surface tension phenomena, various colloidal phenomena, iso-electric ranges and melting points. In this manner the author treats the lipins in the following order: fatty acids, soaps, alcohols, waxes and hydrocarbons, the sterols and related compounds, fats and oils, the phospholipids, cerebroside, carbohydrate esters of the higher fatty acids, and emulsions. The work is well done and excellently presented for advanced students in biochemistry. The compilation of the recent observations on emulsions, buffer action, pH , antioxidants and unsaturation is especially valuable. It seems rather odd to consider fatty acids first and then to delay the consideration of fats and oils until after the discussion of soaps, alcohols, waxes, hydrocarbons and sterols. Although the treatment of phospholipins is satisfactory in most respects, it is surprising to find that the rather excellent work of Klenk on the structure of sphingosin is not referred to. In fact, the author assigns two different formulas to sphingosin in connection with sphingomyelin and cerebroside respectively.

Cytologie du liquide céphalo rachidien normal chez l'homme. Monographie critique et pratique. Par H. Jessen. Paper. Price 40 francs. Pp. 168 with illustrations. Paris: Masson & Cie 1936.

In this well written monograph the author discusses the morphology, physiologic significance and methods of counting the cells in the cerebrospinal fluid. To the small and large mononuclear cells normally considered to be present in the spinal fluid, Jessen adds polygonal cells, which exist in various numbers, often up to 5,026 per cubic millimeter. These cells were not previously identified because they were considered to be products of degeneration. The author believes that the cerebrospinal fluid is principally a secretion of the choroid plexus and that the cells are probably of histiogenic origin. The normal cell count is up to 5 per cubic millimeter but there is a constitutional variation in the number of cells found. Some people have consistently low cell counts (from 0.1 to 0.2 per

cubic millimeter) while others may have from 4 to 6 cells per cubic millimeter. The literature is thoroughly covered and there is an extensive bibliography of more than 500 references which covers all languages.

Hautdesinfektionsprobleme. Von Jørgen Ernst. Paper. Price 10 kroner. Pp. 174. Copenhagen: Levin & Munksgaard 1937.

As the problems of disinfection of the skin are always interesting to surgeons and bacteriologists, this new book is timely. An expansion of the author's prize-winning dissertation in clinical medicine at the University of Copenhagen in 1935, the volume contains the reports of the results of 1,729 cultures from the skin of the hands and arms of interns, nursing sisters, physicians and patients before and after the application of various disinfectants in the obstetric service of the government's hospital at Copenhagen. In addition to a general introduction, it includes ninety-six tables (one for each person examined) and a bibliography. There are short chapters on the localization of bacteria in the skin and the bactericidal (self-sterilizing) power of the skin, methods for the collection of bacteria from the skin, the question of chemical neutralization of disinfectants, the methods and procedures used by the author, the results and conclusions, and a final summary.

To collect the bacteria from the skin, the author or subject wiped the surface of the hands or upper arm with a piece of moist sterile gauze. This was then shaken in 30 cc of sterile salt solution. From this suspension 1 cc was pipetted into melted nutrient agar, to which was added 0.4 per cent dextrose and 5 per cent horse blood. Plates were poured and incubated at 37°C. The colonies were counted and the organisms identified. The predominant bacteria in the cultures were staphylococci and *Bacillus subtilis*. Streptococci were rarely found in uninfected skin. Cultures were made daily or at short intervals, usually during a month's observation of each subject. By following this schedule the author could observe the effects of repeated washings and frequent applications of disinfecting solutions. Numbers of bacteria decreased considerably at first and occasionally increased toward the end of the month. In cases in which the bacterial flora increased there were usually fissures, superficial infections or scaliness of the skin. These small lesions were attributed to the injurious effects of disinfectants on the epidermis.

The chief disinfectants tested were 70 and 90 per cent alcohol, alcoholic soap solutions, a 0.1 per cent solution of mercury bichloride and an aqueous solution of iodine and potassium iodide in the proportion of 1:2:1,000. As most of the disinfectant could be removed from the hands by brief washing in running water, the author found that it was unnecessary for the bacteriologic purposes to neutralize the mercurial with ammonium sulfide and the iodine compound with sodium thiosulfate.

His results showed that mercury bichloride held first place among the substances tested by him as skin disinfectants. It could not be used constantly for a long time, however, because it produced erythemas and scaliness of the skin. The dilute iodine-potassium iodide solution was remarkably effective in reducing the number of bacteria in the superficial layer of the skin. Its only disadvantage was that it discolored the hands, turning them brown. The old dogma that 70 per cent alcohol is more bactericidal than 90 per cent alcohol was demolished by the author, as he found that the more concentrated was invariably more effective than the lower concentrated.

His quantitative method permitted him to observe that during a given period the bacterial flora of a person's hands change as the result of extrinsic factors and also through the operation of individual factors, some of which may be hormonal as well as infectious in nature. The extrinsic factors, producing "hetero-infection" of the hands, are such activities as playing tennis, gardening, and handling of contaminated material. The self-sterilizing power of the skin is attributed by the author to acids produced by glands and cells in the epidermis. It can be abolished by the application of alkali.

The care with which this study was made and the coherent results summarized in the tables produce a favorable impression. The author has not attempted to investigate a number of problems of disinfection of the skin and has little to contribute to the knowledge of the actual localization of bacteria in the skin and the relationship of indigenous cutaneous micro-

organisms to the occurrence of surgical wound infection. In the absence of studies on these subjects the book is not a general treatise. It is, however, a contribution of both theoretical and practical importance.

Bacteriology of Specific Communicable Diseases. Handbook of Public Health Bacteriology. General Information Regarding Epidemiology, Collection and Shipment of Specimens and Bacteriologic Serologic and Chemical Procedures 1937. Edited by M. S. Marshall. Department of Public Health, City and County of San Francisco, California. J. C. Gelger, Director. Paper. Pp. 141. San Francisco. J. W. Stacey, Inc. 1937.

This manual could well serve as a standard for every progressive city or state health department. It is not only a most useful handbook of condensed general information on routine public health work but an epitome of public health laboratory methods. It coordinates the work of the epidemiologist, sanitary inspector, medical man and laboratory technician. A concise practical pocket manual such as this will undoubtedly do much for the successful prosecution of public health work. The information is precisely and clearly stated. The first twelve pages include a list of reportable diseases in California, a table of clinical specimens for laboratory examinations, and explicit instructions on the handling of specimens. The largest part of the manual is devoted to the bacteriology and serology of the communicable infections. A brief consideration of the bacteriology of shell-fish, milk, water and sewage follows. The final chapters discuss chemical procedures performed by the public health chemist. The appendix contains useful information on suggestions for diagnostic methods in addition to the usual tests performed, a compilation of the laboratory animals most useful for diagnostic inoculations, their care, methods for bleeding, sites for inoculation and other useful data. Drs. Giger and Marshall and the competent committee who collaborated with them deserve commendation for the manner in which they were able to make available such essential public health information.

The International Medical Annual. A Year Book of Treatment and Practitioner's Index. Edited by H. Letheby. Tidy, M.A., M.D., F.R.C.P., and A. Rendle Short, M.D., B.S., B.Sc. Fifty-fifth Year 1937. Cloth. Price \$6. Pp. 665 with 167 illustrations. Baltimore. William Wood & Company. 1937.

In this book the more important medical contributions of the year 1936 are discussed in the form of short essays written by a rather large group of contributors. In the introduction the editors call attention to selected subjects of unusual interest, among which are the psychiatric examination of van der Lubbe of the Reichstag fire, the problem of "punch drunk" in professional pugilists, acute and chronic alcoholism, snakes and snake venom, cerebrospinal surgery and sulfanilamide. Naturally the space available for each subject is limited. Hence some subjects are little more than abstracts of current literature, while others form in themselves more or less complete discussions. The fine print makes continued reading hard on the eyes of most persons. A number of illustrations are included which might, perhaps, have been better selected in some instances. While not in any sense completely covering the contributions made in 1936, it does take up the most important advances. It is perhaps questionable whether books of this nature should be published annually or whether they and their possessors would not both gain by rather more extended treatment at less frequent intervals.

Man in a Chemical World. The Service of Chemical Industry. By A. Cressy Morrison. Cloth. Price \$3. Pp. 292 with illustrations. New York & London. Charles Scribner's Sons. 1937.

This is a common sense presentation of chemical factors underlying most articles and activities in our complex modern world. Dates, formulas and technical terms do not burden the reader, though essential terminology is not avoided. No extravagant claims are made for chemistry, failures and unexplored fields are described without allowing unique historical data to overshadow their present economic and social significance. The emphasis is on the modern world so marvelous yet seemingly commonplace to those who do not understand the forces creating it. This book will undoubtedly be welcomed by the intelligent inquiring layman. The illustrations are excellent.

Surgical Pathology of the Thyroid Gland. By Arthur E. Hertzler, M.D., Surgeon to the Agnes Hertzler Memorial Hospital, Hulsehead, Kansas. Cloth. Price \$5. Pp. 298 with 238 illustrations. Philadelphia. Moorehead & London. J. B. Lippincott Company. 1936.

In this monograph the author discusses the clinical and surgical aspects of various types of thyroid disturbances and has illustrated them by reproductions of photographs of patients and of the gross specimens. The various pathologic conditions of the thyroid gland are shown in photomicrographs. The reader, therefore, receives a complete picture of the clinical and pathologic status of the gland. Some pathologists might disagree with the author's classification of the pathologic changes in the thyroid, but the book nevertheless acts as a working basis for the surgeon, the pathologist and the internist.

Ber'luth Ha zibur. Derakim uem'tza'sh Shmur neged mahaloith miltad begoith. [Public Health Ways and Means of Prevention of Infectious Diseases.] By A. J. Levy, M.D., Dr. P.H., Ph.D., Director of Health Education, Straus Health Center, Jerusalem, Palestine. Fabricoid. Price \$1.50. Pp. 287 with 66 illustrations. Tel Aviv, Palestine. Achlefer. 1935.

Sanitariuth. Madrich Hishmirat tzorke hammazon uhammaskeh ulehat kanat fene e hayim nohim umavrilim babbalith ubahutz. [Sanitation. A Manual for the Care of Food and Drink and for Instituting Healthy Sanitary Conditions Within and Outside the Home.] By A. J. Levy, M.D., Dr. P.H., Ph.D., Director of Health Education, Straus Health Center, Jerusalem, Palestine. Fabricoid. Price \$1.50. Pp. 303 with 76 illustrations. Tel Aviv, Palestine. 'Achlefer. 1936.

Ezrah Rishonah. Sefer shimmushi lekoi adam. [First Aid. A Manual for Every Individual.] By A. J. Levy, M.D., Dr. P.H., Ph.D., Director of Health Education, Straus Health Center, Jerusalem, Palestine. With the collaboration of W. Nissel, M.D., and A. Simon, M.D. Fabricoid. Price \$1.50. Pp. 354 with 114 illustrations. Jerusalem, Palestine. Reuben Mass Publisher. 1936.

The author has undertaken the task of writing a series of textbooks on public health for the Palestinian population. He is well qualified to write these books, as he himself is a Palestinian who knows the habits of the people, he has in addition received his training both in medicine and in public health in American universities, and he is actively engaged in health center and health educational work. The first three volumes have already appeared, one on general hygiene, one on sanitation and a third one on first aid. All three books are written in a popular style, understandable by any one who knows the Hebrew language. They are illustrated profusely and contain some historical references. The books embody the latest health information and have already proved their great value to the Hebrew reading public.

Die Drüsen mit innerer Sekretion. Ihre physiologische und therapeutische Bedeutung. Mit einem Vorwort von Dozent Dr. Wilhelm Raab. Autorisierte Übersetzung und Erweiterung des Werkes "Glandular Physiology and Therapy." A Symposium Prepared Under the Auspices of the Council on Pharmacy and Chemistry of the American Medical Association. Von Dr. med. Adolf Nichtenhauser und Dr. med. Kurt Stern. Cloth. Pp. 423 with illustrations. Vienna & Leipzig. Aesculap Verlag. 1937.

This translation of *Glandular Physiology and Therapy* is identical with the American edition except for the section by Zondek on the chromatophorotropic principle of the pituitary, which has been revised and considerably enlarged. The translators, Drs. Adolf Nichtenhauser and Kurt Stern of Vienna, and the publishers are to be congratulated on the faithful rendition into German. The number of pages has been reduced one fifth by use of a larger page. Typography, illustrations and binding are all excellent. This edition of the symposium by renowned endocrinologists, which has already received wide acclaim in the English version, should be of great value to German-speaking physicians.

Diseases of the Nose, Throat and Ear. A Handbook for Students and Practitioners. By I. Simson Hall, M.B., Ch.B., F.R.C.P.F., Surgeon to the Royal Infirmary, Edinburgh (Department for Diseases of Nose, Throat and Ear). Cloth. Price \$4. Pp. 423, with 56 illustrations. Baltimore. William Wood & Company. 1937.

This is a handbook for students and general practitioners. Precisely and clearly it discusses the chief diseases of the ear, nose and throat. There is some discussion of operative procedures although not too much nor in too great detail which is proper for a book of this character. The illustrations are clear, and many of them seem to be new.

Contributions to the Microscopic Anatomy of the Pancreas By Paul Langerhans [Berlin 1869] Reprint of the German Original with an English Translation and an Introductory Essay By H Morrison MD Boards Price \$1 Pp 39 with 3 illustrations Baltimore Johns Hopkins Press 1937

Dr Morrison has rendered a great service to all interested in the history of medicine, and particularly to those who are concerned with instruction in the history of diabetes mellitus, by reprinting the German original of "Contributions to the Microscopic Anatomy of the Pancreas," by Paul Langerhans, and adding an excellent English translation of the article. In the well written and interesting introductory essay, a short account of the personal and scientific history of the German investigator is given. Langerhans, it is pointed out, was the son of a physician and began his important researches while still a student. Indeed, it was this fact which focused the author's attention on Langerhans. It is not appreciated by many students of the history of diabetes that Langerhans, in a rather short research career, was able to make several other significant contributions in addition to the discovery of the cells that were named "islets of Langerhans" by the French histologist Laguesse. There is no doubt, however, as Dr Morrison says, that Langerhans will be remembered chiefly because he detected that the structures in the pancreas that now bear his name possessed characteristics distinguishing them from the cells of the acinous tissue.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Medical Practice Acts Revocation of Physician's License for Failure to Report Venereal Disease—The physician appellant was convicted of violating a Nevada statute requiring physicians having knowledge that a prostitute is infected with a venereal disease to report that fact immediately to the chief of police. Thereafter proceedings were instituted before the state board of medical examiners to revoke the physician's license under a complaint charging him with (1) wilful disobedience of the law, and (2) conviction of an offense involving moral turpitude. The license was revoked, the second judicial district court, Washoe County, upheld the revocation, and the physician appealed to the Supreme Court of Nevada.

The physician contended that the word "law" as used in the section of the medical practice act authorizing the revocation of a license for "wilful disobedience of the law" was limited in its meaning to laws included in the act creating the state board of health. With this contention, the Supreme Court disagreed. Wilful disobedience of a law requiring immediate report by a physician of a prostitute afflicted with a contagious or infectious venereal disease, said the court, comes within the meaning of "wilful disobedience of the law" as those words are used in the medical practice act. The word "law" in this connection does not refer exclusively to the act creating the state board of health. The physician further contended that the offense of which he was convicted was not one involving moral turpitude. Whether the misdemeanor was an offense involving moral turpitude, the court said, depends on the circumstances under which it was committed. It is easily conceivable, the court pointed out, that a physician of the most ethical type, knowing a prostitute to be afflicted with such a disease, and being about to report the case immediately to the police authorities, might have his attention distracted before actually doing so, by reason of some emergency, and then forget the matter for several days. The fact that he unintentionally overlooked reporting the case to the police authorities would not be a defense to a prosecution under the law requiring him to report, because the mere failure to notify the police authorities constitutes the offense, yet no moral turpitude would be involved in such a case. After reviewing the record, the court was of the opinion that, while there was substantial evidence to support the findings of the board of medical examiners, there was some doubt as to whether the physician's failure immediately to report the prostitute to the police authori-

ties was an intentional violation of the law and as to whether that failure involved moral turpitude. In *State Board of Dental Examiners v. Saville*, 90 Colo 177, 8 P (2d) 693, 82 A L R 1176, it was held that the power to revoke permanently includes the power to suspend. Under all the circumstances of the present case, the court thought that the revocation of the physician's license should have been temporary rather than permanent. Feeling that the demands of justice had already been met in this case, the physician's license having been revoked Feb 3 1936 the court ordered that the revocation of the license should terminate on the filing of the opinion by the court and that the physician be permitted to resume practice from and after Feb 5, 1937.—*In re Reno (Nev)*, 64 P (2d) 1036

Workmen's Compensation Acts Blindness in Relation to Trauma and Syphilis, Medical Books in Evidence—The claimant, while at work cleaning the inside of a metal tank with an electric brush, complained to a fellow worker that something had got into his left eye. Shortly afterward the claimant reported to the plant surgeon who found some pieces of foreign matter in the eye which he apparently removed. The claimant however, continued to insist that there was still something in his eye and during the next several months he received treatment from various physicians but obtained no relief. Eventually, he became totally blind in his left eye. Vision in his right was reduced to less than one tenth of normal vision and the condition could not be corrected by lenses. During the course of treatment for his eye condition it was discovered that the claimant had syphilis and he underwent treatment for that disease. In a proceeding under the workmen's compensation act of Connecticut, the commissioner awarded the claimant compensation and the employer appealed to the superior court which remanded the case to the commissioner for the taking of further evidence. The claimant thereupon appealed to the Supreme Court of Errors of Connecticut.

The commissioner concluded that an injury which the claimant received to his left eye precipitated an optic neuritis in that eye and that atrophy of the optic nerve developed, resulting in total blindness in that eye that sympathetically the right eye was affected by the injury to the left, so that the net results of the injury was that the claimant was industrially blind in both eyes. The employer contended that the claimant's condition was not due to trauma but to syphilis. Whether or not the claimant's blindness was due to the trauma or to syphilis, said the Supreme Court of Errors was a medical question on which the witnesses called by the two parties were diametrically in opposition. Two physicians testifying for the claimant expressed the opinion that loss of sight which the claimant was suffering was due to the injury received while working in the tank. The medical testimony for the company was that the condition was wholly due to syphilis or to the treatment therefor. In the conflict of testimony as to the cause of the claimant's disability, the court said, it was the province of the commissioner to determine the matter and with his conclusion the court felt disinclined to interfere.

In the course of the hearing before the commissioner a medical expert on behalf of the claimant was asked how he accounted for the 90 per cent loss of vision in the claimant's right eye by reason of the injury to the left eye. The witness stated that he could not answer the question from personal experience but read to the commissioner a statement concerning the matter from a medical book. The employer contended that it was error for the commissioner to receive the statement in evidence. This contention the court said, overlooks the nature of the hearing before the commissioner. The law provides that the commissioner shall not be bound by the ordinary common law or statutory rules of evidence or procedure and is therefore permitted great latitude in the admission of evidence. The employer further contended that an award of compensation to the claimant was not permissible because the workmen's compensation act provides that in case of an accidental injury a disability or death due to the acceleration or aggravation of syphilis does not constitute a compensable injury. Under this provision the court said, where the effect of the injury is to accelerate or aggravate the constitutional disease, no recovery can be had. The provision, however, was

not intended to prevent compensation in all cases. Compensation is not made to depend on the condition of health of the employee or on his freedom from liability to injury through a constitutional disease or latent tendency. If the injury is the cause of the disability, it is compensable even though such an injury might not have caused the disability if occurring to a healthy employee or even an average employee. In the present case the ultimate conclusion of the commissioner was that the injury which the claimant received because of his condition affected the optic nerve in such a manner as to result in loss of sight of both eyes. As the record supported this conclusion, the court said, the disability was compensable.

The cause was remanded to the superior court, with directions to enter judgment for the claimant—*Nicotra v Bigelow, Sanford Carpet Co (Conn)*, 189 A 603

Workmen's Compensation Acts Disfigurement Not a Compensable Disability—The claimant's face was badly scarred by acid, resulting in considerable disfigurement. He was otherwise injured and instituted proceedings under the workmen's compensation act of New Jersey. The question as to whether or not disfigurement constituted a compensable disability eventually was presented to the supreme court of New Jersey.

A reading of the several sections of the workmen's compensation act, said the court, clearly indicates a legislative purpose to provide compensation for disability which disqualifies an employee from doing work in whole or in part. In *De Zeng Standard Co v Pressey*, 86 N J Law 469, 92 A 278 (affirmed in 96 A 1102) the court said:

The disability intended thereby (the act) is a disability due to loss of a member or part of a member or of a function rather than to mere loss of earning power.

In that case it was claimed that if there was injury but no loss of actual wages there was no loss of earning power, and that this precluded an award. The court, however, refused to take this view, declaring that it was disability alone that counted, whether loss of physical parts or loss of function. In the present case the court said that the disfigurement and scars on the claimant's face may well deter employment and thereby lessen his earning power, but they in no wise impair his ability to work. If disfigurement, standing alone, is to be made the basis of compensation, it must be done by the legislature and not by an extension of the act by judicial construction. If and when such legislation shall be deemed desirable, the court said, the legislature can determine what types of disfigurement, marks and scars, and on what portion of the face, head or body, shall be considered, and within what limits and bounds awards of compensation shall be made—*Everhardt v Newark Cleaning & Dyeing Co, (N J)*, 189 A 926

Workmen's Compensation Acts Student Nurse an Employee Within Meaning of Act—The claimant, a student nurse at the defendant hospital, apparently sustained an injury, the nature of which does not appear in the record. In affirming an award of the industrial accident board granting her compensation, the supreme court of New York, appellate division, third department, held that, while the claimant's remuneration consisted solely of room, maintenance, education, and training, she was an employee of the hospital within the meaning of the workmen's compensation act—*Nelson v St Francis Hospital (N Y)*, 202 N Y S 552

Medical Practice Act Enforcement by Quo Warranto, Burden of Proof—The state of Alabama, on relation of the solicitor of the ninth judicial circuit, instituted proceedings in the nature of quo warranto against the appellant, charging him with intruding himself into the profession of treating or offering to treat diseases of human beings. The trial court gave judgment against the appellant, who thereupon appealed to the court of appeals of Alabama.

The burden rested on the state said the court, to offer evidence to sustain the material allegations of the complaint and until such evidence was produced the appellant was under no duty to undertake to disprove the charges against him. Only two witnesses were examined by the state. The appellant offered no testimony. A practicing physician testified that he

was called to attend a patient and saw the appellant there and that he, the appellant, rubbed the patient's arms and legs. The other witness testified that he told the appellant that he had a pain in his leg and that the appellant rubbed it for him. In the opinion of the appellate court, this evidence did not entitle the state to a verdict, for there was a total lack of any proof tending to show that the appellant committed any of the acts charged in the complaint. The evidence in its strongest phase against the appellant, the court said, merely showed that on the occasions mentioned he merely rubbed the extremities of the two persons who were suffering from pain. In *Thompson v State*, 228 Ala 231, 153 So 470, the Supreme Court of Alabama said:

The treatment as set out in the opinion of the Court of Appeals was massages by the defendant of two persons, one of whom had a pain in her shoulder and the other a pain in the neck, and this being so the state failed to show that the defendant treated them for a disease.

We find no discussion of the word 'disease' as used in a criminal statute but many of the leading courts in defining the word 'disease' hold that it means more than a mere temporary pain or disorder.

Relying on the foregoing decision of the Supreme Court of Alabama, the court in the present case held that the verdict and the judgment based on it were impregnated with error and could not be sustained. The appellant was therefore discharged from further custody—*Ferguson v State ex rel Bailey (Ala)*, 172 So 350

Society Proceedings

COMING MEETINGS

- Academy of Physical Medicine Philadelphia, Oct 19 21 Dr Herman A Osgood 144 Commonwealth Ave Boston Secretary
American Academy of Ophthalmology and Otolaryngology Chicago Oct 10 15 Dr W P Wherry, 107 South Seventeenth St Omaha Executive Secretary
American Association of Obstetricians Gynecologists and Abdominal Surgeons Hot Springs Va Sept 20 22 Dr James R Bloss 418 Eleventh St, Huntington W Va Secretary
American Association of Railway Surgeons Chicago Sept 20 22 Dr Daniel B Moss 547 W Jackson Bldg Chicago Secretary
American Clinical and Climatological Association Baltimore Oct 11 13 Dr Francis M Rackemann 263 Beacon St Boston Secretary
American College of Surgeons Chicago Oct 25 29 Dr George W Crile 40 East Erie Street Chicago Chairman Board of Regents
American Congress of Physical Therapy Cincinnati Sept. 20 24 Dr Richard Kovacs 1100 Park Ave New York Secretary
American Hospital Association Atlantic City N J Sept 13 18 Dr Bert W Caldwell 18 East Division St Chicago Executive Secretary
American Public Health Association, New York, Oct 5 8 Dr R M Atwater 50 West 50th St New York Executive Secretary
American Roentgen Ray Society Chicago Sept 13 17 Dr Eugene P Pendergrass 3400 Spruce St Philadelphia Secretary
Association of American Medical Colleges San Francisco Oct 24 26 Dr Fred C Zapffe 5 South Wabash Ave Chicago Secretary
Association of Military Surgeons of the United States Los Angeles Oct 14 16 Dr H L Gilchrist Army Medical Museum Washington, D C Secretary
Central Association of Obstetricians and Gynecologists Dallas Texas Oct 14 16 Dr Ralph A Reis 104 South Michigan Bldg Chicago Secretary
Clinical Orthopaedic Society Chicago Oct 14 16 Dr H Earle Conwell 215 Medical Arts Bldg Birmingham Ala Secretary
Colorado State Medical Society Colorado Springs Sept 22 25 Mr Harvey T Sethman 537 Republic Building Denver Executive Secretary
Delaware Medical Society of Wilmington Oct 12 13 Dr W H Speer 917 Washington St Wilmington Secretary
Indiana State Medical Association French Lick Oct 4 6 Mr T A Hendricks 23 East Ohio St Indianapolis Executive Secretary
Inter State Postgraduate Medical Association of North America St Louis Oct 18 22 Dr W B Peck 27 E Stephenson St Freeport, Ill Managing Director
Kentucky State Medical Association Richmond Sept 13 16 Dr A T McCormack 532 West Main St Louisville Secretary
Michigan State Medical Society Grand Rapids Sept. 27 30 Dr L Fernald Foster, 311 Center Ave Bay City Secretary
Mississippi Valley Medical Society Quincy Ill Sept. 29 Oct 1 Dr Harold Swanberg 510 Maine St Quincy Ill Secretary
Nevada State Medical Association Ely Sept 24 25 Dr Horace J Brown 120 N Virginia St Reno Secretary
Omaha Mid West Clinical Society Omaha Oct 17 22 Dr J D McCarthy 107 South Seventeenth Street Omaha Secretary
Oregon State Medical Society Salem Oct 21 23 Dr Morris L Bridgeman 1020 S W Taylor St Portland Secretary
Pennsylvania Medical Society of the State of Philadelphia Oct 4 7 Dr Walter F Donaldson 500 Penn Avenue Pittsburgh Secretary
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Current Medical Literature

AMERICAN

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American Journal of Cancer, New York

30 435 666 (July) 1937

- Cancer and Human Races C Bonne Batavia Java—p 435
Malignant Rhabdomyoblastomas of Skeletal Musculature A I Rakov Leningrad, U S S R—p 455
Recovery in Locke's Solution of Retarding Agent from Immune Rats W H Woglom New York—p 477
Metastases in Squamous Cell Carcinoma E M Burke Buffalo—p 493
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*Sex Hormones and Cancer Some Effects of Interplay of Sex Hormones on Incidence of Mammary Cancer in Mice W S Murray, Bar Harbor Maine—p 517
Age Distribution of 1250 Spontaneous Carcinomas of Mammary Gland in Female Mice of the A Strain L C Strong New Haven Conn—p 527
Mammary Tumors in Mice in Relation to Nursing J J Bittner, Bar Harbor Maine—p 530
Value of 'Functional Test' in Selecting Material for Genetic Study of Mammary Tumors in Mice and Rats H J Bagg and J Jackson, New York—p 539
Action of Ferricyanide on Tumor Cells B Mendel, Toronto—p 549
Effect of Fatty Acid Structure on Inhibition of Growth of Chicken Sarcoma O M Helmer and G H A Clowes Indianapolis—p 553
Compounds Synthesized from Proteins and Carcinogenic Hydrocarbons H J Creech and W R Franks Toronto—p 555
*Menopausal Age in Women with Cancer of the Breast I Y Olch Los Angeles—p 563
Primary Lymphosarcoma of the Ovary Report of Case H A Durfee B F Clark and J H Peers Burlington Vt—p 567
Xeroderma Pigmentosum with Carcinoma of Lower Lip in Two Brothers Aged 16 and 13 Years E T Bell, Minneapolis, and T P Rothnem Fargo, N D—p 574
Observations on Use of Lead Diaphragm to Collimate an X-Ray Beam for Treatment Purposes M C Reinhard and C F Candee, Buffalo—p 577

Sex Hormones and Cancer—From the data that Murray obtained from a study of 189 parabiotic pairs of mice, it seems that the introduction of the male hormones into the blood stream of the female causes an upset in her sexual cycle. The ovaries are stimulated to a precocious and prolonged production of follicles which degenerate within the gland, with the result that no luteal tissue is formed. Since none of these females developed mammary tumors, it seems reasonable to assume that the proliferation and change to malignancy in the mammary glands may be due, in some measure, to the luteal fraction of the ovarian hormone. On this hypothesis, the observed difference in cancer incidence between the breeding and the virgin females may be explained as being due to the prolonged luteal phase of pregnancy. It is also supported by the observation of Lacassagne, who found a correlation between the rapidity of normal estrous cycles and the incidence of cancer in mice.

Menopausal Age in Women with Cancer of the Breast—Olch collected 342 instances of cancer of the breast in women first coming to medical attention when they were more than 50 years old. These cases were unselected except that women who had had previous pelvic operations were excluded. There were 54.7 per cent who were still menstruating at the time of observation or who had passed through the menopause after the age of 50. That is, almost five times as many women in this group had a delayed menopausal age as compared to a series of normal women. This difference is too striking to be disregarded and coupled with past clinical and the more recent experimental knowledge, forces the author to the conclusion that delayed or prolonged menstruation is a factor to be considered in the etiology of this disease in older women.

American J Digest Dis & Nutrition, Fort Wayne, Ind

4 281 354 (July) 1937

- Treatment of Amebic Colitis with Diiodohydroxyquinoline (Diodoquin) D N Silverman New Orleans—p 281
Complement Fixation Test for Amebiasis with Increased Antibody Content E Weiss and L Arnold Chicago—p 282
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*Study of Peptic Activity by Means of Double Histamine Test A B Rivers and Frances R Vanzant Rochester Minn—p 304
Effect of Oral Administration of Bile Salts on Composition of Human Fistula Bile K G Kohlstaedt and O M Helmer, Indianapolis—p 306
Gastroscopy as Diagnostic Procedure E B Freeman, Baltimore—p 312
Galactose Tolerance and Urobilinogen Tests in Differential Diagnosis of Painless Jaundice F W White Boston—p 315
Production of Peptic Ulcers in Rats and Mice by Diets Deficient in Protein F Hoelzel and Esther Da Costa, Chicago—p 325
Pathogenesis of Senile Osteoporosis Relations to Morbus Cushing and Basophilia of Anterior Pituitary E Lyon Jerusalem Palestine—p 332

Study of Peptic Activity by Means of Double Histamine Test—Rivers and Vanzant performed the double histamine test in sixty-six cases. A large number of the patients had peptic ulcer. From the results obtained, it is evident that the argument that the secretion of pepsin is not stimulated by histamine but that preformed pepsin is merely washed out breaks down because the shortness of the interval (one hour) between the two injections precludes the possibility of pepsin accumulating in the tubules in large quantities. The curves show that the secretion of pepsin reaches its height in the first twenty minutes after injection and then falls rather abruptly to a low level. Following the second injection of histamine, an almost identical curve was observed except that slightly higher values for pepsin were obtained in the first ten minutes after the first injection than were obtained in the corresponding period after the second injection. This difference may well be due to a washing out of preformed pepsin by the first injection.

American Journal of Diseases of Children, Chicago

54 209 458 (Aug) 1937

- Sternal Marrow Puncture in Infants and in Children K Kato Chicago—p 209
Bacteriologic Studies of an Epidemic of Pleurodynia M L Cooper and Helen M Keller Cincinnati—p 231
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Utilization of Organic and Inorganic Iron by Normal Infant Helen Oldham, F W Schultz and Minerva Morse, Chicago—p 252
Four Lead Electrocardiogram of Children P F Dwan and M J Shapiro Minneapolis—p 265
Human Convalescent Serum in Prevention and Modification of Measles C M Hyland and Lucile Russell Anderson Los Angeles—p 277
*Human Passive Transfer Antibody I Titration by Neutralization V W Lippard and W M Schmidt New York—p 288
Studies with BCG IV Focal and General Tissue Response and Humoral Response Intradermal Route S R Rosenthal, Chicago—p 296
Dietetic Treatment of Eczema in Infants and in Children H Finkelstein, Berlin, Germany—p 344

Passive Transfer Antibody—For the technique developed by Lippard and Schmidt for titration of the passive transfer antibody, blood is obtained from patients with allergic disorders, the serum is separated and stored in sterile rubber-capped vials. Concentrated antigen solutions of known nitrogen concentration, prepared within six months, are freshly diluted when mixtures are to be made. The stock solution is diluted so that 1 cc contains 0.15 mg of total nitrogen. Progressive dilutions of the stock solution are prepared (1, 2, 1.5, 1, 10, 1, 20, 1, 50, 1, 100 and 1, 1,000). The diluent is physiologic solution of sodium chloride containing merthiolate in a concentration of 1:2,000. For the preparation of antigen-antibody mixtures 0.4 cc of undiluted serum is placed in each of seven vials, 0.1 cc of one of the antigen dilutions previously mentioned is added to each vial. The final dilution of merthiolate in the mixtures is 1:10,000. One-tenth cubic centimeter of each mixture is injected intracutaneously at intervals of approximately 5 cm into the arms of three recipients who are in good health and have no history of allergic disorders. When the antigen concerned is a food, it is eliminated from the recipients' diets until the subsequent injection. Secondary injection

tions of antigen are administered from one to three days after the injection of the antigen-antibody mixtures. As a preliminary test, to exclude the possibility of natural sensitivity, recipients are tested endermally with 0.02 cc of a strong concentration of the antigen (containing 0.3 mg of nitrogen per cubic centimeter). If no significant local reaction appears, the same solution is injected intramuscularly into the external aspect of the thigh. The sites previously sensitized with serum-antigen mixtures are then observed for wheals, which may appear from twenty minutes to two hours later. The dimensions of the reactions are recorded. The titer of the serum is based on the antigen concentration of the mixture at the site above the first wheal. The technic has been found useful in the study of fluctuations of the passive transfer antibody content of human serums in terms of antigen equivalence. Experiments concerning several factors involved in the technic, such as the standardization of intramuscular injections, the stability of antigen-antibody mixtures and the specificity of neutralization, are described. The method has demonstrated variations in the titer of the passive transfer antibody in serums of persons hypersensitive to a variety of antigens.

American Journal of Medical Sciences, Philadelphia

194 149 292 (Aug.) 1937

- The Effects of Protamine Insulin and Related Compounds in Normal and Pancreatized Dogs R B Kerr and C H Best Toronto—p 149
- Investigation on Volunteers Infected with the Influenza Virus A A Smorodintseff, M D Tushinsky, A I Drobyshevskaya, A A Korovin and A I Osetroff Leningrad, U S S R—p 159
- *Value of Fever Therapy in the Arthritides E E Simmons Omaha—p 170
- Studies in Syphilitic Cardiovascular Disease I Uncomplicated Syphilitic Aortitis An Asymptomatic Condition R Wilson Jr Charleston S C—p 178
- Idiopathic Myocardial Degeneration Associated with Pregnancy and Especially the Puerperium B A Gouley T M McMillan and S Bellet Philadelphia—p 185
- Myocardial Abscess with Perforation of the Heart S Weiss and R W Wilkins Boston—p 199
- The Role of Distention in the Genesis of Acute Inflammation of Hollow Viscera W F Bowers Minneapolis—p 205
- The Metabolism of Nephrectomized Dogs A G Eaton, Shirley C Cordill and J L Gouaux New Orleans—p 214
- Tuberculin Skin Sensitivity in Chronic Tuberculosis in the Course of Hospital Treatment Measurement by Standard Tuberculin (Purified Protein Derivative) Marian G Hayes J R Pastor L R Gaetan, R A S Cory and E R Long Philadelphia—p 220
- Considerations and Experiments on the Hypersensitive Nature of Amino pyrine Agranulocytosis C Holten Aalborg Denmark—p 229
- The General Hospital Its Psychiatric Needs and the Opportunities It Offers for Psychiatric Teaching E G Billings Denver—p 234
- Frequent Psychiatric Complications in General Practice F G Ebaugh Denver—p 243
- *The Importance of Soft Tissue Lesions in Arthritis D H Kling Los Angeles—p 257
- The Formol Gel Reaction Convenient Preliminary Test for Hyperglobulinemia C R Wise and A B Gutman New York—p 263

Value of Fever Therapy in Arthritides—Simmons points out that, of nine cases of acute rheumatic fever with active endocarditis, six became inactive in an average of twenty-four days, following an average of five fever treatments. Three cases of acute rheumatic fever with active endocarditis and complicated by chorea became inactive in an average of forty-six days, following an average of nine fever treatments. This is a marked improvement over any other type of therapy and justifies further investigation. Of twenty-three cases of gonorrheal arthritis, 82 per cent were cured or markedly improved after an average of 26.4 hours of fever maintained between 106 and 107 F. A minimum of at least twenty-five hours of fever at this elevation is necessary before this therapy is concluded to be a failure. Artificial fever therapy is a valuable adjuvant, along with dietary, supportive and orthopedic measures, in the treatment of atrophic arthritis. This combination of treatment was of benefit in 78 per cent of the thirty-six patients treated. Hypertrophic arthritis is benefited by artificial fever therapy only in those cases in which there is a superimposed traumatic and infectious element. In any type of arthritis with or without an infectious element, heat is a justifiable therapeutic measure. Other means of producing febrile reactions are not so efficiently controlled nor so safe as mechanically induced fever therapy. The beneficial effects of fever therapy in the arthritides, with the possible exception of

gonorrheal arthritis, are in all probability not solely bactericidal but rather the result of the beneficial effects of vasodilatation and increased immunologic response.

Importance of Soft Tissue Lesions in Arthritis—Kling believes that the usual cursory examination of the joints and periarticular structures in arthritis has resulted in an overvaluation of x-ray signs. Routine roentgenograms, however, give details only of bone structure. Shadows of the soft tissues are, at best, poorly registered. Therefore they are usually disregarded and the diagnosis is based solely on the changes in bony articular structures. The danger of such misinterpretation is realized if one considers that the finding of spurs is accepted as evidence for the presence of osteoarthritis (hypertrophic arthritis). Degeneration of cartilage and osteophytes at the articular surfaces are present in more than 80 per cent of persons more than 40 years of age. Clinical symptoms, however, develop in not more than from 5 to 10 per cent. Indeed, spurs are seen in most roentgenograms of persons past middle age who have never experienced trouble in their joints. It will be a great stimulus to develop advanced methods for registering the soft tissues. A beginning was made in this direction by the inflation of air or other gases or by the injection of contrast mediums into the joint cavity. These methods, under favorable circumstances, show changes in the soft tissues, such as tears in the cartilages or hypertrophy of the synovial membrane. Unlike changes in bone, lesions of the soft tissue are almost invariably associated with clinical symptoms. The great effort should be expended to advance the knowledge of the structure and behavior of the soft tissues in health and disease.

American Journal of Ophthalmology, St. Louis

20 675 776 (July) 1937

- Melanoblastoma of Lacrimal Caruncle Report of Case and Review of Literature J O Wetzel, Lansing Mich—p 675
- Chiasmal Syndrome and Retrobulbar Neuritis in Pregnancy A Hagendoorn Amsterdam Netherlands—p 690
- Dimethyl Sulfate Poisoning in Relation to Ophthalmology S de Gréss, Budapest Hungary—p 700
- *Retrobulbar Neuritis in Pellagra M Fine and G S Lachman San Francisco—p 708
- Surgery of Leprous Eye F J Pinkerton, Honolulu Hawaii—p 715
- The Souter Tonometer F H Verhoeff Boston—p 720
- Diastolic Pressure and Glaucoma Note I Hartshorne New York—p 724
- Lundsgaard's Modification of Holth's Iridencleisis K W Constantine Birmingham Ala—p 728
- Goniocopy of Surgical Colobomas of Iris M P Solanes Mexico D F—p 731

Retrobulbar Neuritis in Pellagra—Fine and Lachman have observed three patients suffering from pellagra who had impaired vision due to retrobulbar neuritis. In the first of these the retrobulbar neuritis was diagnosed several weeks before signs of pellagra appeared. In each case the presence of skin lesions led to the correct diagnosis. With the present state of knowledge of pellagra, one can only speculate about the relationship of the pellagrous syndrome to the visual disturbances. The etiology of the disease is still unsettled. Since vitamin B or G, was separated from the antineuritic factor B₁, it has become more and more apparent that even G is a complex of various factors the number and nature of which are not at all understood. The history in these cases is usually that of chronic alcoholism over many years with the appearance of pellagra-like symptoms after a spree lasting several weeks. It has been suggested that the important factor in these cases is undernutrition and damage to the alimentary tract from the alcohol, interfering with absorption. In considering the ocular disturbance associated with pellagra, the problem of the role of alcohol becomes more significant in view of the relative frequency of so-called tobacco-alcohol amblyopia. The association of tobacco with ethyl alcohol in producing injury to the visual fibers is a constant one. There has been an increasing tendency to regard alcohol as an exciting factor in tobacco amblyopia. Recently the role of chronic alcoholism in peripheral neuritis has been questioned. It does not seem improbable that a relationship such as exists between vitamin B₁ deficiency and the peripheral nervous system may also exist between vitamin B (G) deficiency and the central nervous system, of which the optic nerve is a part and that in each case the alcoholism plays only an indirect part. Such a quantitative relationship would offer an explanation of the fact that some alcoholic

addicts never suffer from amblyopia, while other relatively moderate drinkers suffer serious insult to the visual fibers. The question arises whether many cases of "alcohol and tobacco" amblyopia are not complicated by a deficiency of vitamin G

American Journal of Orthopsychiatry, Menasha, Wis
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The Grandmother A Problem in Child Rearing H Vollmer, New York—p 378

American Journal of Physiology, Baltimore
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Effects of Sodium Deprivation on Animal Organism Elsa Orent Keiles A Robinson and E V McCollum Baltimore—p 651

Seasonal Variations in Number of Platelets—Tocantins, by obtaining counts of the platelets and erythrocytes from twenty-eight white male medical students, observed that the number of platelets in arterial and venous blood from the upper extremity in man is significantly higher in the winter than in the spring, there are no significant differences between counts on cutaneous blood in the two seasons. In the winter the number of platelets in arterial blood is significantly higher than in venous blood, it is also significantly higher in venous than in cutaneous blood. In the spring there are no statistically significant differences between the means of platelet counts on blood from the three sources. There are no significant differences between the erythrocyte counts in the two seasons.

American Journal of Public Health, New York
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Saliva Cell Count in Myelogenous Leukemia—Allen and Dickey agree with Isaacs' conception of the effects of irradiation on chronic myelogenous leukemia (that in health a fairly constant relationship exists between the cells in the saliva and those in the blood and that in aleukemic leukemia as the leukocytes of the blood decrease in number the saliva count mounts) and urge frequent, detailed microscopic studies of the blood and saliva by those who treat myelogenous leukemia. Ten cases of chronic myelogenous leukemia are cited and a detailed consideration of their response to irradiation as depicted in graphs of blood and saliva counts is given. The major effect of irradiation on the blood is maturation of the myelocyte to the polymorphonuclear stage and division and reproduction of primitive myeloblasts and myeloblasts, as described by Isaacs. Irradiation under certain circumstances and special dosage may cause death of some of the abnormal blood cells. A little evidence which points toward an irradiation effect on the blood stream-gastro-intestinal threshold of leukopenesis is presented.

Radiation Treatment of Hyperthyroidism—Harris reports on the 350 patients that were given radiation therapy for toxic goiter at the University Hospital. Of this number only 244 could be used for statistical study. The women outnumbered the men about four to one. The majority of the patients were in the third, fourth or fifth decade of life. The duration of symptoms ranged from a few weeks to two years or more. The greatest number had been ill less than six months. The patient whose major symptom is nervousness, who has a small soft goiter and who has been ill six months or less has the best prognosis for relief by irradiation. All children with thyrotoxicosis should be given irradiation before surgical intervention is considered. Adequate irradiation of the thyroid in this disease is followed sufficiently often by satisfactory permanent remission to justify a carefully controlled trial. If definite improvement does not appear within three months, or if a marked exacerbation of the disease appears at any time, irradiation should be stopped and preparation for thyroidectomy begun. By such a course the thyroid can be saved and this is important to the adolescent whose endocrines are in the process of adjustment for adult life. Serious visceral changes can be prevented by a careful selection of patients and

by careful observation and check of the status of the disease while treatment is being given. A temporary exacerbation of the symptoms of thyrotoxicosis can be expected for from twenty-four to seventy-two hours after the first few treatments. This reaction is not serious and ordinarily subsides with rest and sedatives. In the occasional patient there is a slight to mild cutaneous reaction in the area treated. This is never more than a first degree reaction and soon disappears. The possibility of alopecia developing while the patient is under treatment must be kept in mind. Not infrequently this is a symptom of the disease and is never the result of irradiation if ordinary care is taken to protect the hair with lead rubber. A release card, which mentions the possibility of alopecia, should be signed by the patient or responsible relative. There is also the possibility of depressing the thyroid activity to the point at which myxedema develops. This can be readily controlled by thyroid medication. The size of the goiter is influenced little if any by irradiation. With the present selection of cases, excellent results are being obtained, as evidenced by the 90 per cent of cases improved during the years 1932 and 1933. The latter cases have not been followed long enough for definite conclusions to be drawn. Some of the good results during the latter period are probably due to a better recognition of the type of case amenable to irradiation. Postoperative recurrences are treated without selection.

Arkansas Medical Society Journal, Fort Smith

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- What the Practitioner Should Know About Urology J. H. Sanford
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Lateral Sinus Thrombophlebitis Clinical Study H. W. Lyman,
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Endocrinology, Los Angeles

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- Neural and Endocrine Factors in Bodily Defense F. M. Pottenger,
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Chicago—p. 541

Protective Influence of Adrenal Hormones Against Tuberculosis—After administering adrenal products to tuber-
culous patients who suffered greatly with malaise and lack of
vigor—some with toxemia, others without, and noting an
improvement in their vigor, a lessening of their fatigue and an
apparent beneficial effect on the tuberculous process, the
Pottengers carried out experiments on guinea-pigs to test

whether extracts made from the adrenal containing adrenal
cortex extract would exert any effect on tuberculosis either in
the susceptibility to infection or in the character of the lesion.
The longevity and the extent and nature of the disease found
at necropsy in animals treated with cortical extract are com-
pared with untreated controls and animals treated with other
substances. Of twenty-four untreated animals inoculated with
100 \pm 10 tubercle bacilli obtained from fresh human sputums
and five inoculated but treated with insulin, all became infected.
Twelve of forty-three inoculated animals (28 per cent) that
received cortical extract for periods varying from ten days
to the entire life of the animals showed at necropsy no evidence
of tuberculous infection. It was further found that infection,
when present, differed from the infection in untreated animals
in that it was milder and less extensive.

Journal of Biological Chemistry, Baltimore

118 549 814 (May) 1937

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H. T. Edwards and W. V. Consolazio Boston—p. 635
Id. VII. Man at High Altitudes D. B. Dill J. H. Talbot and W.
V. Consolazio Boston—p. 649
Diffusion Coefficient of Inulin and Other Substances of Interest in
Renal Physiology J. J. Bunim W. W. Smith and H. W. Smith
New York—p. 667
Further Studies on Concentration of Antipellagra Factor C. J. Koehn
Jr and C. A. Elvehjem, Madison Wis.—p. 693
Application of Spectrographic Analysis to Quantitative Determination of
Sodium Potassium Calcium and Magnesium in Biologic Fluids
K. B. Thomson and W. C. Lee, Ann Arbor, Mich.—p. 711
Vitamin C in Vegetables VI. Critical Investigation of Tillmans Method
for Determination of Ascorbic Acid G. L. Mack and D. K. Tressler,
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Formation of Methemoglobin by Various Tissues F. Bernheim and
H. O. Michel Durham N. C.—p. 743
Effect of Metaphosphoric Acid and Some Other Inorganic Acids on
Catalytic Oxidation of Ascorbic Acid C. M. Lyman, M. O. Schultze
and C. G. King Pittsburgh—p. 757

Journal-Lancet, Minneapolis

57 287 320 (July) 1937

- Fulminating Laryngotracheobronchitis N. A. Youngs and P. H. Woutat
Grand Forks, N. D.—p. 287
Tularemia Pneumonia E. G. Hubin, Deerwood Minn.—p. 289
*Theobromine Calcium Gluconate in Treatment of Cardiovascular Disease
T. Ziskin, Minneapolis—p. 292
Eyeground Examination as an Aid to Prognosis in General Medicine
M. F. Fellows Duluth, Minn.—p. 294
Acute Abdominal Symptoms Complicating Diagnosis Case Reports
J. L. McLeod Grand Rapids Minn.—p. 295
Artificial Pneumothorax Standard Method of Treatment J. A. Myers
Minneapolis and A. Levine Brooklyn—p. 298
Unit Method of Teaching Hygiene in College Helen L. Coops and
L. B. Cbenoweth, Cincinnati—p. 306
Physiologic Principles of Importance in Heart Failure and Its Treatment
M. B. Visscher, Minneapolis—p. 309

Theobromine Calcium Gluconate—Because of the known
tendency of theophylline preparations to cause gastric irritation
as a result of their prolonged use in cardiovascular disease,
Ziskin studied the effects of theobromine calcium gluconate in
fifty-two cases. Among these were twelve cases of hyperten-
sion, eleven cases of hypertension with cardiac decompensation
seventeen cases of coronary disease with angina pectoris and
twelve cases of coronary disease with cardiac decompensation.
Thirty-two were bed patients and twenty were ambulant. Many
of these patients had been taking theophylline with ethylene
diamine before being started on theobromine calcium gluconate.
Other drugs, such as digitalis, were used when necessary.
Theobromine calcium gluconate was given in doses of 0.32 Gm.
three times daily. This dose was later increased in some
patients to 0.65 Gm. three times daily. There was not a single
instance of nausea or gastric irritation in any patient from the
use of this preparation. Some of the patients have been taking
this drug continuously now for a period of nine months. Favor-
able results were noted in the majority of the patients in
relieving symptoms of congestive failure, angina and dyspnea.

and in some cases the results were very striking. In comparing the effects of aminophylline with theobromine calcium gluconate on the relief of cardiac symptoms, more favorable results were noted with the use of the latter. Eight of the fifty-two patients reported greater relief of pain when taking theobromine calcium gluconate. Twelve patients, who were taking the theobromine preparation and then changed to aminophylline, asked to be put back on theobromine calcium gluconate, stating that they received greater relief from their symptoms when taking this preparation.

Journal of Nutrition, Philadelphia

14 1110 (July) 1937

- Effect of Administration of Acid and Alkaline Salts on Ascorbic Acid Content of Guinea Pig Tissues. Estelle E Hawley R G Daggs and Doran J Stephens Rochester, N Y—p 1
- Comparative Experiments with Canned Home Cooked and Raw Food Diets. E F Kohman, W H Eddy Mary E White and N H Sanborn—p 9
- Influence of Specific Mineral Deficiencies on Growth of Body and Organs of Rat. E S Eppright and A H Smith New Haven, Conn—p 21
- Growth on Histidine and Lysine Administered by Subcutaneous or Intraperitoneal Injection. R M Conrad and C P Berg Iowa City—p 35
- *Claim for New Essential Dietary Factor in Mammalian Liver. Nellie Halliday and H M Evans Berkeley Calif—p 45
- Vitamin B and G Values of Peas and Lima Beans Under Various Conditions. Mary Swartz Rose and Esther H Funnell Phipard New York—p 55
- Effect of Acid Base Content of Diet on Production and Cure of Rickets, with Especial Reference to Citrates. A T Shohl Boston—p 69
- Symptomatology and Pathology of Potassium and Magnesium Deficiencies in Rat. G A Schrader, C O Prickett and W D Salmon Auburn Ala—p 85

Essential Dietary Factor in Mammalian Liver—Halliday and Evans performed experiments in an attempt to confirm the results of Elvehjem and his co-workers regarding the new essential dietary factor found in mammalian liver. Their results appear to indicate that the alcohol-ether precipitation procedure carries down vitamin B₆, since the precipitate is highly effective in preventing and curing severe dermatitis. They seemed to obtain a separation of flavine and vitamin B₆ by this method, the flavine passing into the supernatant liquid. Their results do not demonstrate a new factor essential in addition to vitamins B (B₁), flavine, B₆, and "B" as postulated by the other workers. However, until or unless results obtained in one laboratory can be duplicated in another, it is difficult to draw absolute conclusions. The difference in results may be due to biologic variations in the experimental animals. If such is the case, it will be difficult for one laboratory to confirm results obtained in another.

Journal of Pharmacology & Exper Therap, Baltimore

60 235 368 (July) 1937

- Reticulocytosis in the Guinea Pig. I. Use of Standard Guinea Pigs in Assay of Anahemin. M M O Barrie London England—p 235
- Id. II. Haematopoietic Response of Reactive Guinea Pigs to Anahemin and Other Substances. M M O Barrie, London England—p 245
- Effect of Galactose on Metabolism of Ethyl Alcohol in Man. T M Carpenter and R C Lee Boston—p 254
- Effect of Glucose on Metabolism of Ethyl Alcohol in Man. T M Carpenter and R C Lee Boston—p 264
- Effect of Fructose on Metabolism of Ethyl Alcohol in Man. T M Carpenter and R C Lee Boston—p 286
- Human Autonomic Pharmacology. V. Synergism of Prostigmin and Mecholyl. A Myerson M Rinkel, J Loman and P Myerson Mattapan Mass—p 296
- Propylene Glycol. Rate of Metabolism Absorption and Excretion, with Method for Estimation in Body Fluids. A J Lehman and H W Newman San Francisco—p 312
- Studies on Sex Difference in Rats in Tolerance to Certain Barbiturates and to Nicotine. H G O Holck M A Kanan, Lucille M Mills and E L Smith—p 323
- Methods of Anesthetizing Chimpanzees. J H Elder New Haven, Conn—p 347
- Chemical Studies on Moccasin Venom. I. Some Properties of Hemorrhagic and Hemolytic Components. S M Peck and W Marx New York—p 358

Kansas Medical Society Journal, Topeka

38 281 324 (July) 1937

- Relation of Life Insurance to Medical Practice. W E Thornton Fort Wayne Ind—p 281
- Treatment of Breast Cancer. Preliminary Report of 205 Cases. T G Orr and G M Tice Kansas City—p 287
- Anomalous Digastric Muscle. H B Latimer F D Baty and C T Jones Lawrence—p 290
- Treatment of General Paresis. M E Hyde Osawatonic—p 291

Kentucky Medical Journal, Bowling Green

35 317 358 (July) 1937

- Ambulatory Treatment of Diabetic. S T Simmons Louisville—p 320
- Use of Newer Insulin Preparations. B H Hollis, Louisville—p 323
- *Use of Pavax in Diabetes. C M Edelen Louisville—p 326
- Effect of Diet on Outcome of Pregnancy. P Rucker, Richmond Va—p 329
- Nephropathy with Case Summaries. L Atherton Louisville—p 332
- Mental Diseases and the General Practitioner. E S Dunham, Edmont—p 334
- Office Treatment of Rectal Diseases. W R Houston Erlanger—p 338
- Sequels of X-Ray Treatment. C D Enfield Louisville—p 341
- Treatment of Abscess of Liver. J G Sherrill Louisville—p 344
- Differentiation Between Medical and Surgical Gallbladder Diseases. S A Overstreet Louisville—p 346
- Medical Management of Gallbladder Disease. S A Overstreet, Louisville—p 348
- Glycosuria Following Intravenous Administration of Glucose. R Sparkman, Lexington—p 355

Passive Vascular Exercise in Diabetes—Edelen calls attention to the harmful effect of heat in the form of hot water bottles, hot packs, electric pads or cradles with electric lights. Accompanying the impaired circulation there is an impaired sensory mechanism and before one realizes it irreparable harm has been done to a toe or foot, with the formation of blebs or blisters. Heat also increases the metabolism of tissues up an extremity in which there is already a deficient circulation, and this leads to harmful results. It is in this instance that the use of passive vascular exercise is valuable, for with increase in cellular metabolism caused by heat passive vascular exercise therapy will bring about the needed increase in blood supply. The use of heat in combination with the exercise overcome vasospasm. It is a vital aid in developing collaterals and hastens the demarcation of spreading gangrene and is quite a factor in converting moist gangrene to dry gangrene. The best results from passive vascular exercises are obtained in patients with involvement of major arterial pathways and the least benefit is obtained in persons with extensive sclerosis of the arterioles of the feet and toes. In diabetic patients the so-called arteriolar bed is fairly good and passive vascular exercise valuable in restoring a circulatory balance. Thus mechanical means of reducing environmental pressure will not obviate surgical intervention but it will tend to more conservative surgical procedures, aid in demarcation of gangrene and promote healing.

Michigan State Medical Society Journal, Lansing

36 441 524 (July) 1937

- Roentgenologic Distinction of Benign from Malignant Ulcerating Lesions of Stomach. B R Kirklin Rochester Minn—p 453
- Treatment of Functional Gynecologic Disorders by Pituitary and Ovarian Irradiation. F A Ford and H M Nelson Detroit—p 457
- Radiation Therapy in Dermatology. C K Hasley Detroit—p 461
- Primary Carcinoma of Lung. J C Kenning Detroit—p 466
- Id. Pathology. O A Brines Detroit—p 468
- Treatment of Carcinoma of Lung. T Leucutia Detroit—p 470
- Cancer of Lung. Historical and Medical Aspects. W M Donald Detroit—p 472
- *Syncope as Result of Circulatory Disorders. G Herrmann, Galveston Texas—p 475
- Graduate of Fifteen Years Ago Looks Back. C F Dixon Rochester Minn—p 483

Syncope as Result of Circulatory Disorders—Ten years ago Herrmann began a study of the causes of sudden disability as determined in the emergency service of La Charite in New Orleans. The result of this study, covering the five years 1926 to 1930 inclusive, indicates that medical conditions and particularly cardiovascular diseases play an important part in the production of unconscious states. In the study of any patient in coma or recovering from a syncope seizure a swift general survey is in order, followed by neurologic and cardiovascular examinations. In the general survey the patient's color should be noted, with particular reference as to whether there is a rapidly increasing pallor or flushing or cyanosis or beads of perspiration about the face. A search should be made for evidences of trauma, scalp lacerations, bruises, depressions or fractures of the skull and attempts should be made to determine whether the trauma was administered before or after the faint. Odors such as the aroma of alcoholic beverages, acetone or other poison should be investigated. The character of the respiration should be noted. The neurologic examination should consider the eyelid reflex, of defense closure, the tonus

or flaccidity of the extremities, the tonus reflex of the neck and the involuntary reflex thumb extension and opposition on finger flexion (Mayer-Stiefler). The signs of greatest significance in the cardiovascular examination are usually to be found in the study of the heart action and blood pressure. A disturbed cardiac mechanism may result in a rapid or slow heart rate or a transient total absence of the heart beat. Auscultation may reveal the presence of murmurs of an acute or chronic valvulitis. The blood pressure in instances of cerebral vascular accident may be high or may be alternating, but usually temporary or permanent hypotension is to be found. Local circulatory disturbances involving the cerebral arteries dominate the group and attest the importance of blood pressure, eye-ground and neurologic examinations.

New England Journal of Medicine, Boston

217 85 122 (July 15) 1937

- Clinical Aspects of Primary Carcinoma of Gallbladder I R Jankelson Boston—p 85
Use of Gonadotropic Hormone of Pregnancy Urine in Treatment of Male Sexual Underdevelopment C H Lawrence and A M Harrison Boston—p 89
Maternal and Child Health and Crippled Children's Programs Under the Social Security Act Doris A Murray, Washington, D C—p 94
Fracture of Femoral Neck Treated by Internal Fixation Report of Seventeen Consecutive Cases H R Wheat Springfield Mass—p 97
Hereditary Ovalocytosis (Human Elliptic Erythrocytes) Observations on Ten Cases in One Family M B Strauss and Geneva A Daland Boston—p 100

New Jersey Medical Society Journal, Trenton

34 429 480 (July) 1937

- The Doctor's View of Hospitalization Insurance E A Ill Newark—p 435
Medical Dental Bureau and Hospitalization Insurance H H Satchwell Newark—p 440
Nurse Education and Training for Care of Sick A C Zehnder Newark—p 443
Social Security and Hospital Relationships T K Lewis Camden—p 447
Newer Methods in Diagnosis and Prevention of Whooping Cough G F Leonard New Brunswick—p 451
Infertility in Women Maternal Welfare Article Number Seventeen A Meurlin East Orange—p 455

New York State Journal of Medicine, New York

37 1271 1356 (July 15) 1937

- Endocrines Relation to Blood Disorders C Reich, New York—p 1271
Supraclavicular Brachial Plexus Block Accessory Therapeutic Measure in Arthritis of Shoulder Joint and Allied Conditions J M Tarsy Brooklyn and O Steinhilber New York—p 1275
Protamine Zinc Insulin Hypoglycemic Reaction E Tolstoi New York—p 1279
*Buerger's Theory Applied to Treatment of Secondary Anemia H Almour, New York—p 1283
Systolic Murmur Symptomatic Importance in Heart Muscle Weakness G Zuelzer New York—p 1289
Attachment for Use in Conjunction with the Scalpel F M Alaki Brooklyn—p 1293
Undulant Fever (Brucellosis) Difficulties in Diagnosis and Treatment Supplementary Report on Fifty One Cases with Observations on 120 Additional Cases H J Harris Westport—p 1295

Buerger's Theory Applied to Treatment of Secondary Anemia—Almour selected seven patients with secondary anemia and has treated them with a combination of the hematopoietic drugs. In the application of Buerger's principle to the treatment of secondary anemia there is available iron which serves as a hemoglobin builder, copper, which acts to stimulate erythrocytic formation, liver, which contains the intrinsic factor, vitamin B as the extrinsic factor, and calcium, which acts on bone and cell permeability. Thus, when combining all these, a multiplicity effect should result because of the different pharmacologic points of attack. A preparation containing liver extract 24 grains, iron albuminate 166 grains, calcium gluconate 1.2 grains, two Sherman units of vitamin B, and ten units of vitamin G was selected. The combined small doses, in preference to large doses of a single ingredient, should, according to Buerger's theory, produce the desired effect. In the patients observed the symptoms of lassitude, fatigue, loss of appetite, and the like cleared up after two weeks of therapy. The rise in hemoglobin was prompt, and in some instances an increase of 10 per cent was recorded after two weeks. The increase in red cells was not as marked. However, after one

month most patients showed counts of approximately 4,500,000 red cells. Two cases, while other than secondary anemia, are also included because they serve to confirm Hesse's method of using iron as a red cell stimulant and copper as a detoxifying agent to thyroxine.

Ohio State Medical Journal, Columbus

33 721 832 (July) 1937

- Diagnosis and Surgical Treatment of Abdominal Surgical Conditions in Young Infants L B Johnston Cincinnati—p 737
Some Interesting and Obscure Problems in Diagnosis and Treatment of Diabetes H J Joan Cleveland—p 741
Hypoglycemia in Infancy and Childhood J G Kramer Akron—p 749
Better Care of Uterine Cervix C D Heisel Cincinnati—p 755
Intrapontile Tumors Clinicopathologic Study J Sagebiel Dayton—p 760
Total Pneumectomy S O Freedlander Cleveland—p 769
Back Disorders of Psychic Origin J L Fetterman Cleveland—p 771
Case Record Presenting Clinical Problems Acute Abdominal Catastrophe in Forty Three Year Old Woman in the Seventh Month of a Pregnancy H L Reinhart, Columbus—p 782
Bedside Medicine R L Johnston Cincinnati—p 784

Radiology, Syracuse, N Y

29 1130 (July) 1937

- Gastric Mucosal Relief Modified Sedimentation Method Using Colloid ally Suspended Barium Sulfate Preliminary Report R A Arens and S D Mesirov Chicago—p 1
Biologic Measurement of Depth Doses C Packard, New York—p 19
Determination of X-Ray Quality by Filter Methods L S Taylor Washington D C—p 22
Differential Diagnosis of Bone Tumors of Extremities by Arteriography P L Fariñas Havana Cuba—p 29
Gangrene of Face Produced by Lymphosarcoma E M Shebesta Detroit—p 33
*Miliary Calcifications in the Spleen T M Berman Minneapolis—p 37
Radiation of the Thyroid Experimental Study in Radiosensitivity of the Thyroid C T Eckert, J G Probst and S Galinson St Louis—p 40
Biologic Test of Inverse Square Law as Applied to Roentgen Radiation H D Kerr Iowa City and T C Evans College Station Texas—p 45
Some Lawsuits I Have Met and Some of the Lessons to Be Learned from Them (Second Series Second Instalment) I S Trostler Chicago—p 52
Investigation of X-Ray Films and Developing Solutions C Weyl S R Warren Jr and D B O'Neill Philadelphia—p 64
Photographic Images Obtained in Total Darkness by Both Penetration and Reflection of Infra Red Radiation L C Massopust Milwaukee—p 79
Sources of Error in Radiologic Interpretation in Tumors of Bone A C Singleton Toronto—p 83
Roentgenologic Importance of Left Oblique Position in Cholecystography M Feldman Baltimore—p 89
Dependence of X-Ray Erythema on Wavelength J C Hudson Boston—p 95
*X-Ray Therapy in Amenorrhea A B Friedman and B Seligman New York—p 99
Value of Preliminary Film Without Opaque Mediums in Diagnosis of Abdominal Conditions J F Kelly and D H Dowell Omaha—p 104

Miliary Calcifications in the Spleen—In the last three years Berman has observed eighteen cases of miliary calcification in the spleen, discovered accidentally during the course of X-ray examinations of the chest and abdomen. Three cases showed a quiescent adult type of pulmonary tuberculosis. One patient, a girl 13 years of age, presented multiple calcified Ghon's tubercles in the right lung. Of these four, only one gave a clinical history of tuberculosis (urogenital). Another patient, 28 years of age, had a normal chest roentgenogram and the etiology of the splenic calcifications here is doubtful. The patient's age favors tuberculosis, but the absence of pathologic changes in the lung favors phleboliths. Two other cases are also doubtful but probably represent phleboliths. The remaining cases gave no clinical history of tuberculosis. In four, roentgenograms of the chest showed no pathologic signs, six exhibited calcified Ghon's tubercles. Three came to necropsy, including two which showed calcified primary tuberculous lesions in the lungs. Histologic study of all three showed the calcifications to be phleboliths. This intimates strongly that the mere presence of a Ghon's tubercle does not indicate the tuberculous nature of miliary splenic calcifications.

X-Ray Therapy in Amenorrhea—Friedman and Seligman treated nine consecutive cases of amenorrhea due to endocrinopathies with small doses of radiation and regular menstruation was reestablished in all. Endocrinologic stigmas other than the amenorrhea were not influenced by the treatment. The

dosage used in the treatment of the pituitary region was approximately as follows from 200 to 250 roentgens at the sella turcica. The factors were 200 kilovolts, 0.5 mm of copper plus 1 mm of aluminum, 40 cm focus skin distance, and 200 roentgens to each of two lateral fields and one anterior field. The dosage used in the ovarian irradiation was kept below 100 roentgens at the ovaries and administered through three or four pelvic fields, usually two anterior and two posterior pelvic ports. Regardless of the mode of action, evidence is fast accumulating that x-ray therapy to the pituitary gland and/or ovaries causes a return of the normal menstrual cycle. In some persons the menses are reestablished for a time and a second course of irradiation has to be given.

Science, New York

86 65 86 (July 23) 1937

- *Antiscorbutic Properties of Salt of Iron and Ascorbic Acid M. Pijoan Boston—p. 80
The Maynard Plum Carrier of Peach Mosaic Virus E. W. Bodine and L. W. Durrell Greeley Colo.—p. 81
A Companion Word for Plankton R. T. Morris Stamford Conn.—p. 81
Crystalline Protein with High Lactogenic Activity A. White, H. R. Crispole and C. N. H. Long New Haven Conn.—p. 82
Protective Action of Certain Purines Against Liver Necrosis Produced by Carbon Tetrachloride and Chloroform R. C. Neale Philadelphia—p. 83
Cortico-Adrenal and Neural Effects on Gonadotropic Activity of Pituitary H. B. Friedgood Boston—p. 84

Antiscorbutic Properties of Salt of Iron and Cevitamic Acid—Pijoan limits his communication to a discussion of a salt of reduced iron and the levorotatory form of cevitamic acid which has proved itself nontoxic when administered intravenously to either experimental or human subjects and has been used in his clinic for the treatment of secondary anemias. This salt was found to have a highly antiscorbutic property when given intravenously daily, over a period of six days to a patient with severe scurvy. A daily dose of 250 mg was sufficient to bring the plasma cevitamic acid level from 0.02 to 12 mg per hundred cubic centimeters and the withdrawal of marked scorbutic symptoms. This salt not only is successful in bringing ferrous iron into the treatment of secondary anemias but has valuable antiscorbutic properties in which single daily doses produce prolonged and increased plasma cevitamic acid values.

Southern Medical Journal, Birmingham, Ala

30 665 763 (July) 1937

- Subtentorial Tumors W. T. Coughlin St. Louis—p. 665
Roentgenologic Findings in Intracranial Lesions C. H. Heacock and N. Gotten Memphis Tenn.—p. 674
Correction of Depressed Deformities of External Nose with Rib Graft L. Cohen Baltimore—p. 680
Choice of Bone Grafts in Fracture Surgery W. K. West Oklahoma City—p. 685
Intracystic Papilloma and Papilocarcinoma of the Breast J. G. Dees and H. C. Schmeisser Memphis Tenn.—p. 690
Intestinal Obstruction Due to Posture R. A. Woolsey St. Louis—p. 696
Acute Mechanical Intestinal Obstruction Treatment and Results H. B. Stone and J. C. Owings Baltimore—p. 699
Gallbladder Disease Evaluation of Clinical and Radiologic Aspects in 700 Cases A. L. Levin and M. Shushan New Orleans—p. 705
Patent Urachus W. P. Herbst Washington D. C.—p. 711
Morbidity and Mortality in Supravaginal versus Complete Hysterectomy Q. U. Newell and W. C. Scrivner, St. Louis—p. 719
Responsibility of the Gynecologist to the So Called Neurotic L. F. Turlington Birmingham Ala.—p. 723
Hormone Sensitization Test for Pregnancy G. B. Greene Birmingham Ala.—p. 727
Benign Lymphocytic Choriomeningitis P. F. Dickens Washington D. C.—p. 728
Comments on Virus Diseases and Their Control E. W. Goodpasture Nashville Tenn.—p. 731
Autohemotherapy in Dermatology J. W. Jones and H. S. Alden, Atlanta Ga.—p. 735
Hyperglycemia in Skin Diseases J. R. Allison Columbia S. C.—p. 738
Evaluation of Modern Therapy in Diabetes Mellitus A. A. Herold Shreveport La.—p. 742
Preventive Pediatrics H. Casparis Nashville Tenn.—p. 746
General Plan and Objectives of a Maternal and Child Health Program A. McCown Washington D. C.—p. 750
Molds in Etiology of Asthma and Hay Fever with Especial Reference to Coastal Areas of Texas H. E. Prince Houston Texas and Marie Betzner Morrow Austin Texas—p. 754

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Disease in Childhood, London

12 133 192 (June) 1937

- Cerebral Sinus Thrombosis in Children J. H. Ebbs—p. 133
Congenital Obliteration of Bile Ducts in a Child Who Lived for Three Years and Three Months Constance Finlayson—p. 153
*Investigation into Health of 1,530 Preschool Children P. Henderson—p. 157
*Effect of Boiling on Nutritive Value of Milk S. Grabam and N. Morris—p. 169
Nuclear Jaundice in Neonatal (Umbilical) Sepsis with Jaundice A. Biemond and S. Van Crevel—p. 173

Health of Preschool Children—Henderson examined 1,530 preschool children to determine at what age physical defects appeared. Of 1,014 children less than 2 years of age, 526 (51 per cent) had physical defects other than constipation and disorders due to faulty methods of feeding, and of the 516 children over this age 362 (70 per cent) had one or more bodily defects. The fifteen most obvious disorders were digestive (104), congenital heart disease (nine), skin disease (145), hernia (fifty-two), orthopedic defects (thirty-six), defects of the nervous system (fifty-five) diseases of the eye (100), rickets (thirteen), enlarged tonsils and adenoids (345), otorrhea (sixty-one), palpable cervical glands (428), carious teeth (245) respiratory diseases (255), anemia (forty-nine) and malnutrition (ninety-five). There were fourteen other defects (thrush, harelip, goiter and the like) that were self evident. The author believes that to state, without qualification, that 60 per cent of the 1,530 children examined had physical defects would be to give a grossly distorted picture of the health of the preschool child. If it is agreed that unusual palpability of neck glands is not necessarily and in fact rarely is a sign of disease and that simple enlargement of the tonsils has no adverse effect on the child's health, only a minority of preschool children will be found to have physical defects other than carious teeth. But a substantial minority (166 per cent) have had or still have attacks of bronchitis, which in more than 50 per cent of cases followed an infective condition of the nasopharynx, or respiratory tract of some other member of the family. Malnutrition was a problem of importance, but a problem of much greater importance was that 30 per cent of 1,214 families whose economic state was specially investigated had incomes insufficient in amount to buy the food stated by the Nutrition Committee of the British Medical Association to be the minimum essential for health. Carious teeth became a problem only after the age of 2 years, but then it became a serious one and one that increased with age. Though an increasing and more regular attendance at the infant welfare centers will help to improve and foster the health—and thereby the happiness—of the preschool child, it is still felt that no great advance in the standard of health of the citizen of tomorrow can be expected until the problem of adequate feeding of all the children in the community is scientifically and thoroughly managed.

Effect of Boiling on Nutritive Value of Milk—In deciding whether or not sterilization alters the biologic value of milk, Graham and Morris gave two children aged 10½ and 7½ years a diet that supplied about 50 per cent of the caloric value of the diet and 70 per cent of the total protein in the form of milk. The caloric intake as well as that of protein, minerals and fat was ample. James S. was given boiled milk for three periods of seven days and raw milk for two such intervals. The reverse was true of Peter T. With James S. the retentions of phosphorus, nitrogen and fat showed no significant variations during the whole period of observation. Calcium retention showed a slight increase during the last two weeks on boiled milk. With Peter T., however, the change from raw to boiled and boiled to raw milk produced in each case a great increase in the retention of calcium and phosphorus, owing to a great decrease in fecal output. This increased retention was only apparent, as it was counterbalanced by the increased fecal output during the succeeding week. When the raw milk results are taken together and compared with the figures obtained during the two weeks on boiled milk, it is clear that the retention of calcium oxide and phosphate during the consumption of boiled milk is only slightly lower

than when raw milk was taken. It would appear that the change from raw to boiled milk and vice versa led to temporary periods of constipation. This is an observation which requires to be emphasized in the performance of retention experiments. It is generally held that a period of a week is sufficient for the determination of retention. These observations indicate that in some cases a fortnight may be necessary in order to prevent a temporary alteration producing a fallacious result. The results recorded here indicate that there is no evidence that over short periods the boiling of milk impairs either its absorption or its utilization, when there is an ample supply of proximate principles and minerals and when the caloric intake is adequate. It still remains possible that, over long periods or/and when the intake is no more than sufficient, the sterilization of milk might make a difference to the retention of essential substances.

British Journal of Ophthalmology, London

21 337 400 (July) 1937

- Prognosis in Papilledema G Holmes—p 337
Tarsorrhaphia Medialis Vera N I Shumkin—p 343
The Water Binding of the Brain J A van Heuven and P F Fischer—p 352
Atrophic Recession of Lamina Cribrosa A C Reid—p 361
Fibrocystic Disease of Frontal Bone (Paget's Osteitis) R E Wright—p 364
Acute Dacryo-Adenitis Due to Morax-Axenfeld Diplobacillus R E Wright and K Koman Nayar—p 367
Angiophlosis Retinae Report of Two Cases Ida Czukrasz—p 368
Ophthalmic Trephine Scissors J E Martin—p 377

British Medical Journal, London

2 1 48 (July 3) 1937

- *Chronic Monocytic Leukemia Case G S Smith—p 1
Vesical Extroversion with Control of Micturition A R Thompson—p 3
Tubo-Uterine Implantation for Sterility Followed by Full Term Pregnancy V B Green Armitage—p 6
Gaucher's Disease of Lungs B Myers—p 8
Temporary Postponement of Menstruation by Estradiol Benzoate G L Foss—p 10

Chronic Monocytic Leukemia—Smith believes that, accepting monocytic leukemia as a separate disease, a chronic form, as with the other leukemias, might be expected to occur, and the features of his case seem to warrant its recognition as an example of a chronic leukemia of monocytic type. The spleen, which weighed 1,531 Gm and was 24 cm long, was much larger than has been previously described in monocytic leukemia. The size of the spleen implies chronicity. The diagnosis rested between chronic lymphatic, myeloid and monocytic leukemia. The absence of nucleoli from most of the primitive cells, together with the fact that the nucleus was often divided into two or three parts, is quite unlike the picture of either myeloblasts or lymphoblasts, except for the absence of granules they were similar to cells drawn and described by Doan and Wiseman (1934) as premonocytes in a case of monocytic leukemia with a long history, ending in death from intercurrent disease. Two features in the case are worthy of comment. 1 The fact that active erythropoiesis was going on in the bone marrow, and the corresponding absence of any anemia in spite of a leukocytosis of 500,000 per cubic millimeter. A progressive anemia is almost the rule in leukemia of this degree. 2 The spleen was densely infiltrated with monocytes and primitive cells, the latter being more plentiful than in the bone marrow, suggesting that the monocytes were being produced chiefly in the spleen. Death occurred from nephritis.

Glasgow Medical Journal

10 1-40 (July) 1937

- *Diphtheria Immunization in the Nursing Staff of Ruchill Fever Hospital T Anderson—p 1
Myasthenia Gravis Its Treatment by Combination of Prostigmin and Glycine Ephedrine Therapy J W Macfarlane—p 7

Diphtheria Immunization in Nursing Staff—Anderson discusses the results of 198 nurses who came under an immunization scheme in which, without a previous Schick test all received injections of toxoid antitoxin floccules or alum-precipitated toxoid and all were completely protected from diphtheria. The nursing staff of a large fever hospital, admitting annually between 800 and 900 cases of diphtheria, is constantly and closely exposed to the disease. To eradicate the

infection completely, a more stringent method of control is necessary than would suffice for the ordinary population. In these circumstances it is not wise to be content with the immunization of the susceptible but it is necessary to ensure that resistance is increased by immunizing the whole staff. Apart from the obvious advantage of using two injections instead of three, alum-precipitated toxoid is no more efficient in the immunizing of adults than toxoid antitoxin floccules.

Journal of State Medicine, London

45 311 372 (June) 1937

- The Royal Institute of Public Health and the Institute of Hygiene
The Margate Congress, 1937 Horder—p 311
Public Opinion and Public Health G S Elliston—p 322
The Preschool Child The Marchioness of Reading—p 329
The Problem of the Chronic Open Case of Tuberculosis R A Young—p 332
Nutrition and Physical Training S Woodward—p 344
Sports Games and Sea Bathing R Cove Smith—p 350
Industry and the Health Resort L P Lockhart—p 358
Id E Bevin—p 367

Lancet, London

2 1 60 (July 3) 1937

- Observations on Structure of Substances Natural and Synthetic, and Their Reactions on the Body E C Dodds—p 1
*Study of Cretinism in London with Especial Reference to Mental Development and Problems of Growth A Lewis with assistance of Nancy Samuel and Janet Galloway—p 5
*Three Cases of Unusual Illness with Eosinophilia, One with Lesions in the Liver Resembling Those of Tularemia A P Thomson, G H Wilson and S McDonald—p 9
Nonparasitic Extradural Cyst of Spinal Canal T S B Kelly—p 13
Treatment of Carbuncles G Owens—p 16
Pseudohermaphroditism and Its Treatment Case E L H Ellis—p 17
Chronic Hemolytic Streptococcal Infection Treated with β Aminobenzenesulfonamide A W Purdie and R M Fry—p 18
Improved Type of Universal Fracture Frame W E Joseph—p 20
Splenectomy for Lymphadenoma Followed by Myeloid Leukemia A K Gordon—p 21

Cretinism in London—Lewis and his assistants examined seventy-nine patients who had been treated for cretinism. Detailed psychologic tests showed that it is possible for cretins to become mentally normal. The occurrence of other psychologic features, including traits of personality commonly called "obsessional," was established. Comparison of the patient's present intellectual level with treatment received indicated that promptness and continuity of thyroid administration were not alone decisive in determining whether or to what extent the child would remain backward. A few who had normal intelligence quotients had had inadequate treatment, a few with low intelligence quotients had been treated regularly from the time their symptoms appeared. In the majority, however, there was a rough correspondence between adequacy of treatment and intellectual level attained. The other factors which influence psychologic attainment were apparently the stage of development at which symptoms of thyroid deficiency appeared, the degree of this deficiency, the hereditary endowment of the child (as it might be inferred from the intellectual level and other specific features in his family), any cerebral damage either at birth or in infancy and the environmental influences (including special education). Problems of development, as assessed in the somatic and the psychologic spheres, also presented themselves in the inquiry and are discussed.

Unusual Illness with Eosinophilia—Thomson and his co-workers describe three cases of obscure illness. All the patients had eosinophilia. The first had symptoms of irritability of the colon and mild fever for some weeks. The second had prolonged and more severe fever with symptoms of an acute abdominal crisis and signs of a right subphrenic abscess for which a laparotomy was done, the liver was found to be grossly enlarged and infiltrated with granulomas which microscopically showed the changes heretofore regarded as characteristic of infection with *Bacterium tularensis*. The third had an attack of what appeared to be simple catarrhal jaundice. All three patients had been shooting rabbits in southwestern Ireland at the end of September 1936 and for ten days were in intimate contact. The first two patients had been shooting together in the same area for more than two months previously. There is no evidence of any epidemic plague among the rabbits but the local cats were dying in unusual numbers at the time. The first two patients gave negative agglutinations to *Bac*

terium tularensis and negative skin tests for trichinosis. Careful search for parasites was negative. The possible existence in the British Isles of infection with *Bacterium tularensis* or some allied organism is suggested.

Medical Journal of Australia, Sydney

1 935 976 (June 19) 1937

- Unveiling the Mystery of Growth J C Meakins—p 935
Incidence of Rheumatic Infections in Victoria H B Graham—p 944
Some Principles in the Management of Urethral Stricture M G Sutton—p 952
Malaria and Its Treatment by the General Practitioner A E Finckh—p 955

1 977 1008 (June 26) 1937

- Spastic Paralysis R Green—p 977
Surgical Treatment of Spastic Paralysis N D Royle—p 979
*Formol Toxoids in Prophylaxis of Gas Gangrene W J Penfold and Jean C Tolhurst—p 982
Peripheral Vascular Disease H S Stacy—p 989
Cerebral Softening J B Cleland—p 999

Formol Toxoids in Prophylaxis of Gas Gangrene—Penfold and Tolhurst find that formol toxoids of *Bacillus welchii* which have been rendered atoxic for mice in intraperitoneal quantities of 1 cc produce effective immunity in animals when given in from four to eight large injections. Suspensions of alum precipitates of similar formol toxoids given in two small injections a month apart are excellent immunizing agents in animals. Both active and passive immunity have been demonstrated. The purpose of their research was to determine whether the prophylaxis of gas gangrene in man by the use of formol toxoid was a feasible proposition or not. Their animal experiments suggest that it is, and at an early date they hope to apply it experimentally in man. If the experiments should prove successful, the indications for the use of the prophylactic would probably be in the army, particularly for contingents fighting in Europe, where the highly manured soil is frequently a source of infection, in women before the commencement of their childbearing life or in women about to have abortion induced for any legitimate indication, and for persons who take the risk of serious accidents, such as from farm machinery, motor racing and the like. The use of serum therapeutically in such persons may induce serum sensitivity, with its attendant risks, which could be avoided by the carrying out of active immunization.

Practitioner, London

139 1104 (July) 1937

- Old Age R Armstrong Jones—p 1
The Management of Disorders of Nervous System in Old Age D McAlpine—p 11
Respiratory Diseases in Old Age G Marshall—p 21
Rheumatism in Advancing Years C W Buckley—p 28
The Surgery of Old Age G Keynes—p 37
Diet in Old Age H Dunlop—p 46
Nursing and Care of the Bedridden Patient E C Pearce—p 55
Diet in Health and Disease I Practical Dietetics V H Mottram—p 63
*Radiologic Interpretation of Obscure Pulmonary Lesions J B McDougall—p 78
Mediastinal Pleural Effusion Notes on Four Cases F G Nicholas and T A Fraser—p 83
Tractor Sickness E I Puddy—p 90

Radiologic Interpretation of Obscure Pulmonary Lesions—During the past year the medical unit at Preston Hall has investigated some obscure pulmonary lesions by means of tomography. McDougall asserts that the value of tomography over the usual roentgenographic methods is that sections—anteroposterior and lateral—may be taken at any depth of the chest in such a way that it is possible to analyze the various strata of the lung substance at given depths and thereby to eliminate much of the confusion which frequently appears on ordinary roentgenograms owing to the superimposition of shadows of varying density. The author explains some of the advantages of tomography by the description of two cases which have recently come under treatment. In both cases latent cavities have been brought to light. In the first case extensive cavity formation unsuspected in the anteroposterior roentgenograms was shown in the dorsal section of the lungs, and in the second case a patent cavity following thoracoplasty has been accurately localized with a view to complete closure at an early date. It was for this particular type of case that tomography was considered in its earliest days to be most

useful, but it is now abundantly clear that sectional analysis of the chest in cases of pulmonary tuberculosis reveals many secrets which are not given by ordinary flat roentgenograms, however excellent the technic. The information which has been supplied in cases of incomplete artificial pneumothorax and in all cases of cavity formation is invaluable. Postmortem verification of x-ray appearances is most important and in one case in particular tomography during life reproduced with fidelity the pathologic appearances found at necropsy.

Tubercle, London

18 433 480 (July) 1937

- Radiologic Classification of Cases of Pulmonary Tuberculosis J Watt—p 433
Inoculation of Minimal Doses of Tubercle Bacilli into Guinea Pigs Rabbits and Mice Herta Schwabacher and G S Wilson—p 442
Note on Twenty Three Years Sanatorium Administration Esther Carling—p 454

Chinese Medical Journal, Peiping

51 773 1108 (June) 1937 Partial Index

- Fundamentals of State Medicine Wu Lien Teh—p 773
Some Problems of Medical Organization in Rural China C C Chen—p 803
Tuberculosis in Eastern Countries C L Park—p 821
*Investigation of Nineteen Communicable Diseases in China Report of First Year S C Hsu and C T Ke—p 833
Tuberculosis Incidence Among Chinese Children Annie V Scott—p 851
*Lead Poisoning with Especial Reference to Some Unusual Sources of Intoxication Report of Thirteen Cases C S Yang S L Chang and K Liu—p 945
Seven Years of Jennerian Vaccination in Tingsien C C Chen, H W Yu and F J Li—p 953
Intracutaneous Quantitative Tuberculin Test in Active Pulmonary Tuberculosis J S Pan—p 979
An Inquiry into Prevalence of Syphilis in Nanking T H Wang, J Y Shea and C C Chang—p 983

Communicable Diseases in China—Hsu and Ke analyze material presented by an investigation covering nineteen communicable and parasitic diseases. The data were collected from 204 hospitals in various provinces. Among 29,468 cases reported for the year 1935, 16,829 were outpatients and 12,639 were inpatients. The numbers of inpatients suffering from ancylostomiasis, cerebrospinal meningitis, fasciolopsiasis, kala-azar, typhoid and typhus were much larger than those for outpatients with these diseases. Among the nineteen diseases, malaria had the greatest incidence of all, 50.2 per cent of the total. The men patients having schistosomiasis were ten times as numerous as the women.

Lead Poisoning and Sources of Intoxication—In the last two years, Yang and his associates encountered thirteen cases of lead poisoning. In searching for the source of intoxication they found that, among the uneducated and occasionally the educated suffering from serious illness, many resort to religious aids, some of which are related to charms and amulets. As practiced when a person is ill a taoist priest, after having performed certain religious ceremonies, takes up a pen and writes on a piece of yellow paper a series of charms and amulets, which after burning into ash is partaken of by the patient in a cup of water. An experiment was conducted in which the smoke from a certain type of opium pipe having a holder coated with pewter was sucked through water in which a stream of hydrogen sulfide was passing. After the fume had passed through for three minutes, the water appeared definitely grayish. Small pieces of the coating material were scraped from the mouth piece and subjected to chemical analysis. In this particular pipe the pewter contained 21 per cent of lead. Persons using this kind of pipe may be poisoned either through the fumes or through the ingestion of lead from the mouth piece. There are two such cases in the present series. It was also found that the commonly used wine pot made of pewter contains lead in large quantities, varying from 32 to 72.8 per cent. In the Chinese way of warming rice wine before drinking, the pot containing wine is placed in hot water. It was found that in as short a time as fifteen minutes from 0.0155 to 0.0054 Gm of metallic lead went into solution per hundred cubic centimeters of wine. There was one case in which the history indicates that the intoxication must have been either from the ingestion of lead particles or from inhaling dust in a smelting foundry.

Bulletin de l'Académie de Médecine, Paris

118 45 121 (July 20) 1937

- Tuberculous Contagion Among Children in the Family Group F Bezançon P Braun, Mme Frey Ragu and C Paul—p 64
- Nursings After Tuberculous Contact F Bezançon, P Braun, Mme Frey Ragu and Arrichehaute—p 68
- Significance of Negative Skin Reactions to Tuberculin and Late Changes in the Reaction F Bezançon P Braun Mme Frey Ragu and Mlle Raymond—p 71
- *Treatment of Leprosy with Tellurium E Marchoux and V Chorine—p 86
- *Action of the Sex Hormones on the Prostate C Champy, M Heitz Boyer and R Couyard—p 93

Treatment of Leprosy with Tellurium—Marchoux and Chorine report experiments on the treatment of leprosy. Among the various substances that were tried at their laboratory, tellurium was found to be the most effective. In this report they describe experiments on rats with metallic tellurium and its mineral salts in oil suspension or in solution of dextrose. In summarizing their observations, they state that metallic tellurium or its mineral salts arrest the further development of leprosy. In the treated animals, the micro-organisms either ceased to multiply or did so very slowly, while in the untreated rats the development remained active. The metal is deposited on the waxy membrane of the bacilli, but it is doubtless the interior milieu of the host cell which is more active than this deposit in inhibiting the further multiplication of the parasitic elements. Between April 1936 and June 1937, rats weighing about 100 Gm tolerated weekly injections of 2, 4, 5, 6 and 10 mg of sodium tellurate, that is, a total of 24 Gm per kilogram of body weight. From the first injections the animals gave off a strong odor of garlic, the eyes of the white rats became black and the skin took on a gray color. In the treatment of human leprosy the authors observed pigmentation of the skin and discoloration of the eyes. The cutaneous lesions were set off in black on a slightly grayish skin. An injection of 0.25 Gm every five days was well tolerated. Under the influence of the tellurium the pains disappear, the lepromas decrease and the general condition improves. All these improvements become manifest during the month following the beginning of the treatment.

Action of Sex Hormones on the Prostate—Champy and his associates point out that the introduction of large amounts of estrogen produces in normal male animals, young or old, a sort of adenomatous hypertrophy of the prostate. This action cannot be a direct one, for, if the same amount of estrogen is administered to castrated animals there is no modification of this type. The estrogen probably acts on the hypophysis and the testes. After citing other experimental observations, the authors point out that the experimental hypertrophy of the prostate which is produced by estrogen and that which develops in men are caused by the same condition in the testis and its internal secretions. Further, the authors give their attention to the therapeutic use of testis hormone in hypertrophy of the prostate, pointing out that the favorable effect on the dysuria often precedes the diminution of the adenoma. The authors think that this is due to a mucoid edema around the vessels of the verumontanum, an edema that is normal to adult animals, is missing in castrates and is diminished in aged animals. In discussing the relationship between the reappearance of this edema and the cessation of the dysuria, the authors point out that the retention of the urine in hypertrophy of the prostate is not merely a mechanical problem, that is, the retention is not simply caused by the enlargement of the prostate, for in case of an extremely large prostate evacuation of the bladder may not be hindered, while complete retention may exist in the presence of a slight hypertrophy. Resection of only the median lobe of the prostate often reestablishes normal vesical evacuation, owing to the fact that in this resection fibers are severed which represent the posterior commissure of the urethrovaginal sphincter. Since the rupture of the muscle counteracts the dysuria, it is reasoned that its relaxation should accomplish a similar result. The edema that is elicited by testis hormone effects such a relaxation and the authors think that this explains the prompt effect of testis hormone on the dysuria in hypertrophy of the prostate.

Paris Médical

2 45 72 (July 17) 1937

- Hematology in 1937 P Harvier and J Mallarme—p 45
- *Simultaneous Punctures of Hematopoietic Centers in Chronic Erythroblastic Splenomegaly of Adults P Emile Weil and Suzanne Perles—p 53
- Congenital Hemopathies with Erythroblastosis M Lelong—p 59
- Pleural and General Eosinophilia in a Case of Pleurisy with Eosinophils P Harvier and J Mallarme—p 67

Punctures of Hematopoietic Centers in Erythroblastic Splenomegaly—The condition designated by Emile Weil and Perles as chronic splenomegaly with erythroblastosis of adults includes not only a part of the erythrocythemas, the erythro-leukemias and several myelogenic subleukemias but also certain splenic anemias, the megakaryocytic splenomegalies and an important part of Banti's disease. This synthesis is the result of splenic punctures, for in furnishing identical pictures in all these cases, it was demonstrated that a splenogram exists which is characterized by a more or less pronounced myelocytosis and a considerable erythroblastosis, which in the circulating blood may be manifest or not. The authors describe their observations in splenic, hepatic and sternal punctures. From the combination of these punctures in ten cases of typical or latent erythroblastosis, the authors arrived at conclusions which are of theoretical and practical interest. The combination of punctures and the puncture of the spleen in particular permit the recognition not only of erythroblastosis in the blood but also of the cryptic forms, even in the absence of circulating erythroblasts. In discussing the treatment, the authors point out that irradiation modifies the volume of the spleen only slightly and diminishes only the accompanying myelomatosis. Some patients observe an improvement in their general condition, but many do not feel better, on the contrary, they complain of increasing fatigue and anemia. For this reason it is advisable to employ radiation therapy only under strict hematologic control. But without hoping to obtain results as satisfactory as in myelogenic leukemia, the treatment may be begun with irradiations, and splenectomy can be resorted to secondarily. In several, even severe, cases splenectomy produced favorable results and did not act as in myelogenic leukemia, in which removal of the spleen had fatal consequences. The involvement of the liver in the morbid process does not contraindicate a surgical intervention, but, if the sternal puncture reveals even a slight cellular proliferation, surgical treatment is inadvisable.

Presse Médicale, Paris

45 1083 1098 (July 24) 1937

- Organizing Principle and Problem of Cancer J Jolly—p 1083
- *Death from Intrahepatic Hemorrhage in Cancer of Liver M Loeper—p 1085
- Tularemia in Czechoslovakia J Drbohlav—p 1086

Intrahepatic Hemorrhage in Cancer of Liver—According to Loeper, in patients with cancer of the liver the general condition is often comparatively favorable for long periods. Even if the neoplasm is rather large, the patient is not only practically free from symptoms but even the chemical examinations produce practically normal results. Death comes slowly. However, occasionally it is rapid, sudden and surprising because it occurs without apparent reason. A digestive intoxication may provoke a mild diarrhea and vomiting and death may follow in thirty-six hours. After citing earlier reports on the termination of hepatic cancer, the author describes several cases of rapid and sudden deaths after hepatic cancer, which are not caused by hematemesis, by toxic hepatitis or by a terminal infection but by unrecognized intrahepatic hemorrhage. The first patient whose history is reported had a giant lymphadenoma of the liver, but despite the enormous size of the liver the general condition was comparatively favorable. One morning he complained of a violent epigastric pain, which persisted for five or six hours and then suddenly became exacerbated. Nausea developed and angina pectoris, and within five hours the patient died. The necropsy revealed an enormous lymphadenoma, the interior of which contained hemorrhagic foci, and in the adjacent parenchyma there were veritable lakes of blood. Death was apparently caused by this hemorrhage. Following the description of another case, the author points out that this mode of termination by hepatic hemorrhage is not sufficiently thought

of The treatment is of course purely palliative in these cases In the summary the author states that cancer of the liver may terminate rapidly (1) by the sudden aggravation of the inanition, which is produced by the dyspeptic coma, (2) by rapid secondary cancerization, (3) by an external hemorrhage, hematemesis or melena and (4) by intraparenchymatous hemorrhage In the latter cases, the rupture of a vascularized nucleus produces an effusion in the surrounding parenchyma and separates the trabeculae and even the capsule This accident is indicated by a sudden hepatic pain and is rapidly followed by death

Progres Medical, Paris

July 24 1937 (No 30) Pp 1105 1136

*Prognostic Value of Slowing of Radial Pulse During and After Blood Transfusion for Hemorrhage M Fourestier—p 1113
Bilateral Renal Tuberculosis Marion—p 1118

Prognostic Value of Radial Pulse in Blood Transfusion—Fourestier demonstrates the importance and the necessity of the slowing down of the radial pulse during and after a transfusion that is given as a substitution in case of hemorrhage He shows that studying the frequency of the pulse before, during and after the transfusion permits the estimation of the quantity of injected blood, regulation of the rhythm of the intervention and the anticipation to a certain extent, of the patient's reactions after transfusion In case of a transfusion for substitution or replacement (in case of hemorrhage) the pulse which was at first accelerated must slow down during and after the transfusion If it does not do this the reason is that either the transfusion was not sufficient, the hemorrhage continues, or a state of shock exists, and it is necessary to try to arrest the hemorrhage by other means than even a massive transfusion The site of the injection can sometimes explain the absence of the influence of the transfusion on the slowing down of the pulse Transfusions in the veins of the lower extremities that are made late in profuse hemorrhages are often without apparent immediate action on the cardiac rhythm

Schweizerische medizinische Wochenschrift, Basel

67 664 684 (July 17) 1937 Partial Index

Relations of Essential Rheumatic Arthronosis Deformans to Primary Chronic Polyarthrits Rheumatica and the Chronic Articular Diseases K von Neergaard—p 665

New Vascular Analeptic and Its Therapeutic Action in Acute Disorders of Respiratory Apparatus M Roch and F Sciclounoff—p 667

*Male Hormones in Urine of Men and Women of Different Ages E Dingemans H Borchardt and E Laqueur—p 670

Duration of Action of Hypnotics and Partial Oxygen Tension of Inspired Air G Piotrowski—p 671

Male Hormones in Urine of Men and Women—Dingemans and his collaborators studied the amount of male hormone in the urine of men and women of different age groups The male, like the female hormones, are eliminated in the urine in two different forms The methods of determination formerly employed disclosed only the free form of the male hormone. However, a large portion of the hormone is eliminated in the combined form Thus the formerly detected quantities of from 4 to 6 units of male hormone per liter of urine are much too low By heating with acid, the hormone can be freed from the combination and thus becomes demonstrable The authors do not describe the details of their method of extraction The hormones were tested by determining the growth of the combs of capons after injection of the hormone preparations The stated units are international units The authors summarize their observations as follows 1 The urine of healthy, sexually mature men contains from 40 to 50 units 2 The urine of healthy women contains approximately the same quantity of male hormone as does that of men (on the average from 30 to 60 units) 3 After the sexual function has ceased, even during advanced senility and after castration the urine still contains male sex hormone to be sure, the quantities of the hormones are considerably less than in younger persons 4 Boys and girls eliminate male hormone, but here too the quantities are smaller 5 Pregnancy urine also contains male hormone 6 It is improbable that the eliminated hormone originates in the ingested food

Minerva Medica, Turin

1 623-650 (June 17) 1937

Associated Trigeminal and Glossopharyngeal Neuralgia A G Chiariello—p 623

*Subacute and Acute Leukemia with Early Period of Subacute Myelosis and Remission F Penati—p 627

Pathogenesis of Diabetes Insipidus G Donini and E Caporali—p 637

*Early Diagnosis of Acute Anterior Poliomyelitis R De Mattia—p 640
Old and New Treatments Humoral Mechanism of Bleeding U Roncelli—p 641

Leukemia with Early Myelosis and Remission—Penati states that there is a type of acute leukemia which evolves in two different periods with an interval of remission which lasts for from two to eight months The early period is that of acute or subacute myelosis or acute leukemia with grave hyperchromic anemia, a decreased number of blood platelets and leukocytes, agranulocytosis and the presence of a great number of immature cells in the blood During remission the clinical recovery is complete The hemogram is normal or there is slight agranulocytosis After remission, acute leukemia develops According to the author, this type of acute leukemia offers two problems for discussion The first problem is that of the relation between leukemia and the dysfunction of the hematopoietic system It points out the relation of leukemia to certain blood diseases (agranulocytosis, aleukia and panmyelophthisis) which originate in a dysfunction of the hematopoietic system The second problem is that of the possible reversibility of histopathologic changes in leukemia In connection with it, it is interesting to ascertain the reason for the recurrence after the remission According to the author the evolution of this type of leukemia is due to the fact that the threshold of the hematopoietic system is normal during the early period of the disease but is lowered as the disease progresses and is the lowest after remission The author recommends that (1) one have in mind a diagnosis of acute leukemia in acute and subacute myelosis (agranulocytosis, aleukia and panmyelophthisis), (2) if the clinical and blood conditions improve one should have the patient under medical observation for six or eight months for a possible recurrence, and (3) a biopsy of bone marrow obtained by puncture of the sternum should be done in all the cases in which recurrence takes place

Early Diagnosis of Acute Anterior Poliomyelitis—De Mattia emphasizes the importance of the diagnosis of acute anterior poliomyelitis early in the preparalytic period It is made by the following symptoms muscular pain that is more intense at the zones of union of the muscles and tendons, hyperesthesia of the skin on the involved muscles, disappearance or diminution of the reflexes, hypomotility of the muscles of the nucha (Deshayes' sign) and meningism The pain is of a lancinating type It shows the development of vascularitis and neuritis early in the evolution of acute anterior poliomyelitis and indicates the advisability of performing an examination of the cerebrospinal fluid obtained by lumbar puncture The cerebrospinal fluid in poliomyelitis is eliminated under normal or slightly increased pressure It is clear free from septic material and, after standing, produces no sediment and shows slight pleocytosis and increase of dextrose and albumin A doubt as to the differential diagnosis between lymphocytic meningitis and acute anterior poliomyelitis is no excuse for delaying the antiserum treatment, which has to be administered as soon as the first nervous symptoms appear Sometimes the administration of antiserum is followed by the appearance of paralysis of certain groups of muscles The paravsis is transient and confirms the diagnosis of acute anterior poliomyelitis in the given case

2 132 (July 8) 1937

Cystic Diseases of Lung Clinical Forms R Agnoli—p 1

Dental Dystrophy from Congenital Syphilis Teeth of Moon and Hutchinson B Pincherle—p 8

*Tumors with Myeloplaxes of Tendon Sheaths Cases N Santero—p 13

Primary Cancer of Appendix Vermiformis Cases C Cavina—p 16

Conservative Surgical Treatment of Bilateral Reno-Ureteral Calculosis and Local Glycerin Treatment of Pelvic Ureteral Calculosis Results in Cases G di Maio—p 20

Tumor with Myeloplaxes of Tendon Sheaths—According to Santero, tumors with myeloplaxes of tendons and of tendon sheaths are made up of dystrophic tissues originating in local inflammation and trauma The clinical diagnosis is that of probability The differential diagnosis is made from

other types of benign tumors. The slow and benignant evolution of tumors with myeloplaxes differentiates them from sarcoma. The tumors, on microscopic examination, seem to be made up of giant cells of myeloplaxic type with a large number of nuclei, equally distributed in the cell, leaving the cellular periphery free from nuclei. The treatment consists in early surgical removal of the tumors and surrounding tissues. The patient must be observed for possible recurrences and the operation is repeated if there are any. Two cases of tumors of myeloplaxes of the tendon sheaths of the fingers are reported. There was an inflammatory factor in addition to industrial trauma in each case. Up to the present, two and four years since removal of the tumor, it has not recurred.

Policlinico, Rome

44 1473 1512 (Aug. 2) 1937 Practical Section

Why Actual Criteria on Therapy of Appendicitis Have to Be Reviewed
G. Baggio—p. 1473

*Treatment of Pluriresistant Syphilis C. Fivoli—p. 1476

Systematic Administration of Intravenous Vaccines in Treatment of Typhoid A. Piraino—p. 1483

Pluriresistant Syphilis—Fivoli advises resorting to pyretotherapy in association with bismuth preparations in syphilis that is resistant to arsphenamine, bismuth preparations and mercury. The treatment consists of eight injections of streptobacillary vaccine (dmelcos) given at intervals of four days. During the intervals fifteen intravenous injections of 3 cc of a 10 per cent oil emulsion of bismuth are given at the rate of two each week. On completion of the treatment the patient is clinically cured, as is verified by the complete disappearance of the lesions of genital organs and oral mucosa and by the negative results of the Wassermann test. The crisis of the blood and nutritional and general condition of the patient are greatly improved by the treatment, which is harmless and well tolerated. One case is reported.

Rivista Italiana di Ginecologia, Bologna

20 1128 (Feb.) 1937

Congenital Diaphragmatic Hernia A. Chimenti—p. 1

Cancer of Neck of Uterus and Vagina in Young Women L. Puccioni—p. 17

Pharmacology of Smooth Muscles of Fallopian Tubes G. Morosi—p. 69

*Motor Functions of Ureter in Course of Pregnancy G. Cordaro—p. 92

Motor Functions of Ureter in Course of Pregnancy—According to Cordaro, the motor functions of the ureter during pregnancy are normal up to the fifth month, when they are retarded up to complete atony. Near the ninth month of pregnancy, the ureters become normal and continue to be normal during the puerperium. The age of the women and the number of children they have previously have no influence on the functional behavior of the ureters during pregnancy. The temporary atony of the ureters is due to the predominance of substances from the corpus luteum over prehypophyseal and follicular substances during this phase of pregnancy. The temporary inhibition of ureteral functions causes no injury to the kidney. However, if during the period of ureteral atony a local infection takes place, pyelitis develops. The functional torpor of the ureters in pyelitis continues all through the last three months of pregnancy and slowly regresses late in the puerperium.

Archiv fur Kinderheilkunde, Stuttgart

111 65 128 (June 18) 1937

Nature and Treatment of Feer's Disease E. Lorenz—p. 65

*Etiology, Differential Diagnosis and Therapy of Pylorospasm and Pylorostenosis H. Knauer—p. 78

Roentgenogram of Sella in Premature Births K. Gefferth—p. 87

Treatment of Acrodynia in Children E. Mayerhofer—p. 94

Etiology, Differential Diagnosis and Therapy of Pylorospasm—Knauer points out that, because the stimulus threshold of the center of vomiting is rather low in nurslings and small children every infection not only a cerebral one, may be accompanied by vomiting. Moreover, such attacks may be followed by habitual vomiting. However, if vomiting appears during the first few weeks of life and is especially massive and explosive, pylorospasm or pylorostenosis is usually thought of. After pointing out that this condition is comparatively frequent, the author shows that two different terms for the same or at

least extremely similar disease entities indicate that the etiology of the condition has not been completely explained as yet. Some apply the term hypertrophic pylorostenosis, while others adhere to the term pylorospasm, some assume an abnormal narrowness of the mucosa, others see the cause of the symptoms in a primary, tumor-like muscular hypertrophy, and still others assume a primary stenosis followed by secondary muscular hypotrophy. Still other theories have been advanced and it is possible that the different theories are justified, for the reason that the anatomic foundation may not be the same in all cases. The author also cites cases in which the symptoms of pylorospasm are of purely nervous origin. In such cases the vomiting usually ceases as soon as the children are hospitalized, but it often recurs when the children are returned to the nervous parents. The author thinks that various factors concur in order to produce the condition, which he designates as "pylorospasm in simultaneous hypertrophic pylorostenosis." He gives several case histories which illustrate the justification of designating the condition as he does. He says that for years he was an advocate of the conservative method of treatment, but in view of the fact that of the large number of conservative measures which have been recommended none produce satisfactory results, he now advises surgical treatment for the pylorospasm with hypertrophic stenosis. Of course he does not recommend an immediate operation for every patient who is hospitalized with the diagnosis of pylorospasm. However, if after several days of observation the vomiting does not cease and other symptoms of pylorospasm are present, the operation should be performed for it is not advisable to postpone it for weeks until the child has become extremely weak. It is of course essential that the operation for hypertrophic pylorostenosis be done only by experienced surgeons, the after treatment should if possible be conducted in the pediatric clinic.

Beitrage zur Klinik der Tuberkulose, Berlin

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Significance of General Tuberculous Infection for Human Organism. P. Huebschmann—p. 511

General Tuberculous Infection and Metabolic Processes in Human Subjects E. Grafe—p. 552

Obesity and Pulmonary Tuberculosis H. Curschmann—p. 556

*Relations Between General Tuberculous Infection and Endocrine Organs. O. Schedtler—p. 558

Modification of Circulation by Tuberculosis R. Cobet—p. 561

*General Tuberculous Infection as Allergic Disease E. Schulz—p. 569

Chemotherapy and Specific Therapy of Tuberculosis H. Siegmund—p. 605

Specific Treatment of Tuberculosis W. Pfannenstiel—p. 655

Tuberculous Infection and the Endocrines—Schedtler was induced to study this problem by Schroeder's observation that the function of the thyroid plays an important part in the course of tuberculosis. That author observed that, in patients with hyperthyroidism, tuberculosis usually takes a rather mild course, whereas in myxedema an accompanying tuberculosis often has an especially unfavorable character. On the basis of these observations, which were supported by others, it has been suggested that thyroxine be used in the treatment of tuberculosis. The author investigated these problems in animal experiments but was unable to obtain uniform results in rabbits and guinea-pigs. On the whole he gained the impression that the animals which had been subjected to thyroidectomy succumbed to the tuberculous infection more slowly than the controls. Moreover, the administration of thyroxine exerted an unfavorable effect in that it activated the tuberculous process. In his studies on a large number of patients, the author found the combination of anomalies of the thyroid function with tuberculosis neither especially rare nor extraordinarily frequent but just about as would be expected. Thus he came to the conclusion that the thyroid function is not especially important for the course of the tuberculous process. Nevertheless, in case of the concurrence of tuberculosis with thyroid disturbances, the two disorders may influence each other. He does not think that thyroxine can be generally recommended as a therapeutic agent for tuberculosis. Further he discusses the influence of the gonadal function on tuberculous infections. In this connection he cites the unfavorable effects exerted on the tuberculous process during the time of puberty, the first period of married life, menstruation, pregnancy and especially during the time immediately after the birth of a child. Experiments have

proved that castration has a weakening effect on the tuberculous process and so it is suggested by the author that temporary castration (perhaps by means of roentgen rays) might exert a favorable influence on some cases of tuberculosis. Regarding the role of the pancreas in tuberculous infections, he says that it is generally believed that diabetes mellitus often favors the development of tuberculosis and that the tuberculosis in diabetic patients is usually rather severe. However, there is no evidence that tuberculosis predisposes to diabetes mellitus and so it may be concluded that the reduced resistance to tuberculosis on the part of diabetic patients demonstrates only that the resistance of these patients is generally low. The knowledge about the relation between the thymus and tuberculous infections is still limited, but the author directs attention to Schroeder's investigations, which proved that tubercle bacilli may be rendered apathogenic in thymus extracts. Other excretory organs seem to exert no noticeable influence on the general tuberculous infection.

General Tuberculous Infection as Allergic Disease—Schulz says that it is well known that allergy develops with tuberculous infections. This fact as well as the allergic processes in tertiary phthisis are not discussed here, but the author tries to find replies to the following questions: 1. Is there a tuberculous hyperallergy? 2. Under what conditions does it develop? 3. What are its clinical aspects? He defines hyperergy as an increased reaction and hyperallergy as an increased, changed reaction, that is, a pathologic one, an increased sensitivity to toxin. In tuberculosis the hyperallergic process is demonstrated most clearly when the intracutaneous vaccination with extremely small quantities of tuberculin is followed by a severe inflammatory or even necrotic reaction in the involved portion of the skin. It should be understood that such reactions can take place also in other organs which are not as easily accessible for observation as is the skin. Regarding the conditions under which tuberculous hyperallergy develops, the author is of the opinion that it can develop only if the tuberculous antigen reaches the blood stream slowly and successively by way of the lymphatic passages. In this manner the organism is again and again in a state of irritation, which results in sensitization and finally in hyperallergy. In discussing the clinical aspects of tuberculous hyperallergy, the author differentiates two phases. During the first phase the general sensitization of the organism develops. The second phase develops either as the result of the accumulation of antigens or because the body has been weakened and the consequent reduction in the antibody formation results in a great excess of antigens. After showing that the tuberculous hyperallergy may become manifest in pulmonary processes and also in other organs such as the stomach and gallbladder, the author discusses the therapy. Efforts should be made to bring the hypersensitized organism again into a normal reactivity by means of desensitization with tuberculin.

Klinische Wochenschrift, Berlin

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Significance of Spleen for Diseases of Blood E. Lauda—p. 977
Influence of Thyroid on Carbohydrate Metabolism Action of Insulin in Exophthalmic Goiter and Myxedema F. Meythaler and H. Mann—p. 983

*Alimentary Ketonemia and Antiketogenic Action of Dextrose S. Markees—p. 985

Action of Vitamin C in Necrotic Diptheria K. Kumagai, S. Yama-gami, Y. Nikai and S. Imai—p. 987

*Rapid Method for Estimation of Uremia as Substitute for Determination of Rest Nitrogen H. Popper, E. Mandel and Helene Mayer—p. 987
Blood Creatinine and Urine Creatinine as Measure of Glomerular Filtration W. von Morawski, S. Grzycki and W. Guca—p. 989

Antiketogenic Action of Dextrose—Markees describes his investigations on the "antiketogenic" action of dextrose. He attempted to answer the question "Can the administration of dextrose simultaneously with or before the intake of fat (in fasting persons) prevent the formation of acetone bodies from the food fats?" He found that the administration of dextrose does not prevent the formation of acetone bodies but accelerates and improves the utilization and removal of the formed acetone bodies in the organism, that is, it prevents a spontaneous hyperketonemia. The alimentary ketogenesis, however, is preserved, as was demonstrated by the epinephrine intercep-

tion method. The author points out that these observations are a new proof of the close connection between fat and carbohydrate metabolism.

Rapid Method for Estimation of Uremia—Popper and his associates assert that mild disturbances in the renal function produce an increase in the creatinine content even if the rest nitrogen is still unchanged. In the more severe forms of renal insufficiency, in which the rest nitrogen is increased, the increase in creatinine is much more pronounced. Whereas rest nitrogen rarely increases to more than ten times the normal value, the creatinine content may increase to forty times the normal content. Thus the creatinine content is an extremely sensitive indicator of renal insufficiency and the determination of the creatinine content deserves the preference over the determination of the rest nitrogen. Jaffe's color reaction, which was used by Folm and the principle of which is used also in the reaction here described, can be done rapidly and with simple means. It permits the demonstration of an increase in the creatinine content of the blood. Since the creatinine content of the whole blood and the plasma do not differ greatly, the test can be made on the whole blood. The required reagents are saturated picric acid and a 10 per cent sodium hydroxide solution. Approximately 2 cc of blood is withdrawn from the vein and put into a test tube that contains approximately 8 cc of saturated aqueous picric acid. After the blood and picric acid have been thoroughly mixed, the mixture is heated over the Bunsen burner until the color changes from yellowish red to brownish red. Then filtration is done and after the not always clear filtrate is cooled under the water tap, 1 drop of the sodium hydroxide solution is added for each cubic centimeter of filtrate. The authors remark that the quantitative ratios do not have to be absolutely exact. Following the addition of the sodium hydroxide, the light yellow color of the picric acid changes to dark yellow if the creatinine content is normal, for in such cases the concentration of the creatinine is too slight to produce a noticeable red coloration. If the creatinine content of the blood is slightly increased, a reddish color develops in the course of about five minutes. In case of greater increase in creatinine, the red coloration becomes more intense. With this simple test it is possible to determine in a few minutes the degree of renal insufficiency as well as the presence of an incipient or a fully developed uremia. The authors give a tabular report of fifty cases in which they demonstrate that the creatinine values (as determined with the described test) correspond with the rest nitrogen values.

Munchener medizinische Wochenschrift, Munich

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*Acidity in Gastritis and Bacterial Flora of Stomach A. Mahlo—p. 1126
Work Test a Simple Method for Diagnosis and Estimation of Disturbances in Peripheral Arterial Circulation M. Ratschow—p. 1128
Inadequate Pulmonary Examination of Newly Hospitalized Patients H. Braeuning—p. 1130

Thrombosis of Pulmonary Artery G. Liebermeister—p. 1131
Question of Estimation of Alcohol Content of Blood H. Elbel—p. 1133
Prevention and Treatment of Mental Depression Before and During Menstruation W. Braun—p. 1136

Injurious Effects of Iodine Caused by Use of Tooth Pastes Which Contain Iodine W. K. Frankel—p. 1137

Acidity in Gastritis and Bacterial Flora—Mahlo reviews the literature on the bacterial flora in the stomach and finds some contradictory statements for whereas some insist that the gastric juice has a disinfecting power, others deny this. The author himself thinks that, in gastritis, in which the hydrochloric acid conditions are normal, bacteria from various sources may be found. There are bacteria which originate in the oral cavity, some which originate in the small intestine, some which thrive in the phase surface epithelium/mucus and some killed bacteria that are protected against digestion by mucus. The predominance of the one or the other factor will explain the different bacterial aspects in the presence of normal acidity. Moreover, even if the great bactericidal power of the gastric juice has been established, this does not prove that in stomachs with gastric changes the same conditions prevail over the entire epithelial surface, on the contrary, it must be assumed and it is indicated by the bacteria in the mucus that the bacterial colonies thrive in certain regions, that is, probably at the sites of severest inflammation. In answer to the question whether a gastritis in which the mucus contains large bacterial

colonies differs from other gastritides the author states that there are no definite clinical differences. Only a microscopic examination of the mucus permits a diagnosis. In discussing the therapy the author points out that watching the elimination of reducing substances in the urine is of great help. In case of gastritides with subacidity, measures should be taken to remedy this subacidity. If this is done, the bacteria will be killed and the gastritis improved. However, in gastritis with normal or hyperacidity a silver protein preparation not only kills the bacteria but also exerts a favorable effect on the inflammatory process. The author admits that the use of silver preparations involves the danger of argyrosis and so he recommends oxygen in the nascent state, which he produces by giving magnesium superoxide together with katalase (peroxidase). This medication destroys the bacterial colonies in a few days.

Wiener klinische Wochenschrift, Vienna

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Crisis in Hereditary Pathology and Eugenics Guiding Principles of Eugenics A Greil—p 1054

Clinical Aspects and Therapy of Cancer of Colon H Finsterer—p 1059

Risk of Embolism in Obliteration of Varicose Veins G Nohl—p 1063

*Pathogenesis of Herpes Zoster in Lymphatic Leukemia I Schemker—p 1065

Transfusion of Conserved Blood E Domanig—p 1067

Pathogenesis of Herpes Zoster in Lymphatic Leukemia—Schemker gives a detailed description of a case of herpes zoster gangraenosus in which a lymphatic leukemia was discovered as the basic disorder. From the clinical point of view the case is noteworthy because of the formation of large pemphigus-like blisters with a hemorrhagic base and a tendency to hemorrhages. This symptom does not occur in the ordinary idiopathic herpes zoster and might be explained by the tendency to hemorrhages, which exists in leukemia. The case had a fatal outcome. The necropsy is described and particularly the microscopic aspects of the brain and spinal cord. Relations of leukemia to herpes zoster are suggested by the pathologic changes on the roots and spinal ganglions of the upper dorsal region. The root bundles contained dense leukemic infiltrations. The same infiltrations, although in a milder degree, were found also in the region of the spinal ganglions. The author suggests that these leukemic infiltrations on the spinal roots and ganglions may have elicited a disturbance in the trophovasomotor innervation and thus may have produced a favorable ground for the development of the herpes zoster.

50 1083 1114 (July 23) 1937 Partial Index

When Is Removal of Both Ovaries Indicated in Case of Unilateral Ovarian Tumor? H Kahr—p 1083

Leptospirosis of Human Subjects, Particularly Weils Disease W Beiglbock—p 1088

*Use of Normal Human Serum in Multiple Sclerosis E Stransky—p 1093

Mountain Climate and Athletics as Cardiac Stimulants L Hofbauer—p 1095

Sport Injuries and Their Incidence E Kutscha von Lissberg—p 1098

*Action of Extract of Bacillus Pyocyaneus H Adler—p 1100

Normal Human Serum in Multiple Sclerosis—Stransky based his therapeutic experiments with normal human serum on the hypothesis that multiple sclerosis is an infectious process. He admits that the infectious nature has not been proved as yet but thinks that it is nevertheless possible. He assumes that the blood of persons who remain free from it might contain humoral protective substances against the virus of multiple sclerosis and decided to try the serum of such persons in the treatment of patients with multiple sclerosis. In view of the fact that multiple sclerosis usually develops in the period between puberty and the middle years of life and only rarely in persons over 50 years of age, he decided to try serum of persons over 50 years of age who had never shown signs of multiple sclerosis. The serum of such persons was put through the necessary process to insure its sterility and was put into ampules of 10 cc each. It was injected into the gluteal muscle of patients with multiple sclerosis. The single doses never exceeded twice 10 cc in one day. The intervals between the injections were usually two days, rarely one day. In a few cases more than two days elapsed between the injections. The author cites several cases of multiple sclerosis in which this treatment produced favorable results. The quantity of serum that is required for an effect and the duration of the effect

seem to vary in different cases. The author shows that this treatment will require further investigation. He suggests that larger quantities of serum or even direct blood transfusion could be tried.

Action of Extract of Bacillus Pyocyaneus—Adler points out that as early as 1888 it was observed that *Bacillus pyocyaneus* and its metabolic products prevent infections with anthrax. He reviews subsequent bactericidal experiments with extracts of *Bacillus pyocyaneus* and shows that they produced contradictory results. The ineffectiveness of some preparations and certain defects, such as the unpleasant odor, caused many physicians to abandon the therapeutic use of the pyocyaneus extracts. The action of the former pyocyaneus preparations was due to their content in dyestuffs and in fatty acids. Both components have a bactericidal effect, but since there are pyocyaneus preparations that have no bactericidal effect, there must be a third, as yet unknown, factor. At the serotherapeutic institute of Vienna, efforts were made to eliminate the defects of the earlier preparations. The new pyocyaneus extract is produced from several strains, some of which contain dyestuffs and some of which do not. Alcoholic extracts are prepared from forty-eight hour agar cultures and, after several purifications, they are condensed by evaporation. The residue is dissolved in water and unsaturated fatty acids are added. By avoiding bouillon cultures, the offensive odors are readily removable. The final preparation is free from killed bacteria and from disinfecting substances. Bactericidal experiments with the new preparation gave satisfactory results. The preparation was found helpful in tonsillitis, nasal diphtherias and certain forms of rhinitis.

Sovetskiy Vrachebnyy Zhurnal, Leningrad

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Criteria of Cure of Malaria E M Tareev and A A Gontaeva—p 883

*Magnesium Sulfate in Treatment of Eclampsia V V Stroganov and Davidovich—p 891

Procaine Hydrochloride Block in Treatment of Skin and Venereal Diseases L N Mashkilevson L A Abramovich and N A Smirnov—p 901

Role of Functional Tolerance Tests in Rheumatic Infections Particularly in Association with Mechanical Factors Acting on Corresponding Organ B V Ilyinskiy—p 907

Demonstration of Early Types of Tuberculosis Among School Children N M Sokolova M A Linnikova and A F Christyakova—p 931

Magnesium Sulfate in Treatment of Eclampsia—Stroganov and Davidovich report the results of magnesium sulfate therapy in 201 cases of eclampsia. The treatment was carried out in the following manner. The patient was placed in a darkened room and kept at absolute rest. Soon after an eclamptic attack or after the admission, the patient was given from 0.015 to 0.02 Gm of morphine hydrochloride and an examination made under light chloroform anesthesia. Half an hour later, 40 cc. of a 15 per cent solution of magnesium sulfate (6 Gm) was introduced under the skin. Morphine was repeated one and one-half hours later and magnesium sulfate three and one-half hours later in a dose of 6 Gm if there was another attack, or of 4 Gm when no further attack took place. If labor did not terminate, 4 Gm of magnesium sulfate was injected eight hours later. Full doses (6 Gm), not to exceed 24 Gm in twenty-four hours, were given if the attacks recurred. Patients admitted to the clinic after six or more attacks were treated by means of blood letting and puncture of the amniotic bag. Of the 201 patients, six died. Of 212 children born, 167 were dismissed living from the clinic (78.8 per cent). There were thirty stillbirths and fifteen deaths after delivery, altogether forty-five, or 21.2 per cent. Attacks were terminated in 136 (67.7 per cent) after one injection of magnesium sulfate. Sixty-nine patients went on to a spontaneous delivery, while 132 were operated on. The authors conclude that magnesium sulfate is a potent agent in the treatment of eclampsia. They are, however, unable to say whether it is more useful than chloral hydrate. Among the disadvantages of the drug the authors point out its toxicity, which they feel was counteracted in their cases by the administration of morphine, the tendency to the development of abscesses at the site of injection and a tendency to the development of psychoses. The latter occurred in 2 per cent of their cases, while with the use of chloral hydrate the incidence was 1 per cent.

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THE VALUE OF SPECIALIZATION IN MEDICINE

CHAIRMAN'S ADDRESS

LOUIS A. BUIE, M.D.
ROCHESTER, MINN.

In past ages the majority of physicians remained in a middle state, being neither very capable nor yet entirely inefficient, neither very altruistic nor very vicious, but living each day in peaceful mediocrity, accepting current opinions without skepticism or desire for proof, exciting no interest or envy, causing no wonder, just maintaining their position on a level with their generation and innocuously conforming to the intellectual and scientific standards of the period and country in which they lived. Their guiding principle was a blind and unhesitating credulity, but they were so tenacious of the opinions which they imbibed that whatever first occupied their understanding was likely to mold much that followed. Constantly proceeding under the guidance of contemporary opinion, they created nothing new but merely ambled along in dull and monotonous uniformity, performing their duties according to current standards.

Such acquiescence inevitably engenders apathy, and such a cold spirit of routine acts on men like a blight, blunting their faculties and withering their powers. Under such conditions there is a sensible decay in that vigor of character and in that diversity and audacity both of conception and of execution which paves the way to achievement. Despite adverse circumstances, however, history has proved that mankind possesses more virtue than vice and that good actions, if not more abundant, are more productive of permanent effects than bad ones. If it were otherwise, the very preponderance of evil would doubtless have destroyed us long ago and there would not by this time have been left even a single individual to lament the degeneracy of his species.

Thus we have not succumbed to evil methods but have benefited by the influence of those really great spirits whose works are among the glories of medical science. Their discoveries have come down as eternal truths which have survived the shock of empire and outlived the struggles of rival creeds. Their influence shall reach the most distant posterity and after the lapse of centuries shall produce more effect than at the moment of their promulgation.

Knowledge is not an inert or passive principle. It must be sought before it can be won. It is the product of great labor and of great sacrifice, and men who are perfectly content with their intellectual allotment will

not incur this labor. For centuries civilization struggled along attended largely by men without science—men who practiced methods of healing based solely on empiricism. They possessed little knowledge and had little desire for it. At length, however, reason began to display its power and to disperse the mists by which it was surrounded. Even the most casual observer, witnessing the progress of science through the ages, becomes impressed with the undeniable truth that the significant part of genius is work and that the achievements of our predecessors have been due to endless labor and concentrated effort in specialized fields.

It was Andreas Vesalius, for example, a profound and energetic student, who during the sixteenth century freed the study of anatomy from the many prejudices which had surrounded it because of the theological concept of the sanctity of the human body and its ultimate resurrection. It was he who paved the way for such peerless students as Miguel Servetus, who discovered that the blood in the pulmonary circulation passes into the heart after being mixed with the air in the lungs and who was burned at the stake by order of Calvin because of a "theological quibble." The teachings of Vesalius were sustained by his contemporaries Fallopius, Sylvius and Eustachius and were rendered accessible to surgeons by Ambroise Pare, who reintroduced the use of the ligature in amputations, made the first exarticulation of the elbow joint, described fracture of the neck of the femur, first suggested syphilis as a cause of aneurysm, and by his description made podalic version practicable.

In the seventeenth century the name of William Harvey of course stands out as the greatest of that period, and although the circulation of the blood might have been previously inferred by Servetus, guessed at by Galen or witnessed by any wounded slave, it was Harvey who studied all preëxisting theories and who by anatomic dissection and experiment proved the muscular action of the heart and its effects on the motion of the blood. With the aid of the microscope, which he invented, Leeuwenhoek first described the spermatozoa (1674) and gave the first complete account of the red blood corpuscles. He discovered the striped character of voluntary muscle and made other discoveries in the microscopic field. Capillary anastomosis between the arteries and veins, which was the only phase of the circulation that remained obscure to Harvey, was observed by Malpighi (1660), and this tireless student has become known as the founder of histology.

The seventeenth century also produced Descartes, who was responsible for the first European textbook on physiology, Sylvius, who "did for Harvey's ideas what Pare had done for those of Vesalius", Glisson, the anatomist, physiologist and pathologist, who first gave a classic description of infantile rickets, first described the capsule of the liver investing the portal vein and first employed suspension in the treatment of spinal

From the Section on Proctology, the Mayo Clinic.
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deformities, and Thomas Sydenham, who gave a new interpretation of internal medicine

The eighteenth century gave us the master physiologist Albrecht von Haller, Lavoisier, who discovered the true nature of the interchange of gases in the lungs, the great anatomist and surgeon Antonio Scarpa, William Hunter, the obstetrician, and his younger brother, the great John Hunter, whose contributions to the science of medicine are too numerous and well known to require review. In this period too we find Leopold Auenbrugger, who discovered and verified by post-mortem study the value of immediate percussion of the chest in diagnosis, Morgagni, who in his seventy-ninth year published the true foundation of modern pathologic anatomy, Gaspar Casal, a Spanish physician who in 1735 first described pellagra, Edward Jenner, who successfully introduced preventive inoculation in 1798, and Benjamin Franklin, who invented bifocal lenses in 1784, later invented a flexible catheter, and who treated nervous diseases by electricity.

The nineteenth century produced Laennec, who invented the stethoscope, Pierre Bretonneau, who performed the first successful tracheotomy in a case of croup and who located and described the typhoid lesions in Peyer's patches, Philippe Ricord of Baltimore, who was the greatest authority on venereal diseases after John Hunter, and Robert James Graves, Richard Bright, Thomas Addison, Thomas Hodgkin, James Parkinson, Carl Rokitsansky, Oliver Wendell Holmes, Sir Charles Bell, Johannes Muller and the physiologist William Beaumont. In our own country future generations will revere the names of Ephraim McDowell and James Marion Sims, in England, those of Lord Lister, Thomas Henry Huxley and Sir William Turner, in Switzerland, Wilhelm His, in Russia, Metchnikoff and Ivan Pavlov, in Germany, Rudolf Virchow, Cohnheim and Koch, and in France the great Louis Pasteur. The work of Long, Wells and Morton is too well known to require repetition here.

In the year 1851 Hermann von Helmholtz invented the ophthalmoscope. In 1852 Henry J. Bigelow performed the first excision of the hip joint, and in 1873 Theodor Billroth made the first complete excision of the larynx. In the same year Koch found the spirillum of Asiatic cholera, and in 1879 Hansen discovered the bacillus of leprosy. In 1880 Karl Joseph Eberth discovered *Bacillus typhosus*, Koch isolated the bacillus of tuberculosis, and Alphonse Laveran identified the parasites of malaria in the red blood cells. In 1882 Friedrich Löffler discovered the bacteria of erysipelas in swine and the cause of glanders and, with Edwin Klebs, found the bacillus of diphtheria. The cause of tetanus was discovered by Arthur Nicolaier in 1884, and in 1883 Fränkel isolated the pneumococcus. X-rays were discovered by Wilhelm Konrad Roentgen in 1895, and radium was discovered by the Curies in 1898. Sir Ronald Ross in 1897 discovered Laveran plasmodia in the wall of the stomach of *Anopheles* mosquitoes which had fed on blood of malarial patients. In 1901 the work of Walter Reed, Carroll and the martyr Lazear established *Stegomyia fasciata* as the transmitting agent in yellow fever.

In 1905 Fritz Schaudinn discovered *Spirochaeta pallida*. This was followed in 1906 by August von Wassermann's diagnostic test of syphilis, which he affirmed could never have been discovered had not Paul Ehrlich previously propounded the theory that the living protoplasmic molecule consists of a stable nucleus and unstable peripheral side chains, or chemoreceptors,

which enable it to combine chemically with food substances and neutralize toxins or other poisons by throwing out detached side chains into the blood. Ehrlich's arsphenamine appeared in 1910.

Our present generation witnesses the work of Flexner, Banting, Frei, Schick, Rosenau, the Dicks and others, and many have had opportunity to learn first hand from Osler, DaCosta, Janeway, Billings, Kelly and Welch. According to Garrison, the Mayos have made improvements in visceral surgery, and their genius for method and system has made listerian surgery a reliable science.

Thus we observe that, in medicine, materials have been collected which present a rich and imposing appearance, and what has characterized those eminent scientists who have been responsible for these immortal bequests and given them their real superiority is that fine and delicate perception which is due partly to experience, partly to their inherent aptitude in discovering analogies and differences which ordinary observers are unable to detect, but, most of all, to their ceaseless labor. The more sensibility and genius they possessed, the more they attached to themselves ideas that elevated them, and their doctrines have become our law. They displayed a boldness of inquiry, a recklessness in the pursuit of truth and a disregard of traditional opinion that entitles them to the highest praise. Their accomplishments have been only a part of that vast movement by which the human intellect, with infinite difficulty, has vindicated its own right and slowly emancipated itself from inveterate prejudices which long impeded its action.

From the foregoing historical review, it will be observed that specialism is not new. "I will not cut persons laboring under the stone but will leave this to be done by men who are practitioners of this work." In this language Hippocrates expressed his sentiments regarding specialization, and it is known that long before his time there were those who limited their work to various phases of medicine. It was probably not until the beginning of the nineteenth century, however, that specialization began to assume definite form. In 1804 the Royal Ophthalmic Hospital was founded in London, and in 1814 the Royal Hospital for Diseases of the Chest. A hospital for the practice of obstetrics was established in Boston in 1830.

In our own generation we are witnessing a new development in specialization. With the advance of medical science it becomes more and more evident that no single individual is capable of caring for all the ills to which the human body is heir. The general practitioner, the surgeon, the internist and the specialist himself seek assistance from those who by limiting their attention to a certain phase of medicine have become skilful in its management. Thus "group practice" has been evolved, and it appears that a difficult problem is more likely to reach solution in the hands of several physicians interested in various phases of that problem than if one physician attempts the task. For example, a patient with gastric distress may meet the internist, the gastro-enterologist, the radiologist and often the surgeon during the course of his examination. Such specialism may be carried to what is at present considered by some to be an undesirable extreme. For example, in the field of gastro-enterology there are men who specialize in the treatment of duodenal or gastric jejunal ulcer, esophageal diseases, gastric disorders, diseases of the gallbladder, amebic dysentery, ulcerative colitis and other conditions. Then there is the physician who has the temerity to deal only with the problems of

those who suffer from functional disorders of the gastro-intestinal tract. Abuses have developed, but probably every new truth that has been propounded has for a time caused mischief. Progress depends on change, and it is only by practicing uncustomary things that one can discover whether they are worthy. It is also likely that most opinions held by the majority were once limited to the minority. In fact, if the opinions of the majority had always prevailed, Christianity would have passed into oblivion at the time of the Crucifixion.

There is therefore no room or reason for discouragement as we face our task. It is probable that our generation has seen the beginning of a period which will be known as the age of specialization. We are fortunate in that, in the main, our destiny is in the hands of the Council on Medical Education and Hospitals of the American Medical Association and the Advisory Council for Medical Specialties. These bodies have performed signal service, and the fact that the latter is now composed of representatives of twelve separate specialties, with individual boards that determine the fitness of applicants seeking certification, indicates the progress which has been made. Under their guidance we may expect that there will soon be none who will be admitted to specialty practice without suitable qualifications based on fundamental training in medicine and surgery and final study and experience in the special field. The fact that under adverse circumstances such advance has been made is proof of the integrity of the scheme as well as of the commendable zeal of its protagonists. This justifies the belief that their aims will ultimately be achieved.

TREATMENT OF THROMBOSIS OF THE LATERAL SINUS

WITHOUT LIGATION OF THE INTERNAL
JUGULAR VEIN

MATTHEW S. ERSNER, M.D.
AND
DAVID MYERS, M.D.
PHILADELPHIA

The treatment of phlebitis and thrombosis of the lateral sinus has attracted discussion in otologic circles for many years. That it is still a moot subject is evidenced by the voluminous literature and the varying opinions expressed by the many leaders of our specialty. It is only by exchange of ideas and comparison of methods employed that the treatment of this dangerous complication will some day be settled to the satisfaction of all.

The precedents established by the early pioneers, Zaufal, Lane and Ballance, and others, have served to predicate for many years the mode of attack. That the ideal in therapy has not been achieved by the ligation of the internal jugular vein, or its resection, is easily ascertained by the high mortality rate various authors report.

Krepusca (quoted by Rott¹) reported 295 cases of involvement of the lateral sinus. The mortality was higher for patients who were subjected to ligation than for those who were not. In a total of 132 cases of

ligation seventy-four deaths occurred, or a mortality of 56 per cent, and in 163 cases of nonligation there were twenty-five deaths, or a mortality of 15 per cent. Later authors reported a lower mortality in the treatment of sinus thrombosis and phlebitis with newer modes of therapy, as in a series of cases reported by Coates, Ersner and Persky,² in which the mortality was only 14 per cent.

If ligation of the internal jugular vein is such a life-saving procedure and, as stated, shuts off the major portion of the cranial circulation from the general system, why is it that after the ligation many patients are still so very ill, that the period of hospitalization continues to average from six to seven weeks, that sepsis continues for many days after the operative procedure and that metastasis is so frequent after ligation? Meltzer³ showed that metastasis occurred four times as often after ligation as before it. Of thirty patients treated at the Massachusetts Eye and Ear Infirmary, twenty-six actually had metastasis after ligation.

In the past the treatment of thrombosis of the lateral sinus followed the hard and fast rules set down by the early pioneers. The internal jugular vein was ligated by some surgeons as the first step in the procedure and by others after the attack on the sigmoid, some followed the plan of Alexander, by exteriorizing the vein, after its section.

More recently, various surgeons e. g., Mygind, Rott and Dixon, advocated nonligation of the internal jugular vein. Thus there are two schools of thought.

Recently, in speaking on this subject before the Ear, Nose and Throat Section of the Pennsylvania State Medical Society in October 1935, we⁴ described our procedure as follows:

In the course of our experience with many of these cases, we have formulated the following flexible rules to help guide us. The lateral sinus is always first to be attacked. If an occluding thrombus is found that can easily be removed and free bleeding is obtained from both ends, then the lateral sinus is merely blocked by packing and nothing is done to the internal jugular vein.

If after incision of the lateral sinus phlebitis is found without a thrombosis, the sinus is obliterated and no treatment is given to the jugular vein. If a thrombus is found in which bleeding from the lower end cannot be obtained, we are then confronted with several problems. In mild cases without local signs in the neck the thrombus is not disturbed nor is the jugular vein ligated. In a case with severe septicemic symptoms, presenting local physical signs in the neck indicating an extension of the thrombotic process downward, the internal jugular vein was always ligated.

At present we are not concerned with producing free bleeding at the time of the surgical attack on the lateral sinus when an occluding thrombus is present. In such cases we do not attempt thrombectomy, nor do we remove the diseased sinus wall. We merely incise the lateral sinus and institute drainage.

Our reasons for these changes in therapy are based on clinical anatomic and physiologic facts which we shall attempt to enumerate. The anatomy of the cranial venous sinuses is well known. We shall mention only several important features that are germane to this dis-

From the Department of Otolaryngology, Temple University School of Medicine.

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¹ Rott, O. M. Why Ligate the Jugular in Cases of Lateral Sinus Thrombosis? *Arch. Otolaryng.* 14: 272-281 (Sept.) 1931.

² Coates, G. M., Ersner, M. S. and Persky, A. H. Lateral Sinus Thrombosis with a Review of the Literature. *Ann. Otol. Rhin. & Laryng.* 43: 419 (June) 1934.

³ Meltzer, Philip E. Treatment of Thrombosis of the Lateral Sinus. *Arch. Otolaryng.* 22: 131-142 (Aug.) 1935.

⁴ Ersner, M. S. and Myers, David. Outstanding Signs and Symptoms in Sinus Thrombosis. *Pennsylvania M. J.* 39: 579-585 (May) 1936.

cussion and will include a description of the areas drained by the lateral sinus and a description of the collateral circulation

The intracranial structures drained by the lateral sinus have recently been well described by Nielsen and Courville,⁵ from whose article the following sentence is quoted "The countless number of tributaries from every portion of the cranial cavity and its contents which flow into the lateral sinus are factors which must be remembered, since these traverse the subarachnoid and subdural spaces and potentially expose these spaces to infection when the lateral sinus becomes infected"

Connecting the cranial venous sinuses with the systemic circulation are the emissary veins, the mastoid, parietal, occipital and condyloid. In addition, the sinuses communicate with the superficial circulation through the vertebral veins, the ophthalmic veins, the middle meningeal veins, the pterygoid plexus, the basilar plexus and the carotid plexus

This hasty review will serve to illustrate the intercommunication of the dural venous sinuses with the general and intracranial circulation and the pathways through which infection may spread despite ligation and obliteration of venous structures

Our next consideration is the essential physiology, as well as the pathologic physiology, of the lateral sinus

The essential physiology is well summarized by Nielsen and Courville⁵

The lateral sinus carries the greatest portion of venous blood from the intracranial spaces through the jugular bulb into the jugular vein. Since these channels and their afferent veins are without valves the venous outflow is quite direct. The flow, however, is under negative rather than positive pressure in the system. The venous blood is pumped out of the skull by the action of the heart rather than evacuated by the force of gravity alone. The flow is also slowed by the numerous bends, twists and angulations in the course of the venous channels. It is also interfered with by the trabeculations which run across the lumens of the larger sinuses. In the case of the superior longitudinal sinus, the blood has to ascend when the body is in the erect position and also against the inflow from the superior cerebral veins

The lack of actual valvular obstruction makes it possible for the blood current to be entirely reversed within the system under certain conditions. As a result of coughing, straining or vomiting, the current may be temporarily reversed an alteration which is favored particularly by the presence of the inferior anastomotic veins which permit the backing up of the blood from the region of the genu directly to the dorsolateral surface of the cerebral hemisphere

In case of complete obstruction by pressure from a thrombus, reversal of the current may be responsible for retrograde thrombophlebitic changes, which may account for many of the distant complications of infection of the lateral sinus. This view is held by many. Dixon⁶ stated that extension of the thrombus is always retrograde and that ligation is therefore an unnecessary and illogical procedure. Stone and Berger,⁷ in a study of primary thrombosis of the internal jugular vein due to suppurative processes in the neck, observed that the extension of the thrombophlebitis is toward the periphery, i. e., toward the skull, or retrograde

Since the extension of the infection is retrograde rather than downward, it is evident that ligation of the

jugular vein is superfluous, because such ligation does not completely eliminate collateral circulation or prevent retrograde infection. The protective element is the thrombus, whether it is retrograde in the lateral sinus or its tributaries, not the ligation or the thrombectomy, because the final outcome of thrombectomy and ligation of the jugular vein is a thrombus which in itself may become retrograde

The basis of thrombus formation is the response of the endothelial tissue of the vein to an irritant—mechanical, bacterial or toxic. Other factors operative are slowing of the circulation and deposition of fibrin. The thrombus may form as the result of direct extension through the venules, as with hemorrhage in the mastoid, or by pressure of infectious material, as with perisinuous abscess. The latter type of formation often occurs with coalescent mastoiditis

A thrombus is therefore a physiologic protective mechanism having a pathologic basis for its formation and is nature's response to any or all of the factors enumerated. We have therefore come to regard it with a friendly attitude, because it is nature's response to a potential danger, and it is an important protective element in the line of defense. Rott¹ stated "Thrombosis is a protective mechanism, nature's method of preventing the spread of infection"

Kopetsky⁸ said "Thrombosis per se is regarded as a defensive mechanism, nature's effort to circumscribe our infection entering the blood stream through the wall of a vein"

Boyd⁹ stated that "the thrombus is beneficial as the thrombotic process which occludes the vessel usually succeeds in keeping ahead of the liquefaction process which renders the clot so dangerous, so that there may be a considerable area of liquefied clot in the vessel, a veritable abscess, which is, nevertheless, securely shut off from the general circulation by the thrombus"

On the other hand, we have observed that in the fatal cases of lateral sinus phlebitis, with septicemia, there was no attempt at thrombus formation

One must therefore reappraise the thrombus from a protective physiologic standpoint rather than consider it a pathologic foreign body. One must emphasize that the thrombus is nature's method of protecting the individual. When the thrombus is incompletely formed, septicemia, bacteremia and emboli are the result

TREATMENT

In view of the fact that the thrombus is considered a protective agent, the treatment should be expectant, with careful observation before the vein is attacked surgically. Many cases of phlebitis or thrombosis subside under conservative treatment. It is a well known fact that a thrombosed but uninfected lateral sinus does very little if any harm. Day¹⁰ reported six cases of spontaneous cure of unrecognized thrombosis of the lateral sinus accidentally discovered during operation

Richards¹¹ stated "There are the numerous cases of symptomless thrombosis discovered by chance during a mastoid operation, indicating that at times at least nature is quite capable of walling off an infection in the vein without any help from the surgeon. On this

5 Nielsen J M and Courville C B. Intracranial Complications of Orogenous Thrombosis of the Lateral Sinus. *Ann Otol Rhin & Laryng* 46: 13-8 (March) 1937

6 Dixon O J. Newer Conceptions in Management of Septic Sinus Thrombo is. *Laryngoscope* 44: 448-453 (June) 1934

7 Stone F E and Berger M D. Retrograde Sinus Thrombosis Complicating Primary Thrombosis of the Jugular Vein. *Arch Otolaryng* 24: 141-158 (Aug) 1936

8 Kopetsky S J. Acute and Chronic Otitis Media and Sinus Thrombosis. *Arch Otolaryng* 10: 302-313 (Sept) 1929

9 Boyd William. *Surgical Pathology*. Philadelphia W B Saunders Company 1925 p 565

10 Day E W. Report of Spontaneous Cure of Six Cases of Unrecognized Lateral Sinus Thrombosis Accidentally Discovered During Operation. *Laryngoscope* 25: 757-1915

11 Richards Lyman. The Pros and Cons of Jugular Ligation in Lateral Sinus Thrombosis. *Kentucky M J* 32: 351 (Aug) 1935

fortuitous help, of course, one could never safely rely, but it indicates that thrombosis in and of itself does not necessarily lead to septicemia."

We shall divide our treatment of lateral sinus involvement into the medical and the surgical phase

Medical—The medical treatment is primarily concerned with the septic symptoms that the patient manifests. The transfusion of whole blood is probably one of the most important single modes of therapy we can mention. Transfusions of whole blood are given daily or on alternate days. The amount of blood administered is small. To children we give from 15 to 2 cc per pound (0.5 Kg.) of body weight. The transfusion should be guided by the temperature and by frequent hemograms. Small and frequently repeated transfusions act to stimulate formation of antibodies.

In addition to transfusions of whole blood, whenever practicable or available immunotransfusions, specific or nonspecific,¹² may be used. These also are given in small amounts and at frequent intervals.

The use of specific serum when available should be instituted. Dick's antiscarlatinal serum has been a useful adjuvant in some cases.¹³ Forced feedings, tonics and ultraviolet irradiation are of value. Symptomatic treatment is given as indicated.

Chemotherapy During the past year the use of sulfanilamide (para-amino-benzene-sulfonamide) has attracted considerable attention. Since most cases of thrombosis of the lateral sinus are of streptococcal origin, this drug should be of great value. The literature is full of glowing reports concerning its use.

The use of quinine dihydrochloride in the presence of chills, given in frequent doses until the patient complains of tinnitus aurium, occasionally yields beneficial results.

In the presence of generalized septicemia, a fixed abscess, specific or nonspecific, may aid in clearing the organisms from the blood stream. The nonspecific abscess may be produced by the injection of an irritating substance such as turpentine. The specific abscess is induced by injecting attenuated organisms obtained from the host.

Surgical Treatment—The first step in the surgical attack is to eradicate the focus or the source of the infection. (a) If symptoms suggesting sepsis are present in cases of otitic infection, immediate mastoidectomy should be performed and the lateral sinus exposed for further study and observation. In the meantime, expectant treatment is instituted. (b) If septic symptoms indicative of involvement of the lateral sinus occur after mastoidectomy, then the mastoid should be revised and the sinus exposed for inspection. In many instances we are unable to judge the contents of the vessel from its external appearance. It therefore becomes necessary to inspect the interior of the vessel. Our procedure in all instances is not to ligate the internal jugular vein as a preliminary step. The sinus is packed above and below and is then incised. If free bleeding is obtained from both ends of the sinus we repack in order to control the bleeding.

We feel that by packing we produce a "man made" thrombus which seems to limit the infection. This accomplishes what nature failed to do if the vein is

obliterated above the point of infection, the packing will produce the thrombus, and if this new thrombus is sterile, recovery follows.

Incomplete or mural thrombosis is treated in similar manner as phlebitis. The vein is occluded by packing, and the patient is treated expectantly. In cases of complete thrombosis without bleeding after incision of the sinus, we do not attempt to remove the thrombus or produce free bleeding. We insert a piece of rubber tissue or iodoform gauze as a drain and then proceed with the supportive treatment. It is not essential to remove the thrombus or to excise the wall of the sinus, because when this is done the sinus must be obliterated. Healing depends on the formation of another thrombus (man made), which may or may not be sterile. It must be remembered that the act of thrombectomy may destroy the protective barrier that nature has introduced. In the past we have observed many cases in which we were unable to dislodge the thrombus from the lower end of the lateral sinus and produce free bleeding. Rather than subject our patients to a difficult operation on the jugular bulb, we allowed the thrombus to remain and did not ligate the internal jugular vein. The patients made uneventful recoveries. It was this observation that led us to feel that when the thrombus is firmly fixed no benefit can accrue from its removal.

If on incision of the lateral sinus an abscess is observed, we insert drainage. This procedure was recently recommended by Maxwell.¹⁴ Three such cases were encountered by my associates Drs. Ball and Mitchell during the past few months. In each of these cases an abscess had perforated through the anterior wall of the lateral sinus. The only surgical therapy instituted was incision and drainage supplemented by supportive treatment. All the patients made an uneventful recovery. If the septic symptoms continue and physical signs evidence involvement of the internal jugular vein, then the vein is exposed and incised and drainage is instituted. We do not ligate, resect or exteriorize.

By following the surgical principles as outlined, we promote drainage, which after all is the primary surgical dictum. But we avoid meddlesome surgical intervention that might break up protective barriers. Sixteen cases were treated without ligation of the internal jugular vein, as follows: (a) four cases of central liquefaction of the thrombus, (b) three cases of phlebitis, (c) four cases of complete thrombosis of the jugular end of the sinus, (d) one case of mural thrombosis and (e) four cases of complete thrombosis in which no bleeding occurred from either end.

CONCLUSIONS

- 1 Thrombosis is a protective process.
- 2 Ligation of the internal jugular vein is not a panacea in the treatment of infection of the lateral sinus.
- 3 Ligation of the internal jugular vein does not prevent metastasis, embolism or septicemia.
- 4 Treatment of infection of the lateral sinus is primarily medical and partially surgical.
- 5 The surgical principle is the institution of drainage and the avoidance of over manipulation.
- 6 Thrombectomy is not indicated when the thrombus is firmly fixed.

¹² Ersner N. S. and Myers David. Treatment of Lateral Sinus Phlebitis Thrombosis and Otitic Septicemia with Nonspecific Immunotransfusions. *Laryngoscope* 44: 363 (May) 1934.
¹³ Ersner N. S. Treatment of Lateral Sinus Thrombosis with Dick's Antiscarlatinal Serum. *Laryngoscope* 40: 758-759 (Oct.) 1930.

¹⁴ Maxwell J. H. Thrombosis of the Sigmoid Sinus. *Arch Otolaryng* 25: 184-189 (Feb.) 1937.

7 The internal jugular vein should not be ligated when infection is present, but drainage should be instituted by means of incision

8 Ligation is not the crux of the situation

9 Recovery depends on the resistance of the host and its protective elements, according to our experience the thrombus is one of the mechanisms in the line of defense

1915 Spruce Street

ABSTRACT OF DISCUSSION

DR H MARSHALL TAYLOR, Jacksonville, Fla The treatment of lateral sinus thrombosis has developed more divergent opinions and animated discussions in the past than any other subject in otology. The authors tell us that two schools have arisen. One opposes the ligation of the internal jugular vein while the other school advocates ligation. The two schools seem to agree on other phases of treatment, that is, as to complete mastoidectomy, inspection of and attack on the sinus, transfusions of whole or immunized blood and chemotherapy. Infection of the lateral sinus is potentially a serious condition to deal with, owing principally to the number of tributaries of the vein and the intercommunication of the dural venous sinuses and the intracranial circulation as reviewed by Drs Ersner and Myers. Even though infection may be carried through other channels, one cannot disregard the fact that the internal jugular vein does carry the major portion of the venous blood from the cranium into the general circulation. After all other treatment has been carried out and there is evidence of continued sepsis and advancing infection, I feel that ligation of the vein may be a valuable adjunct in the treatment of this condition. The authors report some astounding statistics. Had they stated at what period of the disease ligation of the vein was performed, I feel that these statistics would be of greater value. They cite one author who reported seventy-four deaths after 132 ligations. If these were eleventh hour ligations and after general septicemia had occurred, it seems to me that these statistics have little significance in condemning ligation of the vein. I am not surprised that with a mortality of 56 per cent this author abandoned one phase of mastoid surgery. The authors quote another author who reported twenty-six cases out of thirty as showing a metastasis after ligation. I cannot but wonder whether these cases were not late ligations. These unexplained statistics impress me as more argumentative than convincing. I wish to commend the authors on their well prepared paper. I agree that it is only by exchange of ideas and comparison of methods employed that the treatment of this dangerous complication will some day be settled to the satisfaction of all.

DR MARVIN FISHER JONES, New York An old subject which has been settled satisfactorily to most competent surgeons has again been exhumed. This subject has been discussed recently, and the discussions have been supported by plausible argumentation. Notwithstanding this plausibility, it is known that they are wrong. There is no major surgical procedure used to cure serious illness which in experienced hands produces a higher percentage of favorable results. The only serious impediment results not from the established operation but from temporizing. Patients with septic sigmoid sinus thrombosis frequently died before the sinus and jugular operation was perfected. Now they rarely die. This statement is substantiated by the reports of any reputable institution. Transfusion is a valuable preoperative and postoperative method of treatment. In some cases a cure has resulted from transfusion. On the other hand, the dependence on transfusion has resulted in fatal procrastination. Two successive patients under my observation died probably as the result of nonligation. Within the past two years I have had one patient who was growing progressively worse following an operation without ligation and who recovered following a second operation to ligate the jugular. The second in this period in which the vein was not ligated had a greatly prolonged period of convalescence. A third received intravenous vaccine and bacteriophage, which so complicated the usual course of convalescence that I was at a loss to know what to do. A fourth went through a similar

agonizing fate. My day of altering a most satisfactory method of surgery in septic sinus thrombosis is past. Nonligation has a place in a few very carefully selected cases. The choice of such a procedure calls for fine discrimination resulting from critical experience. A properly performed operation which includes vein ligation should still be the rule, and nonligation a carefully weighed exception.

DR PHILIP E MELTZER, Boston Dr Ersner has for years included the ligation of the jugular vein as part of the surgical treatment of lateral sinus thrombosis. He has reconsidered the rationale of this procedure and questions the necessity of including ligation of this vein. He goes so far as to question the advisability of disturbing the thrombus in the lateral sinus. His present treatment is based on anatomic, physiologic and clinical facts. It is a frank declaration appealing for unbiased consideration of these facts. He asks that each case be considered as an entity and states that the treatment should be dependent on the symptoms and local conditions found at operation. His procedures are offered as the best means of assisting the patient to cope with the infection. When symptoms point to meningeal irritation due to an infected thrombus lying in contact with the medial wall, I prefer to remove the clot. When the symptoms are manifestly those of sepsis, I eradicate all bone over the sinus from beyond the knee, practically to the bulb. I also remove any suspicious outer wall of sinus and infected clot, if present. Should the clot continue to break down, I do not hesitate to go back in my daily treatment of the wound to remove it. I firmly believe in getting rid of all locally infected material. In those cases in which a clot is present and breaks down in the region of the bulb, or if free pus wells up from the bulb, and from the symptoms it appears that the infection is descending, I do not hesitate to open into the neck, ligate the jugular vein, and sever it. All tributaries above the tie are also ligated and severed. Somewhere between the extremes of ultraconservatism and radical therapy is the type of treatment which will be appropriate for the majority of cases. As I see it, the principles of treatment as stated by the authors is that happy medium. I should like to make a correction about the number of cases stated with metastasis. There were 151 cases of ligation of the jugular between the years of 1921 and 1932 at the Massachusetts Eye and Ear Infirmary. All were treated by ligation of the jugular vein and local treatment to the lateral sinus. Of that number there were two series. I divided them in six years each. In series 1 there were fourteen and in series 2 thirty in which metastasis developed. Metastasis developed in nine after ligation and in five before. In twenty-six in series 2 out of the thirty, metastasis developed after ligation. This doesn't mean anything more to me than the fact that ligation does not prevent metastasis. It still is one of the most dangerous complications of otitis media, and 2 and 3 per cent fatality as reported by a previous surgeon falls too far below other reports. His may be a personal series, but the average in a large hospital clinic is somewhere between 20 and 30 per cent.

DR ISIDORE FRIESNER, New York It is a well known fact that in cases of sepsis from sinus thrombosis a section of the jugular shows streptococci in the walls of the vein. The sepsis is not due to the thrombus, it is due to the phlebitis, the phlebitis that invades the intima. One may have a phlebitis up here, and another one away down in the jugular. It is believed by all that thrombus is nature's method of protecting the individual from this disease. This was told by Aschoff when he first described the physical mechanism of the formation of a thrombus. But has it been forgotten that 25 per cent of cerebellar abscesses are due to infected thrombi? This isn't a clot. It is a thrombus, and there is an essential difference between them. It isn't a question of tying or not tying without regard to the pathologic changes. It must be remembered that bacteremia is due to the phlebitis and not to the thrombus. The thrombus is a protective mechanism until it becomes infected. There may be a phlebitis, with bacteremia resulting without any gross changes, those that can be picked up and looked at and determined at operation. Finally it must not be forgotten that 25 per cent of cerebellar abscesses are due to infected thrombi, and it is not right to toss them off and say that one never touches the thrombus.

DR J I KEMLER, Baltimore My experience has been different from the sad picture portrayed by the authors. In twenty-five years of practice I have seen about fifty cases of lateral sinus thrombosis. My routine has been as follows: In patients, after mastoidectomy, who have a chill with a rise in temperature to 104 F or over, with an abrupt drop to normal and a repetition within twelve to twenty-four hours with no other cause to account for it, whether the blood culture is positive or negative, I immediately tie off the jugular vein and open up the lateral sinus widely until free bleeding is obtained from both ends. Results have been excellent and I cannot remember having lost more than three or four cases of the entire series, including chronic as well as acute mastoiditis. Dr Harry Friedenwald in 1910 reported two cases in which he found a fistula in the lateral sinus, showing the attempt of nature to bring about drainage from the infected sinus. I have found walled off abscesses in the lateral sinuses when operation has been delayed, and in one case it was found at autopsy. In the last year I have tried to be conservative. One case of lateral sinus thrombosis with positive blood cultures was treated conservatively with transfusions and other supporting measures. The patient lingered on with a temperature of 105 or 106 F for four or five days and showed no improvement until the jugular vein was ligated and the lateral sinus opened. The blood culture taken twenty-four hours after the operation proved to be negative and the patient made an uneventful recovery. My second case I saw recently. Sulfanilamide was used here in full doses together with other supporting measures. The temperature was normal after the first chill and fever of 105 F and then remained normal for five days. After that there was another chill and a rise in temperature to 105 F. Another course of sulfanilamide together with other supporting measures and blood transfusions was kept up constantly. Sulfanilamide was given until the patient became cyanosed, after which her temperature remained normal for one week. She then had two chills and fever in one day. I then ligated the internal jugular vein and opened the lateral sinus. After a stormy course the patient got perfectly well. These two cases show that the old orthodox method of treatment of lateral sinus thrombosis cannot be abandoned.

DR MATTHEW S ERSNER, Philadelphia I thank my colleagues for their discussion. Most cases of sinus thrombosis or phlebitis are not emergency operations. I have learned that one can temporize with little difficulty. In many stormy cases in which I thought that there would be a great deal of pathologic change, little was found. These patients recovered rapidly after obliteration of the lateral sinus because the production of a thrombus helped nature along. No matter how well one knows the macroscopic pathology of the lateral sinus, it is difficult to judge the contents of the vessel. Exploration is therefore necessary. We do not ligate the internal jugular vein as a primary step. We usually incise the lateral sinus and if there is free bleeding from both ends we obliterate the vessel. If an abscess is found, we evacuate it without disturbing the thrombus. When a thrombus is found, we incise and institute drainage but do not disturb the thrombus. It is a well known fact that one of the complications in obstetric practice is phlegmasia alba dolens. The obstetrician does not rush into performing a radical operation. The very same principle applies in our field. When meningeal symptoms are present we remove the thrombus and excise part of the anterior wall so that we may inspect the visceral portion of the vessel. We are not convinced that thrombectomy and internal jugular ligation is the therapeutic panacea. We have treated sixteen cases in the manner described. One case in this series began with a lobar pneumonia, and an otitis media, mastoiditis, septicaemia and thrombosis of the lateral sinus with an abscess developed. In this case, we emptied the lateral sinus and obliterated it, we also exteriorized the internal jugular vein and, despite modern surgical methods and therapeutics, the patient succumbed. We believe that the thrombus should not be disturbed and that drainage should be instituted when pus is present. Many complications, including embolic phenomena, are due to the disturbance of the thrombus. We believe that our method holds greater hopes in combating lateral sinus thrombosis and we therefore present it for consideration and trial.

RIGHT COLECTOMY FOR MALIGNANT DISEASE

A DISCUSSION OF THE MORTALITY ASSOCIATED WITH VARIOUS OPERATIVE PROCEDURES

ARTHUR W ALLEN, M.D.

BOSTON

Right colectomy is technically an easy procedure. After the practically bloodless lateral peritoneal attachment is freed, the bowel, with an almost transparent mesentery, delivers mesially in such a fashion as to make its removal a simple matter. The gland-bearing area can safely be included in the dissection, the terminal ileum and transverse colon being left adequately supplied with blood vessels at convenient levels for suitable anastomosis. The slow development of cancer in the right colon, with its tendency to remain localized, makes that location a particularly favorable site for cure.¹ In spite of these facts, statistics show that, in the Massachusetts General Hospital, at least, the operative mortality is slightly higher for right colectomy for cancer than for extirpation of similar lesions in the left bowel. It seems reasonable to feel that greater consideration should be given the right colon, where the disease is less frequent and in connection with which the experience of any one surgeon consequently develops more slowly. The patient less often has obstruction, and thus the necessity of preliminary drainage does not present itself so regularly. The simplicity of resection aids in the temptation to subject these patients to a radical one stage operation.

The purpose of this study is to discuss the various factors associated with operative procedures on the large bowel in an effort to offer, if possible, some suggestions that may help in reducing the mortality. One is at once confronted with many confusing and complicated matters bearing on the subject in general. Various opinions regarding the choice of operation have hitherto been held. One group of surgeons feel that a one stage procedure should be done in the majority of cases² and offer good arguments to support their views. Others feel that the Mikulicz type of resection is the safest method of bringing about a successful end result.³ Still another group feel that some form of two stage operation should always be used.⁴ Considerable reliance has been placed on various technical procedures, the entire success often having been credited to the proper preparation of the patient before operation, preliminary intraperitoneal vaccination, the anesthetic used or the type of anastomosis made. That there may be value in all these various points in the hands of one surgeon or another cannot be disputed. However, no one can set down a series of rules which every surgeon can follow to a successful outcome. Certainly, one surgeon may work out a system that in his hands produces better results than would follow the same procedures carried out by another surgeon. Thus, one must look at the question with an open mind, admit the failure of one's

From the Surgical Department of the Massachusetts General Hospital. Read before the Section on Surgery, General and Abdominal at the Eighty Eighth Annual Session of the American Medical Association, Atlantic City, N. J. June 11, 1937.

¹ Rankin, Fred and Olson, Paul F. *The Hopeful Prognosis in Cases of the Colon, Surg., Gynec. & Obst.* 56: 366-374 (Feb.) 1933.

² Harvey, Samuel C. *The One Stage Operation for Resection of the Cecum and Proximal Colon.* *New England J. Med.* 211: 1038-1042 (Dec. 6) 1934.

³ Lahey, Frank H. *Resection of the Right Colon and Anastomosis of the Ileum to the Transverse Colon after the Method of Mikulicz.* *Plan.* *New England J. Med.* 206: 315-319 (Feb. 18) 1932.

⁴ Rankin, Fred W. *Surgery of the Colon.* New York: D. Appleton & Co. 1926.

pet ideas, if such exist, and strive to fit into the plan of management all the known aids that have proved useful to others, provided there is any reason to feel that the mortality could be lowered. To clarify existing ideas concerning the treatment of cancer of the right bowel, it seems justifiable to consider the subject on a comparative basis with similar lesions in other sections of the colon, where the disease is more common but has a less favorable prognosis and is technically more difficult to treat.

Regardless of details, certain definite general principles dealing with cancer of the bowel are now generally accepted. These cannot be ignored, regardless of any less important adjuncts in which one may have faith. Although it is unlikely that any of these more important factors are wifully neglected, it can do no harm to set them down.

PREOPERATIVE PREPARATION

The patients come to the surgeon in all stages of health, from the phase of almost no interference to that of full blown general peritonitis from perforation. Obstruction, anemia and depletion are often present in varying degrees. Each patient must be considered on the basis of operability, whether this is dependent on the lesion itself, complications secondary to the primary growth, associated diseases or age. A considerable proportion arrive at the hospital in a hopeless state. In cases of perforation of the bowel either at the growth or proximal to it, even a palliative procedure can rarely be carried out successfully. Patients with acute obstruction should have an early preliminary drainage of the bowel, by cecostomy or colostomy for lesions distal to the hepatic flexure and by ileotransverse colostomy if the growth is in the cecum or the ascending colon. Ileostomy as a preliminary operation for drainage is not recommended, owing to the high incidence of peritonitis following its use and to the complications it brings about when one wants at a later date to get at the primary area to be resected.

Cecostomy usually suffices as a preliminary procedure in cases of acute obstruction by any lesion beyond the hepatic flexure and should not be delayed, since local necrosis due to distention of the cecum will bring about perforation in a comparatively short period.⁵ This operation is useful as a first stage to resection of the left bowel in the presence of partial obstruction or even if no obstruction exists. Although it does not eliminate the cramplike discomfort that accompanies the lesion of the left bowel, it does diminish it sufficiently in the majority of cases to allow the proper intake of food and fluids by mouth preliminary to resection of the primary growth. Also, it makes a valuable safety valve proximal to the suture line after the resection, thus eliminating the necessity of including this operative step at the time the growth is resected.⁶

Colostomy proximal to the obstruction in the left bowel is much desired by many surgeons. I grant that it relieves the obstruction more satisfactorily than cecostomy and makes the patient more comfortable at an earlier date. It does complicate future procedures, however, and I have rarely found it sufficiently superior to cecostomy as a preliminary to radical operation to warrant its use.

Depleted patients should be brought into a more normal state of physiologic balance prior to resection of the bowel. In addition to administering water, chlo-

rides, dextrose and blood, one must take advantage of more recent research along the line of deficiency diseases in general. Without doubt, the tendency for wounds to heal poorly and patients to withstand operation badly can be remedied to a large extent by the preliminary and coincident use of vitamins. Certainly, the striking improvement in some of these patients following the use of cevitic acid⁷ and the intramuscular injection of liver extract is worthy of consideration.

My experience with intraperitoneal vaccine has been too limited to warrant discussion. I have the very distinct feeling that part of the benefit derived from any two stage procedure on the large bowel may come through the added resistance that the peritoneal cavity attains after the less radical preliminary stage. This may not be true, since it has not been established at what time after exploration or inoculation the peritoneal cavity reaches its maximum immunity. The time varies in the estimation of different workers from twenty-four hours to six weeks. The smoothness of convalescence of the average patient who has had a preliminary drainage or short circuit from seven to fourteen days previous to resection of the large bowel, as compared to the often stormy postoperative course following the same operation done in one stage, has been observed by every surgeon who has had experience in this field.

Anesthesia continues to offer opportunity for argument whenever the subject is introduced. Every surgeon must select for himself the type of anesthesia he can best use under the circumstances in which he works. More important than the type of anesthesia is the person who administers it. A properly controlled patient, regardless of the agent used, is really the most important feature of anesthesia. A technic must be used that eliminates pain, cyanosis, marked changes in blood pressure and damage to parenchymatous organs and minimizes postoperative complications in the respiratory tract. I myself prefer a well given intratracheal gas-oxygen-ether mixture in a closed machine, although I have had many satisfactory spinal anesthetics administered.

ELIMINATION OF DISEASED AREA

If a lesion of the large bowel is operable, the disease is not necessarily still confined to the bowel itself. Although the percentage of cures is low when lymph nodes are involved in the process, enough patients do not have recurrence after radical operation under this circumstance to warrant including the mesentery in the resection. One cannot assume that, if the lymphatics in the immediate vicinity of the growth are involved only a local resection of the bowel itself or even a more palliative proximal colostomy or short circuit is all that is worth doing. One should remove all the obviously diseased material, provided such a procedure is compatible with an early good result. When the mesentery is not grossly invaded, it is even more important to remove it. Too many resections of the large bowel include no mesentery at all, and such resections unfortunately are apt to be done in cases in which a permanent cure might have been effected. I believe it is more important to remove as much mesentery as is consistent with the supply of blood to the remaining part of the colon than it is to have the specimen contain a long section of normal bowel on either side of the growth. Lymphatic involvement in the right colon is very apt to be limited to the easily spared right colic vessels.

⁵ Sperling, Louis. Role of the Ileocecal Sphincter in Cases of Obstruction of the Large Bowel. *Arch Surg* 32: 22-45 (Jan) 1936.
⁶ Jones, Daniel F. The Diagnosis and Principles of Treatment of Carcinoma of the Colon and Rectum. *Tr Am S A* 49: 303 1931.

⁷ Lanman, Thomas and Ingalls, Theodore H. Vitamin C Deficiency and Wound Healing: an Experimental and Clinical Study. *Ann Surg* 105: 616 (April) 1937.

The dissection should be carried well on to the transverse colon, as this structure is so well supplied with anastomotic blood vessels that malnutrition of the remaining bowel is unlikely. This is not true in certain areas of the sigmoid, and careful attention to an adequate blood supply must be given. Certain knowledge of the normal blood supply must be borne in mind, I feel, however, that it is more important to use one's power of observation in determining the viability of the intestine that is to undergo anastomosis. One can rarely fail to recognize cyanosis or lack of pulsating vessels if one looks for them.

One is often justified in removing the local growth and its immediate glandular involvement even in the presence of distant metastasis. The best operation for an obstructing lesion of the bowel is resection with anastomosis regardless of the extent of the disease. Patients with known metastasis have lived comfortably for a number of years after such a palliative resection. This attitude has a tendency to increase one's operative mortality, but the patients who survive will be much happier for the remaining months of their lives.

Gross contamination should be avoided during the operative procedure. The most frequent technical error in surgical procedures on the large bowel is gross soiling of the peritoneal cavity or the retroperitoneal tissues with contents of the bowel. Such soiling usually comes about by the slipping of a clamp or basting stitch and occurs most frequently when the operator is inexperienced or the patient is improperly prepared owing to incomplete cleansing of the bowel preoperatively or failure to institute preliminary proximal drainage. The peritoneal cavity will withstand a considerable amount of contamination but not often gross soiling with spilled fecal matter. This is particularly true if the content of the bowel is liquid, since in this case the tissues not covered by peritoneum, such as the cut mesentery, with its fatty padding, or the retroperitoneal spaces, may be contaminated. From this area, infection is prone to spread with appalling rapidity. Any type of operation or number of stages used is justifiable if this catastrophe can be avoided. Aside from so-called accidental contamination, there is frequently too little regard for the consequences of an open anastomosis in the large bowel. It is frequently stated that a well protected operative field will allow an open anastomosis to be done with safety. This argument is based on the fact that the peritoneum will take care of a certain amount of soiling. The champions of the open anastomosis defend it not only on this basis but on the claim that they can be more certain of the blood supply and the function with such an anastomosis than with any of the so-called aseptic methods of suture. Most of this argument is true, and certainly in the hands of some operators an open anastomosis can be successfully accomplished in a creditable percentage of cases. It is true also that the patients more often have stormy convalescence owing to residual abscesses, sepsis of the wound and intestinal obstruction than do those that are operated on with a more nearly aseptic technic. Also, in the hands of some surgeons there is a high percentage of fatal peritonitis. One may argue that this complication is not due to the soiling that takes place during the operation but to a leaking suture line. This is not always the case, as the suture line is often found intact at autopsy when general peritonitis has been the cause of death.

A leaking suture line will almost invariably result in fatal peritonitis unless the leak is of slow development

resulting in an abscess formation that, when drained, ends in a fecal fistula, under which circumstances recovery may take place. There are certain points regarding the suture on which all authorities agree, such as the necessity of adequate blood supply, the prevention of distention within the bowel proximal to the anastomosis, an accurate apposition of the serous coats without eversion of the mucosa, the absence of strain or tension on the line of sutures and the allowing of no foreign body, such as a drain, to rest near it. If these general principles are carried out the anastomosis will heal and will not leak. The type of suture material is unimportant, provided it is of a character to resist absorption for a few days and is not tied so tightly that the tissues will be rapidly cut through.

Denuded areas must be peritonealized. The careful elimination of raw surfaces following any abdominal operation brings about such gratifying results that one should exert every reasonable effort in this direction. In the radical extirpation of extensive malignant disease, this ideal refinement of technic cannot always be carried out, but usually it is possible to reduce the danger of postoperative obstruction to a marked degree. The cut edge of the fat-lined mesentery is a frequent site for the adherence of a loop of small intestine, and one can afford any amount of pains to avoid this complication. Traps must be carefully closed. I have seen several instances of failure in an otherwise well resected lesion due to inadequate closure of apertures through which a loop of small bowel may pass and produce obstruction. Such failure most often occurs in the V-shaped resection of the mesentery after the anastomosis is made or in the lateral gutter after an end colostomy. It is certainly worth while to close the space between an end colostomy and the parietal peritoneum, particularly if the bowel is brought out anteriorly. One may damage the supply of blood to the bowel if one accomplishes this carelessly or leaves a small trap, which is more dangerous than a large one, but these arguments do not offset the fact that a more ideal situation can be established if care is used. Too often, I have seen undue confidence placed in the use of omentum to cover unperitonealized defects. The value of this structure cannot be minimized, but if it is traumatized, like any other tissue containing fat, it may prove to be a boomerang, since nature will cast off un nourished cells and in the process of repair an abnormal point of attachment for a loop of the small bowel occurs.

POSTOPERATIVE CARE

Immediately after a resection of the colon, one should almost as a matter of routine give the patient a transfusion. This is important for other reasons than the loss of blood at operation or a fall in blood pressure. Blood may be looked on as the best intravenous food available, and the added resistance to postoperative complications afforded by this simple procedure cannot be overemphasized.

Special nursing for the first twenty-four hours, at least, after an operation of this magnitude will prove to be a good investment. Pulmonary complications can often be avoided by immediate and constant attention to details during this clinical period. The relative frequency of postoperative pneumonia in ward patients as compared to private patients in the Massachusetts General Hospital is very striking. Although other factors may be involved, I am certain that the nursing problem is a most important one.

Liberal use of morphine is desirable after any abdominal operation, particularly when known contamination, however slight, has taken place. Not only does it have the desired action of maintaining the tone of the bowel but it induces a state of sedation and euphoria, so that intravenous needles, the Levine tube and other discomforts are borne with greater ease. One's only guide as to the amount should be the rate of respiration. Morphine should be given regularly—"by the clock"—in doses commensurate with the size and condition of the patient. From one-eighth to one-fourth grain (0.008 to 0.016 Gm.) every three hours is

TABLE 1—Carcinoma of the Large Intestine, from 1925 to 1936

	One Stage Resection			Two Stage Resection		
	Cases	Deaths	Mortality	Cases	Deaths	Mortality
Right	73	15	20.5%	18	2	11%
Transverse	19	3	15.7%	12	2	16.6%
Left	96	19	20%	73	10	13.7%
Rectum	212	40	18.8%	150	19	12.6%
Total	400	77	19.2%	253	33	13%

usually well tolerated for forty-eight hours without ill effects. It is well to keep within limits that do not depress the respirations below 16 a minute. This drug diminishes the amount of distention within the bowel and maintains a slow, regular peristalsis in a satisfactory fashion.⁸ I believe that morphine is superior to extracts of the pituitary gland on the basis of its soothing action and the less vigorous and more lasting effect on the tone of the bowel.

Fluids are best maintained by the intravenous administration of dextrose and salt solutions. An inlying Levine tube will eliminate nausea by keeping the stomach empty. It is important to keep the lower segment of the bowel clean, and this is best done by the administration of a few ounces of physiologic solution of sodium chloride by rectum every four hours. The patient absorbs this fluid until about the beginning of the third postoperative day, after which a certain portion of the liquid will be siphoned back with gas and particles of feces. After this stage is reached, nourishment may be given by mouth and the dose of morphine diminished. One should be careful never to introduce enough salt solution by rectum at one time to distend the lower segment, and the amount should not be sufficient to flow up the suture line. After a low resection of the sigmoid 4 ounces (120 cc.) is sufficient, if the anastomosis is high more may be given, but never enough to produce a peristaltic cramp.

The diet during the early postoperative course should consist of foods which are not gas producing,⁹ carbohydrates, fruit juices and milk should be withheld until there is free elimination of gas from the cecostomy or from the rectum. In the case of depleted patients, transfusions should be repeated and cevitic acid administered. Liver extract administered intramuscularly is advantageous for some of these patients, particularly if they have difficulty in regaining a safe stage of nutritional balance. One should not overlook the advantages of iron given by mouth in convalescence.

CHOICE OF PROCEDURE

Statistical data cannot always be accepted at their face value. This seems particularly true in the analysis of the case records of carcinoma of the colon treated

8 Orr, Thomas G. The Action of Morphine on the Small Intestine and Its Clinical Application in the Treatment of Peritonitis and Intestinal Obstruction. *Tr. Am. S. A.* 51: 319-323 (1933).
9 Fine, Jacob, and Levenson, Walter. Effect of Foods on Postoperative Distention. *Am. J. Surg.* 21: 18-283 (Aug.) 1933.

at the Massachusetts General Hospital from 1925 to 1936. During this period there was a definite tendency toward a one stage operation except in the presence of acute obstruction. Also, two stage procedures were often selected on the basis of the poor operative risk which had to be dealt with. The patients were operated on by a fairly large group of surgeons, each of whom based his operative procedure on a variety of individual impressions. New ideas were carried out for better or for worse. A tendency to subject a patient with extensive invasive disease, usually considered inoperable, to radical extirpation is evident. Training development of various principles and a hope to accomplish the impossible all had a rôle in the mortality. One cannot help being impressed by the marked influence that the teaching of D. F. Jones has had on surgery of the colon in this clinic. This is most strikingly illustrated in the observation of only one fatal leakage of the suture line from deficient blood supply.

It is impracticable to divide the cases into groups according to the individual surgeons involved, as the figures would then be reduced sufficiently to have no statistical value at all. It is fair to say that one stage procedures and open anastomoses gave better results in some hands than in others. The type of anastomosis done, whether end to end, end to side or lateral, apparently had little bearing on mortality, while the more or less aseptic methods as opposed to open anastomoses are strikingly superior. This is particularly true of the Parker-Kerr¹⁰ type of anastomosis, which was accompanied by far the lowest mortality in the entire series.

It is necessary to look at the figures for the entire group of resections of the large bowel to obtain any idea of the safety of a one stage as compared to a two stage procedure. In these data I have considered any preliminary operation that reduces the flow of intestinal contents through the involved segment, followed at a future time by resection of the lesion, as representing the first part of a two stage operation. Therefore preliminary short circuit, ileostomy, cecostomy, colostomy and first-stage dissections with colostomy have all been considered as first-stage procedures. The Mikulicz type of resection has been included in the one stage group unless it was preceded by cecostomy. Some

TABLE 2—Carcinoma of the Large Intestine, from 1925 to 1936. Average Stay in the Hospital

	One Stage Resection, Days	Two Stage Resection, Days
Right	34	48
Transverse	42	52
Left	36	42
Rectum	31	43

patients with carcinoma of the rectum and rectosigmoid with obstruction had a preliminary cecostomy followed by a combined abdominoperineal operation at a future date—the second operation under these circumstances amounting to a one stage procedure. However, it seems fair to look on preliminary cecostomy in these cases as a first-stage operation, since otherwise the patient would have had to be previously relieved of his obstruction by some two stage plan. To be sure, about ten deaths followed a first-stage drainage operation when a two stage procedure had been hoped for. These

10 Parker, Edward N. and Kerr, Harry H. Intestinal Anastomosis Without Open Incision by Means of Basting Stitches. *Bull. Johns Hopkins Hosp.* 19: 132 (1908). Kerr, Harry H. The Development of Intestinal Surgery. *J. A. M. A.* 81: 641-647 (Aug. 25) 1923. Allen, Arthur W. An Aseptic Technique Applicable to Gastrojejunocolic Fistula Surgery. *J.* 338 (March) 1937.

cases are excluded from the series as are all cases of palliative drainage or short circuit operation. It seems unlikely that any of these patients would have survived a radical one stage operation. One wonders in how many cases of a successful two stage procedure a radical one stage operation could safely have been substituted certainly in some, but on the whole during this decade the two stage operations represented the most serious risks in the group. The choice of operation was often limited by the condition of the patient on admission. In spite of this, in this series of cases there was a definite increase in safety with the two stage procedure which seems to offset the many desirable features of a single radical operation (table 1).

The increased number of hospital days in the two stage group is less than had been supposed (table 2). One cannot but feel that the added two weeks or less is justifiable in view of the overwhelming increase in safety. These patients realize that they are faced with a serious disease. It is not difficult to persuade them that two procedures may be necessary, and if they understand this beforehand they rarely object to a second trip to the operating room. This is particularly true if the first stage diminishes their previous discomfort or in itself is not uncomfortable. Frequently, much less reaction follows the more serious and time-consuming resection than the preliminary anastomosis. This may be attributed to a variety of reasons, such as tolerance, improved condition or intraperitoneal immunity. In addition, there may well be other unexplained factors. The smoothness of the average convalescence from a two stage operation as compared to that in many cases of a finally successful one stage operation, however, is very striking.

CAUSE OF DEATH

Peritonitis accounted for 30 per cent of all the deaths following resection of the large bowel (table 3). These represented 6 per cent of the 400 one stage operations and 3.5 per cent of the 253 two stage procedures. The majority of the deaths occurred in cases in which an open anastomosis was used. I have a definite feeling that this complication can be materially reduced, and any system that will lower its incidence is worthy of adoption. One cannot depend on a single principle, such as intraperitoneal vaccination or a two stage procedure. One must take into consideration the chief factor, and that is gross soiling.

Pulmonary complications such as collapse and pneumonia rank next in importance. Twenty-eight of the 110 deaths were attributable to these causes. It is interesting to note that the ratio of fatalities in the one and the two stage groups is distinctly in favor of the two stage procedure. This is in spite of the so-called double opportunity, which is often cited as an objection to the two stage operation. I believe that better anesthesia and better nursing are the important factors here, but one cannot overlook the fact that the two stage patients are in better condition to withstand their more serious second stage.

Intestinal obstruction is the next important fatal complication. Here there is a less marked contrast between the one and the two stage groups. Although the number of two stage operations on the right colon is too small for comparison, I feel that one may be justified in drawing the conclusion that obstruction will have a role in the mortality as the series increases in number. This brings to attention the necessity of obliterating raw areas and eliminating traps whenever possible.

Infection, postoperative shock, heart disease and postoperative hemorrhage all take a definite toll. Some conditions can be foreseen and prevented, while others, like uremia, cerebral hemorrhage and embolism, will continue to give rise to the so-called irreducible minimum of deaths following surgical procedures of this magnitude.

SUMMARY AND CONCLUSIONS

Carcinoma of the right colon is a favorable lesion for cure. It is technically easily removed, still, the mortality is higher than for resections for cancer elsewhere in the large bowel.

The lack of obstruction in cases of cancer of the right bowel so often eliminates the necessity of preliminary drainage that one is tempted to subject the patient to a one stage operation. Thus, the mortality is comparable to that for one stage resections elsewhere in the colon.

TABLE 3—Carcinoma of the Large Intestine, from 1925 to 1936 Cause of Death

	One Stage Resection		Two Stage Resection	
	Cases	Segment	Cases	Segment
Peritonitis	24	3 Right 2 Transverse 8 Left 11 Rectum	9	1 Right 6 Left 2 Rectum
Pulmonary disease	22	9 Right 5 Left 8 Rectum	6	1 Right 1 Transverse 1 Left 3 Rectum
Intestinal obstruction	8	1 Right 1 Transverse 2 Left 4 Rectum	5	1 Transverse 1 Left 3 Rectum
Sepsis	5	1 Left 4 Rectum	5	1 Left 4 Rectum
Shock	3	2 Rectum 1 Right	2	1 Left 1 Rectum
Cardiac failure	3	3 Rectum	2	2 Rectum
Hemorrhage	1	1 Left	4	4 Rectum
Cerebral hemorrhage	3	2 Left 1 Rectum	0	
Renal condition	3	3 Rectum	0	
Embolism	2	1 Right 1 Rectum	0	
Miscellaneous	3	3 Rectum	0	
Total	77	15 Right 8 Transverse 19 Left 40 Rectum	33	2 Right 2 Transverse 10 Left 19 Rectum

A preliminary ileotransverse colostomy through a left abdominal incision is recommended, either a lateral or an end to side anastomosis, followed in from ten to fourteen days by a resection of the excluded bowel through a right abdominal incision.

The aseptic anastomosis of the Parker-Kerr type gives a lower mortality for all intestinal suture in the Massachusetts General Hospital than any of the other methods used.

ABSTRACT OF DISCUSSION

DR. FRED W. RANKIN, Lexington, Ky. There are two general factors which influence not only mortality and morbidity but satisfactory end results: the ability of the patient to withstand a formidable operative procedure and technical considerations. Cancer of the right colon, as Dr. Allen pointed out, occurs in a favorable location, easily accessible, and, if the operating maneuver can be held to a reasonable mortality, gives a better end result than elsewhere in the gastro-intestinal tract, except in the low grade rectal cancer. One of the greatest advances in handling cancer in this location is the preliminary, preparatory period to which all these patients should be subjected. Obviously, surgical decompression is called for in cancer of the right colon with acute obstruction, and that decompression may be done either by ileostomy or by ileocolostomy as the first stage of the two stage maneuver.

Fortunately, obstruction is rarely a factor in cancer of the right colon, whereas in cancer on the left side it occurs in approximately three-fourths of the cases. After satisfactory decompression has been done in these cases, the routine operation should be what Dr Allen says, an ileocolostomy between the terminal ileum and the transverse colon as the preliminary stage, and subsequently a resection, but occasionally a one stage procedure is desirable. The operation should be done end to side. The importance of doing a graded operation in the right colon is necessary because of the pericolic infection and the frequently accompanying anemia, which is the result probably of some perverted function of the mucosa of the right colon but which leaves these people materially reduced surgical risks. If one does an end to side anastomosis, one removes all the fecal stream from passing over the carcinoma. The mortality in my groups has been approximately 10 per cent over a period of years. I cannot agree that all carcinoma of the right colon should be done in two stages. I do not think Dr Allen means to imply that. Occasionally one finds an early case, a good risk without anemia, without obstruction in which the operation can be carried out in one stage but I think that invariably, if a one stage resection is done a complementary ileostomy 20 or 25 cm proximal to the anastomosis line should be one step of the operation. The end results following resection of the right colon are eminently satisfactory. I find 56 per cent of the patients alive after five years 43 per cent are dead. It is inexplicable to me that cancer of the right colon should give a 10 per cent better ultimate prognosis than cancer of the left colon.

DR HARVEY B STONE, Baltimore. Dr Allen was good enough to ask me to discuss his paper in view of the statistics of my own experience with cancer of the right side of the colon, predicting that the facts would show a less favorable outcome of the one stage resections than my offhand impression would lead me to believe. Most of the attempts to study problems like the present one by mathematical means are open to the objection that there is the great difficulty in selecting properly comparable groups of cases. Another approach to the problem seems to me to be better. I would say that both the one stage and two stage methods have their place. No one but an enthusiast without balance would do a one stage immediate resection and anastomosis in a patient in wretched general condition, with anemia, dehydration and acute obstruction. On the other hand, many patients are in such good condition, both generally and as concerns the local lesion that to me it seems much safer to carry out a well conducted one stage operation than to subject the patient to the undoubted increased hazards of two anesthetics, two operations and two convalescent periods, to say nothing of the added expense, loss of time, pain, anxiety and apprehension. In short the procedure should be adapted to the individual case, and no rules automatically applied. Dr Allen has done a real service in emphasizing the limitations of the one stage principle and the utility of the two stage attack. I should like to supplement his position by expressing the view that the one stage procedure has marked advantages over the two stage, and that some countervailing condition in particular cases must exist to justify the rejection of these advantages. In the matter of the desirability of some form of so called aseptic anastomotic technic, I heartily agree with Dr Allen. While it is true that other principles are essential to success, I believe that the avoidance of an open exposure of the lumen of the intestine and the direct handling of the mucosa are of great importance in minimizing the chances of infection and add not only to the safety but to the neatness and finesse with which the technic may be carried out.

DR ARTHUR W ALLEN, Boston. All surgeons would prefer to do any large procedure in one stage if they could. I was a one stage enthusiast ten years ago. I must say that it has required a good many unsuccessful attempts at one stage operations on the large bowel to convert me to the two stage operation. I realize that statistics are of questionable value. On the other hand I think one must bear in mind that these statistics during this decade were obtained during a time when operators were one stage minded and most of the two stage operations in this group were done because the patient was

a poor risk or was obstructed or depleted, and still, in spite of these facts, by the two stage method a much better showing has been made. As far as the mental attitude of the patient is concerned regarding second or third stage operations, any man who talks to the patient for five minutes before any operation can make him feel perfectly happy about the multiple stages necessary to get him through to a successful end result. I am grateful to Drs Rankin and Stone for taking part in this discussion. I know that the question is debatable, but I still feel that perhaps operators have been too oblivious to the outcome of these patients, particularly with carcinomas of the right colon, and should more seriously consider them on a two stage basis.

HYPERTROPHY OF THE LIGAMENTA FLAVA AS A CAUSE OF LOW BACK PAIN

R GLEN SPURLING, MD

LOUISVILLE, KY

FRANK H MAYFIELD, MD

CINCINNATI

AND

JAMES B ROGERS, MD

LOUISVILLE, KY

Low back pain with or without radiation into one or both lower extremities has been studied with increasing interest in recent years. That many factors may be involved in the production of this group of symptoms is attested by a voluminous literature.¹ Many recent authors have considered ligamentous strain about the lumbosacral and sacro-iliac regions from faulty posture to be the chief etiologic factor.² Intra-spinal pathologic changes have, however, received scant attention.

From the Departments of Surgery and Anatomy of the University of Louisville School of Medicine.

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These include

- Adson A W Diagnosis and Treatment of Tumors of the Spinal Cord Northwest Med 24 309 (July) 1925
- Buey P C Chondroma of Intervertebral Disk J A M A 94 1552 (May 17) 1930
- Coffey R C Gastro Enteroptosis New York D Appleton & Co 1923
- Coppeland M M Metastatic Lesions of Bone Radiology 16 198 (Feb) 1931
- Elsberg C A Diagnosis and Treatment of Surgical Diseases of the Spinal Cord and Its Membranes Philadelphia W B Saunders Company 1916 p 238 The Diagnosis and Surgical Treatment of Tumors of the Spinal Cord Cong Soc internat de chir Rap 2 385 1937
- Freiberg A H Sciatic Pain and Its Relief by Operations on Muscle and Fascia Arch Surg 34 337 350 (Feb) 1937
- Goldthwait J E The Lumbosacral Articulation An Explanation of Many Cases of Lumbago Sciatica and Paraplegia Boston M & S J 164 365 1911
- Graves W P Lumbosacral Pain Gynecological Paper Am J Obstet Surg 15 807 (Dec) 1917
- Kuhns J C Low Back Pain Rhode Island M J 19 131 143 149 150 (Sept) 1936
- Mixter W J Spinal Column and Spinal Cord in Lewis Dean Practice of Surgery Hagerstown Md W F Prior Company Inc 12 76 chapter III 1932
- Mixter W J and Barr J S Rupture of the Intervertebral Disk with Involvement of the Spinal Canal New England J Med 211 210 (Aug 2) 1934
- Ober F R Back Strain and Sciatica J A M A 104 1580 (May 4) 1935
- Pett M M and Echols D H Herniation of the Nucleus Pulposus A Cause of Compression of the Spinal Cord Arch Neurol & Psychiat 32 924 (Nov) 1934
- Pitkin H C and Pheasant H C Sacroarthrogenetic Talalgia II A Study of Sacral Mobility J Bone & Joint Surg 18 365 (April) 1936 III A Study of Alternating Scoliosis ibid 18 706 (July) 1936
- Smith Petersen M N Routine Examination of Low Back Cases with Particular Reference to Differential Points Between Lumbosacral and Sacro-Iliac Regions J Bone & Joint Surg 6 819 1924
- Young H H Gerachty and Stevens Study and Analysis of 356 Cases of Chronic Prostatitis Johns Hopkins Hospital Rep 13 313 1906
- 2 Barr J S Sciatica Caused by Intervertebral Disk Lesions A Report of Forty Cases of Rupture of the Intervertebral Disk Occurring in the Low Lumbar Spine and Causing Pressure on the Cauda Equina J Bone & Joint Surg 19 323 (April) 1937 Schmorl and Junghans Williams

When this syndrome occurs in conjunction with objective neurologic changes, such as sensory or motor loss about the buttock, sexual impotence and possibly sphincteric disturbances, the lesion must be intraspinal, for bony disease peripheral to the neural canal simply cannot produce such a neurologic pattern. Any low intraspinal lesion, herniation of a nucleus pulposus, neoplasm or inflammatory disease may, of course, produce this clinical picture. Our purpose in this report is to discuss an intraspinal lesion which has not received general recognition, i.e., hypertrophy of the ligamentum flavum.

The ligamenta flava are composed normally of yellow elastic tissue and connect the laminae of contiguous vertebrae (fig 1). They blend with the interspinous ligament and enter into the formation of the capsules of the joints between the articular facets, and their lateral edge forms the posterior margin of the intervertebral foramina. At times they may undergo hyperplastic change and become so increased in thickness that they encroach on the spinal canal, thereby compressing the spinal cord. This hyperplasia presumably is possible at any level, but our experience with the lesion is limited to the ligaments connecting the fourth and fifth lumbar vertebrae. Seven cases in which this lesion was the pathologic entity form the material for this report. In six of the seven cases the lamina of the fourth lumbar vertebra was, likewise, found to be greatly increased in thickness and appeared to be at least a part of the pathologic anatomy.

Hypertrophy of the ligamentum flavum with compression of the cauda equina was first described by Elsberg³ in 1913. He reported a single case in which the hypertrophy followed direct injury to the fourth

Pain low in the back was the predominant complaint. In each instance there was elicited a history of trauma, which the patient felt was the causative factor. The most common story was "While lifting a heavy object in a bended position I felt a sudden severe pain in the lower part of the back." Usually the acute attack of pain low in the back was followed by a period of relief after a few days or weeks only to recur insidiously until the patient was incapacitated by the pain. In two cases, however, the onset of symptoms was gradual without history of an acute sudden attack. In none of our patients has the pain in the back been relieved by the recumbent position, most of them were more comfortable while sitting or standing. Sudden changing of position usually exaggerated the discomfort. Coughing, sneezing or straining at stool frequently augmented the pain.

Radiating pain into one or both lower extremities was present in all seven cases. In six it was unilateral (left) and in one it was bilateral. The pain usually followed the sciatic distribution except in two instances in which it was referred to the hip and testicle.

Sexual impotence was complete in three patients. Two patients were not within the age group in which

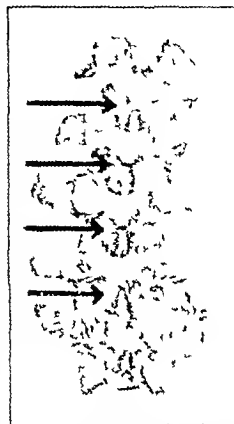


Fig 1—Dissection to show the posterior wall of the spinal canal. Arrows indicate the position of the ligamenta flava.

TABLE 1—Subjective and Objective Observations in Seven Cases

Case	Age	Sex	Race	History	Subjective				Objective				Cerebrospinal Fluid										Operation	Result		
					Low Back Pain	Sciatic Pain	Sexual Impotence	Numbness	Sphincteretic	Motor Loss	Tenderness of Spinal Cord	Sciatic Tenderness	Motor Weakness	Sensory Loss	Regional Tendon Reflexes	Trophic	Pressure	Queckenstedt	Total Protein	Cell Count	Cold Curve	Wassermann Reaction			Skeletal Roentgenograms	Iodized Oil
1	36	W	W	1 yr	+	+	+	+	+	+	+	+	+	+	Ab	+	150	175	2	—	—	—	—	—	10/17/36	Complete recovery
2	29	W	W	3 yr	+	+	+	+	+	+	+	+	+	+	Dim	—	120	110	—	—	—	—	—	—	11/6/36	Complete recovery
3	27	W	W	3 yr	+	+	+	+	+	+	+	+	+	+	Dim	—	160	75	1	—	—	—	—	—	11/23/36	Complete recovery
4	42	W	W	1 yr	+	+	+	+	+	+	+	+	+	+	Dim	—	90	100	2	—	—	—	—	—	12/4/36	Complete recovery
5	59	W	W	1 yr	+	+	+	+	+	+	+	+	+	+	Dim	—	120	65	1	—	—	—	—	—	12/19/36	Died (meningitis)
6	38	W	W	1 yr	+	+	+	+	+	+	+	+	+	+	Dim	—	120	100	1	—	—	—	—	—	1/15/37	Complete recovery
7	16	W	W	3 mos	+	+	+	+	+	+	+	+	+	+	Dim	—	120	45	1	—	—	—	—	—	3/29/37	Complete recovery

+ indicates positive — negative 0 information not available

and fifth lumbar vertebrae. Since Elsberg's original description of the lesion there have been but six cases recorded: Towne and Reichert,⁴ two cases, Pusepp,⁵ three cases and Abbott,⁶ one case.

SYMPTOMATOLOGY

The duration of symptoms in this group of patients varied from three months to two years (table 1). In six instances there had been one or more recessions of symptoms. Each patient had been completely incapacitated for at least three months prior to operation.

Sexual potency was a factor. The two remaining patients gave a negative history in this regard.

Subjective sensory loss in the lower lumbar and sacral segments was noted by five patients. This sensory change was described as "numbness" either in the legs or about the buttocks. Paresthesias were not described.

Urinary incontinence was present in but one patient of the group.

Subjective motor loss in the legs was described by four patients. In two instances the weakness was unilateral and in two it was bilateral.

Objectively, all patients had some degree of postural deformity. In the most extreme case the deformity was so great that an erect posture was impossible. In the others nothing more could be demonstrated than spinal rigidity with tilting of the pelvis. Tenderness to pressure over the spinous processes or the lower lumbar

³ Elsberg C V. Experiences in Spinal Surgery. Surg. Gynec. & Obst. 16: 117-132 (Feb.) 1911.

⁴ Towne L B and Reichert F L. Compression of the Lumbo-sacral Roots of the Spinal Cord by Thickened Ligamenta Flava. Ann. Surg. 94: 327-336 (Sept.) 1931.

⁵ Pusepp L. Kompression der Cauda Equina durch das verdickte Ligamentum flavum. Tumorsymptomatische Operation. Heilung. Folia neuro-path. estonica 12: 39-48 1932.

⁶ Abbott W D. Compression of the Cauda Equina by the Ligamentum Flavum. J. A. M. A. 106: 2129-2130 (June 20) 1936.

region was a constant finding. Mild tenderness to pressure over the sciatic nerve at the hip or in the thigh was present in five cases. Diminution of pain and temperature sensibility over the sacral skin segments was demonstrated in all seven cases. In four instances there was objective motor loss, in two patients this motor loss was accompanied by muscular atrophy. One



Fig. 2 (case 3, table 1)—Serial films showing filling defect between the fourth and fifth lumbar vertebrae after injection of 2 cc of iodized poppy seed oil into the spinal subarachnoid space.

patient had a trophic ulcer on the heel. The achilles tendon reflex was abolished or diminished in six of the seven cases.

We were unable to demonstrate by clinical or roentgenologic examination any of the manifestations usually observed in sacro-iliac disease.

DIAGNOSIS

A carefully performed neurologic examination is of primary importance in differentiating the "low back pain syndrome" of extraspinal origin from one of intraspinal disease. A knowledge of the arrangement of the sensory dermatomes, the regional reflexes and the muscular innervation of the buttocks and lower extremities is obviously essential. Most important of all is for the examiner to remember that disorders of the cauda equina may produce subjective symptoms identical to those of peripheral nerve disease.

When the neurologic examination is even suggestive of an intraspinal lesion, lumbar puncture studies should be made. If the puncture site is at the third lumbar interspace it is to be expected that no change in the hydrodynamics would be observed. If, however, the needle is inserted at or below the fourth interspace, a partial or complete obstruction may be demonstrated. In any event, the protein content of the fluid will probably be elevated since an obstructive lesion is characteristically associated with an elevated total protein above and below the lesion. The remainder of the spinal fluid examination in our group yielded no useful information: the cell count was uniformly low, the gold curve and Wassermann reactions were negative (table 1).

Fluoroscopic examination of the spine after injection of 2 cc of iodized poppy seed oil was the test that gave final conclusive proof of the presence and location of

the lesion. Our first case was examined without iodized oil studies because the neurologic manifestations were so advanced that accurate localization was untimely. In all the others we used the opaque medium, and in each instance the characteristic filling defect was shown opposite the fourth lumbar interspace (figs. 2 and 3).

Our technic of investigation with iodized poppy seed oil consists of fluoroscopy of the patient in a prone position on a tilting table. By the use of an ingenious cassette holder and the quick switch described by Dr. J. C. Bell,⁷ we are able to make instantaneous serial radiographic records of any filling defect observed on the fluoroscopic screen.

Plain x-ray films of the lower part of the spinal column have been negative for obvious bone or joint disorders. However, in every case the normal lumbar curve has been absent, the main axis of the lumbar spine being essentially perpendicular. This straight immobile lumbar spine is probably seen in other lesions associated with pain low in the back but certainly in this group it was a constant finding. In no case have we demonstrated narrowing of the intervertebral disks or spondylosis. In view of the hypertrophy of the fourth lumbar lamina that we have seen at operation, it is surprising that we have been unable to show it radiographically.

TREATMENT

It must not be inferred that the following remarks on treatment are concerned in any way with the broad problems of low back pain; our discussion is directed only at the treatment of this particular lesion. We



Fig. 3 (case 2, table 1)—Serial films to show filling defect between the fourth and fifth lumbar vertebrae after injection of 2 cc of iodized poppy seed oil into the spinal subarachnoid space.

are heartily in accord with the efforts made by the orthopedists and internists at conservative treatment and believe that radical operative procedures should be reserved for those in whom simpler methods have failed.

The treatment of this lesion resolves itself into removal of the involved lamina and ligament. The

⁷ Bell, J. C. Apparatus for the Study of Opaque Media in the Spinal Canal. *Am. J. Roentgenol.* 37: 416-419 (March) 1937.

operation is performed under local infiltration with procaine hydrochloride. If the dura is opened for inspection of the cauda equina and anterior wall of the spinal canal a low spinal anesthesia is added by instilling about the nerve roots from 20 to 30 mg of procaine hydrochloride crystals for spinal anesthesia in Ringer's solution after blocking off the subarachnoid space at the upper level of the wound with a cotton pledget. We have regularly removed the lamina above and below the lesion for the purpose, chiefly, of adequate exposure. The lamina of the fourth lumbar vertebra has been completely sacrificed, including its superior articular facets. This wide exposure is necessary in order that the lateral portion of the thickened ligament may be removed. No attempt at spinal fusion has been made in any case. The patients are usually allowed out of bed on the twelfth day and are discharged from the hospital about the fifteenth day.

PROGNOSIS AND RESULTS

One fatality occurred in our series. Streptococcal meningitis secondary to wound infection was the cause of death. Barring the possibility of a rare catastrophe such as this, the operation should incur very little risk, since it is carried out under local anesthesia with a minimum amount of trauma and hemorrhage.

The other six patients have experienced prompt relief of symptoms. Pain, except that in or about the



Fig 4 (case 3 table 1)—Appearance of hypertrophied ligamentum flavum.

operative wound, has disappeared within twenty-four hours. The sensory loss was usually restored before the patient left the hospital. Those with loss of motor power showed normal muscular tone within a few weeks after operation. The three men who had complained of impotence stated voluntarily that they were again potent in from one to five days.

Patient 1, with incontinence of urine and a trophic ulcer on the heel, had regained sphincteric control by the twelfth day and the ulcer was rapidly diminishing in size. A follow-up letter four weeks after operation stated that the ulcer had healed completely.

Patient 3 still complained after eight weeks of weakness in the back and discomfort in the scrotum, but the sexual impotence was relieved and he had no pain in the back or legs. He was fitted with a brace for the lower part of the back and is now symptom free. Three patients returned to hard labor at the end of six weeks and have had no recurrence of symptoms after seven months, six months and five months respectively.

The earliest operation was done eight months ago and the last one three months ago, so the late results cannot be recorded.

PATHOLOGIC ANATOMY

The thickened lamina of the fourth lumbar vertebra was the first gross abnormality noted at operation. In comparison with the third and fifth laminae it was from

50 to 100 per cent thicker than normal. The bone was spongy except for a thin hard cortex. Immediately beneath the lamina was found a mass of dense fibrous material totally different from the usual soft pliable ligamentum flavum (fig 4). It usually covered the posterior aspect of the dura from side to side (figs 5 and 6). In these masses numerous calcareous deposits were found and in one case there was a solid

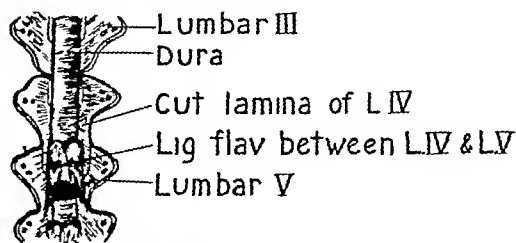


Fig 5—Drawing of a dissection showing ligamenta flava between the fourth and fifth lumbar vertebrae in place after laminae have been removed.

calcified plaque on the inner surface of the mass making a mold of the dura. It was impossible to secure accurate measurements of all the specimens, as some of them were removed piecemeal. Those which were excised intact measured from 10 mm to 16 mm in thickness. The thickened ligaments were always adherent to the dura and frequently when separation of them was attempted the dura was torn. In six of the seven cases the greatest hypertrophy was observed on the left side and corresponded to the leg in which the clinical symptoms predominated. The predural fat was always normal above and below the lesion and absent beneath it.

The articular facets were in each instance smooth and glistening and showed no gross evidence of abnormality.

Microscopic studies of the laminae gave a normal appearance. The ligaments showed interwoven bundles of white fibrous tissue and yellow elastic tissue, the former always predominating. There was no leukocytic infiltration, but the blood vessels in the surrounding tissue were thickened as from previous inflammation. In two of the specimens old blood pigment was found. All specimens showed many areas of calcification. The microscopic interpretation was difficult to make, since

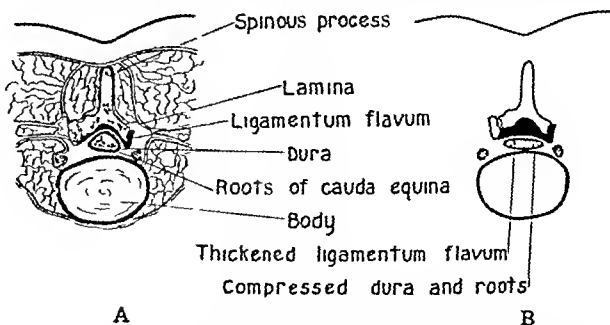


Fig 6—A, cross section at level of the fourth lumbar vertebra showing the relationship of the lamina, ligamenta flava, cauda equina and vertebral body. B, diagram to illustrate compression of cauda equina by hypertrophied ligamenta flava.

it involved the explanation of scar tissue formation. As the usual signs of inflammation were not in evidence, it seemed most probable that trauma was the etiologic factor.

Since the hypertrophied bone did not show microscopic evidence of hyperplasia, the question arose as to whether the gross changes might not have been normal anatomic variations. Also it seemed desirable to know

the relative thickness of the ligamenta flava in the lumbar region. To answer these questions and to establish a satisfactory normal with which to compare the lesions, the following anatomic studies were made on cadaver specimens.

Measurements were taken through the lamina, half way between the articular process and the roof of the spinous process, of the third, fourth and fifth lumbar vertebrae (fig 7). The material studied consisted of ninety-three vertebral columns, fifty-three of them were cleaned and dried and forty were in cadavers. A summary of these measurements is shown in table 2. From these studies it may be concluded that the lamina of the fourth lumbar vertebra is not appreciably thicker than that of the third or fifth lumbar vertebra in any given specimen.

The ligamenta flava at the third, fourth and fifth lumbar interspaces were measured in forty cadavers after the vertebral column had been cut longitudinally with a hand saw along the plane indicated in figure 7. A summary of these measurements is shown in table 3. From these studies one may conclude that the ligamenta flava between the fourth and fifth lumbar interspace is not appreciably thicker than the other ligamenta flava of the lumbar region in any given specimen.

COMMENT

That the lesion which we have described has been responsible for the symptoms in this group of patients can best be attested to by the fact that they experienced prompt relief of symptoms. Furthermore the signs of disease of the cauda equina have promptly disappeared after operation, paralyzed muscles have regained their power, normal sensation about the buttock and back of the legs has returned, sexual potency has been restored, a trophic ulcer has healed completely and sphincteric control has been regained. These plus disappearance of the subjective complaints, are to us ample proof that the causative lesion has been removed yet we are unable to explain satisfactorily why it occurs. The history in most instances points to trauma, so does the microscopic pathologic study of the specimen. There have been no signs of infection grossly or

microscopically. Certainly neoplastic disease has been excluded. There has been no radiologic evidence of bony disease about the lumbosacral or sacro-iliac regions.

Direct trauma to the ligament and lamina, either acute or chronic, appears to us to be the most likely cause. This supposition is strengthened further by the fact that the lesion has always occurred at the lumbar spinal joint of greatest mobility. The ligamenta flava are

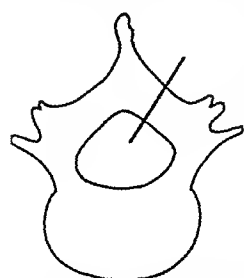


Fig. 7.—Diagram showing plane of measurements.

placed on increased tension with the body in flexion. Also any shift of the pelvis which decreases the lumbar lordosis puts an increased strain on the ligaments. This postural deformity, therefore would presumably cause continuous trauma to the ligamenta flava and lamina, and one would expect the greatest burden to fall on the joint of greatest mobility. The work of Schmorl⁸ and Williams⁹ indicates that torsion of the ligaments about the articular facets is responsible for the pain in cases of acute back strain. Since the

ligamenta flava enter into the formation of the capsules of joints between the articular facets, it appears likely that they too may be injured by faulty alignment. The clinical history of our patients would indicate that the pressure on the cauda equina developed many weeks or months after the onset of backache. This finding fits well with the micropathologic study of the specimen for all the ligaments have shown replacement of the

TABLE 2—Measurements of Laminae (Cadaver Specimens)*

	Vertebra		
	Third Lumbar	Fourth Lumbar	Fifth Lumbar
Greatest thickness of lamina	10	12	11
Least thickness of lamina	5	4	3
Average thickness of lamina	7.2	7.3	6.5

*Number of specimens ninety-three measurements in millimeters

TABLE 3—Measurements of Ligamenta Flava (Cadaver Specimens)*

	Interspace		
	Third and Fourth Lumbar	Fourth and Fifth Lumbar	Fifth Lumbar and First Sacral
Greatest thickness	7	7	7
Least thickness	2	2	2
Average thickness	4.5	4.4	4.2

*Number of specimens forty measurements in millimeters

normal yellow elastic tissue with white fibrous tissue in which there were calcareous deposits. These observations suggest that the ligamenta flava were probably traumatized in the beginning and in the process of healing or as the result of continuous trauma, an excess of scar tissue was laid down. When this fibrous mass attained sufficient size to compress the nerve roots in the canal, the neurologic picture of intraspinal disease appeared. In other words, we believe that this lesion is of late occurrence and is probably the end result of inadequate treatment of the acute or subacute lesions, whatever they may be.

SUMMARY

Hypertrophy of the ligamentum flavum in the lower lumbar region is associated with a group of clinical symptoms and signs which are remarkably constant. The chief characteristics of this syndrome are pain low in the back with neurologic signs of compression of the cauda equina.

321 West Broadway

ABSTRACT OF DISCUSSION

DR. G. E. HAGGART, Boston. We have seen two patients at the Lahey Clinic who appear to fall in the group of cases described by Dr. Spurling and his co-authors. Both of these patients were operated on by Dr. Horrax and Dr. Poppen of the neurosurgical service. At the level of the third and fourth lumbar vertebrae they found thickened ligamenta flava without calcification. Exploration of the subdural space gave negative results. To determine the etiology of low back pain and sciatica is often difficult. The authors emphasized the point made by Towne and Reichert that the diagnosis of cauda equina compression can be made without difficulty after careful neurologic examination and lumbar puncture. Speaking from the orthopedic point of view I feel that all patients with sciatica should certainly have a lumbar puncture. The necessity for this particular examination in this group of patients was impressed on me by three patients who later proved to have large tumors of the cauda equina. In each instance the neurologic examination by a neurologist was negative. The recent work on herniated disks still further stresses the need for

⁸ Schmorl, Georg and Junghann, Herbert. Die gesunde und kranke Wirbelsäule im Röntgenbild. Leipzig, Georg Thieme, 1932.
⁹ Williams, P. C. Lesions of the Lumbosacral Spine. Part I. Acute Traumatic Disruption of the Lumbosacral Intervertebral Disk. J. Bone & Joint Surg. 19: 343 (April) 1937.

lumbar puncture when sciatica is a symptom. If the studies should indicate caudal compression, then and only then should iodized oil be injected into the subdural space, followed of course by careful fluoroscopic examination. After the block is accurately localized, the treatment is laminectomy for removal of the obstruction, whether it is a herniated disk tumor of the cauda equina, subarachnoid adhesions or, as in this group of cases hypertrophy of the ligamenta flava. With regard to the reported hypertrophy of the fourth lumbar lamina, I am rather skeptical of the existence of this condition, because from experience with fusion operations on the lumbar spine I am impressed by the relatively larger appearing lamina of the fourth lumbar vertebrae when compared with the posterior elements of the adjacent vertebrae. It seems to me that this apparent hypertrophy might be an illusion resulting from the depth of the fourth lumbar vertebra as compared to the adjacent third and fifth lumbar and first sacral. I am further inclined to this belief because as the authors state in the roentgenograms of their patients there was no evidence of hypertrophy of the lamina of the fourth lumbar vertebra while the microscopic studies of the laminae showed normal bone. In two instances microscopic examinations of the ligament revealed old blood. Might this not be due to previous lumbar puncture?

DR CHARLES MURRAY GRATZ, New York. A large residue of patients suffering from pain low in the back remain undiagnosed after osseous disease and other etiologic factors have been excluded. The lack of a true diagnosis of this group prevents rational treatment. Dr Spurling and his associates have added one more definite weapon which will further reduce the number of undiagnosed cases. They have supported their clinical observations by actual measurements of the tissues involved and have shown that changes in the soft tissues of the back interfere with nerve function. A study of the entire course of the nerves and particularly the tissues with which they come in contact in locomotion should shed even more light on this subject. Biomechanical studies have been published and are now being applied clinically with an encouraging reduction in the number of undiagnosed cases. The route of the nerves, blood vessels and lymphatics is through the fascial spaces. These spaces form true joints lined normally by a single layer of mesothelial cells corresponding to the synovial tissues found in the joints between bones. Fascial joints are supported by the fibers of the fasciae and correspond in function to the ligaments and tendons surrounding the joints between bones. The mesothelial covering of the fascial spaces facilitates movement of the nerves corresponding to the movements in the thoracic and peritoneal cavities. The normal functional mechanics of these tissues is disturbed by traumatic or inflammatory lesions. Anatomically these changes are shown by the presence of fascial adhesions. Clinically fascial adhesions are demonstrated by using air as a contrast medium and the irregular distribution of the air is shown radiographically by pneumofasciograms. Clinical histopathologic observations confirming these changes are now available and are being reported in collaboration with Dr L. H. Meeker. There is a hyperplasia of the mesothelial cells lining the fascial joints which may interfere with normal nerve function similarly to the hyperplasia of the ligamenta flava interfering with normal nerve function in the lower back. Rupture of the fibers of the fascia by disturbing the normal contour of the mesothelial cells is also a competent producing cause of disturbed nerve function. The time of repair in this group of cases would be delayed if the patient was suffering from a rheumatic condition. As a result of these observations we believe that fascial adhesions may be the true diagnosis of many cases which have been previously placed in the undiagnosed group. It is further believed that the temporary success of the irregular practitioner may be explained by breaking up these adhesions rather than by their claims of changing any of the anatomic positions of the osseous structures.

DR FRANK R. OBER, Boston. I have a case that might be added to these. An aviator went into a 1200 foot spiral fall and hurt his back. From that time on he had a chronic lame back with sciatica. The sciatica was down both legs. The roentgenograms showed definite disturbance of the lumbar spine with thinning of the disk between the third and fourth lumbar vertebrae. He had had many years of conservative treatment and

he finally decided to have his spine fused. While the bones were being exposed for the fusion operation it was noted that the laminae were much more irregular than was apparent in the roentgenogram. Being convinced then that there was something more to the history than a chronic lame back I determined on a laminectomy and directly under the fourth arch was a cord of tissue about one-fourth inch wide and one-eighth inch thick. This was pressing on the cauda equina. This bit of connective tissue was removed without injury to the dura. The man made a complete and uneventful recovery. He was relieved of his pain as soon as he came out of the anesthetic and has had no recurrence in four years.

DR R. GLEN SPURLING, Louisville, Ky. I should not want to leave the impression that this operation is a panacea for low back pain and sciatic neuritis. As a matter of fact we have studied a fairly large group of sufferers from chronic pain in the lower part of the back in order to find this many cases. I think probably it is a relatively uncommon lesion. With regard to Dr Haggart's question about the old blood pigment found in the specimen, I will say that it might have been due to previous lumbar puncture—certainly not to a lumbar puncture in our own hands because the needle was never inserted into an involved interspace. Furthermore the blood appeared to be from a very old hemorrhage and it was always associated with calcareous deposits in the ligament. I feel that iodized oil is a very valuable diagnostic adjunct and while not ideal it is the best available. I have used it in the spinal canal for ten years and I have seen no permanent untoward effects result from its use. However I have never used more than 2 cc and usually I employ 1 cc. Two cc seems to me to be adequate for demonstrating lesions in the lower canal. I did see one patient injected elsewhere with 7 or 8 cc who had such intractable pain that a chordotomy was necessary to relieve it.

CULTURE OF HUMAN MARROW

LENGTH OF LIFE OF THE NEUTROPHILS, EOSINOPHILS AND BASOPHILS OF NORMAL BLOOD AS DETERMINED BY COMPARATIVE CULTURES OF BLOOD AND STERNAL MARROW FROM HEALTHY PERSONS

EDWIN E. OSGOOD, M.D.

Assistant Professor of Medicine and Head of the Division of Experimental Medicine, University of Oregon Medical School
PORTLAND, ORE.

The development of a simple method of culture of human marrow,¹ by which actively motile mature neutrophils, eosinophils and basophils have been observed as late as fifty days after culture was started, suggested a new approach to the problem of the duration of life of the leukocytes of the blood.

That more data are needed on this question is indicated by the recent review of Garrey and Bryan, in which they stated: "The idea that leukocytes are very short lived and that their intravascular life is limited to hours or three or four days (Weiskotten 1930) is undergoing modification." They then cited the literature on the duration of life of leukocytes which, on analysis shows a complete lack of agreement, various authors finding durations of from four to twenty-eight days. Examination of this literature reveals that most of the conclusions were based either

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From the Department of Medicine, University of Oregon Medical School.

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1 Osgood, E. E. and Muscovitz, A. N. Culture of Human Marrow. Preliminary Report. *J. A. M. A.* **106**: 1886-1890 (May 30) 1936.
Osgood, E. E. and Brownlee, Inez E. Culture of Human Bone Marrow. A Simple Method for Multiple Cultures. *J. A. M. A.* **107**: 123 (July 11) 1936.

2 Garrey, W. E. and Bryan, W. R. Variations in White Blood Cell Counts. *Physiol. Rev.* **13**: 597-636 (Oct.) 1936.

on experiments on animals³ or on indirect evidence Margaret R Lewis⁴ cultured human blood on cover slips and reported that living human cells were seen as long as four weeks after culture was started but that these cells resembled clasmotocytes, epithelioid cells or giant cells, were phagocytic and appeared to develop from the monocytes, she said nothing about the duration of life of the mature neutrophils, eosinophils or basophils

METHOD

Details of the method of culture have been described.⁵ Briefly, the cultures are made in 30 cc vaccine vials in a medium consisting of about 35 per cent of human cord serum and 65 per cent of the balanced salt solution of the Geys.⁶ This medium was previously determined

medium so far investigated. It will be noted that the medium contains no substance not present in normal blood.

Cultures of bloods of twenty healthy medical students were made according to the technic for marrow, and cultures of the sternal marrow, taken from five to ten minutes after the blood, of ten of the same students were made. These cultures were adjusted to contain approximately the same number of total nucleated cells and were handled as nearly identically as possible. The average initial total number of white cells in the twenty blood cultures was 15 million, and the average initial total number of nucleated cells in the ten marrow cultures was 16.5 million. The initial count was computed from the average of two closely agreeing counts, made according to the author's technic for leukocyte counting,⁷ which gives the number of cells per cubic millimeter and, when this is multiplied by the volume of culture, which averaged 12 cc, or 12,000 cubic millimeters, gives the total number of nucleated cells in the cultures. From Wright's stained smears of these cultures, differential cell counts were made, 200 cells being counted in the blood smears and 500 cells in the

Nomenclature of Granulocyte (Myeloid) Series as Used in This Article*

Name Here Used	Names Which Have Been Applied to the Same Cell
Granuloblast	Myeloblast hemocyto blast lymphoblast lymphocyte stem cell
Progranulocyte S†	Promyelocyte I, myelocyte A myelocyte non filament class I
Progranulocyte A	Promyelocyte II leukoblast basophil myelocyte myeloblast promyelocyte
Granulocyte	Myelocyte myelocyte B nonfilament, class I
Metagranulocyte	Metamyelocyte juvenile myelocyte C nonfilament class I
Rhabdocyte	Staff cell stab cell band cell nonfilament class I rod nuclear polymorphonuclear
Lobocyte	Segmented neutrophil polymorphonuclear filament class II III IV or V

* Modified from table 2 in the Osgood and Ashworth Atlas of Hematology, reference 9.

† Any basophil from the progranulocyte to the lobocyte is sometimes called a mast cell.

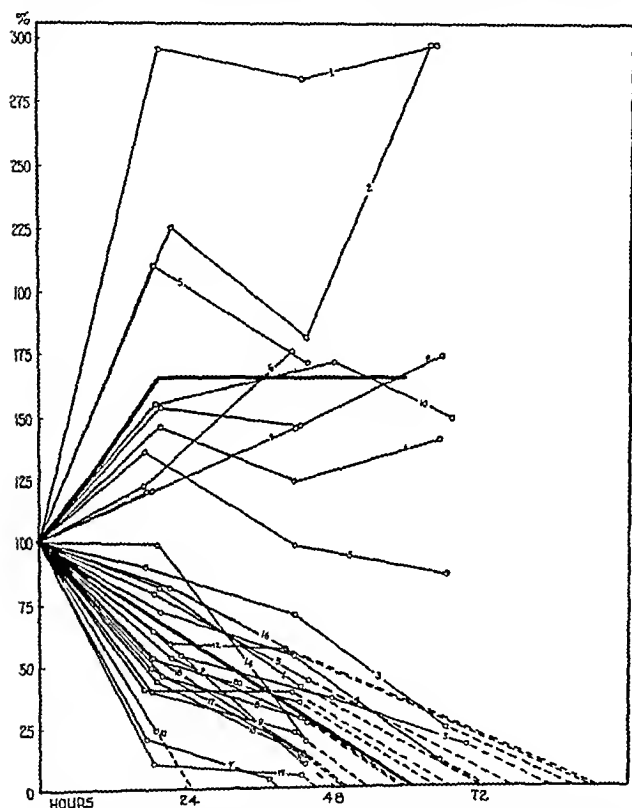


Fig. 1.—Course of the total neutrophil lobocyte (polymorphonuclear) count in marrow and blood cultures. The ten numbered curves above the 100 per cent line represent the course of the total neutrophil lobocyte count expressed in percentage of the initial count in ten marrow cultures from healthy medical students. The heavy black line is the smoothed average of these curves. The twenty numbered curves below the 100 per cent line represent the curves of the neutrophil lobocyte count in twenty cultures of blood from healthy persons. The curves numbered from 1 to 10 are from the bloods of cultures made from five to ten minutes before the marrow cultures. The blood and the marrow culture from the same person have the same number. The broken lines are explained in the text and represent at the point that cuts the base line the probable time at which neutrophil lobocytes disappeared from the culture. The heavy black line is the smoothed average of the twenty blood cultures.

by the Geys to be satisfactory for the culture of human tumors, and we have found it to maintain cultures of human marrow in as nearly their natural state as any

marrow smears, and the cells were classified according to the nomenclature⁸ in the table and criteria described in detail elsewhere.⁹ Multiplying the percentage of neutrophil lobocytes (polymorphonuclears) by the total count gave the initial number of these cells present in each culture. The average number was 6.4 million in the blood cultures and 3.8 million in the marrow cultures. The smaller number in the marrow cultures was due to the normally lower percentage of neutrophil lobocytes in marrow. The initial count of neutrophil lobocytes was taken as 100 per cent for both the marrow and the blood cultures. These counts together with subsequent counts determined in a similar manner and calculated in terms of percentage of the initial count, are recorded in figure 1.

COMMENT

In figure 1 all the ten marrow cultures show an increase in neutrophil lobocytes (polymorphonuclears) at twenty-four hours to a level of from 120 to 300 per

3 Weiskotten H G. The Normal Life Span of the Neutrophile (Amphophile) Leukocyte (Rabbit). The Action of Benzol IX. Am J Path 6: 183-190 (March) 1930.

4 Lewis Margaret R. The Formation of Macrophages Epithelioid Cells and Giant Cells from Leukocytes in Incubated Blood Am J Path 1: 91-100 (Jan) 1925.

5 Osgood E E and Brownlee Inez E. Culture of Human Marrow. Details of a Simple Method J A M A 108: 1793 (May 22) 1937.

6 Gey G O and Gey Margaret K. The Maintenance of Human Normal Cells and Tumor Cells in Continuous Culture. I Preliminary Report. Cultivation of Mesoblastic Tumors and Normal Tissue and Notes on Methods of Cultivation. Am J Cancer 27: 45-76 (May) 1936.

7 Osgood E E. A Textbook of Laboratory Diagnosis ed 2 Philadelphia P. Blakiston's Son & Co. 1935 p. 409.

8 The reasons for the choice of the terms used and for the coinage of new terms for some cells of the erythrocyte and granulocyte series are given in Osgood E E and Ashworth Clarence M. Atlas of Hematology San Francisco J W. Stacey Inc. 1937.

9 Osgood E E and Ashworth Clarence M. Atlas of Hematology San Francisco J W. Stacey Inc. 1937. Osgood E E. The Histogenesis Classification and Identification of the Cells of the Blood and Marrow. Based on Cultures and Hematologic Studies of Human Marrow and Blood Am J Clin Path. to be published.

cent of the initial count. The average increase indicated by the heavy black line is to 166 per cent. There is then a tendency for the counts to level off, as shown by the straight line of the smoothed average. Neutrophil lobocytes were present in the marrow cultures for as long as the cultures were kept, which, in some instances, was twenty-seven days. They were actively motile in supravital preparations and retained their ability to phagocytize bacteria either living or intro-



Fig 2—Neutrophil lobocyte ($\times 2100$) in Wright's stained smear made from a twenty day old marrow culture (from marrow 4) fifteen minutes after the addition of *staphylococcus vaccine*.

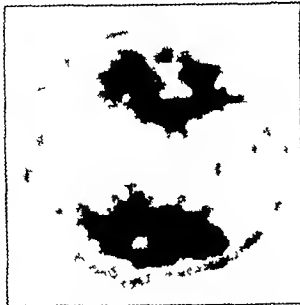


Fig 3—Progranulocyte in the anaphase of mitosis ($\times 2100$) in Wright's stained smear made from an eighteen day old culture of marrow 1.

duced as vaccines (fig 2). It seems justifiable, therefore to conclude that the medium contained the ingredients essential for multiplication, growth, maturation and the preservation of normal morphology and functional activity of cells of the granulocyte series. It seems justifiable to conclude further that the technique of handling did not seriously damage the cells. The presence of many mitoses in the progranulocytes (promyelocytes) (figs 3 and 4) indicates that the probable reason for the continuous presence of mature cells is maturation from multiplying progranulocytes. The absence of any mitoses in the more mature cells of this series, not only in these marrow cultures but in hundreds of others, justifies the conclusion that probably neither mitotic nor amitotic division occurs in cells more mature than the progranulocyte.

Since normal blood contains only lobocytes (polymorphonuclears) and a very few rhabdocytes (staff cells) and these cells have never been observed to divide, it seems justifiable to conclude that multiplication of these cells does not occur in cultures of blood. Since maturation obviously occurred in the marrow cultures, it seems probable that further maturation and death of lobocytes will occur in blood cultures which are handled in the same way as the corresponding marrow culture. The results of the blood cultures are also summarized in figure 1. Note that all twenty showed a rapid drop in the number of neutrophil lobocytes and that this drop tends to fit an approximately straight line curve within the limits of error of the experimental method. The date when no appreciable numbers of neutrophil lobocytes were seen in the smears could not be used as the time of disappearance because, obviously, one did not know how many hours before the time of the count the cells had disappeared from the blood culture. Consequently, the most probable time of disappearance of neutrophil lobocytes was determined by projecting a line from the 100 per cent mark through the last count in which neutrophil lobocytes were present in significant numbers to the base line. It will be

noted that all these lines strike the base line at between twenty-five and eighty-nine hours and that all but three strike it at between forty-eight and eighty-nine hours. A smoothed curve plotted from the average of the twenty curves for the blood cultures forms a straight line and strikes the base line at sixty-one hours, which is also the average of the duration of life as computed from the point at which the projected lines strike the base line. The straight line curve is that expected if there were an equal number of cells of each age present at the time the blood was taken. It seems justifiable therefore to conclude that in such blood cultures neutrophil lobocytes live only from about forty-eight to eighty-nine hours (average sixty-one).

An occasional neutrophil lobocyte could be observed by prolonged search in these blood cultures at from four to seven days but in no cultures were there enough after three days to be included in the ordinary differential count of 200 cells. It seems probable that these neutrophil lobocytes represented the cells which were initially rhabdocytes. This suggests that the duration of life of the rhabdocyte from the time it gets into the blood until it becomes a lobocyte is about three or four days. More accurate calculations of the duration of life of the neutrophil rhabdocyte and other immature cells of the granulocyte series, based on the percentages in marrow cultures in a state of equilibrium, will be presented in another communication.

At the same time that the data were gathered on the duration of life of the neutrophil lobocytes, the duration of life of the eosinophils and basophils was studied. The data on these cells are not susceptible of graphic presentation because the normal percentages of the cells are too low for any feasible differential count to have great statistical significance. However, the slides were searched daily with an 8 mm objective, thousands of cells being looked over, and the last day on which any eosinophils or basophils were seen in the cultures was recorded. The results of these studies showed at once that eosinophils and basophils live

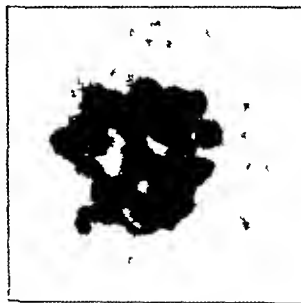


Fig 4—Progranulocyte in mitosis ($\times 2100$) from a twenty seven day old culture of marrow 1.

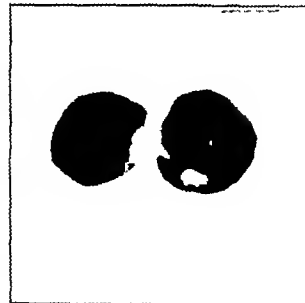


Fig 5—Lymphocytes ($\times 2100$) just completing amitotic division from culture of blood 19.

longer than neutrophils. In three of the blood cultures eosinophils were last found on the twelfth day, in seven, on the tenth day, and in seven, on the eighth or ninth day. It seems justifiable therefore to conclude that the duration of life of the eosinophils in cultures of normal blood, made according to this technique, is from about eight to twelve days.

The basophils survived even longer, well preserved basophils being found on the eighteenth day in one blood culture, on the fifteenth day in two and on the

twelfth day in four blood cultures. Considering the small numbers of basophils found in normal blood, it seems justifiable to conclude that the duration of life of these cells in such cultures is from about twelve to fifteen days.

It was shown by supravital preparations and by the addition of vaccines to cultures, smears being made from fifteen to twenty minutes later, that cells which retained good morphology in Wright's stained preparations were living cells and that dead cells disintegrated and disappeared within a few hours after they lost their motility and phagocytic ability.

A number of other observations were made on the blood cultures. The lymphocytes multiplied by amitotic division as long as the cultures were kept (fig 5). The occasional promonocytes present multiplied rapidly by mitotic division and increased greatly in size to resemble the tissue histiocytes, sometimes called clasmotocytes, thus confirming the observations of Lewis.⁴ Plasmablasts, proplasmacytes and plasmacytes were present in the blood initially and multiplied by both mitotic and amitotic division. No intermediate stages between any of these cells and cells of the granulocyte series were observed, nor any evidence that lymphocytes gave rise to any other cell except another lymphocyte. There was a tendency of the number of lobes in the lobocytes to increase, but some lobocytes with only two lobes were observed on the last days that any neutrophils could be seen.

A detailed presentation of these observations will appear in subsequent articles.

It is evident that conditions in such cultures are not identical with conditions in the blood stream, so that it is not justifiable to transfer the results directly. It may be objected that centrifugation may destroy cells that the medium used is not the patient's own serum and that the cells in the cultures are not exposed to phagocytosis by the cells of the reticulo-endothelial system or to opportunities of migration out of the vascular bed. This is all true, but it must be remembered that marrow cultures live longer in this medium than they do in serum from the subject from whom the marrow is taken, that the cells are not subjected to the trauma of circulation, which must be at least equal to that of the occasional centrifugation, and that they are exposed to phagocytosis by monocytes, promonocytes and macrophages developing from these cells, which are similar to, if not identical with, the phagocytic cells of the reticulo-endothelial system. Therefore while no claim is made that the figures recorded represent the actual duration of life of these cells in the blood, it does seem that the method offers the most direct approach to the problem so far available.

CONCLUSIONS

In cultures of human blood, by a technic which, with marrow, permits multiplication, maturation and functional activity of cells of the granulocyte series for at least six weeks the duration of life of the neutrophils averaged sixty-one hours and, in the majority of instances, was between forty-eight and ninety hours. It seems probable that these figures represent about the actual duration of life of these cells in the blood. The duration of the life of eosinophils, from eight to twelve days, and basophils, from twelve to fifteen days determined by this method is much longer than the duration of life of the neutrophils.

ABSTRACT OF DISCUSSION

DR ROY R. KRACKE, Emory University, Ga. Dr Osgood has provided a method whereby sterile blood can be introduced into a receptacle containing a medium that apparently is suitable for the growth of immature cells, since the medium contains practically the ingredients of blood plasma which has been fortified by the addition of cord blood. He also provides optimal temperature conditions and, what seems to me to be more important, the apparatus is so constructed that it provides optimal conditions of gas exchange, that is, there is a proper degree of oxygen tension in the culture medium. He has devised equipment that is capable of simulating conditions as they may exist in the bone marrow, including even the removal of waste products. An important consideration in a new method of this type is the establishment of normal values. Dr Osgood has been doing this for some time. Therefore his figures for the normal must be accepted when the applicability of this method for studies of the abnormal is being considered. Dr Osgood was kind enough to send me a culture of human marrow a few weeks ago which I have studied in considerable detail, after it had been transported from Oregon to Georgia over a period of four or five days. I found that the number of cells present as determined by ordinary counting methods was greater than when it left his laboratory. Mitotic figures were present in considerable numbers, the granulocytic cells were alive so far as could be determined, based on the criterion of motility and the capacity to take up vital stains. Apparently the criteria of cell growth and division are first, an increase in cell numbers in the cultures, and, second, the presence of increasing numbers of mitotic figures. I noticed many cells in amitotic division which condition has been said to be a sign of degeneration rather than active multiplication and reproduction. I have been concerned as to what may be done with such a method. In his exhibit Dr Osgood has outlined a large number of problems that may be studied by the use of this method. An important type of research would include the testing of various agents for the suppression or the acceleration of the maturation of the granulocytic cells. The question arises as to whether or not the results obtained can be applied to activity of the human marrow. This question of course, cannot be answered. I can subscribe to the view that this does represent probably one of the best methods for the determination of the length of life of these various cells. Weiskotten and his associates have done this before and found that the average length of life of the neutrophil was about four days as measured by the injection of benzene into rabbits. The method of Dr Osgood requires many years for development and many years for evaluation as to its actual value.

DR MAX B. LURIE, Philadelphia. I should like to ask Dr Osgood whether this method is suitable for the growth in tissue culture of other cells than those derived from the bone marrow. Carrel has shown in the bone marrow substances which he named trephones which have a particularly stimulating effect on the growth of cells. Is it possible that the reason leukocytes die is not that their life cycle is shorter or longer but that the blood is not a suitable medium for the multiplication of leukocytes whereas substances derived from the bone marrow support the multiplication of these cells?

DR W. E. GARREY, Nashville, Tenn. It is gratifying to find a direct approach to a problem such as that presented by Dr Osgood. One will appreciate the difficulties in evaluating the life span of the leukocyte if one has occasion as I have had recently to review the literature in this field. In a search to determine the causes of variations in leukocytes one finds repeated reference to the rapid death of leukocytes which are assumed to survive only for an hour or even for minutes in the blood, while other authors state that leukocytes neutrophils may live as much as two months. Dr Osgood's direct determination of the duration of life of a leukocyte is needed for it is an extremely important matter to make this decision if one is going to understand anything about the physiologic variations in the number of leukocytes under different conditions.

DR EDWIN E. OSGOOD, Portland, Ore. In reply to the question of Dr Lurie regarding the presence of trephones in the marrow in our cultures the cells are washed free from all

material from the marrow before introducing them into the medium. We also wash the blood cells free from their own serum and introduce them into medium of the same composition as that used for the marrow cells. Therefore if any trephones are carried in from the marrow, they must be intracellular rather than extracellular.

Clinical Notes, Suggestions and New Instruments

BACILLUS PROTEUS PYELONEPHRITIS WITH THROMBOPHLEBITIS OF THE INTRINSIC RENAL VEINS AND SEPTICEMIA

EDWIN F. HIRSCH, M.D. AND DOROTHY A. SHAPIRO, B.S. CHICAGO

Comprehensive summaries of focal and systemic diseases in man caused by proteus organisms have been published by Meyerhof¹ and Bengtson.² Since then other reports of specific tissue infections by proteus organisms occasionally with septicemia, have appeared.³ According to these sources of information bacteria of the proteus group have recognized importance in infections of the urinary tract, the acute enteritides of children and adults, meat poisoning, Weil's disease, other icteric diseases, chronic otitis media, peridental abscess, meningitis, empyema of the chest, periurethral infection, and perinephric and peritonsillar abscesses. Septicemia secondary to infections of the kidney usually is caused by colon organisms, less frequently by streptococci or staphylococci. Although infections of the urinary tract are due to bacteria of the proteus group, a proteus septicemia secondary to pyelonephritis in fact from any primary focus, is unusual. Lenhartz⁴ emphasized this in his report of proteus pyonephritis, accompanied by clinical symptoms of sepsis. Excision of the markedly diseased left kidney relieved the systemic manifestations of this patient. Proteus pyelitis is serious, according to Lenhartz, because the ammoniacal substances produced by the decomposition of the urine severely injure the renal parenchyma, especially with retention. The prognosis with proteus infections of the urinary tract, therefore, is much less favorable than with other bacterial invaders. Kretschmer and Mason⁵ also commented on the few published reports of proteus septicemia. They observed two patients with proteus septicemia secondary to renal infections. Both had renal concretions; one had renal tuberculosis and each recovered following surgical treatment. Among the 305 infections of the urinary tract mentioned in this report, a single organism was recovered in 224; eight of these were proteus. The other eighty-one infections were mixed; proteus organisms were present in twelve.

The pathways of invasion in an ascending infection of the kidney have been reviewed and discussed by Helmholz.⁶ He observed in animal experiments that ascending infections of the kidney were associated frequently with mural thrombosis of the renal veins and emphasized vascular and perivascular spread of the infection rather than ascent of the tubules. An illustration of venous thrombosis in acute pyelitis of infancy correlated his animal experiments with human infections. Although the pathologic processes in the spread of pyonephritis into a septicemic disease are not discussed in textbooks on urology or in individual reports, the basic principles are doubt-

less those of other septic disorders, namely, bacterial phlebitis or thrombophlebitis of blood or lymph channels. Bacterial phlebitis or thrombophlebitis of the intrinsic branches of the renal veins as noted by Helmholz provides the pathologic issue medium whereby septicemia develops from ascending pyonephritis.

REPORT OF CASE

A white man aged 45, in whom septicemia secondary to thrombophlebitis of the intrinsic renal veins caused by a proteus organism had developed, was admitted to St. Luke's Hospital, Nov. 12, 1936, in the care of Dr. K. H. Tannenbaum. He had been ill with fever and chills for one week. The patient had a constant pain in the region of the left kidney and hematuria on the first day of illness. Urgency, frequency and dysuria were marked. Three days before admission he had passed a urinary concretion. Dr. Tannenbaum had treated his patient for chronic prostatitis, seminal vesiculitis and urethral polyps. When admitted to the hospital he had a high fever, rapid pulse and symptoms of sepsis. The alkaline urine contained erythro-



Section of a mural thrombus in one of the large intrinsic branches of the renal vein. Reduced from a photomicrograph with a magnification of 198 diameters.

cytes, leukocytes, bacteria and a large amount of albumin. The leukocytes of the blood were 26,350 per cubic millimeter. An intravenous pyelogram disclosed large kidneys without concretion deformities or perinephric abscess. Dr. L. E. Schmidt in consultation made a diagnosis of left pyelonephritis and advised nephrectomy or drainage. The patient died November 16, a few hours after the nephrectomy, four days after admission to the hospital and eleven days after the acute onset of his illness. Cultures of the urine had yielded a heavy growth of proteus organisms and those of the blood on November 13 and November 15 contained more of these bacteria.

The excised left kidney weighed 280 Gm. and was 14 cm. long, 7 cm. wide and 5.5 cm. thick. Petechial and larger hemorrhages mottled the gray, smooth subcapsular surface. There were no obvious focal abscesses. On the surfaces made by hemisection of the kidney frontally, the edematous tan gray cortex was 7 mm. wide and the pyramidal tissue 15 mm. The cortical markings were distinct; there were no abscesses. The dark red pyramidal tissues with their radial markings contrasted sharply with the gray cortex. Several small granular calcium carbonate and calcium and magnesium phosphate concretions

From the Henry Baird Lusk Laboratory of St. Luke's Hospital.
1 Meyerhof, Max. Zentralbl. f. Bakt. I Orig. 24: 18-53, 1918.
2 Bengtson, I. A. J. Infect. Dis. 24: 428 (May) 1919.
3 These include:
Ba. Telsermann and Mau. Munchen med. Wchnschr. 49: 521, 1902.
Warren, Shields and Lamb. Marion E. J. M. Research 44: 375 (March) 1924.
Isley, W. L. Food Poisoning Probably Caused by Bacillus Proteus. J. A. M. A. 90: 292 (Jan. 28) 1928.
Taylor, J. F. J. Path. & Bact. 31: 897 (Oct.) 1928.
Fagniez, P., Pichet, A. and Decourt, P. Pres. e. med. 40: 264 (Feb. 17) 1932.
Cuthary, Fern. and Gabriel, P. Ibid. 41: 825 (May 20) 1933.
Donatos and Donces. Abstr. Zentralbl. f. Bakt. 121: 37, 1936.
Merken, P. and Jacob, A. Pres. e. med. 44: 217 (Feb. 5) 1936.
Decourt, L. V. Bruhl and Franchel. Ibid. 44: 178 (Jan. 29) 1936.
4 Lenhartz, H. Virchows Arch. f. path. Anat. 246: 443, 1923.
5 Kretschmer, H. J. and Mason, I. W. Bacillus Proteus Septicemia. J. A. M. A. 92: 174 (May 25) 1929.
6 Helmholz, H. J. J. Urol. 31: 1-3 (Feb.) 1934.

were in one of the lower calices. The amputation of the blood vessels and ureter was at the level of the renal pelvis.

Histologic examinations demonstrated marked acute parenchymatous changes of the tubular epithelium and dense leukocytic exudates in the lumens of some tubules. There were multiple small abscesses in the subpelvic tissues. Branches of the renal vein in the kidney tissues had mural thrombi composed of dense masses of erythrocytes, polymorphonuclear leukocytes, monocytes and fibrin. The structure of one of these is shown in the accompanying illustration. Clumps of bacilli were found among the exudate cells in sections stained with methylene blue. The anatomic diagnosis was acute ascending pyelonephritis and thrombophlebitis of the intrarenal veins.

The postmortem examination of the trunk and lower portion of the neck demonstrated changes of the viscera that occur with septicemia. The body weighed 91 Kg. The tissues traumatized during the recent surgical nephrectomy were hemorrhagic. A concretion 6 mm in diameter obstructed the left ureter at the urinary bladder. The lumen above was dilated to a circumference of 2 cm. The lining was gray and hyperemic. The right kidney, weighing 250 Gm., showed acute parenchymatous changes. Several granular concretions from 1 to 5 mm in diameter were in the lower calices. The spleen weighed 510 Gm., the pulp tissues were soft, friable and hyperemic. The liver weighed 2,475 Gm. and the tissues had a marked cloudy swelling. Colonies of proteus organisms were isolated in pure culture from fluids in the left ureter from the liver and from the spleen.

The routine histologic examinations of the viscera of the patient obtained post mortem demonstrated in the right kidney marked parenchymatous changes, a few small foci of chronic inflammation but no acute inflammatory exudates of an infection. The liver showed focal fatty changes and small infiltrations of polymorphonuclear leukocytes of the periportal tissues. There were no abscesses. The pulp tissues of the spleen were hyperemic. They contained multiple hemorrhages, focal infiltrations of polymorphonuclear leukocytes and a hyperplasia of the reticulo-endothelial cells. Many acini of the prostate contained dense collections of polymorphonuclear leukocytes. The papillary tissues of the neck of the urinary bladder had blunt vascular fibrous stalks covered by thin layers of stratified squamous epithelium.

The strains of slender motile gram-negative bacilli isolated from the spleen, liver and left ureter after death and from the blood and urine during life formed spreading flat gray, non-hemolytic colonies on blood agar. They grew abundantly without producing pigment on plain agar and Endo's mediums. Serum of the patient obtained during the postmortem examination agglutinated organisms from all sources in dilutions as high as 1:2,400 and those from the blood cultures and spleen in dilutions of 1:4,800 and 1:7,200 respectively. The patient's serum was tested for agglutinins with three proteus strains obtained through Dr. G. M. Dack from the department of bacteriology of the University of Chicago and designated P₁, P₁₀ and X₁₀. Another stock culture was designated 14V. The organisms of P₁ were not agglutinated by the patient's serum; those of X₁₀ were agglutinated in dilutions of 1:160 and those of P₁ and 14V in dilutions of 1:320. The patient's serum had no effect on a strain of *Bacillus coli* and human serum from other sources did not agglutinate the proteus strains recovered from the patient. The cultural reactions of the organisms from various sources of the patient were alike. The Voges-Proskauer reaction was positive and nitrates were reduced to nitrites. Acid and gas were produced in dextrose mediums; acid in sucrose, levulose and galactose. Lactose, salicin, mannite, maltose and dextrin were not fermented. Indole was produced. Lead acetate was blackened; milk was peptonized and gelatin was liquefied. Broth cultures inoculated intraperitoneally did not kill white rats. Similar cultures inoculated intracutaneously and subcutaneously in rabbits produced indolent abscesses. Intravenous injections of broth cultures did not kill rabbits. A rabbit so injected became markedly emaciated and when killed after two weeks its liver, spleen, kidneys, lungs and heart's blood were sterile.

COMMENT

The fatal proteus septicemia of this patient has been traced to a thrombophlebitis of the intrinsic divisions of the renal vein, a complication of an ascending pyelonephritis. The

ureteral concretion impacted at the orifice into the urinary bladder doubtless contributed to the ascending spread of the infection from the bladder. Thrombophlebitis of the intrinsic branches of the renal veins is important not alone in the spread of an infection into the kidney with ascending infections as Helmholtz has suggested but also for the hematogenous spread of bacteria into a septicemic disease. The isolation of bacteria with the specific cultural characteristics of proteus organisms from the blood and urine of this patient before death and from the spleen, liver and left ureter after death is substantial evidence favoring the causal relationship of the bacteria to the disease. The high agglutinin titer of the patient's serum obtained post mortem for these strains (from 1:2,400 to 1:7,200) and for several stock strains of proteus organisms (from 1:160 to 1:320) is convincing support for this relation. According to van der Hoeden⁷ the presence of agglutinins in the serum of patients with proteus infections favors the view that the bacteria are pathogenic. Garry⁸ stated that the agglutination of proteus organisms by high dilutions of the patient's serum is specific but in low dilutions has only relative value.

1439 South Michigan Avenue

BLEEDING PEPTIC ULCER IN MECKEL'S DIVERTICULUM

JAMES E. THOMPSON, MD, NEW YORK

History.—A girl, aged 8 years, was brought to the Roosevelt Hospital Jan. 14, 1936, with the history that she had been passing blood by the rectum for twenty-four hours.

Three years before she had passed a copious amount of blood in a bowel movement and was taken immediately to a Brooklyn hospital where she was kept under observation for five weeks. The mother was told at the time that the child was an easy

bleeder. Since this one episode the child had been completely free from symptoms until the onset of her present illness.

She had never bruised easily, nor had she ever shown petechiae or purpuric spots. There was no history of nausea, vomiting or abdominal cramps.

Twenty-four hours before admission and



Fig. 1.—The diverticulum as seen at operation.

without any warning signs she passed several large dark clots of blood and much black watery material in a bowel movement. The mother recognized it as a recurrence of bleeding but waited until morning to see what would happen.

Results of Examinations of the Blood

Blood 1/13/36	RBC 3,640,000	Hgb 60%	WBC 4,640
	Polymorphonuclears 64% Lymphocytes 30%		
	mononuclears 6%		
	Bleeding time 2 minutes		
	Clotting time 20 minutes		
	RBC, WBC and platelets seem normal		
1/16/36	RBC 2,830,000	Hgb 58%	
1/17/36	RBC 3,570,000	Hgb 61%	clotting time 10 minutes
1/18/36	RBC 3,010,000	Hgb 58%	
1/23/36	RBC 3,700,000	Hgb 66%	bleeding time 4 1/2 minutes
	clotting time 6 minutes		
2/13/36	RBC 4,430,000	Hgb 78%	
2/21/36	RBC 4,210,000	Hgb 84%	

The child was allowed to attend school the next morning and returned at noon and passed a few more clots. She went back to school in the afternoon but that evening she passed such a

7 van der Hoeden, J. Abstr. Centralbl. f. Bakt. 111:404, 1933.
8 Garry, Gerschon. Med. Klin. 28:1205 (Aug. 26) 1932.

great quantity of clotted blood and black fluid stool that an ambulance was called. The child became faint and complained of not being able to see clearly.

Shortly after admission to the hospital she was given a bed pan and passed clotted blood which assumed an appearance identical to that of a freshly passed placenta with its central dark mass and liquid bright red blood about the periphery.

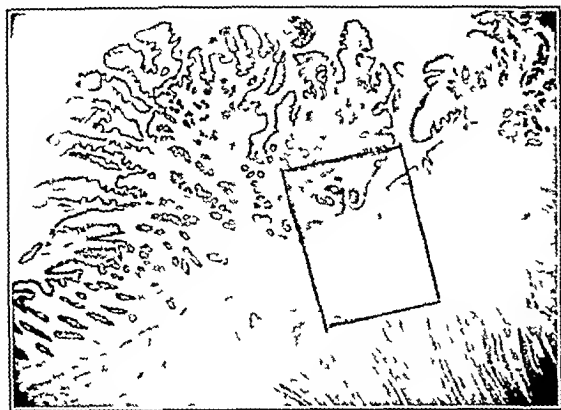


Fig 2—Ulcer in gastric type of mucosa ($\times 15$). Marked zone shows field of figure 3.

The father and mother aged 32 and 27 and three siblings were living and well. The mother had had two abortions. There was no familial history of bleeders.

Examination—Physical examination was in general negative except for the condition chiefly concerned. The tourniquet test was positive after five minutes. The temperature was normal, the pulse 108 and the respiration rate 20.



Fig 3—Ulcer with hyaline fibrous base and eroded artery in which organization is well advanced ($\times 60$).

Results of examinations of the blood are given in the accompanying table.

The stools were grossly bloody for two days. The urine was normal throughout except for an occasional faint trace of albumin.

The diagnosis of a bleeding peptic ulcer in Meckel's diverticulum was made the day following admission. It was decided to defer operation, however, until her general condition improved unless there continued to be gross evidence of active bleeding.

The guaiac test for blood was intermittently positive for two weeks, after which time it was consistently negative. A transfusion was given at the end of the first week and her general condition steadily improved.

Operation and Result—On the thirty-fifth day after admission and when the hemoglobin was 78 per cent and the red blood cell count was 4,390,000, operation was performed.

Under general anesthesia through a lower right rectus incision a Meckel's diverticulum was found 22 inches from the ileocecal valve attached at a point along its circumference anteriorly and immediately adjoining the mesentery. It measured 2 cm in length and had a base 1 cm in diameter; its tip was so flat that it presented the appearance of a tiny stove pipe hat.

It was removed by simple excision and care was taken not to leave any of the diverticular wall. The edges of adjoining ileum were inverted and closed by means of a purse-string suture of linen reinforced by two rows of tanned catgut. The appendix was then removed in the usual manner and the abdomen closed.

Grossly the body of the diverticulum showed numerous prominent rugae on its mucosal surface which diminished in size as the neck was approached. Many pinpoint hemorrhagic areas could be detected in the mucosa.

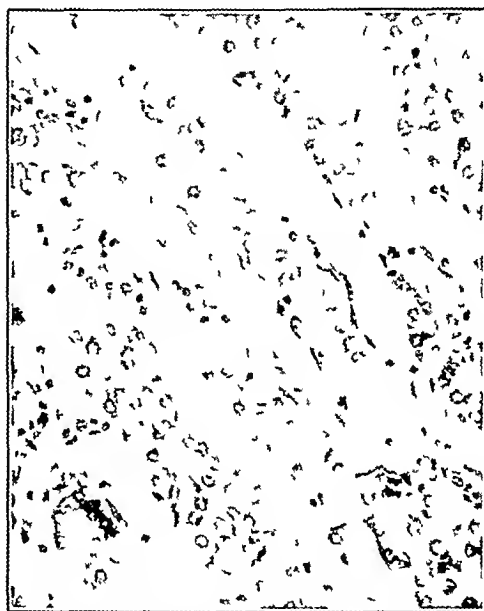


Fig 4—Tubular glands showing chief and parietal cells ($\times 200$).

Microscopically the section showed a transition from intestinal mucosa to that of stomach mucosa as it passed from the neck into the body of the diverticulum. The gastric mucosa showed the typical glandular formation with the tubules lined by chief and parietal cells. The glands were numerous and the acid cells stood out prominently. No pancreatic tissue could be found.

A definite peptic ulcer was found which was in a healing phase. Beneath the ulcer base a large artery could be seen with fibroblastic invasion filling two thirds of its lumen. It was logically assumed that this represented the amount of healing and obliteration of the artery that had taken place since the child last gave evidence of hemorrhage.

The child made an uneventful convalescence and has been symptom free ever since.

COMMENT

This case illustrates the one variety of Meckel's diverticulum in which a preoperative diagnosis can be made. In doing so emphasis is to be made on the history, the character of bleeding by rectum and the essential lack of physical changes.

This case adds another one to the mounting list of Meckel's diverticula already reported in which aberrant mucosa lining the diverticulum has been almost universally present.

107 East Sixth-Seventh Street

Special Clinical Article**AUTOMOBILE INJURIES**

CLINICAL LECTURE AT ATLANTIC CITY SESSION

CLAIRE L. STRAITH, M.D.

DETROIT

Were it not for the possibility that a gloomy forecast on the future of medicine might be expected, I would have entitled this paper "Surgery at the Crossroads." This title, properly interpreted, presents graphically what I consider one of the most pertinent problems of present day medicine—the proper care and management of the ever growing numbers of victims of motor car accidents. This surgical problem has its origin on the highways, commonly at the crossroads. It is there also that the victims receive preliminary treatment, and it is from there that they carry away too often it seems to me, preventable and deplorable aftermaths. That is my interpretation of "Surgery at the Crossroads." I know of no other aspect of modern surgical practice which requires greater emphasis and merits greater effort toward enlightenment of the general public as well as of the members of the medical profession. Other surgical problems commonly discussed (appendicitis for example), numerically at least, fade into insignificance when compared with the rising toll of automobile injuries and their devastating physical and psychologic sequelae.

To emphasize the need of studying this modern surgical problem, I shall cite a few figures. During the past year, 38,500 deaths resulted from automobile accidents alone. The total number of nonfatal accidents was 1,340,000, of which 110,000 resulted in permanent disability. Present figures indicate a 28 per cent increase in deaths for the present year. If these figures are compared with those showing the progressive decline, year by year in mortality and morbidity from diseases and other hazards, the contrast is startling. What a hue and cry would be raised if typhoid fever or smallpox were to bring a similar epidemic of death or disability, or even a much lesser one! In its most destructive years, the "white plague" was hardly more devastating.

For this gloomy picture in an era of supposed enlightenment and progress, many obvious causes can be listed. One of the chief is progress itself. The ability of the engineer to design and of the industrialist to make easily available, speedier and ever speedier motor vehicles far surpasses the intellectual ability of the average man to utilize them safely. Man's ingenuity has enabled him to perfect a Frankenstein's monster which now turns about to destroy. Mechanical progress has become a double edged sword. Added to the mechanical perfections which permit greater speed are the splendid new highways which encourage it. Safety features incorporated in motor cars of modern design, however fool proof in the hands of the sane and sober driver are of little use in the hands of the moron. The shortcomings of laws and law-enforcing agencies are, of course, apparent. Laziness in granting driving permits to the physically and mentally handicapped, failure to punish adequately the traffic offenders and granting of permits to chronic violators—all these and many other factors serve to handicap the splendid

efforts of safety engineers and traffic experts, who are confronted by the impossible task of making a powerful machine fool proof for fools. The factor of intellectual irresponsibility is however, no greater than that of moral irresponsibility. The role of alcohol in the present rise of automobile accidents is illustrative of the latter. The drinking driver is an important factor in automobile mishaps. Studies show clearly a decided increase in the number of accidents during the "cocktail hour," in the late afternoon, and late at night, 'after the brawl is over,' so to speak. The holiday mood of the week-end with its carefree jollity and attendant inebriety provides somber headlines for "blue Monday's" newspapers. The situation is not merely a national one. Similar accounts are emanating from England and the continent. Whether legislation or engineering can do more seems doubtful. A moral renaissance of the general public is the one thing needful.

Such then is the situation which prompts me to discuss the surgical problems developing in ever increasing numbers on the highways and at the crossroads. The problems which concern the physician especially are those dealing with the surgical care of the injured. This phase is as much in need of more intelligent



Fig. 1—Delicate handling of wounds is of extreme importance. On this gelatin model note the use of small horsehair mattress stitches to prevent inversion of the wound edge. Double twisted but single tied horsehair stitches for accurate wound approximation. The use of fine books avoid skin trauma. A double subcuticular stitch is used to produce a fine line scar with practically no stitch marks.

thought as are the phases concerned with regulation of traffic licensing of drivers and punishing of offenders. It is a more hopeful one, because its message is directed toward a profession whose group conscience and intelligence are amenable to suggestions and prompted by a desire for betterment.

The large variety of injuries which may be encountered as a result of traffic accidents defies any attempt to discuss the subject comprehensively. I shall therefore give particular attention to a consideration of facial injuries, leaving the discussion of important traumatic lesions involving other portions of the body to more competent hands. My discussion of even such a limited subject as injuries to the face must be cursory. I shall confine myself largely to a consideration of the basic principles of treatment.

Facial injuries sustained in motor car accidents may be divided roughly into two main groups: those sustained by pedestrians and those sustained by occupants

of automobiles. The first group is not clearly defined, owing to the great variety of objects which may inflict the injury (bumpers, radiator grills, door handles) as well as to the trauma which results when the body of the victim is dragged along the ground or pavement (brush marks, cinder marks). The second group (i. e., injuries to occupants of cars) is more distinct, and the injuries are of two general types: (1) those sustained by other occupants of the motor vehicle ("guest-passenger injuries") and (2) those sustained by the driver ("steering post injuries"). The lesions sustained by the driver and the guest passengers are different both as to cause and as to the type of involvement. I shall discuss these injuries presently, after considering first certain basic principles of first aid treatment.

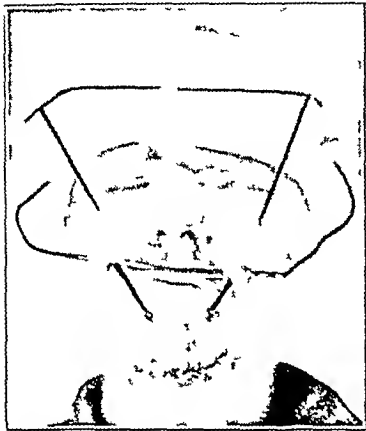


Fig. 2 (patient E. P.)—Note the wire at attachments on the head cast to which traction wires were attached pulling the mandible up and the mandible forward.

The first principle of treatment at the time of the accident involves a knowledge of what must be treated and what in the interest of the patient's safety should be left alone. *Primum non nocere*—first of all do no harm—is an ancient medical adage which is especially applicable here. In the excitement of the occasion well intentioned persons (lay and professional alike) often jeopardize by hasty action the patient's chances of recovery. I need scarcely point out the dangers of energetic manipulation and hasty transportation in the presence of shock or serious head injury. Such warnings have been made repeatedly. Except in the exigency of a severe, life-threatening hemorrhage, the patient in shock had better be kept quiet and warm at the roadside or in a nearby dwelling rather than be bundled post-haste to a distant hospital, even by ambulance. Mock's slogan, "A live skull fracture in a farmhouse is better than a dead one in a hospital," applies to head injuries accompanied by shock. Mock's warning about the danger of immediate operation in the case of skull fracture is also applicable to facial injuries. "Haste lays waste" (if I may be permitted to paraphrase an old proverb). It is safer to wait for a good opportunity to do good work than to perform a hasty so-called emergency operation on a patient in poor condition under adverse circumstances. Serious hemorrhage is practically the sole emergency which requires immediate treatment of a heroic nature. Every facial injury accompanied by loss of consciousness should be considered a potential skull fracture and treated as such until proved otherwise.

The second principle in the first aid treatment of facial injuries is cleanliness. The simple expedient of applying a sterile or clean compress over a lacerated area will accomplish two things: 1. It will usually control superficial bleeding. 2. It will guard against further contamination of the wound. This suggests the desirability of every car carrying a simple first aid packet with at least a clean dressing and bandage in it. Immediate closure of the laceration should not be

attempted. Before any effort is made to suture the wound it must be thoroughly cleansed. This applies also to the surrounding skin. Foreign bodies (dirt, glass, splinters, cinders) must be carefully removed. Primary healing is impossible without these precautions, which can be observed only in a properly lighted and well equipped operating room of a hospital or surgical office.

The third principle in the treatment of facial wounds is concerned with end results. Every effort should be made to minimize scar formation. To accomplish this aim, closure of the wound should be attempted only under conditions which permit thorough cleansing of the laceration. But this is by no means all. The surgical technic employed is of the utmost importance. The use of skin clips, large needles, coarse suture materials (silk, catgut, silkworm gut) and crude instruments which intensify trauma of the tissue must be condemned. Delicate instruments, fine needles and suture materials and a proper regard for tissues are necessary. Scrupulous attention to details is essential. No precaution is trivial. The neglect of cinder and brush marks, for example, leaves telltale bluish or black streaks in the surrounding scar and skin which call attention to an otherwise inconspicuous defect. The simple expedient of scrubbing away these marks with a stiff brush soaked in soap and water while the patient is under local anesthesia will remove what would otherwise remain as a permanent discoloration, a permanent reminder of neglect. The attainment of minimal scars necessitates an infinite capacity for taking pains. The use of local anesthesia incidentally, is a distinct aid in insuring good results: first because it enables the surgeon to cleanse the wound thoroughly and painlessly, second, because it enables him to take time. Before closure is begun the edges of the skin should be trimmed so that when they are approximated the wound is straight rather than jagged. Fine hooks or delicate tissue forceps should be used to avoid traumatizing the border of the skin. Exact approximation of the wound is best accomplished, I believe, by means of a double subcuticular suture—the deeper one of a heavy material

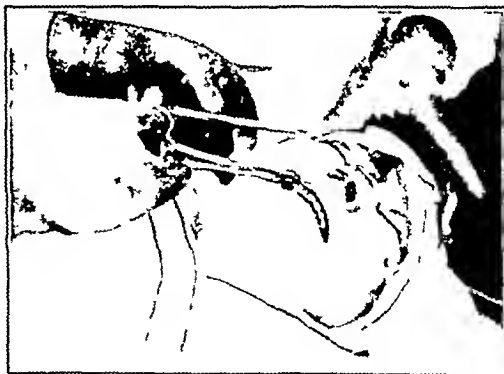


Fig. 3—From the bicuspid region on the arch bar a traction wire is passed through each cheek by means of a surgical needle.

such as dermal and the superficial one (just beneath the surface of the skin) of thin horsehair threaded on a semicurved needle with a small eye (fig. 1).

Heavy dressings are always possible sources of infection, especially in wounds near the mouth where they can readily become contaminated. Lighter dressings are therefore more desirable. A single thickness of gauze held in place by collodion gives suitable protection. The patient is instructed to apply an ice bag over the wound for at least twenty-four hours after closure.

to minimize the resulting edema. So much for minor injuries and first principles.

The severe crushing facial injuries present major surgical problems with wide ramifications. Associated skull fractures are of course frequently present and must be suspected, as I have said, whenever loss of consciousness is present, or when bleeding (from nose,



Fig. 4—Fixation is made possible by embedding coat hanger wire with suitable projections into the plaster cast.

mouth or ear) and respiratory difficulties are encountered. Hasty transportation and brusque, ill-timed examinations may endanger life. Extreme caution in this regard cannot be too strongly emphasized. Special examinations and x-ray studies should be delayed until the primary shock has passed. When this stage has



Fig. 5—Author's method. Special head band is embedded in the plaster cast. The traction wires are fixed to wires on the head band. The exact amount of traction to bring the teeth in proper occlusion is determined before attaching wires to head band.

been reached, and only then, is detailed examination permissible. Examination must be thorough, inspection, palpation, x-ray visualization and neurologic survey are all important and fundamental to the last step, which is treatment. The type of treatment to be instituted depends on the nature of the injuries or groups of injuries encountered.

Of the severe crushing types of facial injuries sustained in motor car accidents, the steering post injuries, involving the driver, and the guest-passenger injuries, affecting particularly the person riding beside the driver, are the most commonly observed varieties. The latter type is more frequent and generally more severe. The reasons for this difference are obvious, since the driver is afforded at least relative protection by the steering wheel to which he may cling for support during the impact. Indeed he may, as not infrequently happens, escape injury altogether. In cases, however, in which the driver has relaxed his grip on the wheel or falls asleep or in which the collision is unusually severe, the typical steering post group of injuries may result. The mechanism for their production is clear. When the impact occurs the head and the upper part of the trunk are propelled forward violently, so that the head strikes on the wheel. This results in injuries involving chiefly the lower third of the face, lacerations of the chin and fractures of the mandible and necks of the condyles. When the entire face strikes the wheel, more extensive injuries naturally follow—fractures of the nose, maxilla



Fig. 6—Crushed nasal bones are elevated and supported laterally by the author's nasal fracture appliance.

and maxillae. Associated fractures of the ribs, sternum, knees and ankles are not uncommon.

Let me cite a typical example of the steering post type of injury. The treatment which was instituted in this case will serve to illustrate many points of practical importance in the management of similar cases.

Patient E. P. fell asleep while driving. His car hit a steel post with such force that his face was crushed by striking on the steering wheel. In this case the injuries were more severe than usual because the patient, being asleep, could not brace himself against the force of the impact. The chin, nose, cheeks and upper jaw received the brunt of the injury.

He was first seen a few hours after the accident, fully conscious and not in shock but with his face swelling rapidly to a point beyond recognition. He was examined immediately. The facial bones were first carefully palpated. This is important since x-ray examinations often give negative or inconclusive evidence as to the existence of fractures of these bones. Using the two index fingers simultaneously, the operator carefully felt the orbital rims. Next, the malar attachments were examined. A depression of the left malar eminence was noted. This was accompanied by the usual anesthesia of the lateral aspect of the nose and upper lip that is associated with fractures extending through the infra-orbital foramina. The zygoma was next examined and showed tenderness over the region of the left malar articulation. Palpation of the nasal bones revealed multiple fractures with deviation of the nose toward the right side.

The oral cavity was next examined. Extreme mobility of the maxilla occasioned by both a transverse and a midline fracture, was disclosed. The left maxillary bone was crushed, as was evidenced by sharp fragments of bones the edges of which could be palpated beneath the mucosa overlying the fractured left malar. A laceration of the chin (typical of steering post injuries) was present. This overlay a fracture of the mandible extending through the symphysis and resulting in posterior

which served to bring the fragments into proper alignment. The respiratory difficulty caused by the fractured condyles necessitated holding the jaw forward. This was accomplished by attaching a wire to the cuspid region on each side and passing the wires through the lower lips. Forward traction on these wires held the jaw forward. The fractured nasal bones were aligned by manipulation.

To maintain the normal position of the maxillae and the mandible through continuous pull on the wires the application of which I have described, some form of fixation is necessary. A plaster head cap is the most satisfactory method of providing fixation points. Properly applied the cap fits closely on the head and extends if possible below the occiput and behind the mastoid processes. It must be padded lightly and have no projecting objects on its inner surface.

The plaster cap is made by covering the head first with stockinet and next by a few turns of cotton wadding. This is covered with 4 inch (10 cm) plaster bandage. Attachments for the traction wires pulling the maxillae upward and the mandible forward are embedded in the plaster while it is still relatively soft. Coat hanger wire, which is generally readily available, may be used to provide fixation points. A much better method is the use of a radio binding post mounted on a metal band which is embedded in the plaster. Better



Fig 7—Full thickness defects of the ala and other structures are best treated by sewing mucous membrane to the skin edge around the defect and relying on a subsequent plastic repair. A plastic rule. Never distort tissue to close a defect applies here. The immediate closure of this defect would badly distort the nasal tip.

displacement of the entire jaw and tongue, giving rise to difficult respiration. Palpation over both temporomandibular joints elicited bilateral tenderness and crepitus, denoting fractures through the necks of both condyles. X ray examinations verified these observations. Later in the day, serious respiratory difficulty brought about by the posterior displacement of the mandible necessitated immediate intervention.

The following treatment was carried out:

With the patient under local anesthesia the left malar bone was elevated into normal position by passing a strong curved instrument (trocar) through the mucosa inside the cheek behind the last upper molar. Upward pressure on the lower surface of the depressed malar bone corrected the deformity. This relatively simple maneuver usually suffices to produce complete correction and prevents what would otherwise result in an unsightly flat cheek. It should be carried out as early as possible after the injury since it becomes technically more difficult, if not impossible, after long delay.

The fractured left maxilla was next brought forward and held in position by wiring the teeth to a steel arch bar. From this bar a double fracture wire was then passed upward through the cheek on a long needle. Upward traction on the wire corrected the maxillary depression. Upward traction was maintained by fixing the wire to a plaster cap which I shall describe presently. Meanwhile the fractured mandible was treated in a similar manner by wiring the teeth to an arch bar



Fig 8—Subsequently, lining flaps were inverted and a full thickness graft from behind the ear was used to cover the defect. The graft matches well and no distortion is produced.

still according to my experience is the special head band which I have devised which permits a number of attachments. After these attachments have been fixed in the plaster the cap is completed by turning the edges of the stockinet up and catching the edge beneath the final turns of plaster bandage (figs 4 and 5).

When the cap has dried thoroughly, the traction wires on the maxillae are fixed to the attachments on the head cast. Traction on the upper jaw can readily be

increased or diminished by adjusting the pull of these wires. Backward displacement of the jaw (which caused respiratory distress) was prevented from recurring by making an anterior arch of coat hanger wire to which the traction wires (fixed to the cuspid teeth and passed through the lower lip) were attached by elastic traction. This contrivance held the jaw forward



Fig 9—Note tooth marks on the instrument panel. This injury resulted in the loss of all the front teeth, fracture of the maxillae malar and nasal bones and laceration of the chin. The rigid instrument panel is a great source of injury to guest passengers in the front seat. Inset shows patient treated with maxillary traction wires and author's nasal appliance.

and permitted the patient to lie in bed comfortably without experiencing the choking sensation occasioned by the posterior displacement of the mandible. Elastic traction between the upper and the lower arch bar later regulated the dental occlusion so that all the patient's teeth could be saved and a normal "bite" maintained. The depressed fracture of the malar bone was also completely corrected, so that no residual deformity remained as a result of a large series of fractures of facial bones. So much for the management of steering post injuries in particular.

Guest-passenger injuries are unfortunately even more frequent and more severe. Fully 75 per cent of the persons with the more serious crushing facial injuries under my care are young women, guest passengers who occupy the front seat beside the driver. The injuries which they receive are so typical that they have come to be recognized as a distinct type. This is because they are caused by other factors than those which bring about steering post injuries. When the impact occurs, the guest passenger (who has nothing comparable to a steering wheel to which to cling for support) is thrown violently forward against the windshield or instrument panel, with resulting injury to the middle third of the face. Crushing of the nose, cheek bones and maxillae,

facial lacerations and rupture of the eyeballs result. The seriousness of many of these injuries could be greatly minimized if projecting handles, knobs, cranks and other fixtures on the instrument panel and doors could be eliminated entirely or altered in construction. It seems possible that many if not most of these projecting fixtures could be recessed or made flush with the body of the car. Heavy metal robe rails have caused serious facial injuries to occupants of the rear seat. Removal of these rails entirely or substitution of soft materials (e. g. leather straps or cords) would easily prevent such injuries.

For several years I have had crash padding installed in my own cars to cover prominent portions of the instrument panels for the protection of children and other guest passengers. Designers of automobiles should I believe make further efforts to eliminate these hazards by some such means (fig 10).

The treatment of guest-passenger injuries does not differ, in principle at least, from that which I have recommended for injuries of the steering post variety. The same careful examination is essential to determine the individual treatment required.

Depressed malar bone fractures are treated in the manner I have described. Maxillary fractures may be corrected by traction wires passed through the cheeks and attached to an arch bar.¹ This arch bar can easily be applied by twisting a 20 gage silver or ordinary wire around the last molar tooth on each side. The four wires are then united in the midline by being twisted together in front of the teeth. Each tooth is then wired firmly to the arch wire.² The traction wires attached to the arch bar and passed through the cheeks are later fixed to the plaster head cast as I have suggested.

Maxillary impaction, causing upward and backward displacement of the jaw (so that the anterior teeth are separated and the molars approximated), is not an uncommon complication. The impaction should be

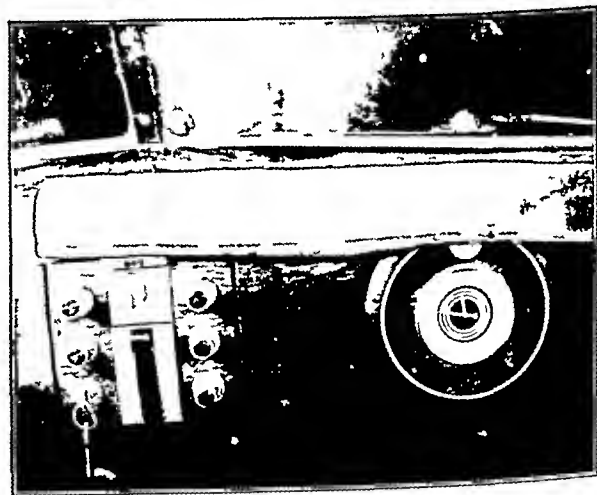


Fig 10—For years the author has had his car equipped with a velure covered sponge rubber pad to cover the upper portion of the instrument panel. Certainly this should at least minimize a guest passenger's injuries.

freed by manual manipulation. Elastic bands are then applied between upper and lower arch bars to draw the upper arch down and forward. If this correction is carried out early, the maxillae may be restored in from twenty-four to forty-eight hours to normal position. If the condition is left untreated however, a most troublesome malocclusion will result.

¹ Feiderspiel method.

² Risdon's arch bar method.

Fractures of nasal bones should be reduced with the patient under local anesthesia with procaine hydrochloride. The nasal framework is first elevated and reshaped as well as possible. Elevation of the fragments must then be maintained. This may be accomplished by intranasal packing, which, however, has the obvious disadvantage of obstructing drainage. To obviate this disadvantage I have devised a nasal splint assembly which permits ample drainage and, at the same time, elevates the nasal bridge and provides lateral pressure to reshape the nose. This splint assembly is employed after the application of a plaster head cast. It is usually left in place for approximately three weeks. Hemorrhage within the antrum, a common complication of injuries of this type, may necessitate puncture of the antrum to provide drainage. Congestion and tenderness of the nasal mucous membrane will require the administration of astringent nasal drops.

Lacerations of the skin should be sutured as I have previously recommended. Severed pieces of skin or partially detached fragments should have careful attention. Flaps with apparently adequate circulation should of course be preserved. Detached or apparently non-vital flaps can be used as Wolfe grafts, all fat tissue is first removed, and the skin is carefully sutured into the defect. A pressure dressing is then applied.

Actual losses of skin should be restored at once if possible. Small losses of facial skin can be restored by grafts taken from the upper lid or from the skin behind the ear. These grafts are carefully sutured in place and covered by a pressure dressing. Tying the sutures over a small gauze pad in a good method of insuring adequate pressure. Such dressings should be left in place at least one week (figs 7 and 8).

SEQUELAE

Despite the physician's best efforts, it must be admitted, unsightly scars will occasionally develop. These should later be carefully excised. The time for secondary plastic procedures is at least two months after healing has taken place. Here also, the subcuticular stitch is recommended for closure to obtain minimal scar formation.

Crushed noses and depressed cheek and frontal bones also require attention. Transplants of rib cartilage may be used to fill in these defects. The transplant of cartilage may be taken from the patient, or from another person provided the Wassermann reaction of his blood is negative. Following Pierce's example in using preserved human cartilage, I have been using cartilage that has been preserved and refrigerated for several months. Although this is meeting with apparent success, I still regard it as somewhat experimental.

Severed noses, especially in males, are distressing deformities. Attempts should be made to reconstruct missing portions. I shall not try to discuss the details of this plastic procedure. Complete nasal losses provide even more urgent indications for restoration. If a good lining is present or easily provided, Wolfe grafts may be used to good advantage if the loss is not too extensive. Larger losses can be replaced only by pedicle grafts. The forehead flap method is best suited to women because it provides hairless, well matched skin. The resulting scar on the forehead is readily concealed by the hair-dress. In men however, the scar on the forehead is almost as obnoxious as the nasal disfigurement itself. Hence I prefer to use a flap formed from the skin just below the ear and overlying the sternocleidomastoid muscle. This is generally quite free from hair and closely matches the facial integument. The

graft is brought to the face via a tube pedicle attached primarily to the region of the sternal notch. From this point it is secondarily attached to the nose. It is easily molded and gives admirable results, as I have been able to demonstrate in several instances. The resulting scar on the neck is inconspicuous.

I wish to emphasize the fact that many other medical aspects of the problem of motor car accidents need earnest consideration. One of the most pertinent of these concerns the mental and emotional health of the many victims. Above and beyond the physical suffering which they must endure as a result of horrible injuries such as I have described is the mental agony which lasts throughout life in the presence of facial disfigurements, however slight. Complexes and near psychoses brought about by brooding over facial disfigurements have removed many of these unfortunates from active social and business activities. That their worries are not unfounded on the whole, is borne out by the fact that employers place a high premium on good appearance in selecting employees who must meet the public. How large a part these injuries have in contributing to the ranks of the unemployed and unemployable can only be conjectured. It is undoubtedly a large one. For this as well as the many other reasons I have attempted to convey, I submit that "Surgery at the Crossroads" is an important aspect of modern life which merits earnest consideration.

1713 David Whitney Building

Special Article

PHYSICAL AND PHYSIOLOGIC PRINCIPLES OF AIR CONDITIONING

PART II

C. P. YAGLOU, M.S.
BOSTON

WINTER AIR CONDITIONING

Comfort as Affected by Method of Heating—The object of air conditioning for human comfort is not to heat or cool the body but to control its rate of heat loss within certain limits by methods that are most conducive to comfort and health. Temperature and humidity are means to an end. Their values depend on the system used, the main objective being the comfort and health of the individual.

Heating systems are usually designed on a basis of warmth rather than of comfort, although the two terms are often used synonymously. The basic assumption is that the degree of warmth or comfort experienced depends solely, or largely, on the rate of heat loss by radiation and convection combined, irrespective of their relative proportions. This is not necessarily true. A room with walls and ceiling uniformly at 80 F and air at 60 F is as warm as one with all surfaces at about 62 F and air at 80 F, but the comfort experienced under the two conditions differs appreciably, the first room is fresh and pleasant, while the second one is stuffy and depressing. Heat loss by radiation and convection combined is approximately the same in the two rooms, but in the first the loss is by convection alone.

This is the second report of the committee established by the American Medical Association to study air conditioning. The first report appeared in THE JOURNAL May 15 1937 pp 1708-1713. The committee includes Carey P. McCord, Detroit, chairman; Emory R. Hayhurst, Columbus, Ohio; William F. Petersen, Chicago; Horatio B. Williams, New York; and Constantin P. Yaglou, Boston.

and in the second by radiation alone. Heat loss by evaporation is assumed to remain constant in both instances.

Although a combination of warm walls and cool air is unquestionably more comfortable and pleasant than one of cold walls and warm air, the former is difficult to maintain in many buildings, as there is no way to prevent the heated walls from raising the temperature of air without wasting energy. A remote approach to the former method, known as radiant heating, is employed to some extent in England by attaching low temperature heating panels to the ceiling and sometimes to the walls whereby the mean temperature of the room surface is kept just a few degrees above the air temperature by means of radiant heating alone. Much of the freshness claimed for these systems is thus lost in the practical application of the principle. In a physiologic study of radiant heating in various buildings, the Vernons¹ found little confirmation of any inherent qualities claimed to be conducive to comfort and to insure comfortable conditions at temperatures much below the customary degree.

Developments in the United States have proceeded mainly along the lines of convection heating (warm air, hot water or steam radiators), in which the temperature of the air is usually a few degrees higher than the temperature of the walls, although in buildings of poor construction the difference may be as high as 15 degrees F or more, approaching the undesirable extreme just described. With the exception of southern parts of the United States and sections along the Pacific Coast, it is doubtful whether radiant heating as used in England can be satisfactorily adapted to the colder sections in this country without being supplemented by ordinary radiators under windows for counteracting the down-draft of cold air leaking through window and door cracks. Another objection is the difficulty of producing a uniform radiation effect on all occupants of a room and over the body surface of each occupant by radiant heat alone. As an auxiliary source of heat, however, portable electric heaters of the radiant type are most useful in furnishing extra heat in nurseries and in rooms of the aged or ill.

No general agreement exists as to which of the three convection heating systems is the best from the standpoint of comfort and health, although the direct hot water system has many good features to recommend it. It provides a small amount of radiant heat which permits a reduction of from 1 to 2 degrees F in the temperature required for comfort by comparison with warm air systems, without, at the same time, overheating the air passing over the radiators to the point of scorching dust and soot. When the temperature of the radiator surface exceeds 150 to 175 F, ammonia and various hydrocarbons are volatilized from atmospheric dust and soot, and the products irritate the mucous membranes of the nose and throat, resulting in complaints of excessive dryness.² If radiant heating is desired, greater possibilities would seem to lie in supplementing low temperature convectional systems with a truly radiant source in the form of ceiling lamps which in addition to infra-red would supply visible and ultra-violet radiations in suitable proportion.

Comfort as Affected by Building Construction and Insulation—The kind and quality of building materials used for walls, ceiling and floor have an important

bearing on the comfort and heating economy of a building and probably on its healthfulness also. The main reason why some rooms must be kept between 75 and 80 F to make them comfortable in cold weather is to compensate not for the low humidity, as is often contended, but for the cold walls and glass in buildings of poor construction.

According to Kratz's³ experiments, when the outside temperature is 0 F and the inside 72 F, the inside surface temperature of a typical exposed frame wall is 60 F with no wind and 55 F with a wind velocity of 10 miles an hour. A room with three such exposed walls is uncomfortably cold at 72 F, and to make it comfortable at all the temperature must be increased to between 77 and 80 F.

If, however, this typical frame wall is insulated by filling the studding spaces with insulation, the temperature of the inside surface of the exposed walls would be about 68 instead of 55 and the room would be comfortable with air at from 72 to 73 instead of from 77 to 80 F.

Ordinary single-pane windows are often more troublesome than cold walls in rooms having a number of windows. With an outdoor temperature of 0 F, Kratz³ observed a temperature of 18 F on the inside surface of the glass. By installing tight-fitting storm sashes, the temperature on the inside pane surface increased to 44 and the infiltration of cold air was practically eliminated.

An illusive feature in the heating of rooms with cold walls and glass is that the ordinary thermometer is not affected as much as the human body by these cold surfaces. Special instruments⁴ are necessary for indicating the influence of such cold surfaces on warmth and comfort.

Aside from the direct effects of negative radiations, uninsulated cold walls and windows chill the air in contact with them and allow considerable leakage of outside air. Thus cold air in falling to the floor produces uncomfortable drafts and a steep temperature gradient from floor to the breathing zone, which often results in stuffiness and congestion in the nose.

Adequate building insulation not only materially improves the comfort of rooms but also effects a substantial saving in fuel consumption by reducing structural heat loss and by permitting a lower room temperature. The size of the heating plant, including boiler, radiators and pipes, is considerably reduced and the total savings will pay for the cost of insulation in a few years. In warm summer weather the insulation will keep the house cool. While the monetary savings are generally recognized by the engineers, the benefits to comfort and health have not been fully appreciated in the past, particularly by the layman.

Humidification—Artificial humidification, about which so much is heard in connection with winter air conditioning was shown in the first part of this paper to be relatively unimportant from the standpoint of comfort and so far as is known, not essential from the standpoint of health.

While a relative humidity of between 40 and 60 per cent would probably be more normal and perhaps more healthful than one between 20 and 30 per cent, it is practically impossible to maintain this high range in

¹ Vernon H M and Vernon M D. A Physiologic Investigation of the Radiant Heating in Various Buildings. Report 46. Industrial Fatigue Research Board. London. H M Stationery Office. 1928.
² von Esmerich. H. g. Rundschau. 1905.

³ Kratz A P. Physical Factors Affecting Comfort. Bull 34. University of Illinois. Oct 13 1936. p 26.
⁴ Yaglou C P. Kratz A P and Winslow C F A. Instruments and Methods for Recording Thermal Factors Affecting Human Comfort. Year Book A P H A. 1936 1937. p 84.
⁵ Yaglou C P. Physical and Physiologic Principles of Air Conditioning. J A M A 105 1708 (May 15) 1937.

cold weather on account of excessive condensation and freezing on the windows and sometimes inside the exposed walls

Kratz³ has shown that with an outside temperature of 0 F the indoor relative humidity at which frost or condensation will appear on window panes is about 15 per cent with single glazed windows and 40 per cent with a tightly fitting storm sash. With an outside temperature of 20 F the corresponding limits are 25 per cent and 50 per cent respectively.

More serious is possible damage to exposed walls and roof by absorption and penetration of moisture. Fungous growth or chemical disintegration may result from accumulation of condensed water in certain building materials composing the outside walls. The wallpaper may loosen. Moreover, if the water should soak through to the outside sheathing, frost may cause serious damage.

Artificial humidification, therefore, is not recommended in buildings of usual construction, as the natural humidity prevailing there is as high as can be carried safely. If humidification is desirable, the building must be specially designed and built, with suitable insulation and moisture proofing of all exposed surfaces. The attic space must be well ventilated or else no humid air must be allowed to escape there. Even with these precautions, relative humidities in excess of 40 per cent are not to be recommended in cold weather.

Theoretically, humidification makes the air feel comfortable at a somewhat lower temperature, but under practical conditions the effect on comfort is quite small, almost imperceptible by the average person. An increase of 20 per cent in the relative humidity (from 20 per cent to 40 per cent), the maximum increase allowable in cold weather, permits a temperature reduction of but 2 degrees F from about 72 to 70 F.

No fuel economy results from this reduction in temperature, as it takes more fuel to raise the humidity 20 per cent than to keep the building at a temperature 2 degrees F higher. While on first thought one would expect a material reduction in heat loss from the structure, when the temperature is lowered 2 degrees there is a simultaneous increase in the heat conductivity of building material with humidity,⁶ the importance of which is not appreciated at present.

Ventilation—Artificial ventilation and air filtration are necessary in theaters and auditoriums where large volumes of air must be regularly supplied, but in homes and uncrowded offices such provisions are of doubtful value, except under unusual circumstances.

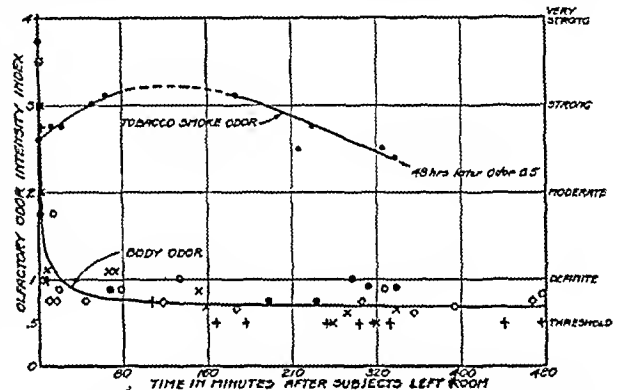
The average house has too much air leakage to require artificial ventilation during the cool season of the year. The leakage usually amounts to between one and two air changes per hour. By the use of weatherstripping or storm sash and storm doors, it may be reduced to half an air change per hour and still be sufficient for all practical purposes. Exceptions may arise in the kitchen and bathroom, which in any case must be separately ventilated by means of open windows or a small exhaust fan built into the outside wall or in the upper half of the window.

After a long period of speculation concerning ventilation requirements, in public buildings (schools, theaters and offices) the prevailing concept is that in most instances body odors constitute a limiting factor, fixing the minimum amount of fresh air necessary. This is because it is possible to heat, cool, humidify or

dehumidify the air of a room without necessarily introducing outside air, but the most effective and practical method for removing odoriferous matter at present is by dilution with clean outdoor air. Washing the air with a clean water spray is also effective in removing some of the odor, thus reducing the outdoor air requirement.

Until recently an outside air supply of 30 cubic feet per minute for each person was thought necessary for good ventilation on purely chemical and physical grounds. Recent experimental evidence⁷ showed this quantity to be excessive in many instances from the standpoint of every practical need. It also showed that it is impossible to fix any single value that would apply to all cases.

Accepting the present concept of body odor as a limiting factor in the ventilation of public buildings, the amount of outside air required to remove objectionable odors was found to vary mainly according to the type of building and air conditioning apparatus, the air space in a room per occupant, the room temperature, and last, but not least, the socio-economic status of the occupants, especially the bathing habits and cleanliness of clothing. The variation is from a minimum of about 5 cubic feet



Rate of disappearance of body odor and odor of cigarette smoke in a closed room. Different points represent experiments at different seasons of the year.

per minute for each person in spacious living rooms and offices to a maximum of 40 cubic feet per minute for each occupant in crowded schoolrooms attended by children of the poorer class. In the latter case the problem is one of personal sanitation rather than of ventilation.

The influence of per capita air space on fresh air requirements arises from the fact that body odors are not stable but tend to disappear rapidly of their own accord⁸ as shown in the accompanying chart. Large rooms have an advantage over small ones as they act as reservoirs, allowing body odors to disappear with a minimum outdoor air supply. On the other hand smoking rooms should be made as small as possible and ventilated fast. This is not only because the odor of tobacco smoke remains longer in the air but because its intensity increases during the first three hours following the smoking period, an observation which agrees with the common experience that the odor of stale tobacco smoke is more offensive than that of fresh smoke.

The usual ventilation requirements in public buildings where people do not smoke are between 10 and

7 Yaglou, C. P., Riley, E. C., and Goggins, D. I. Ventilation Requirements. *Am. Soc. Heating & Ventilating Engineers Journal Section Heating, Piping and Air Conditioning* 8: 63 (Jan.) 1936.

8 Yaglou, C. P., and Witheridge, W. Ventilation Requirements. Part 2. *Am. Soc. Heating & Ventilating Engineers Journal Section Heating, Piping and Air Conditioning*, 9: 447 (July) 1937.

6 Berestneff, A. A. Moisture—Its Influence on the Heat Conductivity of Building Materials. *Heating & Ventilating* 29: 27 (April) 1932.

20 cubic feet per minute for each occupant with normal habits of personal sanitation. This quantity is usually sufficient to satisfy the thermal requirements except in warm weather when the air is not cooled artificially. A substantial percentage of this amount may be recirculated when the air is washed in a spray humidifier or dehumidifier. When the air is not cooled in warm weather, a sufficient amount of outside air must be introduced to prevent the temperature and humidity from rising too high. A somewhat higher air supply is needed in smoking rooms, but exact figures are not available at present. The foregoing values are tentative and may be scaled downward in the future with developments in deodorizing apparatus which would allow for greater recirculation of air in the interest of economy.

In industrial rooms where the primary consideration may be the control of dusts, fumes or gases in the general atmosphere, the amount of outside air to be introduced is that necessary to dilute the polluting elements below the physiologic threshold concentration.

Limitations of Winter Air Conditioning—There are many fields in which winter air conditioning⁹ is of real value in overcoming adverse conditions, but in the average home or office it is doubtful whether it will serve a useful purpose. After all, winter air conditioning for comfort is largely a matter of rational heating supplemented with adequate building insulation. Modern automatic heating systems can fulfil the requirements very well. Mechanical ventilation, humidification and air cleaning require complicated and expensive apparatus, as well as considerable attention and trouble on the part of the owner.

The claims of public utility companies that winter air conditioning improves the health and efficiency of office employees is difficult to explain and could not be substantiated by the experience of the Metropolitan Life Insurance Company.¹⁰ Absenteeism due to illness among 12,000 employees, half working in a conditioned building and the other half in a building not conditioned but otherwise properly heated, failed to show any measurable difference between the two groups.

The advantage of air conditioning is that the system lends itself easily to summer cooling and dehumidification by the addition of suitable apparatus, or by circulation of cool night air through the building. By the use of proper filters much of the pollen can be filtered out of the air during the pollen season. Street noise may be partially shut off, as the windows can be kept closed.

Residential winter air conditioning systems installed at a price to compete with modern heating systems are inferior to the latter and seldom give satisfaction. Unless a good system is installed, there is nothing to gain and much to lose.

SUMMER AIR CONDITIONING

The Problem of Summer Cooling—If we try to reproduce the comfortable winter air conditions on a warm summer day, we should find them uncomfortably cold. This is because we become adapted to higher temperatures and at the same time we wear fewer and lighter clothes. As a result of these physical and physiologic changes, the comfortable temperature in warm weather may be from 10 to 20 degrees F higher than in cold weather.

Cooling for comfort in warm weather is an intricate physiologic problem, much more involved than heating

in winter. The difficulty is due in part to complex variations in the rate of metabolism and sweating according to a number of variables, and the liability of chilling warm and perspiring body surfaces. An ordinary air condition that is comfortable to persons with dry skin and clothing may prove too cold for those perspiring, as is the case, for instance, with employees and transient patrons in a cooled store or theater on a warm day. Idiosyncrasies vary, some persons like heat, others dislike it very much. The differences appear to be metabolic and circulatory and cannot very well be taken care of by changes in clothing.

In cold winter weather, when the body surfaces are dry sudden temperature changes of the order of 70 F or more have little or no effect on healthy persons suitably clothed. Gradually during the autumn and early winter the organism has had an opportunity to become adapted to increasing temperature contrast and is therefore capable of prompt response to chilling emergencies by compensatory changes in metabolism and blood circulation. Clothing further mitigates the effects of exposure.

Adaptation to summer heat, on the other hand, renders the organism sensitive to much smaller temperature changes especially when the body surfaces are covered with perspiration. Not only may the physical loss of heat by evaporation be very great, but a person may not be successful in quickly increasing heat production in response to sudden chilling, owing to a depressive action of external heat on the heat-producing organs of the body.

The experimental animals of Ogle and Mills,¹¹ after having been adapted for a few weeks to summer heat, were able to endure safely degrees of excessive heat that in a few hours prostrated and killed those adapted to cooler conditions. But when subjected to sudden chilling, they could not quickly increase their heat production and so suffered a fall in body temperature and were prostrated. Their resistance to infection was considerably affected. On the other hand, animals shifted daily from heat to cold were remarkably resistant to sudden chills but they could not stand rises in temperature beyond that to which they were adapted.

Data on human subjects are scarce, but relevant work by Stuart Mudd and Grant, Winslow and Greenburg, and Gafafer, and some unfinished data shown further on in this present report are particularly suggestive.

Mudd and his co-workers¹² studied the vasomotor reactions of human subjects to chilling and drafts. Their experiments were carried out in midsummer and some ten cases of cold and sore throat developed among the six men serving as subjects. In a number of instances the clinical symptoms were accompanied by interesting bacterial changes. One of the affected subjects was chilled again the following winter with no after-effects.

In similar experiments carried out by Winslow and Greenburg¹³ during the cold season of the year, only one of seven subjects developed a cold during the course of the experiments despite the rigorous chilling.

Gafafer's¹⁴ extensive study of weather changes in relation to upper respiratory diseases likewise strongly suggests that changes in weather during the warm

¹¹ Ogle, Cordelia and Mills, C. A. Animal Adaptation to Environmental Temperature Conditions. *Am J Physiol* 103: 606 (March) 1933.

¹² Mudd, Stuart, Grant, S. B. and Goldman, Alfred. The Physiology of Acute Inflammations of the Nose, Pharynx and Tonsils. *Ann Otol Rhin & Laryng* 30: 1 (March) 1921.

¹³ Winslow, C. E. A. and Greenburg, Leonard. Vasomotor Reactions to Localized Drafts. *Am J Hyg* 15: 1 (Jan) 1932.

¹⁴ Gafafer, W. M. Upper Respiratory Disease (Common Cold) and the Weather, Baltimore 1928-1930. *Am J Hyg* 13: 771 (May) 1931.

⁹ Including air filtration, temperature and humidity control and mechanical air circulation.
¹⁰ McConnell, W. J. Investigations of the Health Aspects of Air Conditioning. *Refrigerating Engineering* 31: 79 (Feb) 1936.

seasons are more associated with the incidence of the common cold than changes in weather during a cold season

The highest respiratory incidence and mortality is seen in hot trades, steel mills, deep mines and the like,¹⁵ and the hazard is not due to heat per se but largely to the imprudent habit of the workers in passing suddenly from an overheated atmosphere to cold air

An Conditions in Cooled Buildings—There is much to be learned about cooling systems for comfort and about optimal air conditions in cooled buildings. The conditions to be maintained depend to a large extent on the climate, the prevailing outdoor temperature and the length of time the occupants remain in the cooled space. Temperature contrasts must not be great. Health, sex, clothing and idiosyncrasies are also important factors to be taken into consideration

As a rule, little difficulty is experienced in cooled homes and offices when the occupants remain indoors most of the day and so escape, to a large extent, sudden temperature contrasts. Moreover, the amount of cooling can be controlled according to the needs of the occupants, as there are usually few persons in a room

Laboratory experiments¹⁶ with conventional cooling apparatus place the summer comfort zone at temperatures between 72 and 82 F with relative humidities between 45 and 60 per cent for exposures of two hours or more

Studies in cooled homes and offices, including the Metropolitan Life Building in New York, indicate desirable temperatures between 75 and 80 F with a relative humidity of from 40 to 55 per cent. The criterion in all these studies was the comfort of the majority, so that the air conditions, although satisfactory from the standpoint of comfort, may not necessarily be the best

In theaters and restaurants, where the occupants remain an hour or two before going out to warm air again, current practice follows a sliding temperature scale from 2 to 15 degrees F below the prevailing outdoor temperature. When the mean outdoor temperature is 70 F over a period of hours, the indoor temperature is adjusted to 72 and the humidity approximately at 60 per cent, with a prevailing outdoor temperature of 95 F, the temperature indoors is kept at 80 and the humidity at about 45 per cent

Unsatisfactory experience with this schedule has resulted in much discussion and criticism, but so far no substitute has been found acceptable to the industry. On entering a building cooled to 80 F in 95 degree weather, one generally experiences a feeling of chilliness. After an hour or two in such an environment the majority would be comfortable, a few would still shiver, and a few may feel a little too warm. On coming out to the warm outside atmosphere, the majority experience no serious discomfort, a few may momentarily feel dizzy and depressed, and others may be glad to get out

Complaints are often greatly aggravated by overcooling which results from faulty control equipment or operation, sometimes being done deliberately by overzealous operators for advertising their system. For instance, it is reported with pride by the management of a recently conditioned department store that the temperature in their fur department was lowered to 60 F last summer, although employees shivered, sales soared to the great satisfaction of the owners

It is perfectly natural for inhabitants of a stimulating climate, like ours, to run to excesses of this kind. All through winter, spring and autumn we have been accustomed to frequent climatic stimulation leading to a vigorous and restless life. A few warm days in the summer depress us severely and we long for the opposite extreme, eager to grasp the opportunity whenever we can

Disturbances of Heat Loss on Exposure to Great Temperature Contrasts—The unsatisfactory experience in cooled theaters, stores and railway cars in warm weather would seem to be largely due to the unusually rapid development of the art along purely engineering lines without a requisite preinvestigation of the physiologic requirements of the human body in warm weather

In a preliminary series of experiments, two young men were selected who seldom complained of cold and two women who always complained when the temperature was lowered below 85 F in warm weather. After initial exposures of one hour or more to a conditioned room kept at 95 F and 40 per cent relative humidity,

TABLE 1—Disturbances of Heat Loss on Exposure to Great Temperature Contrasts

Average Heat Loss of Two Cold Resistant Men in Calories per Hour	Hot Room 90 F 40% R H		Cold Room 80 F, 45% R H		Hot Room 90 F 40% R H	
	After 2 Hrs	Exposure	On Entering	After 2 Hrs	On Entering	After 1 Hr
Radiation and convection	20	57*	56	20*	56	56
Evaporation	70†	70	32‡	32	70	70
Total heat loss	90†	127	88‡	52	126	126
Too warm		Too cold	Comfortable	Too warm	Too warm	Too warm
Average Heat Loss of Two Cold Intolerant Women						
Radiation and convection	14	44	50	16	44	44
Evaporation	46	46	19	19	46	46
Total heat loss	60	90	69	35	90	90
Warm		Too cold	Cold	Comfortable	Warm	Warm

* Estimated from two hour exposure
† Determined from loss of body weight
‡ Determined by oxygen consumption

the subjects passed to a cooler room kept at 80 and 45 per cent relative humidity and remained there two hours for observation. At the end of this period the subjects went back to the hot room again for about an hour. The foregoing sets of air conditions are those frequently used in the design of cooling systems for theaters, restaurants and railway cars

In the hot room the skin was flushed and the major part of the heat loss was by evaporation of perspiration, as shown in table 1, column 1. When the cold room was entered, the heat loss by radiation and convection suddenly increased owing to the lower temperature, while the heat loss by evaporation continued for a few minutes at least at the previous rate in the hot room because of the perspiration in the skin and clothes. The total heat loss was thus suddenly increased to a high rate (column 2) with no immediate compensatory change in the metabolic rate during the first few minutes. This seems to be the explanation for the transitory sensation of chilliness, popularly referred to as "cold shock"

After an hour or so the two men subjects succeeded in adapting themselves to the relatively cold atmosphere, one with a decrease in the metabolic rate (initial rate 98 calories per hour) and the other with a slight increase (initial rate 81 calories per hour). The women were not as successful and remained cold throughout the two hour period. Their initial metabolic rate was low (56

¹⁵ Yaglou C P. Abnormal Air Conditions in Industry. Their Effects on Workers and Methods of Control. J Indust Hyg & Toxicol 19 12 (Jan) 1937
¹⁶ Yaglou C P and Drinker Philip. The Summer Comfort Zone. Climate and Clothing. J Indust Hyg 10 350 (Dec) 1928

and 63 calories per hour) and apparently did not increase enough to keep them warm.

When the subjects returned to the hot room there was again a disturbance of heat loss, the reverse of that seen on entering the cold room from the hot one (table 1, column 4). Heat loss by radiation and convection immediately decreased, but the loss by evaporation continued for some minutes at the previous low rate in the cold room, until sweating broke out. The result was a transitory depression of heat loss with no compensatory depression of heat production, which explains the oppressive feeling of warmth. The women felt quite comfortable on returning to the hot room, presumably because they were cold before the change.

It is not possible to say at this time just what would be the effect of such sudden changes in temperature on the health of persons if made frequently when the body is warm and perspiring. So far as the two women subjects are concerned, the effect is certainly not beneficial.

The disturbances of heat loss can be moderated to a large extent by providing air conditions that are more

TABLE 2—Changes of Heat Loss on Exposure to Moderate Temperature Contrasts and Dry Air

Average Heat Loss of Two Cold Resistant Men in Calories per Hour				
Radiation and convection Evaporation Total heat loss Too warm	Hot Room, 95 F, 40% R H After 2 Hrs' Exposure		Cool and Dry Room, 88 F, 27% R H*	
			Hot Room 95 F, 40% R H	
	On Entering	After 2 Hrs	On Entering	After 1 Hr
	19	82	30	18
	69	89	52	52
	88	101	82	70
				89
		Cool	Comf warm	Warm
				Too warm
Average Heat Loss of Two Cold Intolerant Women				
	15	70	28	14
	48	43	31	31
	63	78	59	45
				54
		Cool	Comfortable	Warm
				Comfortable

* This was the lowest humidity that was possible to obtain by means of a conventional spray dehumidifier.

consistent with the manner in which the body loses heat in warm weather. In table 2 are shown reactions of the same subjects to a temperature of 88 F with 27 per cent¹⁷ relative humidity as contrasted with a temperature of 80 with 45 per cent relative humidity in table 1. Not only were the contrasts moderated when the subjects entered and left the dry and warm room, but all four subjects were capable of adjusting themselves satisfactorily to this air condition without experiencing untoward symptoms in the transitional period of readjustment.

No sweeping conclusions can be drawn from these limited physiologic data, but the observations must be amplified and repeated on a large group of persons to determine what is the best compromise under all summer weather conditions. Although a number of persons were found who prefer somewhat lower temperatures for comfort than the majority, the problem in public buildings is to work out a compromise that will satisfy both the 'heat intolerant' and the 'cold susceptible' throughout their stay in the conditioned space.

Dehumidification of air with but little cooling is especially indicated in tropical climates, as was first suggested by Tyler¹⁸ thirty-five years ago. It may also

prove the best method in banks and stores where the customers come and go, spending but a few minutes in the cooled space. The method avoids the extremes of overcooling and yet seems to conform to that important biologic principle of preserving balance between contrasting requirements of individual groups, especially between employees in a store and transient patrons.

In the past few years, dehumidification systems have appeared on the market but have not proved at all popular for summer air conditioning. The concept of cooling by dehumidification of air encountered considerable resistance in the industry, owing largely to the changes from convectional refrigeration apparatus that it implied. Research now in progress may settle the disputed points.

Possibilities and Limitations of Summer Air Conditioning—Cooling in hot weather unquestionably contributes much to the comfort and efficiency of man and under certain circumstances is an important factor in the course and prognosis of some diseases. The open questions are: What are the best methods of cooling our living and working quarters? Can we afford this luxury at present? and When is the cost justified by the results obtained?

The first question can be answered only by research, but this is not a sufficient reason to condemn present methods of cooling altogether. In many public buildings and railway cars, cooling in warm weather is as important as heating in winter. Its commercial value is great. Cooling is more important in the South than in the North, and more important to some persons than to others.

Experience in a number of large office buildings, including the spacious offices of the Metropolitan Life Insurance Company, has been entirely satisfactory from the standpoint of comfort.¹⁹ The employees were able to pursue their daily duties without the depression and discomfort experienced prior to the installation of the system.

Cooling may be a potential necessity for the average home, but for the time being it is still a luxury, owing to high costs. The field is at present limited to expensive residences where cost and service are matters of secondary consideration.

In many parts of the country where the temperature usually drops at night, natural and preventive measures are usually sufficient in affording relief during the heat of the day. This holds particularly in the average home, the uncrowded office or the shop. Adequate insulation, including the use of awnings on the sunny side of the building and the circulation of cool air by means of an exhaust fan in the attic space, will keep the building reasonably comfortable during the daytime. When no such provisions exist, the use of an ordinary desk fan will alleviate discomfort.

When cooling is desired in an ordinary home, it may be sufficient in the interest of economy to cool one or two rooms in the day time by the use of a unit room cooler. The bedrooms can be cooled at night by the circulation of cool night air. Where ice can be had conveniently at a low price it is more economical to use than mechanical refrigeration, as the period of cooling in the North is only twenty to thirty days every year.

55 Shattuck Street

17 A relative humidity of 27 per cent was the lowest that was possible to obtain with a conventional spray dehumidifier.
18 Tyler W F. Some Psychophysics of Climate. J State Med London 42: 98 (Feb) 1934.

19 McConnell W J and Kagey, I B. The Air Conditioning System of the New Metropolitan Building. First Summer's Experience. Tr Am Soc Heating and Ventilating Engineers 40: 217 1934.

Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION
OF THE FOLLOWING REPORTS HOWARD A. CARTER Secretary

BARR SW-15 SHORT WAVE RADIO- THERMY AND ELECTRO SUR- GICAL UNIT ACCEPTABLE

Manufacturer Barr Laboratories, Inc., New York City

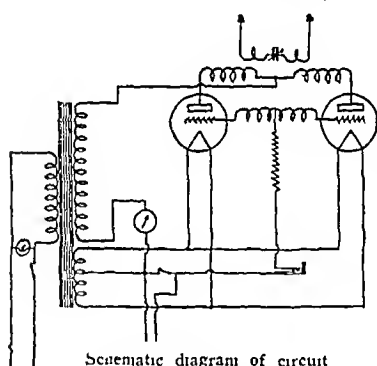
The Barr SW-15 Short Wave Radiothermy unit is recommended for medical and surgical uses. This machine is an oscillating short wave generator employing two tubes. The wavelength is approximately 15 meters. It has a single knob control for both therapeutic and electrosurgical currents with only one set of outlets in the patient circuit. The electrosurgical current for tissue cutting, coagulating and desiccating are monopolar.

The input wattage on this machine is approximately 875 watts on 105-125 volts, 60 cycle, alternating current line. The power output of the SW-15 was measured as 395 watts. The means employed for obtaining this value was to couple a 500 watt incandescent bulb to a standard set of large applicators. The luminosity of the bulb was then checked by a calibrating photo electric cell. As a conservative statement only 375 watts is claimed by the firm. It is pointed out, however, that no acceptable method of determining the output of a short wave diathermy unit has been developed.

Standard equipment of this unit consists of one pair of rubber molded applicators 5 by 7 inches, one pair 3½ by 4½ inches,



Barr SW 15 Short
Wave Radiothermy
and Electro Surgical
Unit



Schematic diagram of circuit

one foot switch, one chuck handle and three tips for cutting coagulating and desiccating. Cuff electrodes are included as part of the regular equipment. Its shipping weight is 125 pounds.

As is customary, the firm submitted evidence to substantiate the claims of the temperature elevating influence of the SW-15 machine on the living human thigh. A reliable investigator was appointed by the firm to perform these tests. He carried out eight tests, using the cuff technique. Four normal male subjects were used with an average thigh circumference of 49 cm. Cuffs measuring 48 by 36 cm were wrapped about the thigh 20 cm apart from edge to edge, over two thicknesses of toweling.

Average of Eight Observations, Cuff Electrodes

Deep Muscle		Subcutaneous		Rectal		Skin	
Initial	Final	Initial	Final	Initial	Final	Initial	Final
97.7	103.5	92.2	102.2	98.6	98.9	87.4	92.5

The temperature measurements were taken by thermocouples before and after twenty minute treatments. The thermocouples were inserted into the subcutaneous and intramuscular tissue in the usual manner. Skin temperatures were also taken by thermocouple readings. Rectal temperatures were observed. The room temperature varied from 68 to 70 F. The humidity ranged from 40 to 50 per cent. Eight observations were made, two on each subject, first on the left and then on the right thigh. Each reading in the table is an average of eight observations.

The transformer temperature rise taken over a two hour period with the machine running at full load was found to be

within the limits of safety prescribed by the Council. Burns may be produced but can be avoided by taking ordinary precautions.

This unit was investigated with the cuff technique, in a clinic acceptable to the Council, and found to be satisfactory.

In view of the foregoing report from the Council's investigator, using cuff technique, the Council voted to include the Barr SW-15 Short Wave Radiothermy unit in its list of accepted devices.

HEALTH RAY TWIN CARBON ARC SUN LAMP NOT ACCEPTABLE

Manufacturer Health Ray Manufacturing Company, Inc., New York

From time to time the Council is called on for information on ultraviolet generators for example carbon arc and mercury arc lamps, sold to the public for irradiating the body without the supervision of a physician.

Aside from differences in total ultraviolet output, the chief distinction between therapeutic ultraviolet generators for use by physicians and so-called sun lamps for unsupervised home use is that, in order to be acceptable to the Council, the latter shall not emit an appreciable amount of ultraviolet radiation of wavelengths shorter than 2800 angstroms.

In a previous communication¹ the single arc, carbon electrode Health Ray Sun Lamp was found unacceptable by the Council because it is not provided with a Corex-D glass window to exclude the ultraviolet of wavelengths shorter than 2,800 angstroms. But, even if it were provided with such a window, it could not be accepted because the intensity is below the minimum requirements of the Council.

The Health Ray, Twin Arc, Sun Lamp (Model 35) consists of two arcs, between two pairs of carbon electrodes, confined in a metal housing 12 by 7 by 5½ inches in outside dimensions, with openings in the sides and top for ventilation.

The front side of the housing has an opening 6 inches in diameter, covered with a small mesh wire screen, through which the arc radiation emanates. This opening could be covered, easily and cheaply, with a Corex-D window, to conform with the Council's requirements limiting the spectrum at 2,800 angstroms.

The rear side of the box consists of a hinged door, on the inside of which is mounted a porcelain insulating base that supports the two pairs of carbon electrodes, and the ballast resistance.

The arc is formed by rotating a knob on the outside of the door and, once formed, it continues to burn for about four minutes. If the arc is not adjusted, the exposure is limited to about four minutes, which is commendable in a home model lamp.

Radiometric Tests—Following the recommended procedure, by means of a differential thermopile and filter radiometer, measurements of the ultraviolet radiant flux, of wavelengths shorter than and including 3132 angstroms, were made in a laboratory acceptable to the Council.

As received from the manufacturer, the lamp is provided with 'supertan' (sun tan) carbon electrodes, 8 mm in diameter, and when operated as directed, the current used was about 9 amperes (110 volts, alternating current) at the start, decreasing to about 65 amperes when the arc burned out. The arc burned quietest on 80 to 85 amperes, requiring a total power input of from 800 to 850 watts.

At a distance of 24 inches from the front face of the lamp housing the ultraviolet radiant flux (intensity) of wavelengths shorter than and including 3132 angstroms with only the wire mesh in front of the arc ranged from 99 to 114 microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$), or an average of about 110 $\mu\text{W}/\text{cm}^2$ during a run of four minutes. This intensity is about twice the minimum value (55 $\mu\text{W}/\text{cm}^2$) required by the Council for acceptance as a therapeutic lamp using polymetal (Therapeutic C) electrodes and hence is acceptable to the Council for use as a therapeutic lamp.

In a biologic (erythematogenic) test a series of exposures of the untanned inside upper arm was made at a distance of

¹ Health Ray Sun Lamp Not Acceptable J A M A 107:498 (Aug 15) 1936

20 inches from the front of the housing of the arc. A minimum perceptible erythema (one that disappears within twenty-four hours) was produced in about five minutes. The action of the lamp is therefore too rapid in inexperienced hands.

Radiometric measurements were made also on this Twin Arc Lamp (using "supertan" electrodes) when covered with a window of Corex-D glass, which excluded radiation of wavelengths shorter than 2,800 angstroms. The total ultraviolet output, of wavelengths shorter than and including 3,132 angstroms, ranged from 20 to 22 $\mu\text{W}/\text{cm}^2$, or from 24 to 27 $\mu\text{W}/\text{cm}^2$ if the wire screen had been removed. This is about twice the minimum value required by the Council for acceptance of such a lamp for home use.

Since the type of housing has little or no effect on the ultraviolet output, which is controlled principally by the kind and size of the electrode and the electric current through the arc, the foregoing measurements should apply to the various twin arc lamps, using "supertan" electrodes 8 mm in diameter, taking from 8 to 9 amperes, now appearing on the market under various trade names.

If manufacturers of twin carbon arc sun lamps for home use would provide the housings of such lamps with windows of Corex-D glass to intercept radiation of wavelengths shorter than 2,800 angstroms, the Council could include them in its list of accepted devices.

The Council voted not to include the Health Ray Twin Carbon Arc as a sunlamp for home use in its list of accepted devices, because (1) when the lamp is used without the Corex D window the ultraviolet of the wavelengths shorter than 2,800 angstroms is greatly in excess of the value acceptable to the Council for sunlamps for home use and (2) because the lamp is recommended for use without the supervision of a physician.

Council on Pharmacy and Chemistry

REPORTS OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORTS
PAUL NICHOLAS LEECH Secretary

THIAMIN CHLORIDE

The pure form of vitamin B₁ has recently become commercially available in the form of a crystalline hydrochloride. As the product has been submitted to the Council this necessitated the coming of an acceptable nonproprietary name. Dr. Jansen of Amsterdam coined the name Aneurin. The Council recognizes the right of the discoverers to coin names for their products, but it cannot accept those names if they are therapeutically suggestive. Dr. Jansen has been very cooperative in discussing the matter or nomenclature for vitamin B₁ and suggested certain other names. Dr. Jansen suggested that Dr. R. R. Williams, who recently accomplished the synthesis of vitamin B₁ crystals, propose a name based on the chemical structure. Dr. Williams informally proposed the term Thiamin Chloride.

A communication was sent to Dr. Jansen by the Council office (March 30) as follows:

"Out of these discussions came the possibility that the name Thiamin Chloride would be an acceptable type. The Council discussed formally the proposed name, Thiamin Chloride, at its meeting of March 12 and 13, and it formally approved of this name, tentatively awaiting, of course, final approval by you. In the meantime, the name will also be proposed at the meeting of the American Society of Biochemists.

"Upon investigation in this country, we find that the name Thiamin Chloride is not trademarked. It is indicative of the chemical composition, and easily pronounced.

"This office shall be indeed grateful for your consideration of this name, and your frank comment. The Council wishes to cooperate with you to the fullest extent on this matter, and will take no final action until it has had an opportunity to consider your reply."

To this Dr. Jansen replied (in part) May 1:

"Many thanks for your letter of March 30, 1937. As I told you in my first letter, I do not insist on the name 'aneurin,' and

so I have no objection against the name Thiamin Chloride, on the sole condition that it is adopted internationally. Otherwise I fear it will augment the confusion. Now in Europe the name aneurin finds more and more acceptance, so e.g. it is now adopted in the 'Abderhalden's Handbuch der biologischen Arbeitsmethoden'."

In the meantime, the American Society of Biological Chemists, the American Institute of Nutrition and the Committee on Nomenclature of the American Chemical Society have all tentatively approved the term Thiamin Chloride suggested by Dr. Williams. Dr. Jansen also suggested that the matter be referred to the International Committee on Nomenclature. The Council feels however that the delay which would be involved amounting to many months, makes this provision difficult to accept in toto. Since manufacturers have already asked for the acceptance of the product under a nonproprietary name, a delay would seriously endanger the project of introducing an acceptable nonproprietary name into the literature. The Council desires to express to Dr. Jansen its deep gratitude for his cooperation in this matter and wishes to comply as far as possible with the spirit of Dr. Jansen's suggestions for consideration by an International Committee on Nomenclature. The Council therefore decided to adopt the name Thiamin Chloride as a common name for Vitamin B₁ Hydrochloride with the proviso that if the International Committee in 1938 should adopt some other suitable name the Council will feel free to concur in the use of the international name, with Thiamin Chloride as a synonym. It is understood that if other salts are found suitable they should be named accordingly 'Thiamin Sulfate,' 'Thiamin Bromide,' and so on.

AVERTIN WITH AMYLENE HYDRATE II

Avertin, the trade name of the Winthrop Chemical Company for tribrom ethyl alcohol (designated in the foreign literature also as "ethobrom," "rectanol," "renarcol," "narcotyl," "E 107," "Byck 250") and its dosage form, avertin fluid (now "avertin with amylene hydrate"), were the subjects of a preliminary report by the Council¹ in 1930. The Council decided not to admit avertin and its dosage form to New and Nonofficial Remedies.

"(1) until satisfactory studies of its properties its advantages and its disadvantages have been made (2) until the contraindications have been satisfactorily established, (3) until a generally accepted technique whereby it can be used as satisfactorily as ether has been established (4) until the action of the amylene hydrate in avertin liquid—whether by addition or by potentiation—has been determined and the amount declared and (5) until the advertising has been revised to omit misleading statements contained in the present advertising and especially to recommend the product only for initiation of narcosis (basis narcosis) and not for complete narcosis.

Among the disadvantages of avertin with amylene hydrate pointed out in the aforementioned report were:

'1 Higher death rate than after ether 2 Depression of respiratory center 3 Depression of circulation 4 Acidosis as actively as after chloroform 5 Insufficient muscular relaxation in laparotomy (?) 6 Falling back of tongue making constant observation necessary until the patient is fully conscious 7 Lack of control from moment to moment (almost unanimous) 8 Want of exact dosage 9 Narrow zone between anesthetic and fatal dose 10 Disadvantages inherent in mixed narcosis 11 Lack of adequate pharmacologic study of avertin and its synergistic action with morphine ether and other substances 12 A lack of agreement concerning the indications and contraindications.

In 1932 the Council again considered avertin fluid and again decided not to accept the product, largely because of comments of members of the Council who considered that in the dosages commonly employed avertin with amylene hydrate was not safe. Doubt was expressed as to possible deleterious effects of the amylene hydrate component in the amounts usually administered.

Four years later the Council once more considered the available evidence as to the therapeutic usefulness of avertin with amylene hydrate and concurred in the opinion of the referee that there can be no question that experience with this mixture has established the range of its usefulness and that its indications and limitations are now well known. Up to the middle of 1936, approximately 700 papers had been published on avertin or avertin with amylene hydrate since the introduction of

¹ Avertin. Preliminary Report of the Council on Pharmacy and Chemistry. J. A. M. A. 95: 1427 (Nov. 8) 1930.

tribromethanol, of these nearly 400 were reviewed by Anschütz, Specht and Tiemann² in a 200 page monograph published in 1930. The present referee collected about 300 references published subsequently. The number of cases in which avertin with amylene hydrate has been used undoubtedly amounts to many hundred thousands (early in 1935 Desmarest claimed this to be 600,000). Only a portion of these cases has been reported in the literature but this fraction alone appears to be more than adequate for an estimate of the usefulness of this preparation, thus, in fifty papers chosen at random from among those published between 1932 and 1935, approximately 20,000 cases were reported. The overwhelming majority of the reports are favorable.

It is obviously not feasible to review in detail all the available literature, this would require a monograph even more extensive than that of Anschütz and his collaborators. Therefore in this report only a brief summary of the more pertinent data in available literature will be presented. References will be given only in a few instances, compilation of a complete bibliography as part of this report is obviously not practicable.

Avertin with amylene hydrate is now the only form of tribromethanol marketed. It is a 100 per cent weight/volume solution of tribromethanol (tribromethyl alcohol) in amylene hydrate (tertiary amyl alcohol), each cubic centimeter contains 1 Gm of tribromethanol and 0.5 Gm of amylene hydrate.

Tribromethanol is relatively unstable, it decomposes slowly on standing and rapidly on heating above 40°C with the liberation of the irritant hydrobromic acid and dibromacetaldehyde. The firm supplies a vial of congo red indicator with each bottle of avertin with amylene hydrate to detect acidity in each dose of the drug as it is prepared by dilution in warm water. However, congo red has a range of pH 3 to 5 and thus, as pointed out by several authors, it is useless in detecting any but a high acidity. Ashworth³ has therefore suggested the employment of a more suitable indicator, capable of detecting early deterioration of avertin. He proposes a mixture of methyl orange, methyl red, naphtholphthalein and phenolphthalein ("universal indicator" of Martindale's "Extra Pharmacopoeia") having a range of pH 4 to 11. In order to meet this objection the firm has revised its directions for use of the congo red indicator requiring that the color of the avertin solution to which the indicator has been added should match that of distilled water plus indicator. This enables the detection of smaller quantities of acid. The A. M. A. Chemical Laboratory is studying this question further.

Serious toxic effects noted in the early clinical use of avertin are now recognized as having been due chiefly to the administration of large doses (150, 175 and even 200 mg of avertin per kilogram of body weight, either as avertin itself or as avertin with amylene hydrate) and to a poor knowledge of the contraindications. It is now recognized that 100 mg per kilogram as avertin with amylene hydrate is ordinarily a maximum dose and with this dose untoward effects appear to be uncommon. However, even the 100 mg dose occasionally produces complete and not basal anesthesia and accompanying circulatory and respiratory depression. A number of anesthetists have obtained excellent results with smaller doses, namely from 60 to 80 mg of avertin per kilogram (30 to 40 mg of amylene hydrate per kilogram) with a consequent further reduction of deleterious effects. The Council believes that a dose of 80 mg per kilogram should be established as the ordinary maximum in perhaps the majority of cases less will be sufficient. With this maximum dosage and with proper attention to the contraindications, avertin with amylene hydrate appears to be quite safe for basal anesthesia. In young vigorous subjects however, from 90 to 100 mg per kilogram may in some cases be employed with safety. The total amount of avertin with amylene hydrate should not exceed from 6 to 8 cc for women or from 9 to 10 cc for men, regardless of weight.

The contraindications (relative or absolute depending on the condition of the patient) include liver or kidney dysfunction, severe cardiac disease, old age, shock or dehydration, sepsis, toxemia, severe pulmonary tuberculosis, emphysema, marked

hypothyroidism, obesity, asthenia, cachexia, ileus, tumors of the colon, enteritis and acidosis.

Sir Francis Shipway,⁴ in presenting his experience with 1,600 administrations of avertin with amylene hydrate, discusses contraindications as follows:

Provided the dose be suitably adjusted the contraindications are exceedingly few. This statement however needs qualification. It should apply only to the anesthetist who has had not only considerable experience in anaesthesia but in avertin anaesthesia. *The practitioner who is called upon to administer anaesthetics on few and irregular occasions or is but a beginner in this arduous and hazardous specialty, will be well advised to leave avertin severely alone [emphasis the referee's].* The chief danger lies in depression of the respiratory centre, the blood pressure is also lowered. It is better therefore if there is any doubt in the mind of the anesthetist to withhold it in the case of advanced pulmonary tuberculosis where the respiratory exchange is poor in acute emphysema or states of drowsiness whether caused by drug or toxæmia. Extreme thyroid deficiency or a condition of very low blood pressure due to shock, haemorrhage, sepsis or cachexia would also speaking generally render the patient unsuitable for avertin in inexperienced hands. Colitis and intestinal obstruction should also be looked upon as contraindications. Cyanosis due to congenital heart disease or chronic valvular disease does not forbid its employment although it does of course prescribe a smaller dose than the average. Deepening of cyanosis after absorption has occurred should be countered by a plentiful supply of oxygen and the maintenance of a free airway. It is true that coramine, ephedrine and carbon dioxide are efficient antidotes to excessive dosage of avertin if given in time and with judgment. Washing out of the rectum on the first sign of overdose such as slow shallow respiration and slow feeble pulse is also a measure not to be despised. I have noticed that on those occasions on which the solution has been returned even as late as half an hour after injection or on which it has been deliberately syphoned off—for example before the performance of a plastic operation on the perineum—there has been a definite diminution in the depth of the narcosis. In one case of extreme overdose (10 times) reported to me, washing out the rectum was effective and the operation was completed without mishap or complication.

Studies on absorption and elimination have been concerned chiefly with the avertin component of avertin with amylene hydrate. When administered in a 3 per cent solution, 50 per cent of the avertin is said to be absorbed from the colon in ten minutes, 75 per cent in twenty minutes, 85 per cent in twenty-five minutes and from 90 to 95 per cent in two hours. Narcosis is said to occur with a concentration of avertin in the blood of from 6 to 10 mg per hundred cubic centimeters and awakening to occur when it falls to 2 or 3 mg per hundred cubic centimeters. Tribromethanol is detoxified by conjugation with glycuronic acid (largely and perhaps entirely in the liver) and the glycuronate is excreted by the kidneys, from 70 to 80 per cent in forty-eight hours, from 90 to 95 per cent in seven days. Amylene hydrate is in part excreted (unchanged?) by the kidneys, in part eliminated in the expired air.

Objection has been made to the use of avertin fluid because of possible danger of the amylene hydrate component in the dosage used. While some authors have claimed that this substance does not partake in the narcotic effect, this is manifestly absurd. It has been claimed that the amylene hydrate tends to slow absorption through its solution affinity for tribromethanol, but the observations on which this claim is based were made with the 100 per cent solution administered to rats. While this delay might occur from the 100 per cent solution, it is quite unlikely to occur from the 2.5 or 3 per cent dilution used clinically. In fact, with this dilution no such delay has been observed in patients. It appears, nevertheless, that the danger of the amylene hydrate component has been much exaggerated. The maximal single hypnotic dose for man is ordinarily stated to be 4 Gm. For a 70 Kg man, a dose of 100 mg of avertin per kilogram (as avertin with amylene hydrate) would represent 70×50 mg of amylene hydrate, or 3.5 Gm. With the smaller doses recommended as the ordinary maximum in this report (80 mg per kilogram) a maximum dose of 2.8 Gm of amylene hydrate would be administered to a 70 Kg man. This may seem excessive when added to a narcotic dose of avertin. However, investigation of the literature reveals relatively few cases of intoxication from amylene hydrate. Kochmann⁵ states (translated) "noteworthy is the small number of fatal poisonings." He cites only one fatality, this followed a dose of from 28 to 29 Gm by rectum. Two other cases are cited repeatedly in the literature, apparently they have become classic. One patient, a 73 year old man, received

² Anschütz W, Specht K and Tiemann F. Die Avertinnarkose in der Chirurgie. Ergebn. Chir. u. Orthopädi. 23: 406-605, 1930. Also published as a monograph by Julius Springer, Berlin.
³ Ashworth H K. Sensitive Test for Purity of Avertin Solution. Brit. M. J. 2: 489 (Sept. 9) 1933.

⁴ Shipway Sir Francis. Avertin. An Analysis of 1,600 Administrations. Brit. J. Anaesth. 12: 150 (July) 1935.
⁵ Kochmann M. Schlafmittel. Gruppe des Amylenhydrats, Urethan und Paralydehyd. Handb. exper. Pharmacol. 1: 426-1923.

18 Gm of amylene hydrate and recovered after a thirty hour period of unconsciousness. The other patient received 27 Gm but recovered after several days. The minimal fatal dose for man is impossible to estimate from data available in the literature, but it must be several times the maximum hypnotic dose. Kochmann gives the minimum lethal dose for rabbit or dog as 15 Gm per kilogram and for the cat as 1 Gm per kilogram. Harnack and Meyer⁶ state the minimum lethal dose to be 2 Gm per kilogram for the dog and from 1 to 15 Gm per kilogram for the rabbit or cat.

Amylene hydrate in doses of from 3 to 5 Gm in man is said to produce little change in the circulation and to cause acceleration and increased depth of respiration. With larger doses, depression of both occurs. Tolerance to amylene hydrate is readily acquired, this may also occur with repeated administrations of avertin with amylene hydrate (Maddox, cited by Shipway).

It appears that amylene hydrate contributes a more prolonged action to the avertin mixture than that possessed by the somewhat more evanescent avertin alone. Amylene hydrate also adds to the side effects, these include a fall in temperature, often of several degrees, and proper care is required to combat it clinically.

With proper dosage of avertin with amylene hydrate and care of the patient, significant depression of circulation and respiration are said not commonly to occur. With larger doses, and occasionally with smaller doses, marked respiratory and/or circulatory depression does take place. Carbon dioxide, ephedrine, caffeine with sodium benzoate, among other drugs, are said to be effective antidotes. Thyroxine, if administered sufficiently in advance to increase the metabolic rate, is claimed to hasten the elimination of avertin but, except with respect to the use of avertin with amylene hydrate in cases of hyperthyroidism, in which large doses appear to be well tolerated, this observation probably has little practical significance.

While large doses of avertin with amylene hydrate administered repeatedly to animals cause moderate but reversible liver damage, in the clinical use of the preparation no functional hepatic deficiency appears to occur, as determined by the brom-sulfalein test.

Acute renal insufficiency appears to be an absolute contraindication to the use of avertin with amylene hydrate, although it has been used with claimed safety in chronic low grade renal insufficiency.

Arnheim and Tuchman⁷ have reported a detailed study on fifteen patients, these included ten males and five females who were admitted to surgery for comparatively minor operations (chiefly inguinal herniorrhaphies) but were otherwise in good health. These patients received 100 mg of avertin per kilogram (as avertin with amylene hydrate), studies were made immediately before administration and one and four hours after administration of the drug. Pulse rate, arterial and venous blood pressure, respiratory rate and amplitude, temperature, basal metabolic rate, blood chemistry, blood histology, blood clotting time and urinary examinations were recorded. Operations were not performed until the studies were completed, little additional anesthesia was found necessary (this is further evidence that the 100 mg dose is excessive, as a relatively strong effect persisted for more than four hours). Following is a summary of the observations: Average increase in pulse rate of 16 per minute and of respiratory rate of 6 per minute, amplitude of respiration was decreased. Average decrease in systolic blood pressure of 24 mm of mercury, average decrease in rectal temperature of 1.3 degrees F (0.7 degree C), average decrease in basal metabolic rate of 22 per cent, average decrease in blood clotting time of three minutes. There were slight early rise in blood sugar, slight fall in blood carbon dioxide, slight rise in blood plasma volume, negligible or no change in venous pressure, blood cholesterol and esters, blood calcium, chlorides and formed blood elements. There were slight oliguria and increase in specific gravity of the urine. Conjunctival and tendon reflexes were lost, but cutaneous and pharyngeal reflexes were retained. Slight cyanosis occurred

in two cases, increase in secretion of mucus was noted in five and slight vomiting in three cases. No residual untoward effects were detected.

The foregoing study agrees in general with more extensive experimental and clinical reports in the literature, notably by Bourne and his associates, Sebening, Desmarest, Anschutz, Lendel, Barlow, Goldschmidt, Field and Pilcher and many others.

Bourne has observed a moderate acidosis after avertin with amylene hydrate associated with an increased excretion of phosphates. He therefore administers an alkaline phosphate mixture by rectum as a routine following each operation in which this drug is used.

Avertin with amylene hydrate has been found by a number of authors (Berman, Boyce and McFetridge, Cole, Fawcett, Harrison and Higgins, Mitchell, Simons and others) to be of value as an adjunct to the use of tetanus antitoxin in the treatment of tetanus, repeated doses are administered, sufficient to interrupt the convulsive seizure and to keep the patient quiet over a period of several days if necessary.

The necessity for special nursing care of patients who receive avertin with amylene hydrate has been mentioned in many reports. This is emphasized by a number of authors and has been well stated by Field and Pilcher.⁸

The longer duration of unconsciousness and irregular as well as increased restlessness after avertin meant that it was necessary to give avertin patients special postoperative care for a much longer period than with other anesthetics. The patient was undoubtedly much more comfortable—especially since the events of the first few hours after operation were usually entirely forgotten—but the nursing problem of the hospital was greatly increased. The patients appeared just as irresponsible during the prolonged drowsy, restless period of awakening from avertin as during the shorter excitement stage following ether. Several patients who had had avertin anesthesia complained a few hours after operation of a severe headache lasting twenty-four to seventy-two hours. This headache in many instances seemed much more distressing and persistent than the usual type of postoperative headaches.

Field and Pilcher report one case of bromide rash following the administration of avertin with amylene hydrate.

While avertin with amylene hydrate appears to be useful in practically all fields of surgery (provided dosage limitations and contraindications are rigidly observed) there is considerable disagreement as to its value in obstetrics, in which it is used for analgesia in dosage below that usually necessary for basal anesthesia. It is said by some to delay labor, to make the patient unmanageable and often to depress the fetus. Others who have developed a special technique for its use claim good results. Dodek⁹ found that in the dosage commonly employed in obstetrics (60 mg per kilogram) avertin with amylene hydrate prolongs intervals between contractions, that analgesia does not last long enough to warrant the special care these patients require, and that many patients become unmanageable when the effect begins to wear off.

The question of the number of fatalities from avertin with amylene hydrate is a difficult one to estimate with any degree of accuracy because, as has been pointed out repeatedly, the majority of fatalities are not reported and in those that are the role played by the avertin preparation in the ensuing death is often impossible to determine. Recent reports of several series of cases ranging in size from about 400 to more than 3,000 each indicate that the estimate of one death in 10,000 cited by the Council's referee from the German literature in 1932 is probably accurate. This, however, like all such figures, is impossible either to confirm or to refute for the reasons stated.

The deaths due to avertin or to avertin with amylene hydrate that have been reported belong almost without exception in one or more of the following categories: (1) patients in whom crystalline avertin alone or avertin with amylene hydrate was used in excessive doses, (2) patients who would now be recognized as having definite contraindications to avertin with amylene hydrate, (3) patients who received previous medication with morphine (with or without atropine or scopolamine) followed by a large dose of avertin with amylene hydrate, (4)

⁶ Harnack, Erich and Meyer, Hermann. Das Amylenhydrat. Eine pharmakologische Studie. *Ztschr f. klin. Med.* 24: 374, 1894.
⁷ Arnheim, E. E. and Tuchman, L. R. Avertin (Tri-bromethanol) Anesthesia in Normal Persons. *Arch. Surg.* 29: 1 (July) 1934.

⁸ Field, W. H. and Pilcher, L. S. Jr. Avertin Anesthesia. A Study of 431 Cases Compared with 431 Similar Cases Operated on Under Other Types of Anesthesia at the Brooklyn Hospital. *Ann. Surg.* 97: 577 (April) 1933.
⁹ Dodek, Samuel. New Method for Graphically Recording Contractions of Parturient Human Uterus. Study of Effect of Certain Sedatives, Anesthetics and Stimulants upon Uterus in Labor. *Surg. Gynec. & Obst.* 55: 45 (July) 1932.

patients who failed to receive adequate postoperative nursing care (maintenance of open airway, and so on)

Shipway⁴ warns that the preliminary use of morphine or other drugs which depress the respiratory center may carry a considerable hazard

'morphine although exceedingly useful in the right place should not be given without the most careful consideration of all the circumstances of the case

Shipway used morphine in about one third of his 1600 cases (in which there was no death due to avertin with amylene hydrate). Others use it more frequently. Mueller,¹⁰ in reporting a series of 3,338 cases (without a death which the author considers may be attributed to avertin with amylene hydrate) states

Usually a hypodermic of morphine gr one sixth or one fourth with atropine or scopolamine is given forty five minutes before operation

It is significant that this author reports, "The chief complication which we have had to combat was respiratory depression." She believes that in most cases this was due to failure to maintain an open airway rather than to depression of the respiratory center, but it is obvious from the subsequent discussion that stimulants were required in many cases

Bovd¹¹ reported 700 cases in which avertin with amylene hydrate was used as a complete anesthetic in children in doses of 175 and even 200 mg per kilogram (children are known to tolerate relatively high doses of this mixture). He administered preliminary morphine from $\frac{1}{40}$ to $\frac{1}{20}$ grain and atropine from $\frac{1}{80}$ to $\frac{1}{150}$ grain, depending on age. Eighteen of these patients required coramine to combat respiratory or circulatory depression. Only two deaths from any cause occurred in this series of 700, one from brain abscess, the other from intestinal obstruction due to tumor. Despite the fact that this author had no fatal accidents directly caused by the anesthetic, apparently because of careful vigilance of the anesthetist and the nursing staff, the Council believes that avertin with amylene hydrate should not be used as a complete anesthetic even in children, owing to the hazards involved in the use of a nonhalothal anesthetic in this way

Bourne and O'Shaughnessy,¹² in reporting 1,000 "avertin anesthetics" (without a death attributed to avertin with amylene hydrate), do not even mention the use of morphine, whether because they do not use it or because they take its use for granted is not clear

The Winthrop Chemical Company has agreed to market avertin with amylene hydrate for *basal anesthesia only* in accordance with the conditions of the foregoing report. The Council has, therefore, accepted avertin with amylene hydrate for inclusion in New and Nonofficial Remedies. The description appears in the New and Nonofficial Remedy column of this issue

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLE HAS BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION

PAUL NICHOLAS LEECH, Secretary

AVERTIN WITH AMYLENE HYDRATE—Tribromethanol in amylene hydrate—A solution of tribromethanol (tribrom ethyl-alcohol, $\text{CBr}_3\text{CH}_2\text{OH}$) in tertiary amyl alcohol $[(\text{CH}_3)_2\text{C}(\text{OH})\text{C}_2\text{H}_5]$. Tribromethanol contains 84.78 per cent bromine. Each cubic centimeter of avertin with amylene hydrate contains 1 Gm tribromethanol and 0.5 Gm amylene hydrate

Actions and Uses—Avertin with amylene hydrate is used for basal anesthesia by rectal administration. It should not be employed in dosage sufficient to cause complete anesthesia. When employed for basal narcosis the amount of inhalation anesthetic necessary to establish and maintain complete anesthesia is diminished. A prolonged period of sleep usually follows termination of inhalation anesthesia, during this after-

period careful nursing care and continuous vigilance are necessary to maintain an open airway and to prevent the cyanosis and respiratory failure which sometimes follow. Ephedrine, carbon dioxide and caffeine with sodium benzoate are said to be effective antidotes against respiratory and circulatory depression occurring from avertin with amylene hydrate

Contraindications to the use of avertin with amylene hydrate (relative or absolute depending on the condition of the patient) include liver or kidney dysfunction, severe cardiac disease, old age, shock or dehydration, sepsis, toxemia, severe pulmonary tuberculosis, empyema, marked hypothyroidism, obesity, asthenia, cachexia, ileus, tumors of the colon, enteritis and acidosis

Avertin with amylene hydrate is said to be useful in the control of certain convulsive conditions such as tetanus. In the latter condition it is used in repeated doses in conjunction with administration of tetanus antitoxin to control the seizures over a period of several days if necessary

Cautions—Avertin with amylene hydrate should never be employed by those inexperienced in its use except under expert supervision

Dosage—Avertin with amylene hydrate is administered rectally in 2.5 per cent solution in warm distilled water at a temperature not exceeding 40°C. A small quantity of the solution should be tested with the congo red indicator supplied with the preparation just before administration, the color of the solution should match that of an equal amount of distilled water containing an equal quantity of the congo red indicator. If the colors do not match, this indicates the presence of irritant hydrobromic acid and di-bromacetaldehyde, and the solution should be discarded

The ordinary maximum dose for basal anesthesia is 80 mg of avertin (40 mg of amylene hydrate) per kilogram of body weight. Often less will be sufficient. In young, vigorous persons the dose may sometimes be increased to 90 or 100 mg of avertin (from 45 to 50 mg of amylene hydrate). The dose is usually stated in milligrams of the avertin component only. As the amylene hydrate adds materially to the narcotic effect it should be kept in mind that, with each dose of avertin, half this dose by weight of amylene hydrate is administered

The total amount administered should not exceed from 6 to 8 cc of avertin with amylene hydrate for women, or from 9 to 10 cc for men, regardless of weight. Dosage tables are supplied by the firm

Manufactured by Winthrop Chemical Company, Inc., New York. U. S. patents 1,572,742 (Feb. 9, 1926, expires 1943), 1,725,034 (Aug. 20, 1929, expires 1946), 1,882,984 (Oct. 18, 1932, expires 1949). U. S. trademark (Avertin) 233,204

Tribromethanol is a white crystalline powder with a slight aromatic odor and taste, unstable in the air, sparingly soluble in water, about 1 in 35, readily soluble in purified petroleum benzine. Its aqueous solution is neutral to litmus. The solution is unstable. Tribromethanol melts at from 79 to 82°C.

Dissolve about 0.2 Gm of tribromethanol in 10 cc of water, add 1 cc of sodium hydroxide solution, warm slightly, add 2 cc of nitric acid and 1 cc of silver nitrate solution; a yellow precipitate results, soluble in an excess of stronger ammonia water

Dissolve about 0.1 Gm of tribromethanol in 5 cc of water at from 35 to 40°C, cool, add 1 cc of a 10 per cent phenylhydrazine acetate solution; no precipitate should form even after thirty minutes (di-bromacetaldehyde)

Dissolve about 0.1 Gm of tribromethanol in 1 cc of sulfuric acid; the solution is colorless (readily carbonizable substances). Dissolve about 0.5 Gm of avertin in 50 cc of water; separate portions of 10 cc each of the filtrate yield no opalescence with 1 cc of diluted nitric acid and 1 cc of silver nitrate solution (uncombined halides); no turbidity with 1 cc of diluted nitric acid and 1 cc of barium nitrate solution (sulfates); no coloration or precipitation on saturation with hydrogen sulfide (salts of heavy metals)

Incinerate about 0.5 Gm of tribromethanol accurately weighed; the residue does not exceed 0.05 per cent. Dry about 1 Gm of tribromethanol accurately weighed to constant weight over sulfuric acid; the loss in weight should not exceed 1 per cent. Transfer about 0.15 Gm of tribromethanol to a bomb tube, determine the bromine content according to the Carius method; collect the precipitate of silver bromide in a Gooch crucible; the amount of bromine found should not be less than 84 per cent nor more than 85.5 per cent

AMYLENE HYDRATE—Dimethylethylcarbinol— $(\text{CH}_3)_2\text{C}_2\text{H}_5\text{C}_2\text{H}_4\text{OH}$ —Occurs as a clear, colorless, volatile liquid possessing a penetrating odor resembling a mixture of camphor and peppermint and having a pungent taste. It is soluble in alcohol, chloroform, ether, glycerin and water (about 1 in 8). The specific gravity of amylene hydrate at 25°C is from 0.803 to 0.807; it boils at from 97 to 103°C.

Amylene hydrate forms acicular hygroscopic crystals on cooling to low temperature. It is oxidized into acetic acid and acetone with chromic acid

Dissolve 1 cc of amylene hydrate in 20 cc of water and divide into two portions of 10 cc each; to one portion add 1 cc of an ammoniacal solution of silver nitrate and heat on a water bath; no reduction takes place in ten minutes (absence of aldehyde); to the other portion add 0.1 cc of tenth normal potassium permanganate solution; no complete decolorization within ten minutes (limit of amyl alcohol). Shake 8 cc of amylene hydrate with 0.6 Gm of anhydrous copper sulfate; the latter does not become blue (absence of water)

Evaporate 20 cc of amylene hydrate in a platinum dish on a water bath to about 2 cc and allow to evaporate spontaneously to dryness; the residue if any is colorless. Now dry at 100°C and weigh the weight of the residue does not exceed 0.05 Gm

10 Mueller, Lillian B. Report of Three Thousand Cases of Avertin Anesthetics. J. Indiana M. A. 29: 175 (April) 1936

11 Bovd, John. Avertin as Complete Anesthetic in Children. Survey of Seven Hundred Cases. Brit. M. J. 1: 1120 (June 1) 1935

12 Bourne, Wesley, and O'Shaughnessy, P. E. One Thousand Avertin Anesthetics. Canad. M. A. J. 31: 276 (Sept.) 1934

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SATURDAY, SEPTEMBER 18, 1937

THE TOXICOLOGY OF NEW INDUSTRIAL COMPOUNDS

The introduction into industry of many new synthetic chemical compounds has created innumerable diagnostic and other clinical problems for the medical profession. McConnell¹ has indicated the nature of this development. The House of Delegates at the Atlantic City session, this year, authorized the establishment of a Council on Industrial Hygiene. Laboratories for the investigation of the toxicologic and pharmacologic properties of such compounds are now being developed in many industries.

In spite of this increasing recognition, medicine is frequently put in the position of attempting to lock the door after the horse has been stolen. Many industrial compounds have received wide use and caused considerable damage before their destructive properties have received sufficient investigation. An example is manifest from the study made by Lehman and Newman² of the Stanford University School of Medicine on propylene glycol, which has had wide use as a solvent for technical purposes. They determined the toxicity, hemolytic action, fate of the compound in the blood and in urine, absorption, content in the blood, excretion and diuretic effect. They found that propylene glycol, which incidentally may be considered as a prototype of many of the glycols now commercially available, has an acute toxicity less than half that of ethyl alcohol, that hemoglobinuria does not occur after ingestion of large doses, that the compound is rapidly absorbed from the gastro-intestinal tract, that rapid distribution after absorption occurs throughout the tissue, that combustion in the body proceeds at a constant rate, irrespective of dosage, and that the narcotic action is about one-third that of ethyl alcohol.

While this study is useful because of the applicability of its specific results, it serves also as an example of the type of study that should be followed prior to

¹ McConnell W J. Volatile Solvents as a Problem in Industrial Medicine. *J A M A* 109:762 (Sept 4) 1937.

² Lehman A J and Newman H W. Propylene Glycol. Rate of Metabolism Absorption and Excretion with a Method for Estimation in Body Fluids. *J Pharmacol & Exper Therap* 60:312 (July) 1937.

the introduction into industry, and particularly into medicine, of new synthetic chemicals. It is an established procedure of industrial chemical laboratories to determine the chemical and physical and technical properties of new products over a wide range. Should determination of the effects on the human organism be regarded as of less importance? What is needed is that technical chemistry shall be supplemented by pharmacology in its broadest sense in the introduction of these compounds. These studies should be carried out as part of a systematic investigation rather than left to chance.

Both McConnell's discussion and the investigations of Lehman and Newman indicate the importance of a definite policy with regard to new industrial synthetics. Indeed, much can be said for the view that such studies should be made mandatory before the introduction into industry of new chemicals.

THE CITADEL

Dr A J Cronin, author of a new medical novel, "The Citadel," after graduating in medicine practiced in South Wales in a coal mining area. He contributed several items to medical research, including one article entitled "Dust Inhalation by Hematite Miners" and another on "First Aid in Coal Mines." The list of British doctors who write for a living is long, and many of them, such as Francis Brett Young, Somerset Maugham, R Austin Freeman, L A G Strong and others of lesser rank, are quite successful. In the United States we have had a few successful physician-fictionists. The great medical novels have not been written by doctors but by those outside the profession. True, Oliver Wendell Holmes, S Weir Mitchell and many others reflected the work of the doctor in their writings, but not one of their medical novels attained a stature comparable to their work in other fields. Perhaps the doctor is too close to his own work to do a really first-class novel about it. Among American contributions "Arrowsmith," by Sinclair Lewis and Paul DeKruif, reflected some of the difficulties that concern the worker in the field of medical research. Yet that novel was largely a reflection of the personal disturbances in the life of DeKruif and hence can hardly be considered representative.

"The Citadel,"¹ published several months ago in Great Britain and just now released in the United States, purports to reflect the life of a young physician named Andrew Manson, whose life seems to follow rather closely that of A J Cronin. Out of college without a penny, he accepts a job in contract practice. Disappointed with what he can do there he next becomes associated with a surgeon in a nearby town, where he finds that he has to pay a percentage of his salary regularly to his chief. Next he is involved in research in London, where bureaucratic stupidity keeps

¹ Cronin A J. The Citadel. Boston: Little Brown & Co., 1937.

him from the advancement that he seeks. He then purchases a dying practice and gets into Harley Street, where he finds that fee splitting prevails and commercialism seems to be the rule. The story and the formulas are, of course, familiar to American physicians. They have heard these abuses condemned so often by the profession itself that it is no new thing to see them condemned in fiction or in essay. In the United States, as in Great Britain, these abuses constitute but a small part of the medical scene. The Literary Supplement of the London *Times* succinctly evaluated the case in its review:

As a novel Dr Cronin's book may be reckoned his best piece of work. As propaganda it is lopsided. Any one familiar with the medical profession or with social work has met Dr Cronin's characters here and there. True he has given us the picture of honest doctors in great and humble positions but not enough of them. All over the country today are county and municipal officers who care less for fees than for healing in general practice are insignificant men and women living devoted, anxious lives with only fourteen days a year away from the clamorous telephone by day and night. In Harley Street are men who might stand beside Lister without shame. Above all, in the research departments of many a hospital are heroes and martyrs. These should have been made an offset to Dr Cronin's selected types.

In England the publishers tried to boost the sales of the Cronin book not on its qualities as a novel but by calling attention to its controversial aspects. It was hoped to start an investigation in parliament. Endeavors were made to incite the British Medical Association to resolutions and perhaps a boycott. Doctors bought the book because doctors like to read about themselves, as do other people.

Taking an idea from the plan of the British publishers, the American publishers are attempting a similar procedure to help them with the sales of the Cronin book in this country. They are circulating a photostatic copy of a letter written to them by Hugh Cabot on the stationery of the Mayo Clinic. Dr Cabot concludes his letter with the following paragraph:

I shrewdly suspect that this difficulty is considerably more serious in this country than in England. It is certainly one of the problems which is rapidly forcing us to face the question of whether or not medicine can continue to be practiced under this system. He makes allusions to the practice of fee-splitting, which I confidently believe is very much less common in England than it is here. The various types of contract and semi contract practice which he experienced are to be had here and are relatively similar.

"The Citadel" makes interesting reading, but it is not a fair picture of medicine in either Great Britain or the United States. Medicine has its scoundrels, its commercially minded practitioners, its inefficient and incompetent members. Is there any phase of human activity that does not have them? But medicine is proud of the fact that it cleans its own house and that it does its utmost to control these abuses without pressure from the outside. Its idealists are particularly proud of the fact that, unlike the cuckoo, they do not soil their own nests. What have the Cronins and the Cabots to gain by overemphasizing the small percentage of evil that every one knows about? Both Cronin and

Cabot know better than to believe much of what they say. As a social document in Great Britain, "The Citadel" seems to have failed of its purpose. Quite certainly it will make even less of an impression in this country. To the American doctors who read it, "The Citadel" will reveal the evils of panel practice and the obvious failure of the British system of medical service to give the British worker anything approximating the quality of medical care available to American workers.

PANIC, PUBLICITY AND POLIO

In the Middle Ages, when plague swept across any community, the inhabitants fled to the neighboring hills in panic. They did not know the cause of the disease and they had no specific method of prevention. They did know that, when plague came, people died. In a book by Frederick Prokosch entitled "The Seven Who Fled" there is an accurate picture of a Chinese city confronted with cholera. Among the Chinese an attitude of apathy apparently develops associated with the certainty that some people must inevitably die when the devastating epidemic strikes. In civilized communities, people should no longer be stricken with panic in the presence of disease. Much has been learned concerning the causes, methods of prevention, diagnosis and treatment of many of the infectious diseases. Patients are isolated. Modern methods of prevention are used to immunize those who are exposed. Known contacts are kept under control and in most instances after a reasonable time the disease disappears from the community or returns to what is called its normal incidence.

Toward poliomyelitis in the United States a somewhat abnormal point of view seems to have developed. The total incidence of that disease in any one year in the entire country is certainly less than 10 per cent of the number of cases of any one of the other common infectious diseases. Yet because poliomyelitis is a visibly crippling disease, panic appears in the minds of the public, which is frequently reflected in the statements and actions of public officials. Yet if ever rationality was needed it is demanded in the approach to this problem. One wonders, for example, whether the number of disabled as far as their hearts, kidneys and ears are concerned is any less from scarlet fever than the number of cripples of the arms and legs affected by poliomyelitis. Yet people everywhere are far more afraid of poliomyelitis—not knowing that the permanent "heart cripple" constitutes a much more serious problem. It is possible to splint, to reeducate and to rehabilitate a paralyzed limb. We have not yet found any method of splinting or reeducating a damaged heart, and the rehabilitation of the "heart cripple" is indeed difficult.

Men fear most what they do not understand. Let physicians and health officers alike admit that there is much that is not known concerning poliomyelitis.

We have not yet determined the exact cause of this disease. We know something concerning possible methods of transmission but we do not know with certainty exactly how it is transmitted to most human beings. We seem to know that considerable numbers of people have a natural resistance to the disease so that they would probably not become infected even if exposed.

Before the people of the country at this time, preventive medicine presents a lamentable aspect. Many health officers, following the lead of Chicago, are delaying the opening of schools. It is not clear whether this creates or allays panic. Some health officers are publishing day by day lists of cases actually diagnosed—with large lists of those suspected of having poliomyelitis. This enhances the panic. In other communities health officers have announced that they will not delay opening the schools or close the schools, since this seems to be contrary to fairly well established public health practice. In 1932 the health officers of Boston, San Francisco, Philadelphia, Los Angeles, Cincinnati and Chicago declared themselves opposed to delaying the opening of schools and to closing of schools to prevent epidemics of infantile paralysis. Similar views were expressed by Sir George Newman, Minister of Health in Great Britain, and by the Medical Director in the Department of Social Affairs of Oslo, Norway. Certainly there has been no new information or evidence since 1932 to warrant a change of opinion. There has only been new emphasis on poliomyelitis and perhaps too much publicity. Without the overemphasis in the press the vast majority of people would not have been concerned by the few hundreds of cases among many millions of people. The time would seem to be ripe for some organization in the public health field, either the Conference of State and Provincial Health Officers or the American Public Health Association, to endeavor to draw up some sort of regulations in relationship to this disease. Otherwise the ignorance of health officials and physicians will be made the excuse for erratic performances resulting from panic.

Current Comment

THE ZINC SULFATE SPRAY FOR THE PREVENTION OF POLIOMYELITIS

The successful use of a zinc sulfate spray in the prevention of experimental poliomyelitis in monkeys by Armstrong, Sabin, Schultz and their co-workers has stimulated much interest in its effectiveness as a preventive of the disease in human beings. Schultz demonstrated at Stanford University that in the experimental infection a solution containing 1 per cent of zinc sulfate, 1 per cent of pontocaine and 0.5 per cent of sodium chloride in distilled water is most effective in the monkey. The use of this technic in the human being has been too variable and uncontrolled to permit even an approximate estimate of its value. Dr J. C. Geiger, the director of public health of San Francisco, and his distinguished committee have recommended

that the use of this spray must be strictly limited until the proper technic has been worked out. There are possible side actions of the local anesthetic. Any physician applying the spray should be cognizant of possible symptoms of poisoning. The hazard of using a long tipped atomizer in the vicinity of the cribriform plate is also important. Attempts at home medication are absolutely valueless. The San Francisco report also states that no change in the constituents of the solution should be made without an investigation of the experimental result on monkeys. Treatments at present should be conducted in adequately supervised centers. Of special importance is the keeping of records of all treatments and the follow up of patients receiving the treatment. Only thus may adequate information on the preventive action be determined. In view, moreover, of the tendency of infantile paralysis to become rapidly less prevalent about the end of September and early October, the futility of starting such procedures at this time is readily apparent. If the evidence obtained this year is in any way encouraging, plans for determining the effectiveness of the attempted preventive might be worked out so that something resembling a serious scientific experiment may be tried next June, July and August.

MOTION PICTURE EDUCATION

Already many reservations¹ have been made for the motion picture film on syphilis, prepared jointly by the American Medical Association and the United States Public Health Service. It has become necessary to deny some requests although now several extra copies of the film are available. County medical societies, hospital conferences, medical schools and other assemblages of physicians have begun to take advantage of modern methods of visual education. The talking motion picture on syphilis was planned primarily for this purpose. Attention should be called also to the talking motion pictures, silent motion pictures and slide lectures now being offered by various medical industries. These are lent to medical societies without charge. At the Atlantic City session of the American Medical Association a talking picture film, developed by the American Committee on Maternal Welfare, was shown to the Section on Obstetrics, Gynecology and Abdom-

¹ Organizations desiring to avail themselves of this film either by purchase or by loan may communicate with Dr. Thomas G. Hull, director of the Bureau of Exhibits of the American Medical Association, 535 North Dearborn Street, Chicago.

The following reservations for the motion picture film on syphilis have been made:

September 9—The Hidalgo County Medical Society, County City Hospital, Edinburg, Texas.
September 21—Clinical Congress of the Connecticut State Medical Society, Dr. Maurice J. Strauss, 41 Trumbull Street, New Haven, Conn.
September 29—Staff Meeting, Veterans Administration, Hines, Ill. Dr. W. E. Kendall, chief medical officer.
October 6—Eighty-seventh annual session of Medical Society of the State of Pennsylvania, Philadelphia. Dr. Walter F. Donaldson, secretary, 8104 Jenkins Arcade, Pittsburgh.
October 8—Meeting of the Fifth District, Cleveland. Dr. C. L. Cummer, 1010 Hanna Building.
October 14—Medico-Military Inactive Duty Training Unit, Mayo Clinic, Rochester, Minn. Dr. F. L. Smith.
October 14—Annual meeting of Vermont State Medical Society, Dr. A. B. Soule, Jr., secretary, Mary Fletcher Hospital, Burlington, Vt.
October 16, 23 and 30—Dr. E. T. Sellers, chairman, Committee on General Disease Control, Jacksonville, Fla. If duplicate is available.
November 4—Evanston Branch meeting of the Chicago Medical Society, Dr. Harold C. Lueth, 636 Church Street, Evanston.
November 5—For monthly meeting of the local medical society, Dr. R. D. Millard, 378 Young Hotel Building, Honolulu, Hawaii.
December 29—Saranac Lake Medical Society, Dr. Edwin M. James, president, 6 Church Street, Saranac Lake, N. Y.
January 20—Dr. S. S. DeVaux, United Pa.

mal Surgery This film was made with the aid of Mead Johnson & Company and is planned to educate the public in the importance of antepartum care and in the importance of suitable feeding of the child. The film presents scientific material and is not in any sense of the word an advertisement. In its development Dr. Fred L. Adair, professor of obstetrics and gynecology at the University of Chicago, Dr. James R. McCord, professor of obstetrics and gynecology at Emory University, Dr. Everett D. Plass, professor of obstetrics and gynecology at the University of Iowa, Dr. Arthur J. Skeel, specialist in obstetrics and gynecology of Cleveland, and Dr. Philip F. Williams, professor of obstetrics and gynecology at the University of Pennsylvania, participated. It has been suggested that the film be shown not only to the expectant mother but also, in fact, to boys and girls of high school and college age. Certainly it will be well for physicians to view this film so as to be in a position to advise their patients concerning it. The development of the motion picture and of the talking motion picture for the advancement of medical education has been a gradual process in which many individual physicians have done pioneer work. Apparently their efforts are now bearing fruit. The time may well come when county medical society meetings will regularly include postgraduate instruction by leaders in the profession from all over the world whose knowledge, practice and experience are now made everywhere available directly in this form.

PUBLIC HEALTH FEATURES OF RHEUMATIC HEART DISEASE

Rheumatic heart disease, according to Hedley,¹ should not be considered a complication of rheumatic fever but its chief manifestation. Although this disease is not included in the synopsis on the control of communicable diseases prepared by a committee of the American Public Health Association, it offers several features which justify its examination in the same light as diseases which are included in that synopsis. In following the method adopted by the American Public Health Association, Hedley discusses the definition of rheumatic fever, its recognition, the probable source of infection, the probable mode of transmission, and susceptibility and immunity. The greatest frequency of rheumatic fever occurs from 7 to 10 years of age, with the peak incidence of initial cases occurring at about 7 years. Furthermore, an attack of rheumatic fever results in increased susceptibility to further attacks. The disease is found only in human beings and has not been experimentally transmitted. It is most frequent in cooler regions of the temperate zone. It is slightly more common in females and in white persons than in Negroes. The disease is found more in urban than in rural populations and more frequently among the poor than among the well to do. Malnutrition and poor living conditions seem to predispose to rheumatic infections. Rheumatic heart disease accounts for from 15 to 40 per cent of clinical heart disease in the United States. The exact proportion depends on the locality. In spite of the fact that the prevention of a disease is

usually dependent on adequate knowledge concerning its etiologic agent, mode of transmission and a reliable objective clinical serologic or roentgenologic basis for diagnosis, some preliminary tentative methods of control may be considered. Early recognition of the disease is of primary importance. Isolation of individuals in active stages is desirable. Because of the chronicity of the disease strict concurrent disinfection is almost impossible, but reasonable care should be exercised. No satisfactory methods of terminal disinfection, quarantine or immunization are at present available. The most important general public health measure in combating the disease urged by Hedley is the more thorough examination of school children for evidences of rheumatic heart disease. He emphasizes particularly that all pupils should be stripped to the waist for school physical examinations. This unusual method of approach to the rheumatic heart disease problem demonstrates that wide gaps in knowledge still exist. The mode of approach to the problem, however, should serve to help fill the gaps and to apply more effectively, from a public health point of view, the knowledge that does exist.

PNEUMOTHORAX FROM EXPERIMENTAL OVERINFLATION OF LUNG

Macklin² introduced a catheter in the right lower lobe of a cat's lung and insufflated osmic acid vapor in air for the purpose of fixing living lung substance. The insufflated air was supplied from the compressed air mains of the building. The animal died during the experiment as the result of a double pneumothorax with massive collapse of the lung, and the necropsy suggested the presence of air paths through the pulmonic interstitial tissue. The experiment was repeated a number of times. It was learned that the pneumothorax was related to overinflation of a limited part of the lung and that the osmic acid had nothing to do with it. Microscopic examination of the lung showed the presence of a fibrinous exudate, sometimes containing blood cells, which gathered in the alveoli, also a thickening of the finer perivascular sheaths, which became infiltrated with fluid, probably from the capillaries. The effect of the experiment on the animal depended on the air pressure used and the duration of the insufflation. When the air pressure was high, a swelling of the abdomen and chest quickly appeared and the respiratory movements ceased. When the insufflation was kept up vigorously enough the root of the neck swelled and later the valla, as the air extended through the connective tissue out of the superior mediastinum along the course of the great blood vessels. It seems likely, Macklin says, that finely subdivided air breaks through from the alveoli that abut on the perivascular tissue, which has become weakened through the imbibition of fluid. The bases of these alveoli collectively form a tunnel in which the blood vessels lie, and when that portion of the lung is hyperinflated this tunnel enlarges or expands like the inner circle of an expanding doughnut-shaped rubber balloon, that is, the hole becomes larger when the doughnut is blown up to a larger size. In this case

¹ Hedley, O. F. Silent Public Health Features of Rheumatic Heart Disease. *Pub. Health Rep.* 52: 164 (Feb. 5) 1937.

² Macklin, C. C. Pneumothorax with Massive Collapse from Experimental Local Overinflation of the Lung Substance. *Canad. M. A. J.* 36: 414 (April) 1937.

the rubber of the inner boundary is actually being stretched, likewise the membrane of the alveolar bases that bound the perivascular spaces during hyperinflation. Under normal conditions there is insufficient air pressure to produce these results. It is assumed, though not entirely proved, that the insufflated air breaks through at points in the periphery of the perivascular sheath system of the inflated part of the lung. The minute globules of air coalesce into larger ones, which move toward the hilus along lines of least resistance. The stream of air dissects its way to the root of the lung, where it occupies the sheaths of the great pulmonary vessels and then invades the mediastinum, which it distends and may even rupture, discharging the air into the pleural cavity to produce pneumothorax and massive collapse of the lung. The possibility was carefully considered that air might be leaking directly out of the inflated lobe through the pleura and thus cause a pneumothorax, in several typical cases, however, there was no evidence that the air was going directly through the pleura. The clinical application of these interesting experiments is not as yet clear. It is sufficient now to ask whether massive collapse with spontaneous pneumothorax may not arise in a human lung in which a main bronchus has been plugged with mucus and in which air may still enter during inspiration but in which the plug prevents its return during expiration. Pressure thus would arise in the blocked portion of the lung, owing to the accumulation of air. The alveolar bases abutting on the blood vessels might then become pervious to air and allow it to escape into the perivascular sheaths, from which it would go on into the mediastinum and possibly rupture into the pleural cavity. Such a mechanism would not involve a cough. LeWald² believes that in such cases there is a third type of massive collapse, which is due neither to atelectasis nor to rupture of the pleura.

THE DANGER OF EATING RHUBARB LEAVES

Because rhubarb sauce and rhubarb pie are frequent articles in the American diet, the use of the leaf blades for greens has frequently been suggested. J. H. Beattie¹ states that numerous cases of more or less serious illness and some fatalities have been reported in Europe and North America from the use of rhubarb leaves. The rhubarb leaf blades were eaten boiled in the belief that they were substitutes for the common greens. A fatal case of poisoning following the ingestion of rhubarb leaves was reported in *THE JOURNAL*, Aug. 23, 1919, page 627, while additional correspondence appeared in the issues of Sept. 20 and Oct. 11, 1919. Beattie states that "owing to the high content of oxalic acid and its soluble salts found in rhubarb leaves it is recommended that they be left entirely alone and not used under any circumstances as food. In the stalks, however, the oxalic acid is present in smaller amount and largely in insoluble form, and for this reason is harmless."

² LeWald, L. T. in discussion of Potter, R. P. Conditions Which Result in Collapse of the Lung. *Radiology*, 17: 271 (Aug.) 1931.
¹ Beattie, J. H. Rhubarb. Production Leaflet 1.6. Bureau Plant Industry, Division of Fruit and Vegetable Crops, U. S. Department of Agriculture.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ALABAMA

New Division of Industrial Hygiene—The Alabama State Department of Health has created a division of industrial hygiene with headquarters in Montgomery, and with Dr. William F. Queen, a graduate of Harvard University Medical School, in charge.

ARIZONA

Tuberculosis Mortality in 1936—A total of 1,101 deaths from tuberculosis in Arizona in 1936 gave a mortality rate of 264.9 per hundred thousand of population, the highest registered rate in the state in the past three years, according to *Public Health News*. The greatest number of deaths from this cause in the last decade occurred in 1929 when there were 1,471 deaths, giving a rate, based on estimated population at that time, of 345.8 per hundred thousand of population. At present tuberculosis is the leading cause of death in the state, comprising 17 per cent of the total mortality. Of the 1,101 deaths in 1936 there were 778 men and 323 women, an excess of 455. The disease accounted for the deaths of 678 white persons, 209 Mexicans, 163 Indians and fifty-one of other races. The largest number of deaths occurred in the age group 35-44. According to geographic distribution of these deaths it is startling to note that 39 per cent of those persons dying from tuberculosis actually contracted the disease in Arizona, the report states. Of the remaining 61 per cent, 17 per cent contracted the disease in places unknown or unstated on the death certificate. The length of residence in the state for persons who died of tuberculosis in 1936 is as follows:

Length of Residence	Number	Per Cent
One month	35	3
1-3 months	87	8
4-6 months	60	5
7-12 months	98	9
1-4 years	194	18
5-9 years	122	11
10 years and over	447	41
Unknown	58	5

ARKANSAS

Changes in Health Departments—Dr. Floyd S. Dozier, Clarendon, has been appointed health officer of the newly organized health unit in Polk County, with headquarters in Mena. He was succeeded by Dr. Albert S. J. Clarke, Little Rock, in a district unit composed of Arkansas, Prairie and Monroe counties, with headquarters in Clarendon. Dr. Winston C. Riggins, Little Rock, was named to the district composed of Ashley, Chicot and Desha counties, with headquarters at Hamburg. Other new appointments include the following:

Dr. Julius B. Askew, Little Rock, Independence County, with headquarters at Batesville.

Dr. Max F. McAllister, Fayetteville, Miller County, with headquarters at Texarkana.

Dr. Leroy L. Fatherree, Little Rock, Craighead and Poinsett district, with headquarters at Jonesboro.

According to the report, Independence, Craighead, Poinsett, Miller and Polk counties have been newly organized on a permanent basis.

CALIFORNIA

Society News—Dr. Clarence A. Mills, James T. Heady, professor of experimental medicine, University of Cincinnati College of Medicine, Cincinnati, addressed the Southern California chapter of the American Society of Heating and Ventilating Engineers and the Los Angeles County Medical Association, August 31, on "Climatic and Weather Factors in Relation to Health and Disease and Their Application to Air Conditioning."—W. F. Washburn, Ph.D., Rochester, N. Y., discussed "Ailing Feet" before the San Francisco County Medical Society, September 14.

FLORIDA

Malaria Project Approved—The Rockefeller Foundation will finance a survey on malaria in Escambia County, with Dr. John E. Elmendorf, Jr., of the foundation staff in charge of headquarters in Pensacola. Of the \$8,000 to be spent for the first year's work, the city and county will each pay \$1,000. It is expected that the control areas will be selected on the basis of the intensity of malaria existing in the district the

adaptability of the local problem to different types of malaria control and the local interest shown in the solution of the problem Dr Elmendorf will also be director of a malaria division to be formed in the Escambia County health department

GEORGIA

Public Relations Bureau—The Medical Association of Georgia has established a public relations bureau to work in cooperation with the state departments of public welfare and health, it is reported. With offices at the association's headquarters, 38 Prescott Street N E Atlanta, the bureau will disseminate health information in a statewide educational campaign among physicians and the public

Society News—At a meeting of the Jackson-Barrow Counties Medical Society in Jefferson July 5 Dr James T Stovall Jr, Jefferson, read a paper entitled "Differential Diagnosis of Lesions of the Right Side of the Abdomen with Special Reference to Urology"—The Fourth District Medical Society was addressed at Thomaston, August 11, among others by Drs Willis P Jordan, Columbus, on "Diagnosis and Treatment of Bronchiectasis," and Weldon E Person Atlanta "Anorectal Fistula"—A symposium on allergy was presented before the Fulton County Medical Society, September 2, by Drs Arthur G Fort, Lester A Brown Jr, Abner W Calhoun, Thomas S Claiborne, Clarence L Laws, Hal M Davison, Mason I Lowance and William R Crowe Jr, all of Atlanta

ILLINOIS

Society News—The Medical News of Rock Island County made its appearance in August as the official publication of the Rock Island County Medical Society, with Dr George W Dryer as editor in chief. Dr Warren H Cole, Chicago, addressed the county medical society, September 14 on "Pathogenesis, Diagnosis and Treatment of Chronic Cholecystitis"—Dr Paul H Harmon, Chicago, discussed poliomyelitis before the McDonough County Medical Society in Macomb, July 14—The Sangamon County Medical Society was addressed in Springfield, September 2, by Drs Burton Lyman Stewart on treatment of urogenital tract infections with sulfanilamide, William DeHollander, Postoperative Pulmonary Collapse Roentgen Aspects," and George H Fleischli, "Fractures About the Elbow" All are from Springfield

Chicago

Dr Sloan Named Professor of Medicine—Dr LeRoy H Sloan, associate professor of medicine University of Illinois College of Medicine has been appointed professor of medicine effective September 1. Dr Sloan graduated at Rush Medical College in 1917

Symposium on Occupational Disease—Northwestern University Medical School is sponsoring a symposium on industrial disease and hygiene at Thorne Hall September 27-28. The following program will be presented

- Dr Samuel M Feinberg Role of Allergy in Industry
- Dr Marion B Sulzberger New York Role of Allergy in Industrial Dermatoses
- Dr Leroy U Gardner Saranac Lake N Y Some Phases of the Pathology of Silicosis
- Dr Eugene P Pendergrass Philadelphia The Healthy Chest and the Modifying Influences of Silicosis and Silicosis with Infection
- Clarence W Muehlberger Ph D Toxicology of Industrial Solvents
- Dr Alice Hamilton Boston Some Recent Developments in the Field of Industrial Solvents
- Dr Robert A Kehoe Cincinnati Industrial Lead Poisoning

Dr James A Britton, medical director International Harvester Company will conclude the afternoon's program with a round table discussion on occupational disease. At the dinner in the evening Mr O E Mount president of the board of governors, department of occupational disease at the university will preside and the speakers will be Dr Irving S Cutter dean of the medical school who will discuss "The Role of the Medical Unit in Industry," and Frances Perkins, secretary U S Department of Labor, Washington, D C, "Health in Industry"

Group to Study Sex Degeneracy—A group of neurologists and psychiatrists met in the state's attorney's office, August 27 to discuss the problem of dealing with persons belonging in the group of mental disorders not covered by the legal definition of insanity and feeble-minded who may be apprehended for some crime. The group consisted of Drs Peter Bassoe, H Douglas Singer, Clarence A Neymann, Francis J Gerty, David Slight, Paul L Schroeder, David Rothman, Lewis J Pollock, Ralph C Hamill and Harry R Hoffman. There has been a recent increase in sex crimes. Under the present statutes sex criminals not insane or feeble-minded may receive only short sentences, and they frequently repeat their crimes. A subcommittee consisting of Drs Pollock, Gerty, Hoffman, Schroeder and

Rothman was appointed to prepare a definition of the mental disorders under consideration, particularly of sexual psychopathy. It is to recommend to the committee of the whole plans for statutes which as in the case of the Briggs law of Massachusetts, would provide means for the early recognition of sexual and other psychopaths. Such laws would also provide for commitment of these persons to a hospital for observation and diagnosis as does the Colorado law of 1924 dealing with insanity as a defense, and for treatment and isolation of vicious and antisocial characters until they are pronounced cured by a suitable board of psychiatrists

INDIANA

State Medical Meeting at French Lick, October 4-6—The eighty-eighth annual session of the Indiana State Medical Association will be held at the French Lick Springs Hotel French Lick, October 4-6 under the presidency of Dr Edmund D Clark, Indianapolis and with the Orange County Medical Society acting as host. Out of state speakers will include

- Dr Sumner L S Koch Chicago Infections of the Hand
- Dr Frank J Heck Rochester Minn Interpretation of Routine Laboratory Findings for the General Practitioner
- Dr Jesse O Arnold Philadelphia Fluid Balance and Dehydration in the Prevention and Control of Eclampsia
- Dr Albert C Furstenberg Ann Arbor Mich Acute Infections of the Cervical Region and Mediastinum
- Dr John S Lundy Rochester Minn Sacral Anesthesia
- Dr Joseph Brennemann Chicago Appendicitis in Childhood
- Dr Louis A Bue Rochester Minn Diseases of the Anus and Rectum
- Dr Karl A Menninger Topeka Kan The Psychoneurotic and the General Practitioner
- Dr Bernard H Nichols Cleveland Roentgenology as an Aid to Diagnosis of Lesions in the Upper Right Side of the Abdomen
- Dr Frank H Lahey Boston Some of the Newer Developments in Thyroid Disease

The annual banquet will be held Tuesday evening. Dr Roscoe L Senseich, president of the association during 1936, will be presented with his certificate of merit and speakers will include Dr Irvin Abell Louisville, Ky, President-Elect, American Medical Association. Entertainment will include the annual golf tournament at the Hill Course Monday and the fourth annual trap shooting tournament at the French Lick Springs Trap and Skeet Club Monday afternoon. Dr Edith M Boyer Schuman, Bloomington will address the annual dinner meeting for women physicians Monday evening on "Sulfanilamide Speakers at the meeting of the woman's auxiliary Tuesday include Dr Paul A Teschner, Chicago, Bureau of Health and Public Health Instruction, American Medical Association, on "The Doctor's Wife." Dr Bernard H Nichols, Cleveland, will address the Indiana Roentgen Society October 6 at a luncheon meeting. Fraternity and class reunion luncheons will be other features of the convention

IOWA

Laboratory Services Expanded—Under provisions of a special appropriation made by the forty-seventh general assembly the following laboratory procedures are now available without cost, to all licensed physicians in Iowa, at the state hygienic laboratory Iowa City

- Wassermann and Kahn tests and at the option of the laboratory the Kline test
- Dark field examination of chancere fluid for *Spirochaeta pallida*
- Examination of smears for gonorrhea
- Sputum examination for *Bacillus tuberculosis* (limited to smears)
- Throat cultures for organisms such as *Bacillus diphtheriae*, *Streptococcus haemolyticus* and bacteria associated with Vincent's infection
- Agglutination tests for diseases such as typhoid and paratyphoid undulant fever tularemia and the Rocky Mountain spotted fever typhus group
- Blood cultures for typhoid and undulant fever
- Fecal (and urine) examinations limited to specimens for diagnosis or release and to those pertaining to special epidemiologic investigations
- Examination of milk necessarily limited to specimens in connection with outbreaks or special investigations
- Examination of the brain of animals for evidence of rabies

For laboratory services other than those listed above and of a nonroutine character, it is advised that the approved clinical laboratories of the state be consulted. If such facilities are not accessible to the physician making the request the state hygienic laboratory will render the service for a small fee which will be deposited in a reserve fund for purposes of research. Correspondence should be directed to the laboratory Medical Laboratories Building State University of Iowa, Iowa City

KANSAS

Personal—Dr Floyd C Beelman Wichita has been appointed health officer of Sedgwick County—Dr John E Attwood La Crosse, has been appointed health officer of Rush County succeeding Dr Norval W Robison Bison, who held the position four years

Annual Registration Now Due—Physicians licensed to practice medicine in Kansas are required to renew their licenses annually between July 1 and October 1 and to pay a fee of \$1

to the secretary of the board of medical registration and examination. The secretary must strike from the register of licensed physicians the names of all physicians who fail to pay their annual registration fees as required by law. Physicians whose names are so removed may be reinstated by paying the secretary \$5 and submitting to him satisfactory proof of moral fitness.

MICHIGAN

Personal—Dr Joseph W Davis, Charlotte, has resigned as health officer of Eaton County to accept a similar position in Marion County, W Va. Dr Morley B Beckett, health officer of Allegan County, will serve as acting health officer of Eaton County until Dr Davis's successor can be selected, according to the state medical journal.—Dr David Kliger has been appointed coordinator in Wayne County for the administration of the afflicted crippled children acts. Dr Kliger took office September 1 with headquarters at the juvenile division of the probate court, 1025 East Forest Avenue, Detroit.—Dr George A Hays formerly state director of the local health administration of Arizona, Phoenix, has been appointed health officer of Flint.

Clinic to Study Rheumatism—A study of rheumatism to determine the causes and if possible a cure will be undertaken immediately in a new clinic to be established and maintained at the University of Michigan Hospital, Ann Arbor by the Rackham Fund, according to the *Ann Arbor News*. Ten thousand dollars will be available annually for several years. Dr Cyrus C Sturgis, professor and head of the department of internal medicine at the university, is chairman of a special committee appointed by Dr Albert C Furstenberg, dean of the medical school, to establish the clinic and supervise its operation. Others are Drs Harley A Haynes, director of the University Hospital, and Carl E Badgley, professor of surgery. Dr Richard H Freyberg will be in charge of the research on a full time basis.

State Medical Meeting at Grand Rapids—The seventy-second annual convention of the Michigan State Medical Society will be held at Grand Rapids, September 28-30 under the presidency of Dr Henry E Perry, Newberry. The Kent County Medical Society will act as host. Scientific sessions will be held at the Civic Auditorium and hotel headquarters will be at the Pantlind Hotel. Out of state speakers before section meetings will include the following:

- Dr Alvan L Barach New York Physiologic Treatment of Congestive as Contrasted to Peripheral Circulatory Failure
- Dr Donald C Balfour Rochester Minn Cancer of the Stomach
- Dr William Wayne Babcock Philadelphia Resecting the Cancerous Colon Without Permanent Colostomy
- Dr Otto H Schwarz St Louis Prevention and Treatment of Late Toxemias of Pregnancy
- Dr Albert Graeme Mitchell Cincinnati The Thymus Gland
- Dr Howard J Parkhurst Toledo Ohio Treatment of Coccogenous Syosis

Tuesday afternoon the first general assembly will be addressed, among others, by Dr John H J Upham, Columbus Ohio. President of the American Medical Association. Included among the speakers at the various general sessions will be:

- Dr Balfour Diagnosis and Treatment of Gastro-Intestinal Hemorrhage
- Dr Ernest E Irons Chicago Pulmonary Complications in Adult Medical and Surgical Patients
- Dr John T Murphy Toledo Use of Roentgen Ray in the Treatment of Fibroid Tumors and Bleeding of the Menopause
- Dr Schwarz Cesarean Section—Its Indications and Technique
- Dr William P Healy New York Diagnosis and Treatment of Cancer of the Cervix and of the Corpus Uteri
- Dr Claude S Beck Cleveland Recent Advances in Surgery of the Heart
- Dr Oliver S Ormsby Chicago Yeast Dermatoses—Contact Dermatitis
- Dr Mitchell What I Do Not Know About Endocrinics
- Dr William L Benedict Rochester Minn Optic Neuritis Its Etiology, Diagnosis and Treatment
- Dr Paul H Holinger Chicago Acute Laryngotracheobronchitis
- Dr George A Harrop Brooklyn Diagnosis and Treatment of the Adrenal Cortex
- Dr George P Reynolds Boston Diagnostic and Therapeutic Value of the Medical Society Study of Cases
- Dr Foster Kennedy New York The Psychiatrist's Responsibility Toward the Criminally Insane and Toward Society
- Dr John F Erdmann New York Curiosities and Rarities in Surgery
- Dr Babcock Surgical Problems That Confront the General Practitioner

Wednesday evening the fifth general assembly will be designated "presidents' night." Dr Thomas Parran Jr, surgeon general, U S Public Health Service will speak among others on "The Medical Profession versus Syphilis." During the meeting of the women's auxiliary Dr Henry A Luce, Detroit, will address a luncheon session on "How to Get Along with Your Nervous Relatives."

MINNESOTA

Graduate Courses—The Center for Continuation Study of the University of Minnesota, Minneapolis, announces a series of eight graduate medical institutes to be held during the coming school year. They will begin the first Monday of each month from October 1937 to May 1938 and will last one week. Members of the staff will be selected from the faculty of the University of Minnesota Medical School, the Mayo Foundation and the extension division of the state medical association. The theme of the first course, October 4-9, will be disease of the heart. The didactic lectures and demonstrations will be given in the classrooms of the center and the bedside teaching at the University of Minnesota Hospitals Minneapolis General Hospital, Lymanhurst School for Rheumatic Children and Ancker Hospital, St Paul. Future subjects will be announced one month in advance of each institute. Any physician who is a member of his local medical society may attend. Erected late in 1936 at a cost of \$300,000, the Center for Continuation Study is used jointly by the professional schools of the University of Minnesota for intensive resident graduate instruction and contains living rooms for seventy-eight graduate students, dining hall, lounge, library, chapel, classrooms, administrative offices and parking garage. Julius M Nolte is director, and Dr William A O'Brien, associate professor of pathology and preventive medicine and public health, is a representative of the medical faculty.

MISSOURI

Society News—The Jackson County Medical Society has organized a medical business bureau with W H Bartleson as manager, according to its bulletin August 21. A change in the policy of the bulletin is announced in this issue, including a new cover and expansion of news and editorial features and a return to the use of a former name, the *Weekly Bulletin*. It has recently been known as the *Medical Journal*.

Personal—Dr William E Taylor has been appointed full time health director and instructor in bacteriology and physiology at Teachers College Springfield. According to the report, Dr Taylor who will give up his private practice, is the son of J A Taylor, founder of the Springfield Normal School, which preceded the state teachers' college.—Dr Raymond H Runde, Mount Vernon, has been appointed superintendent of the Missouri State Sanatorium at Mount Vernon, succeeding Dr William J Bryan, who resigned to become superintendent and medical director of the Municipal Tuberculosis Sanatorium at Rockford, Ill.

NEBRASKA

Annual Registration Now Due—Physicians licensed to practice medicine in Nebraska are required by law to register with the Department of Public Welfare annually, on or before October 1 and to pay a fee of \$1. A license expires if the licensee fails to register, but within the thirty days next following its expiration it may be revived by the payment of the registration fee and a penalty of \$1. If that is not done an order of revocation is issued and thereafter the revoked license can be reinstated only on the recommendation of the board of examiners in medicine and on the payment of the renewal fees and penalty then due.

NEVADA

Venereal Disease Program—Dr Byron H Caples Reno has been appointed supervisor of the program for control of venereal disease recently initiated by the state board of health.

State Medical Meeting at Ely September 24-25—The thirty-fourth annual meeting of the Nevada State Medical Association will be held in Ely, September 24-25 at the Nevada Hotel under the presidency of Dr Charles E Secor, Elko. The speakers will be:

- Dr Louis E Viko Salt Lake City Utah Present Day Methods of Treatment of Heart Disease
- Dr Donald C Collins Los Angeles The Value of Papaverine Hydrochloride in the Treatment of Postoperative Pulmonary Embolism
- Dr Joseph E Tyree Salt Lake City Lesions of the Epiphysis in Children
- Dr Howard P Kirtley Salt Lake City Clinical Studies of Sterility in Women
- Dr John M Flude Hollywood Calif Educating the Public About Cancer
- Dr Leland R Cowan Salt Lake City Factors in the Management of Malignancies of the Mouth
- Dr E Eric Larson Los Angeles Major Principles of Intestinal Surgery
- Dr John C Ruddock Los Angeles Peritoneoscopy Technique and Clinical Experiences
- Dr Byron H Caples Reno Venereal Disease Control in Nevada
- Dr Frederick T Foard San Francisco Public Health
- Dr Fred L Adair Chicago Maternal and Neonatal Care

NEW YORK

Society News—Dr Leon E Sutton, Syracuse, addressed the annual joint outing meeting of the Syracuse and Utica academies of medicine at the Yahnundasis Golf Club, September 16, on "Facial Injuries and Their Repair"—Dr Foster Kennedy, New York, addressed the Medical Society of the County of Westchester at Grasslands Hospital, Valhalla, September 21, on "Treatment of Acute Head Injury"

Dr Parsons Resigns as Commissioner of Mental Hygiene—Dr Frederick W Parsons, state commissioner of mental hygiene since 1927, has tendered his resignation to take effect October 1. Dr Parsons, who is 61 years old graduated from the University of Buffalo School of Medicine in 1901 and entered the state hospital service in 1902 as a member of the staff of the Hudson River State Hospital Poughkeepsie. He remained at Poughkeepsie until 1919 when he was appointed superintendent of the Buffalo State Hospital. In 1926 he was made medical commissioner of the New York State Hospital Commission and in 1927 commissioner of mental hygiene.

Personal—Dr Alfred J Roach has been appointed superintendent of the Broome County Tuberculosis Hospital Chenango Bridge, to succeed Dr Charles H Cole, who resigned because of ill health. Dr Roach has been assistant superintendent and medical director since 1932.—Dr John Rosslyn Earp, recently director of public health of New Mexico, Santa Fe, has been provisionally appointed medical editor in the division of public health education of the New York State Department of Health.—Drs Austin J Stillson and William C Armstrong, Windsor, recently were presented with framed scrolls by the citizens of Windsor township for their community services through many years. The presentation was made by Dr Samuel M Allerton, Binghamton, president of the Broome County Medical Society, at a community gathering August 5.

New York City

Personal—Dr Theodore Rosenthal has been appointed director of the bureau of social hygiene of the New York City Department of Health, succeeding Dr Charles Walter Clarke, who returned to his former connection with the American Social Hygiene Association. Dr Clarke was on leave from the association to organize and direct the health department's bureau.

Hospital News—The cornerstone was laid recently for the Frances Schervier Hospital and Home for the Aged at Spuyten Duyvil in the Bronx. The new institution, run by the Sisters of the Poor of St Francis, will accommodate 250 in the main building in semiprivate wards and there will be ninety-six private and semiprivate rooms in a wing. The hospital is named for Mother Frances Schervier, who founded the order in 1845 at Aachen, Germany.

Short Graduate Courses at Columbia—Two series of courses for qualified graduates in medicine are to be offered by Columbia University at Mount Sinai Hospital, November 1 to December 24 and January 17 to March 12, 1938. Subjects to be covered include general medicine, cardiology, endocrinology, gastro-enterology, allergy, pediatrics, neurology and psychiatry, gynecology, ophthalmology, dermatology, proctology, radiography, otology, pathology, physical therapy and laboratory methods. Requests for information should be addressed to the Secretary for Medical Instruction, Mount Sinai Hospital, Fifth Avenue and 100th Street, New York.

NORTH CAROLINA

Division of Neurologic Surgery at Duke—Dr Maurice Barnes Woodhall, instructor in surgery, Johns Hopkins University School of Medicine, and a member of the surgical staff of Johns Hopkins Hospital, Baltimore, has been appointed assistant professor of surgery in charge of a new division of neurologic surgery in the surgical department of Duke University School of Medicine, Durham. Dr Woodhall received his medical degree from Johns Hopkins in 1930.

Society News—Dr John H Dougherty, Asheville, addressed the Buncombe County Medical Society, Asheville, August 16, on "Water Balance" and Dr Dave M Buck Jr reported a case of sulfanilamide poisoning.—At a meeting of the Third District Medical Society, August 6, at Wrightsville Beach, the speakers were Drs Charles L Scudder, Boston, on "Fracture of the Two Weight-Bearing Bones—the Hip and the Os Calcis" Oscar L Miller, Charlotte, "Internal Fixation of Fracture of Hip", James F Robertson, Wilmington, "Review of Fractures Admitted for the Year 1936", and Richard Beverly Ranev, Durham, "Demonstration Fracture Museum".—Drs J Standing Norman, Hickory, and Abner M Cornwell, Lincolnton, among others, addressed the Catawba Valley Medical

Society at Lincolnton, July 13, on "Congenital Atresia of the Nose" and "Treatment of Sciatica by the Injection of Novocain and Normal Sodium Chloride Solution into the Caudal Canal" respectively.

OHIO

Society News—Dr Perrin H Long, Baltimore, addressed the Academy of Medicine of Cleveland, September 17, on "The Therapeutic Use of Sulfanilamide".—Dr Alfred W Adson, Rochester, Minn., will address the Youngstown Otolaryngological Club, September 29, on "Complications of Otitis Media and Frontal Sinusitis from a Neurologic Point of View."

Personal—Dr Warren C Breidenbach, Dayton, has been appointed a member of the Ohio Public Health Council to succeed Dr George D Lummis, Middletown. Dr Lummis has served since the council was created in 1917 to take the place of the state board of health.—Dr Homer H Williams, bacteriologist in the health department of Dayton since 1923, has been appointed health commissioner to succeed the late Dr Arthur O Peters.

Graduate Lectures in Lima—A program of graduate lectures will be presented in Lima, September 20-24, with Dr Carl V Weller, Ann Arbor, Mich., as the speaker. The subjects will include constitutional types in relation to disease, developmental disturbances of the face, mouth and neck, pathology of coronary occlusive disease, the thyroid gland, the gallbladder and the kidneys, parasitic worms of the North Central states, endometriosis, Antony von Leeuwenhoek and his microscopes.

OREGON

Professor of Pharmacology Appointed—Dr Norman A David, associate professor of pharmacology, University of Cincinnati College of Medicine, Cincinnati, has been appointed professor and head of the department of pharmacology at the University of Oregon Medical School, Portland, to succeed the late Dr Harold B Myers. Dr David graduated from the University of California Medical School, San Francisco, in 1931 and was appointed assistant professor and head of the department of pharmacology at the University of West Virginia School of Medicine in 1932. He was appointed at Cincinnati in 1935.

PENNSYLVANIA

Society News—The Lehigh County Medical Society held its annual picnic at the Lehigh Country Club, Allentown, August 10.—Dr David M Davis, Philadelphia, addressed the Harrisburg Academy of Medicine, September 21, on "Urinary Infections".—Dr William L Mullins, Pittsburgh, addressed the Cambria County Medical Society, Johnstown, September 9, on "Coronary Occlusion."

Pittsburgh

A Million for Diabetes Research—A trust fund of a million dollars has been given to the Children's Hospital for 'perpetual research in the causes, treatment and cure of diabetes in the youth of the Pittsburgh area,' the Pittsburgh Press reported August 25. The donor is Miss Emily Renziehausen, who for many years cared for a brother with diabetes, according to the report. The first income of the fund will be used to build an addition to the hospital to be known as the Renziehausen Memorial Ward and Clinic. In addition Miss Renziehausen has given an eleven acre farm as a site for a home for convalescent children. The fund agreement provides that any income not needed for work on diabetes may be devoted to other research work and hospital service. Drs Frederick E Kredel, Richard A Kredel and Thomas T Sheppard were named as a committee to supervise the fund, of which the Union Trust Company is trustee.

TENNESSEE

Society News—Drs Leroy E Coolidge and Robert S Cowles, Greeneville, addressed the Greene County Medical Society, August 3, on differential diagnosis of acute abdominal pain and on treatment of scarlet fever, respectively.—At a meeting of the Hamilton County Medical Society, Chattanooga, August 5, the speakers were Drs Jackson H Barnett and Jonathan J Armstrong, Chattanooga, on 'Surgical Shock' and 'Fluids Postoperatively' respectively.—The Hardin Lawrence Lewis Perry and Wayne Counties Medical Society met in Hohenwald, July 27, with the following speakers: Drs Charles C Stockard, Lawrenceburg, on "Postpartum Hemorrhage", Duncan Eyc Jr, Nashville, 'Fractures', James V Hughes Jr, Savannah, 'Ruptured Graafian Follicle', and William Battle Malone II, Memphis, 'Early Management of Traumatic Injuries, with Special Reference to Highway Accidents'.

University Opens Department of Preventive Medicine—The University of Tennessee School of Medicine has established a department of preventive medicine to open October 1, with Dr. Frank L. Roberts, Trenton, in charge. The department will be jointly supported by the university, the state department of health and the Tennessee Valley Authority. Dr. Roberts will be full time professor of preventive medicine and Dr. Lloyd M. Graves, health officer of Memphis, associate professor. An associate professor of epidemiology will be added January 1, according to a newspaper report, and later an associate professor of sanitary engineering. Dr. Roberts, a graduate of the University of Minnesota Medical School, Minneapolis, in 1922, was health officer of Gibson County from 1924 to 1928, director of local health service in West Tennessee for the state health department from 1928 to 1930 and director of health demonstrations for the Commonwealth Fund in Gibson County since 1930.

TEXAS

Personal—Dr. George T. McMahan, Burnet, has been named superintendent of a new hospital for mental disease to be built in West Texas.—Dr. Thomas J. McCamant, formerly health officer of El Paso and El Paso County, has been appointed health officer of San Antonio schools.—Dr. Thomas B. Wilson, Longview, has resigned as health officer of Gregg County to accept a similar position with the Corpus Christi-Nueces County health unit.—Dr. Gustav Mason Kahn, Galveston, has been named medical director of the American National Insurance Company, it is reported.

WEST VIRGINIA

Society News—Dr. John F. Barker, Huntington, addressed the Cabell County Medical Society, August 12 on "Sulfanilamide Therapy in Urology".—At a meeting of the Central West Virginia Medical Society in Webster Springs, August 7, the speakers included Drs. John O. Rankin, Wheeling, on "Modern Treatment of Fracture of the Neck of the Femur" and William S. Fulton, Wheeling, president of the West Virginia Medical Association, on problems of the medical profession.—The Grant, Hardy, Hampshire, Mineral County Medical Society recently voted to change its name to the Potomac Valley Medical Society, which will also take in physicians of Pendleton County.—Dr. Rexford A. Burdette, Morgantown, addressed the Monongalia County Medical Society, Morgantown, August 3, on "Lower or Basal Lobe Tuberculosis".

GENERAL

Science Exhibit at Indianapolis—The American Association for the Advancement of Science will present its annual science exhibition at the midwinter meeting in Indianapolis, December 27-30 at the Murat Theater. Application for space may be made to F. C. Brown, director of exhibits, American Association for the Advancement of Science, Smithsonian Institution, Washington, D. C.

Society News—The seventh annual convention of the Biological Photographic Association will be held in Rochester, N. Y., at the Hotel Rochester, September 23-25.—The annual meeting of the American Academy of Orthopaedic Surgeons will be held in Los Angeles at the Hotel Biltmore, Jan. 16-20, 1938. For information write Robert Lewin, Hotel Biltmore, Los Angeles.—Dr. George W. Bowles, York, Pa., was chosen president-elect of the National Medical Association at its annual meeting in St. Louis in August. Dr. Lyndon M. Hill, Atlanta, was installed as president and Dr. William P. Dickerson, Newport News, Va., was elected vice president. Dr. John T. Givens, Norfolk, Va., was reelected general secretary. The 1938 meeting will be held at Hampton Institute, Hampton, Va.

Meeting of Railway Surgeons—The forty-eighth annual Congress of Railway Surgeons will be held at the Palmer House, Chicago, September 20-22 under the presidency of Dr. William A. McMillan, Charleston, W. Va. Among the speakers will be

- Dr. Willis C. Campbell, Memphis, Tenn., Ununited Fractures of the Long Bones.
- Dr. George W. Hall, Chicago, Treatment of Syphilis of the Nervous System.
- Dr. William C. Stewart, Charleston, W. Va., Heart Disease as a Factor in Disability and Retirement.
- Dr. William Walters, Rochester, Minn., Treatment of Lesions of the Gallbladder and Bile Ducts.
- Dr. Albert H. Montgomery, Chicago, Treatment of Burns.
- Dr. Royd R. Sayers, U. S. Public Health Service, Syphilis as an Industrial Hazard.
- Dr. Casper F. Hegner, Denver, The Advantage of Surgery in Pulmonary Tuberculosis.
- Dr. Fred H. Albee, New York, The Importance of the Restoration of Blood Supply in Fracture of the Neck of the Femur.
- Dr. William H. Stokes, Omaha, A Clinical Study of Retained Intraocular Foreign Bodies: A Review of 300 Cases.

Sickness Increased in Industrial Employees in 1936—The U. S. Public Health Service in a recent study of the incidence of illness in employees of twenty-nine industrial concerns found that in 1936 there were 95.1 cases of illness lasting eight days or more per thousand men, as compared with 85.7 in 1935. Most of the increase occurred in the fourth quarter of the year and was caused by diseases of the respiratory tract, especially bronchitis and pneumonia. The 1936 rate for this group of diseases exceeded that for 1935 by 17 per cent and the average for the preceding five years by 10 per cent. The incidence of pneumonia was a third higher in 1936 than the five year average, influenza in 1936 was 22 per cent higher than in 1935, but about the same as the five year average. In the final quarter of 1936 influenza was 80 per cent higher than for the last quarter of 1935, pneumonia 20 per cent. The nonrespiratory diseases showed less variation than the respiratory group, but appendicitis showed a notable increase, from 3.8 per thousand in 1935 to 4.4 in 1936. For nonindustrial injuries the 1936 rate was 9 per cent above the frequency for 1935 but identical with the five year average. An exception to the general trend of increased illness was the tuberculosis rate, which declined from the 1935 incidence and from the average for the years 1931-1935. Other diseases that decreased in incidence were diseases of the nervous system, diseases of the heart and arteries and nephritis and all epidemic and endemic diseases except influenza.

Mississippi Valley Tuberculosis Meeting—The twenty-second annual meeting of the Mississippi Valley Conference on Tuberculosis and the Mississippi Valley Sanatorium Association will be held in Dayton, Ohio, September 22-25. The first day of the tuberculosis conference will be devoted to a "health education institute," with emphasis on school health programs. Thursday morning there will be discussions of seal sales and in the afternoon an administrative session. Friday the conference will meet with the sanatorium association and Saturday morning a meeting will be addressed by Dr. Jay Arthur Myers, Minneapolis, president of the National Tuberculosis Association, and Miss Fannie B. Shaw, New York, associate director of child health education of the national association. Speakers at the meeting of the sanatorium association include

- Drs. Charles K. Petter, Oak Terrace, Minn., and Gilbert J. Thomas, Minneapolis, Recent Advances in Our Conception of Renal Tuberculosis.
- Dr. Ralph C. Matson, Portland, Ore., Closed Method of Intrapleural Pneumolysis.
- Dr. Horton R. Casparis, Nashville, Tenn., The Part Children Play in the Tuberculosis Problem.
- Dr. George C. Turner and Loren L. Collins, Chicago, Pneumothorax in Minimal Tuberculosis.

Friday morning there will be a symposium on sanatorium administration, in which the participants will be Drs. Ernest S. Mariette, Oak Terrace, Minn., Alexius M. Forster, Colorado Springs, David O. N. Lindberg, Decatur, Ill., Harold M. Coon, Statesman, Wis., James Burns Amberson Jr., New York, and Paul P. McCam, Sanatorium, N. C.

Committee Urges Instruction in Allergy—The committee on instruction of the Association for the Study of Allergy recently made a survey of the instruction in allergic diseases in medical schools. Fifty-seven schools answered a question as to whether they had allergy clinics and, if so, how much they were used in teaching. Fourteen stated that they had none, seven of those that had clinics did not use them in teaching and four are used only for elective courses. Only about one fifth of the schools teach students how to make pollen or dust extracts, and in more than one third students are not taught how to administer extracts. In sixteen schools they are not taught how to make routine tests, and in seventeen they are not taught how to take allergic histories. Only seventeen offer elective courses to those who wish to learn more about the subject. Twenty-eight of fifty-two replies indicated that those schools had increased their instruction in allergy in the last five years. A study of the number of cases studied indicated that allergy cases represented 2.2 per cent of the total number of new cases and more than 5 per cent of the new medical, pediatric and dermatologic cases. Visits to clinics because of allergy amounted to 4 per cent of all visits and 9 per cent of all medical, pediatric and dermatologic cases. In a discussion of the information obtained in the study the committee emphasized its belief that most physicians lack knowledge of allergic diseases, that too many physicians do not recognize allergic manifestations unless they are typical, that most of the information many physicians have is obtained from literature issued by commercial firms, and that the assignment of the teaching of allergic diseases to members of the faculty who do not have a deep interest in these diseases is undesirable. Four recommendations concluded the report that the committee on curricula of the Association of American Medical Colleges be

urged to require (a) that planned instruction be included in the curriculums of all medical schools, (b) that the minimum acceptable instruction include discussions of pathology, pathologic physiology, clinical manifestations, diagnostic methods, preparation of diagnostic and therapeutic extracts, history taking, principles of specific, symptomatic and nonspecific therapy, (c) that instruction be assigned to interested teachers and (d) that such instruction be accorded the place in the curriculum that the incidence and severity of the diseases seem to justify

FOREIGN

Prize for Work in Dermatology—The French Society of Dermatology and Syphilology announces that an anonymous donor has made available a prize of 5,000 francs to be awarded every two years to the author of the best work, either printed or in manuscript form, on a subject in dermatology or syphilology representing a real advance in science. Every other time the prize will be awarded at a meeting of the society and the committee in charge will set the subject. The prize will be awarded for the first time at the general assembly of the society in May 1939 and the subject chosen is "The Processes of Sensitization and Immunization in the Epidermomycoses." Both French and foreign authors whose work has been written or translated into French are eligible to compete for the prize. Articles must be submitted to the secretary general, Dr. Pierre Fernet, 11 rue de Sontay, Paris (16), before Nov. 30, 1938.

Report of Nutrition Committee—The League of Nations Mixed Committee on the Problem of Nutrition appointed in September 1935 now has issued a detailed report. The report urges governments to adopt a conscious nutrition policy by establishing national committees to ascertain food consumption habits and nutritional status in all sections of the population. Detailed evidence of malnutrition even in the most advanced countries is given in the report, which is intended to be used as a basis for a world nutrition policy during the next few years. The committee is made up of representatives of the Technical Commission of the Health Committee of the League, the International Labor Office and the International Institute of Agriculture. The United States was represented by Elmer V. McCollum, Ph.D., Baltimore, Edwin G. Nourse, Ph.D., of the Brookings Institution, Washington, Faith M. Williams, Ph.D., of the staff of the Department of Labor, Washington, Prof. Warren C. Waite, Minneapolis, and Harold B. Rowe, of the staff of the Brookings Institution, Washington.

Government Services

Examinations for Government Positions

The U. S. Civil Service Commission announces examinations for positions in the U. S. Public Health Service (venereal disease control and industrial hygiene), in the Indian Medical Service in the United States and in Alaska, and in the Veterans' Administration. To become eligible, applicants must qualify in one of the following branches and must state in their applications the branch or branches desired: cardiology, cancer diagnosis and treatment, eye, ear, nose and throat (single or combined), urology, internal medicine and diagnosis, neuropsychiatry, pathology and bacteriology, roentgenology, surgery (general, chest and orthopedic), tuberculosis, venereal disease, industrial medicine and general practice. Applicants must not have reached their thirty-fifth birthday on the date of the close of the receipt of applications and must be in sound physical health. Applications must be received by the commission at Washington not later than October 18 or, if from Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington or Wyoming, not later than October 21. Application forms may be obtained from the secretary, board of civil service examiners, at any first class post office from the commission at Washington or from the district office in any of the following cities: Atlanta, Boston, Chicago, Cincinnati, Denver, New Orleans, New York, Philadelphia, Seattle, St. Louis, St. Paul, San Francisco, Honolulu, T. H. Balboa Heights, C. Z., and San Juan, P. R.

CORRECTION

The Degree and Prevalence of Vitamin A Deficiency—Dr. Harold Jeghers in his paper entitled "The Degree and Prevalence of Vitamin A Deficiency in Adults with a Note on Its Experimental Production in Human Beings" in *THE JOURNAL*, September 4, page 760, erroneously included reference 18a. The paper to which this reference refers will not, Dr. Jeghers says, be published in the *New England Journal of Medicine*.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Aug. 21, 1937

The Danger of the Domestic Use of Gasoline

Cases are recorded from time to time of the burning to death of persons using gasoline for cleaning garments. The victims are quite unaware of any danger and may be at a distance from any fire or flame. The accident occurs in this way: Gasoline vapor, being much heavier than air, falls in a still atmosphere and will be drawn by a draft toward a fire. A flash back to the cleaning receptacle then occurs, with the inevitable fire and upsetting of the burning liquid over the clothes of the operator. Fire also may be started by static electricity caused by rubbing garments, especially silks, in the cleaning process. In one case a woman was burned to death while cleaning a garment in a garden and the fire could not be traced to any source. According to the annual report of the inspectors of explosives, thirteen accidents, causing three deaths, have occurred during the year. The comment is made that this is a very high proportion, as in the landing, storing, conveying and use in automobiles of 1,400 million gallons of gasoline in the year only twenty-five accidents, involving nine deaths, have been reported.

DANGEROUS AMATEUR FIREWORKS

The inspectors of explosives also point out the danger of amateur firework mixtures, which is due not only to their sensitiveness to friction but to the quickness and force of the explosion. A chlorate and phosphorus or sulfur mixture will explode with detonative violence, smashing up the mortar and blowing fingers off the hand of the operator. The inspectors found it necessary to send out a circular to manufacturers of chemical sets, warning them not to include these dangerous substances. In one case a schoolmaster mixed potassium chlorate and antimony sulfide in an envelop. He then added phosphorus, and while he was smoothing it over with a stick of chalk an explosion occurred which injured him so severely that three of his fingers had to be amputated. The science textbooks in use at the school were obtained and it was found that they gave details about these mixtures and also suggested other experiments with explosives. The matter was taken up with the publishers and also with the board of education. In 1936 three deaths and injuries to twenty-one persons occurred in the manufacture of explosives. The total accidents due to explosives in the year was 273. Several cases of illegal manufacture of explosives were brought to light by the occurrence of explosions.

The Surgical Treatment of Angina Pectoris

In his Carey Coombs memorial lecture, delivered at Bristol, Mr. Laurence F. O'Shaughnessy discussed the pathology and treatment of angina pectoris. He said that natural compensation for occlusion of the coronary tree may be effected in several ways: 1. Anastomoses between the right and left coronary arteries may come into action when one or the other main trunk is occluded. 2. The thebesian vessels (small channels which connect all four chambers of the heart with the venous and capillary bed of the coronary tree) may act as an additional source of cardiac nutrition. 3. The natural collateral channels which connect the coronary tree with the vast vasorum of the great vessels may become more pronounced. 4. The heart may acquire a new and additional blood supply if it adheres to the parietal pericardium. The last important mechanism is available only in those rare cases in which the subject of coronary occlusion has previously suffered obliteration of his pericardial space as a result of old pericarditis, or when, following a coronary occlusion, an infarct is produced with its base on the

epicardial surface of the heart. In a special lecture delivered at the Royal College of Surgeons in January (*THE JOURNAL*, February 27, p. 738) Mr. O'Shaughnessy described the technique of his operation of cardio-omentopexy for the establishment of a collateral cardiac circulation and referred to three cases of angina pectoris or coronary thrombosis in which he had performed it. He now reported the following case.

A woman, aged 65, had suffered from angina pectoris for twelve years. The attacks became more frequent and more severe and she had been confined to bed for almost eighteen months. She was referred to the Lambeth Cardiovascular Clinic of the London County Council, of which Mr. O'Shaughnessy is consultant surgeon. On admission Oct. 1, 1936, she was obese. The heart was enlarged to the anterior axillary line. There were a soft aortic systolic murmur and a very short diastolic whiff. The blood pressure was 247 systolic, 117 diastolic. An electrocardiogram revealed complete bundle-branch block with large amplitude of QRS in leads 1 and 3. October 16, cardio-omentopexy was performed. At the end of the operation the pulse was 69 and the blood pressure 170/90. Recovery was interrupted by a paroxysm of auricular fibrillation, which began thirty hours after operation and ceased spontaneously nine and one-half hours later. Two anginal attacks occurred during the first fortnight but none subsequently. In six weeks the blood pressure returned to 240/112 and was causing symptoms. On a balanced diet it fell to 210/120. Physical signs of pulmonary collapse were present at the left base after the operation. The patient was able to get up and gradually increased her activities until she was able to climb stairs and go shopping. She had remained free from angina.

In his operations, Mr. O'Shaughnessy has found that the pericardium of man is often highly vascular compared with that of animals, perhaps because he has to develop his defenses against cardiac ischemia. Cardio-omentopexy not only brings a new blood supply into direct relation with the ischemic area and the coronary tree but also reinforces normal collaterals in the mediastinum. In the present state of our knowledge it is impossible to lay down any rigid indications for operation in cardiac ischemia. Experience at the Lambeth clinic has shown that it is practicable and comparatively safe, even under relatively unfavorable circumstances. Mr. O'Shaughnessy's patients have included a man of 72 as well as this bedridden woman of 65. He is not neglecting the obvious factor of arterial spasm in angina pectoris but maintains that spasm is significant only when coronary disease is already present. The medical staff of the clinic who select cases for operation includes Lord Dawson, president of the Royal College of Physicians, and only a small proportion of the patients sent to it are operated on. In the present stage of the work it is felt advisable to restrict intervention to the severe cases.

Epidemic of Poliomyelitis in Australia

Melbourne is suffering from a serious outbreak of acute poliomyelitis. Since the first cases were reported at the end of June, ninety-one children have been attacked and two adults, both of whom died. More than a hundred schools have been closed and special broadcasts are being given to mitigate the tedium for children, who are being kept at home for fear of infection. Country areas are demanding that children arriving from Melbourne be isolated, and Tasmania is making a similar stipulation.

Graduate Courses for Panel Physicians

The Ministry of Health is to make grants on a more extensive scale than heretofore to enable panel physicians to attend short courses of graduate study. The conditions under which a physician will be eligible for a grant are as follows: 1. Five years must have elapsed since the date of his first registrable qualification. 2. He must have not less than 300 (or in the

case of a rural practitioner 150) insured persons on his list. 3. No grant will be payable to a practitioner more than once in five years. The grant will include a fee for the course, traveling and subsistence expenses, and the payment of a whole time locum tenens when necessary.

Professor J. G. Thomson

J. G. Thomson, professor of medical protozoology, London School of Hygiene and Tropical Medicine, has died. Educated at Edinburgh University, he gained the medals in botany and physiology and was professor to the late Prof. D. J. Cunningham. He spent the first six years of his scientific career at Liverpool, where he held successive research scholarships. In 1914 he was appointed lecturer at the London School of Tropical Medicine, but during the war he was stationed in Egypt, where he specialized in pathology and protozoology at the Military Hospitals at Alexandria. On returning to England he was put in charge of the Malaria Research Laboratory at the War Office and in 1918 was appointed professor of medical protozoology at the newly opened School of Hygiene and Tropical Medicine. In 1926 he was exchange lecturer in protozoology at the School of Hygiene at Johns Hopkins University, Baltimore. In 1930 he was representative at the third International Congress on Malaria at Algiers, and in 1936 he gave at the request of the League of Nations Health Organization a series of lectures in the special course on malaria held at Singapore.

His work on the methods of enumerating malaria parasites in the blood and the study of cultural forms of the parasite are classic. His researches on blackwater fever in Rhodesia are most important, and his monograph on this disease is a standard work. He also did work on bilharziasis and other disease, when stationed in Egypt, which has advanced our knowledge. In his early days he traveled much in South America and in tropical countries, and this experience has given his work a special value. His direct approach to a subject and grasp of essential points with his common sense have contributed to the success of his writings.

PARIS

(From Our Regular Correspondent)

Aug. 21, 1937

Fellows of Royal College Guests of Paris Academy

In accordance with an arrangement made in 1935 between the Royal College of Surgeons and the Académie de chirurgie to visit each other every year, the fellows of the former were received as guests here July 5 and 6. The French Académie de chirurgie visited England in 1936 as guests of the Royal College of Surgeons. About forty fellows of the latter, including Sir Cuthbert Wallace, the president, attended the Paris meeting. The program for the two day stay here included a visit to the Cancer Institute in one of the Parisian suburbs, operations and demonstrations at various hospitals, a dinner at the Hotel Ritz and a visit to the chateau of Chantilly. At a meeting held on the afternoon of the first day, an address of welcome was delivered by Dr. Baumgartner, president of the Académie de chirurgie, and papers were read by Professor Gregoire on intestinal infarct, by Professor Duval on post-operative pulmonary infarct, by Professor Mondor on uterine infarct, by Drs. Brocq and Warangot on hemorrhagic pancreatic infarcts and acute pancreatic necrosis, and by Professor Binet on surgical physiology. The afternoon of the second day was devoted to the celebration of the one hundredth anniversary of the birth of Prof. Felix Terrier. Following his address of welcome, the president of the Académie de chirurgie, Dr. Baumgartner, announced that the French government had authorized him to bestow the cross of Officer of the Legion of Honor on Sir Cuthbert Wallace, president of the Royal College of Surgeons, Mr. George E. Gask and Mr. Henry S. Souttar, presi-

dent and vice president respectively of the committee that has organized these annual meetings of the Royal College of Surgeons and the Academie de chirurgie

Use of Toxoid in Staphylococcal Infections

Following the report at the June 9 meeting of the Academie de chirurgie of a case of staphylococcal infection with multiple localizations, including one in the epididymis, an active discussion took place as to the value of the toxoid in surgical cases. Dr. Rousset of Ploermel reported a case in which a man, aged 47, had a carbuncle of the neck, a perinephric abscess, a pulmonary focus and an epididymitis. No hemoculture had been made. All the various localizations, except the epididymal, were drained but the neck lesion presented such an atonic appearance that a series of injections of the staphylococcal toxoid was given every four days. After the first injection, the epididymal focus evacuated spontaneously. After a second injection, healthy looking granulation tissue appeared on the neck lesion. Complete recovery was rapid.

In the discussion, Dr. Moulouquet stated that Dr. Rousset had simply termed the case one of prolonged subacute staphylococcal infection instead of septicemia, because, although it had been impossible to have a blood culture made, staphylococci were found on several occasions in the urine. The atrium of infection had undoubtedly been the carbuncle on the back of the neck, which persisted in an indolent form for more than six months. Moulouquet agreed with Rousset that the staphylococcal toxoid was responsible for the healing of the carbuncle which had continued as a primary focus. In looking over the reports by French surgeons as to the value of the toxoid, five cases of severe septicemia (staphylococcus) confirmed by blood cultures, were found. As to the mode of administration, a minute initial dose, 0.1 cc, should be given to test the sensibility of the patient. If no reaction occurs, the dose can be gradually increased from 0.25 cc to 2 cc. Not more than five injections should ever be given. Pagniez had observed a severe shock with pallor, epileptiform movements and loss of consciousness after the eleventh injection. In spite of an absence of any toxic action in animals, the toxoid can give rise to serious reactions clinically. Although our knowledge as to how the toxoid cures certain cases of staphylococcal septicemia is still imperfect, we do know that the Ramon toxoid is a valuable agent in certain apparently hopeless cases.

Dr. Sauve believed that the variation in the results following the use of the toxoid were due to the existence of many different strains of staphylococci. He also questioned the permanence of the recovery in the case reported by Dr. Rousset. In three of his own cases, recurrence in one had been observed after apparent recovery, two years later. A third consideration is that in the cases reported by Gastinel and Reilly the first hemoculture was positive but later ones were not. He considered Dr. Rousset's case one of true staphylococcal septicemia in spite of the absence of a blood culture. Dr. Leveuf said that he was skeptical regarding the efficacy of the toxoid in staphylococcal infections. He did not agree with Dr. Moulouquet as to the benefit of giving the toxoid in the case under discussion. Dr. Monod recalled Nicolle's definition of a septicemia as including not only the presence of bacteria in the blood stream but also their constant multiplication there. Dr. Bazy believed that the staphylococcal antitoxin content of the blood ought to be estimated in every case in which the toxoid is used. Dr. Sauve, in reply to Dr. Monod, said that he agreed with him as to the interpretation of negative cultures. The discharge of bacteria into the blood stream is intermittent in cases of septicemia, hence a blood culture may be negative at one examination and positive at another. In closing the discussion, Dr. Moulouquet, who had presented the case for Dr. Rousset, maintained that the toxoid was clearly responsible for the recovery in this severe staphylococcal infection.

Report on Magnesium Alloy Bone Splints

At the June 16 meeting of the Academie de chirurgie, a critical analysis of a monograph on magnesium splints in fractures, by Dr. Verbrugge of Antwerp, Belgium, was read by Dr. Menegaux of Paris, to whom the monograph had been assigned for review. As justification for the use of absorbable bone splints, Dr. Verbrugge cited the fact that not only was it necessary to remove steel-vanadium splints in 6 per cent of the cases in Lambotte's service but such an operation is very difficult and at times impossible to carry out. In addition, in children, such splints when placed near the epiphysis interfere with bone growth. Splints of magnesium alone were not found sufficiently resistant, so a splint composed of 92 per cent magnesium, 8 per cent aluminum and a small amount of manganese was employed. In five rabbits and one dog, the upper end of the tibia was splinted. Gross examination at variable periods revealed only a moderate periosteal and cortical thickening, and medullary condensation. The splint was then used in thirty-five clinical cases, in thirty-one of which healing occurred by primary union and in four following fistula formation of short duration. There is a local elevation of temperature and a zone of hydrogen gas formation (as seen radiographically), at first subperiosteal and later intraosseous. In twenty-five cases there was no abnormal degree of osteoperiosteal reaction and consolidation was present at the end of four weeks. In seven cases, nearly all fractures of the tibia, the results were unsatisfactory because of inadequate fixation of the splint and consequent imperfect immobilization and excessive callus formation. In six fractures near joints the splint did not interfere with movement. In fifteen epiphyseal or juxta-epiphyseal fractures the metal was rapidly absorbed and did not retard bone growth.

In a second series of animal experiments, the tibia of ten rabbits was splinted with the Dow metal (magnesium-aluminum) and ten other control rabbits with a thin steel splint. The latter did not give rise to any reaction, whereas the Dow metal splint caused important reactions strictly localized around the splint in the form of bone resorption and periosteal thickening. In commenting on the results of Verbrugge's experimental work, the reviewer, Menegaux, criticized the lack of microscopic examination of the first rabbit series and that, in the clinical cases, the majority were of the epiphyseal variety with but little displacement. The local reactions, such as gas and fistula formation, were also objectionable from the surgical standpoint.

Unfavorable results, such as sequestration of a large area of the cortical portion of the tibia, were reported by Berard and Creyssel in 1935, following the use of a resorbable magnesium alloy splint. Other reports were cited by Menegaux, showing that magnesium is more toxic than gold, iron, nickel and silver and less so than copper and aluminum. Menegaux believed that it was inadvisable to employ splints of magnesium and its alloys. The use of nonabsorbable steel bone splints is being generally adopted, according to various recent reports.

Acute Pulmonary Tuberculosis in Adolescents

At the June 11 meeting of the Societe medicale des hopitaux, two cases were reported by Troisier, Bariety and Nico, which show that even after candidates for admission to universities or nursing schools have passed a thorough physical examination, including an epidermal tuberculin test, they can develop an acute adult form of tuberculosis when their environment changes from that of rural districts to that of a large city. Both patients were young women in whom the roentgenographic examination of the lungs and the epidermal tuberculin test had been negative when they were admitted respectively to the University of Paris and to the school for nurses of a large Paris hospital. One died of a tuberculous meningitis following an acute ulcerocaseous type of pulmonary tuberculosis without preceding mediastinal adenopathy. The other died as the direct

result of the pulmonary infection. In both, the epidermal tuberculin test, previously negative, became positive. In the discussion, Rist said that such cases would be seen more often in the future in proportion to the increased use of the tuberculin reaction in adults. There would also be less difference between the roentgenographic appearance of lesions due to primary infection and that due to reinfection. He reported the case of a young woman with a negative epidermal reaction who had come from the country districts to enter the school of nursing in one of the Paris children's hospitals. A month after she began ward service, evidences of pulmonary tuberculosis appeared. The epidermal tuberculin reaction, previously negative, suddenly became positive, ten weeks after she began her nursing work. Not infrequently the clinical picture was similar to that of an attack of influenza at the onset, as in the cases reported by Troisier. Etienne Bernard said that he had seen acute pulmonary tuberculous lesions in young adults, which appeared to be primary infections. At the present time, based on the roentgenographic appearances, one cannot distinguish between such primary infections and reinfections.

BERLIN

(From Our Regular Correspondent)

Aug 16, 1937

Influence of Milk on Growth and Metabolism

The question of what influence the heating process exerts on homologous and on heterologous milk has been repeatedly studied but there has been no unanimity of opinion on the subject. Catel, professor of pediatrics at Leipzig, recently undertook a clinical and experimental investigation of this problem. From feeding experiments of short and long duration with homologous milk two principal observations were elicited. 1. By sterilization of homologous milk the natural immunity of human and animal nurslings is reduced, a circumstance made manifest by increased morbidity and mortality. 2. A diet of sterilized homologous milk leads to obvious impairment of growth, under certain conditions to complete arrest of growth. For example following the feeding of premature infants with raw mother's milk sterilized at the nursery, a decline in the rate of growth ranging from 14 to 77 per cent with a mean of 44 per cent was observed. Accordingly, raw homologous milk attains a higher nutritive value than heated milk. (By nutritive value is meant, according to Friedberger, simply the utilization of the nutriment in relation to the preparatory, that is to say, the warming, process. This utilization finds expression in the curves of weight and growth.) Further experiments and calculations (which concerned the use of raw and of autoclaved goat's milk in the rearing of young goats) showed that the utilization value of raw milk is from three to ten times greater than that of autoclaved milk. Since it seemed logical to seek the cause of this impairment of growth following heated milk diet in a disturbed metabolism, metabolic experiments were performed with goats. It was observed that (1) the nitrogen balance remains positive but the absorption of nitrogen is plainly reduced, (2) radical changes take place in the mineral metabolism (marked storage of chlorine, negative calcium balance, manifest diminution of the phosphorus balance) and also in the blood serum and in the bony tissues the calcium and phosphorus values were reduced. It is possible by the addition of substances containing vitamins to effect a resumption of growth and completely to normalize the metabolism. The briefer feeding experiments with heterologous milk in both the raw and the heated states disclosed that after placing goats on a diet of sterilized cow's milk the increases in weight were greater than after feeding with raw milk. On the other hand the injurious effects of the sterilized milk were plainly perceptible in an increased susceptibility to illness, notably diarrhea and in several instances a fatal tetany. Feedings of autoclaved cow's milk generally resulted in complete

arrest of growth and death from cachexia within a matter of days, weeks or months. By proper addition of even the most minute quantities of vitamin-containing substances it was in most instances possible to compensate for the disturbances of growth.

The general implication of the foregoing experimentation for human physiology is that human milk in particular ought to be fed the nursing only in the raw state. If human milk is preserved for storage in depots, it should be submitted to only such a process as will in no way impair its natural character. A method of brief heating appears to offer the most plausible solution of a problem that is of major importance from both a clinical and a social point of view.

Contagious Diseases and Aviation

Recently for the first time the minister of the interior and of aviation has issued regulations designed to combat the spread of contagious disease by aerial navigation. The airport medical officer is authorized, if circumstances so warrant, to conduct a medical inspection of the passengers and crew of an aircraft both before the takeoff and after the landing. To avoid needless delays, these medical inspections are to be carried on in conjunction with the usual administrative formalities (customs inspection and so on). Excluded from ordinary air travel are all persons affected with cholera, typhus, plague or smallpox, as well as all persons suspected of harboring any of these diseases. Travelers who come under this ban may be permitted by the medical officer to continue on in a special plane. Persons suspected of transporting infections as well as bacillus carriers and continuous disseminators of bacteria also can be excluded from flight. Quarantine measures also have been made more strict. Letters and other paper matter are not subjected to any sanitary inspection, and parcel post and other mailed packages are inspected by the medical officers only if such material has been shipped from a region of endemic cholera and if it consists of fresh foodstuffs. If special epidemiologic conditions exist, aircraft may be assigned to special landing fields. The pilot of the plane should furnish any information on the hygienic conditions that may be requested of him. In order to prevent the spread of other communicable diseases the authorities of each airport have the right, on the basis of the professional opinion of the medical officer, to forbid the takeoff of any persons who present symptoms of the mentioned diseases. If no physician is present, the airport official can postpone the departure of a suspected person till such time as a medical opinion on his condition can be formulated.

VIENNA

(From Our Regular Correspondent)

July 31, 1937

Congress of Roentgenologists

During the second week of July the second congress of the Austrian Society of Roentgenology met in Vienna with Professor Dr. Kienbock the presiding officer. There were 720 Austrian specialists as well as some 300 foreign colleagues who were attracted to Vienna by the first Short Wave Congress, which was to follow the meeting of the Austrian society. The congress began with the usual formalities. Minister Resch of the national bureau of health acted as official governmental representative, and the government made a further contribution to the congress by honoring the founder of roentgen therapy, Prof. Dr. Leopold Freund, with the high title of "Hofrat" for his many services.

The more important themes were (1) early diagnosis by means of roentgen and infra-roentgen rays and (2) roentgen therapy of inflammation. A summary of the principal speakers and their topics follows. Dr. Lenk discussed "tomography," a new diagnostic technique based on cross sectional representation of the body in layers. Dr. Blühbaum of Cracow described inflammations of the cervical portion of the vertebral column, which often

give rise to severe neuralgias in the region of the brachial plexus. These conditions are first diagnosed by means of x-ray visualization, sciatica is prominent among them. Professor Sgalitzer stressed the great difficulty encountered by the roentgenologist in differential diagnosis of inflammatory and tumorous processes of the internal organs. Only after observations and comparisons with the clinical data have been repeated over a considerable period can a correct diagnosis be established. This is especially true of disease processes in the intestine, lungs and brain. In many instances the inflammation can be obliterated by simple roentgen irradiation and a previously undetected coexistent neoplasm becomes plainly discernible.

Dr Fleischer, docent, discussed the x-ray visualization of pulmonary alterations which may appear in the vicinity of tuberculous foci. It is known that these processes are not necessarily tuberculous but may be only secondary sequels of the primary manifestations. Dr Herrnhiser of Prague discussed the same theme. In recent years, he said, it has been established that in the study of shadows in the hilus pulmonis more diagnostic significance attaches to the structure than to the size and shape. The foregoing factors are most important in the diagnosis of childhood tuberculosis, which is frequently localized in the hilus. Dr Kautsky spoke on bronchography, a technic which he finds especially valuable for the diagnosis and therapy of bronchiectasis. Of interest was the report of Ruckenstein of Innsbruck on the x-ray visualization of dilatation and diverticulum in the region of the esophagus.

L. Strauss, engineer, demonstrated a new apparatus which he calls the "telecord," by means of which each cardiac phase can be photographed in sequence. The device can be attached to any x-ray apparatus.

Dr Zdansky spoke on the differential diagnosis of gastric carcinoma as opposed to catarrhal or ulcerous gastritis. Observations over a period of years of cancer in which cure has been effected attest the importance of diagnosis in the early or precancerous state. Drs Presser and Pape emphasized that not infrequently the discrepancy between the clinical observations and the x-ray observations is decided in favor of the roentgenologist only by surgical operation. Dr Altschul of Prague discussed the limits of x-ray diagnosis of bone disease. The time at which examination takes place is important, as in the initial stages bone disease is but rarely demonstrable by x-rays. The early diagnosis of head injuries was discussed by Professor Schüller. Despite positive determinations (foreign bodies within the cranium, bone fractures and so on) the initial subjective symptoms are as often as not quite slight and therefore misleading. Such patients stand in grave danger unless submitted to x-ray examination. In severe traumas of the head the portable apparatus is most serviceable. Dr E. G. Mayer stressed the importance of roentgenography in disorders of the mastoid and pyramidal processes.

Dr Leb of Graz discussed the early diagnosis of gallbladder disease. Formerly a cholecystitis was assumed if the gallbladder was not filled by the contrast medium. The author has, however, in more than 200 cases introduced the contrast fluid by intravenous injection (not orally, as is customary). He was able, by means of this more exact technic, to detect inflammatory lesions in the gallbladder when the shadows of the organ appeared normal in other types of visualization.

The second principal theme was roentgen therapy of inflammations. The leading paper was read by Dr Wieser. Professor Freund stressed the marvelous prophylactic influence of roentgen irradiation on recurrent inflammations. Professor Dr Wintz discussed the roentgen therapy of inflammatory disorders of the female genitalia. There are virtually but two types of procedures: irradiation of the foci of inflammation proper with small doses and irradiation of the ovaries with larger doses. The last named procedure induces a dormancy in ovarian function (temporary castration) and secondarily a recession of the inflammatory process. In acute mastitis the

inflammation can be brought to cure through a roentgen-produced dormancy of lactation. The observations of Professor Wintz were verified by those of Dr Gajzago of Budapest, who had achieved similar successes in the treatment of phlebitis.

Dr Palugyay of Vienna has observed favorable results of roentgen irradiation in osteomyelitis. In its early stages the disease can be cut short and quickly eradicated by mild dosage. In the advanced stages mild doses are ineffectual, larger doses however, induce a quicker casting off of sequestrums. In paronychia, too, in the simple as well as in the osseous and articular forms, one can, according to Dr Spitzenberger, attain results by roentgen therapy that compare favorably and may even be superior to those obtained by surgery. The roentgen therapy of disturbances due to spur formation on the soles of the feet was highly recommended. Although irradiation does not cause the spur to disappear, it heals the inflammatory processes for which the spur is responsible.

Windholz advocated roentgen therapy in chronic tonsillitis. Although the rays do not effect a total obliteration of the tonsils as in tonsillectomy, they do lead to satisfactory and seemingly permanent results. This observation was corroborated by Frank, who treats tonsillar abscesses solely with roentgen rays.

Dr Hammer particularly recommends roentgen therapy in neuritis and neuralgia. It is more effective than any other type of treatment for these disorders. The influence on inflamed nervous tissues seems to be specific.

Even this brief enumeration of the most important papers shows how this congress, although planned as a small, local Austrian affair, came to assume an international complexion through the presence of so many prominent roentgenologists from Germany, Italy, Czechoslovakia, Hungary and Poland.

ITALY

(From Our Regular Correspondent)

July 30, 1937

Society Meetings

At a meeting of the Accademia medico fisica of Florence recently Professor Focosi reported four cases of metallic foreign bodies lodged in the posterior segment of the eye. The anterior segment was normal and the refractive media were transparent. The foreign bodies in all cases were removed through the sclera by means of Volkmann's giant electromagnet. The localization of the metallic particles was determined by ophthalmoscopic or x-ray examination of the eye. The scleral incision was proportional to the size of the body, to prevent injuring the choroid. The operation gave satisfactory results in all cases. The speaker concluded that the removal of foreign bodies through the sclera is a procedure which is preferable to that of removing them through the anterior chamber.

Professor Volterra said that the methods actually used for determining the aromatic substances of the blood do not give satisfactory results. The colorimetric reactions, done on the blood deprived of proteins, result in the determination of many aromatic substances of phenolic nucleus aside from that of the phenols in the blood. The reaction is nonspecific, especially because of the presence of amidoles. Distillates, obtained by indirect distillation in a steam current, contain also substances that disturb the reaction. Better results are obtained by resorting to the xanthoproteic reaction of Parenti and Pekelis, with slight modifications. Normal blood contains free and conjugated phenols in a noticeable amount. An exact chemical determination as to the amount of phenols in the blood cannot be made by any method. The method described and used by Volterra, however, gives clinically satisfactory results in studying the metabolism of aromatic substances.

The gruppo cardiologico italiano met recently in the hall of the Clinica medica of the Milan University to discuss chronic myocarditis. Professor Condorelli discussed this subject from

a clinical point of view. He criticized the modern opinions of those who regard chronic myocarditis as a syndrome of circulatory insufficiency or due to extramycocardial heart diseases. There is no doubt that the myocardium may be involved in both pathologic conditions and that the diagnosis of the conditions of the myocardium in circulatory insufficiency or extramycocardial heart diseases is of great importance. Chronic myocarditis, however, is a myocardial disease of chronic evolution independent of circulatory insufficiency. The specific agent of rheumatism frequently involves the cardiac muscle diffusely. Nonspecific myocardial lesions, such as degeneration and myofibrosis, are caused either by coexisting rheumatic coronaritis or by atheroma of the coronary arteries, which may complicate the disease. In the diagnosis of the conditions of the myocardium of patients suffering from hypertension, the presence of hypertrophy is a sign of importance in showing a diminished functional capacity of the heart. Besides the physical symptoms and x-ray signs, the alterations of the electrocardiogram, especially of the S and ST deflections, are of diagnostic value. The disturbances of atrioventricular conduction show ischemic lesions of the bundle of His from coronary sclerosis. The speaker stated that the clinical diagnosis of myocardial sclerosis can be made early in the development of the disease, before establishment of the phenomena of decompensation, and can be followed by an early treatment of the disease.

Dr. Caporali, in a lecture before the Turin Società di Chirurgia, spoke on the surgical treatment of impotence. His operation for impotence is done by the following technic: spinal or sacral anesthesia, incision of the skin at the back of the penis, passage of a nontraumatic needle carrying a thread of catgut from one to the other cavernous body, moderate traction of both ends of the catgut and knotting in order to have the dorsal vein of the penis compressed. The patient is placed in the jackknife position, a urethral sound of Bemique's type is passed into the urethra, the incision starts at a point 10 cm from the anal margin, and after a course of 5 cm it is bifurcated to form an inverted Y. By this incision one approaches the spongy body, which is covered by the bulbocavernosus muscle, at the end of which the ischio-cavernosus muscle is located. With a nontraumatic needle threaded with catgut the ischio-cavernosus muscles of both sides are approximated in front of the bulbocavernosus muscle, to make local compression. The bulbocavernosus muscles are also approximated by the same technic. Because of the fact that the nerve supply of the region is abundant, the operation has to be carefully done to prevent injuring the nerves.

Marriages

DONALD WILLIAM FAWCETT, Starkweather, N. D., to Miss Rosemary Barbara Tallent of Menominee, Mich., June 26.

GEORGE EDWARD HALL, Toronto, Ont., Canada, to Miss Lola Ruth McDonald of Bronxville, N. Y., June 26.

ANDREW MARSHALL JAMISON JR., Spartanburg, S. C., to Miss Amelia Albergotti of Orangeburg, June 5.

WILLIAM LESLIE HEITER, Mobile, Ala., to Miss Elizabeth Agnes Manson of Jacksonville, Fla., June 2.

NICHOLAS LUCIA, Braidwood Ill., to Miss Elizabeth J. Yeats of York, Pa., at Collegeville, Pa., June 6.

ARCHIBALD R. JUDD, Glen Gardner, N. J., to Dr. MARGARET DILL MILLER of Philadelphia, July 16.

JOSEPH L. LILIENTHAL JR., New York, to Miss Katherine Arnstein of San Francisco, June 25.

ALEXANDER O. BIRGERSON, Chicago, to Miss Eleanor B. Mueller of Hinsdale, Ill., July 31.

HARLEY A. HAYES, Ann Arbor, Mich., to Mrs. Grace Lyons at Ionia, July 3.

HENRY N. HARKINS, Chicago, to Miss Jean Trester of Hobart, Ind., June 19.

Deaths

Arthur Walters Rogers, Oconomowoc, Wis., Rush Medical College, Chicago, 1895, past president of the Waukesha County Medical Society and the Milwaukee Academy of Medicine, in 1927 president and for many years chairman of the council of the State Medical Society of Wisconsin, and in 1934 awarded the gold seal of the society, member of the American Psychiatric Association and the Central Neuropsychiatric Association, for many years director and owner of the Oconomowoc Health Resort, now known as the Rogers Memorial Sanitarium, of which he was physician in charge, aged 67, died, August 27, of coronary occlusion.

Harry Ver Brike Brown, Glendale, Calif., Bennett College of Eclectic Medicine and Surgery, Chicago, 1902, formerly vice president of the Los Angeles County Medical Association and past president of the Glendale Branch, member of the state board of medical examiners, for many years a member of the board of trustees of the Glendale Union High School District, acting as president for one term, and also served as a member of the board of trustees of the Glendale Public Library, aged 62, died, June 25.

John Thomas Joseph Bird, Los Angeles, University of the City of New York Medical Department, 1886, member of the Medical Society of the State of New York, formerly clinical professor of medicine at the New York University College of Medicine, aged 76, died, June 26, in the Hospital of the Good Samaritan, as the result of an injury received in a fall while at Yosemite National Park, Calif.

Harry Gilmer Walcott, Dallas, Texas, Baltimore Medical College, 1901, fellow of the American College of Physicians, emeritus professor of gastro-enterology at the Baylor University College of Medicine, associate professor of physiologic chemistry at his alma mater, 1901-1902, served during the World War, aged 58, died, June 2, in the Medical Arts Hospital.

George Womock Sitman, Baton Rouge, La., Tulane University of Louisiana Medical Department, New Orleans, 1892, member of the Louisiana State Medical Society, parish health officer, medical superintendent of the Greenwell Springs (La.) Sanatorium, aged 67, died, June 16, in Roseland of chronic interstitial nephritis, pneumonia and arteriosclerosis.

R. E. Lee Smith, Doyle, Tenn., University of Tennessee Medical Department, 1886, member of the Tennessee State Medical Association, past president of the Knox County Medical Society, formerly superintendent of the Eastern State Hospital, Knoxville, aged 72, died, June 7, in the Knoxville (Tenn.) General Hospital.

Herbert Spencer Van Kirk, McKeesport, Pa., University of Pennsylvania Department of Medicine, Philadelphia, 1899, member of the Medical Society of the State of Pennsylvania, past president of the city board of health, on the staff of the McKeesport Hospital, aged 61, died suddenly, June 6, of coronary thrombosis.

Benjamin Thane, Wahpeton, N. D., University of Minnesota Medical School, Minneapolis, 1917, member of the North Dakota State Medical Association, served during the World War, health officer, contract physician to the Wahpeton Indian School Hospital, aged 50, was electrocuted by his own x-ray machine, June 17.

Reginald Malcolm Ballantyne, Manlius, N. Y., Syracuse University College of Medicine, 1913, physician to the county penitentiary, served during the World War, past president of the board of education, aged 49, died, June 30, when the automobile in which he was driving was struck by a trolley car.

Julian L. De Loney, Detroit, Meharry Medical College, Nashville, Tenn., 1905, member of the Michigan State Medical Society, formerly professor of internal medicine at the University of West Tennessee College of Medicine and Surgery, Memphis, aged 55, was shot and killed, June 24, by a patient.

George Coleman Skinner, Washington, D. C., Rush Medical College, Chicago, 1894, formerly surgeon in the U. S. Public Health Service reserve, and later connected with the Veterans Administration, served during the World War, aged 67, died, June 21, in the Veterans Administration Facility.

George Edward Smith, Fredonia, N. Y., University of Buffalo School of Medicine, 1886, member of the Medical Society of the State of New York, past president of the Chautauque County Medical Society, formerly coroner, aged 74, died, June 18, of myocarditis and cerebral hemorrhage.

Charles Oscar Caswell, Portland, Maine, Medical School of Maine, Portland, 1900, member of the Maine Medical

Association, for many years head of the science department of the city high school, aged 70, died, June 22, of cerebral hemorrhage and hypertensive heart disease

Henry Ansel Vincent, Wellington, Kan., College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1900, member of the Kansas Medical Society, served during the World War, aged 61, died suddenly, June 9, of acute dilatation of the heart

Florence Augusta Sherman, Albany, N. Y., Woman's Medical College of the New York Infirmary for Women and Children, New York, 1891, formerly assistant state medical inspector for the state department of education, aged 76, died, June 20, in Watertown, of nephritis

Lloyd Charles Lane ♂ Oklahoma City, University of Oklahoma School of Medicine, Oklahoma City, 1929, aged 32, on the staffs of the Oklahoma City General Hospital, Wesley Hospital and St Anthony Hospital, where he died, June 28, of a sinus infection

Orrin Hays Swayze ♂ Yazoo City, Miss., Tulane University of Louisiana Medical Department, New Orleans, 1893, formerly county health officer, for many years member of the board of trustees of the city schools, aged 66, died, June 13, of cerebral arteriosclerosis

Vaughan Le Roy Sprenkel ♂ Allentown, Pa., Jefferson Medical College of Philadelphia 1931, on the staff of the Sacred Heart Hospital, aged 31, died, June 18, in the Jefferson Hospital, Philadelphia, of cerebral hemorrhage and thrombocytopenic purpura

William James Shaw, Rome, Ga., Atlanta Medical College, 1895, member of the Medical Association of Georgia, past president of the Floyd County Medical Society on the staff of the Harbin Hospital, aged 69 died, June 21, of chronic myocarditis

George Dalton, Malden, Mo., Missouri Medical College, St. Louis, 1889, member of the Missouri State Medical Association, aged 84, died, June 24, in a hospital at Little Rock, Ark., of hemorrhage of the stomach and carcinoma of the pancreas

Frank Pierce Gray, San Francisco, Cooper Medical College, San Francisco 1895, member of the California Medical Association, formerly assistant professor of diseases of women and children at his alma mater, aged 84, died, June 28

William Riley Parker, Dixon, Ill., College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1901, member of the Illinois State Medical Society, died, June 25, in a local hospital, of cerebral hemorrhage

Edwin Clyde Ramer, Memphis Tenn., University of Tennessee College of Medicine, Memphis, 1928, member of the Tennessee State Medical Association, aged 35, died, June 29, in the Methodist Hospital, of cerebral hemorrhage

Frances Wason Potter, Medford, Mass., Woman's Medical College of Pennsylvania, Philadelphia, 1891, member of the Massachusetts Medical Society, aged 82, died, June 24, of arteriosclerosis and cerebral hemorrhage

Everette Lewis Powell, Farrisville, Texas, University of Louisville (Ky.) Medical Department, 1902, St. Louis College of Physicians and Surgeons, 1904 aged 62, died, June 24, in the John Sealy Hospital, Galveston

William N Spohn, Brownsville, Texas, Kentucky School of Medicine, Louisville, 1897 member of the State Medical Association of Texas, aged 67, died, June 10, in the Mercy Hospital, of gastric hemorrhage

John Newton De Shazo, Center Cross, Va., Medical College of Virginia, Richmond, 1900, member of the Medical Society of Virginia, member of the county board of supervisors aged 61, died, June 26

William Cecil Burnaman, Washington, Kan., Lincoln Medical College of Cotner University 1908, member of the Kansas Medical Society county coroner, aged 52, died, June 23, of coronary thrombosis

Alonzo L Carpenter, Joplin Mo., University Medical College of Kansas City, 1897, formerly city physician, aged 68 died, June 25, in the Freeman Hospital, of injuries received in an automobile accident

Mary Augusta Camp, Red Hook N. Y., Woman's Medical College of the New York Infirmary for Women and Children New York, 1893, aged 80, died, June 17, of chronic nephritis and myocarditis

Nathaniel Van Wert Wright, Baltimore Baltimore University School of Medicine, 1901, Southern Homeopathic Medical College, Baltimore, 1902, aged 59, died suddenly, June 19, in Lewes, Del

James T Tipton, Mountain Home, Ark., Memphis (Tenn.) Hospital Medical College, 1891, member of the Arkansas Medical Society, aged 72, died, June 4, of heart disease and cirrhosis of the liver

Joseph Vanden Berg, New York, Columbia University College of Physicians and Surgeons, New York 1904, member of the Medical Society of the State of New York, aged 60, died, June 23

Herbert Wilson Long ♂ Newark N. J., Bellevue Hospital Medical College, New York, 1894, on the staff of St Michael's Hospital, aged 65, died, June 10, of cerebral embolism

Edward Everett Collins, Premont, Texas, Vanderbilt University School of Medicine Nashville, Tenn., 1890, served during the World War, aged 76, died, June 28, in a hospital at Legion

Franklin De Wight Ayers ♂ Sabula, Iowa, Baltimore University School of Medicine, 1892, aged 70, died June 23 of chronic myocarditis, cholecystitis and prostatic hypertrophy

Clinton Quincy Dodd, Santa Monica, Calif., John A. Creighton Medical College, Omaha, 1910 member of the Nebraska State Medical Association, aged 49 died recently

William H Steele, Griffin, Ga., Atlanta College of Physicians and Surgeons 1900, member of the Medical Association of Georgia aged 67, died, June 23, of cerebral hemorrhage

Albert Marion Hoyer, Akron, Ohio, Starling Medical College Columbus 1891, aged 79, died June 28, in the City Hospital, of pyelonephritis and prostatic hypertrophy

St Elmo Davenport, Atlantic City, N. J., College of Physicians and Surgeons, Boston, 1908 school and city physician, aged 58, died, June 28, of mitral regurgitation

Jeremiah Maher, Los Angeles, Rush Medical College Chicago, 1882, past president of the Alameda County Medical Society, aged 88 died, June 14, of arteriosclerosis

Fletcher F Craig, Fort Worth, Texas, Fort Worth School of Medicine, Medical Department of Texas Christian University, 1909, aged 53, died, June 28, of nephritis

Robert Bates Hunt, Boston Harvard University Medical School, Boston, 1912, served during the World War, aged 51, died, June 22, in the Faulkner Hospital

William Florence Sheridan, Pittsburgh, Jefferson Medical College of Philadelphia, 1871, aged 89, died, June 3, of myocarditis and essential hypertension

Frank Guy Blanchard, Woodville, Ohio, Western Reserve University Medical Department, Cleveland, 1888, aged 77, died June 26, of coronary thrombosis

Amos Hiram Winslow, Toledo, Ohio, University of Michigan Homeopathic Medical School, Ann Arbor, 1879, aged 84, died, June 14, in a local hospital

William Alonzo De May, Fort Collins, Colo., Kansas City (Mo.) Medical College, 1891, aged 80, died, June 22, of diabetes mellitus and pneumonia

Charles Russell Smith ♂ Tioga, Pa., University of Pennsylvania Department of Medicine, Philadelphia, 1898, aged 66, died, June 1, of lobar pneumonia

Walter M Boylan, Boyne City, Mich., Michigan College of Medicine and Surgery, Detroit, 1900, aged 65, died, June 24, of bronchopneumonia

Amos Leuty, Morris, Minn., Drake University Medical Department, Des Moines, Iowa, 1898, aged 68, died, June 24, of coronary thrombosis

George Millard Clifton ♂ Norman, Okla., Metropolitan Medical College Chicago, 1900, aged 60, died, June 22, of coronary thrombosis

Walter Livingston Coulthard, Vancouver, B. C., Canada, University of Toronto (Ont.) Faculty of Medicine, 1894, aged 64, died, June 6

William Ernest Borley, Mishawaka, Ind., Detroit College of Medicine, 1894, aged 67, died, June 21, of heart disease at Twelve Mile

Thomas Wellesley Peart, Hamilton, Ont., Canada University of Toronto Faculty of Medicine, 1909, aged 48, died, June 4

William Thomas Burns, Toronto Ont., Canada, University of Toronto Faculty of Medicine, 1900, aged 63, died, June 3

Jerome Cornell Fleischman, St. Louis, (licensed in Missouri in 1905), aged 56, died, June 27, of heart disease

Gustave Kempf, Detroit, Detroit College of Medicine, 1895, aged 64, died, June 27, of pulmonary tuberculosis

Correspondence

THE HISTORY OF SYPHILIS

To the Editor—I have just read the Special Clinical Article in THE JOURNAL of August 21 by a distinguished syphilographer (Cole, Harold N Congenital and Prenatal Syphilis, THE JOURNAL, Aug 21, 1937, p 580) This contains a section titled Historical Review, from which I quote the following

Torella 1498 Vella 1508 and Cataneus 1516 had the idea that a mother's syphilis was transferred to the child in its passage through the birth canal or later from infected milk or infected mammae Fallopius body physician of Pope Alexander VI and of Pope Julius II, noted that wetnurses were infected from syphilitic babies and in 1504 gave the first clinical description of the syphilitic fetus

Now Gabriel Fallopius was born in 1523 and died in 1562 Pope Alexander VI was pope from 1492 until 1503, when he died, and Julius II was pope from 1503 to 1513 How Fallopius could have been physician to these popes long after they had died, and how he could have written about congenital or prenatal syphilis in 1504, or some nineteen years before he was born, is beyond my comprehension but can doubtless be explained by those who believe that the treponematoses named syphilis by Fracastorio in 1530 first invaded Europe and Asia from the island of Haiti in 1493

Incidentally I returned yesterday from a 6,000 mile journey, during which I had the privilege of visiting a library containing a rich collection of rare and valuable books and manuscripts, some of which I was able to study and copy Among other material I had photostated a good clinical description of prenatal syphilis dating to 1363 In fact, I already had some passages of this nature belonging to a period a little over 100 years earlier

R C HOLCOMB, MD, Upper Darby, Pa
Captain, Medical Corps, U S Navy, retired

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES THEY DO NOT, HOWEVER REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS BUT THESE WILL BE OMITTED ON REQUEST

IDE COLOR TEST FOR SYPHILIS

To the Editor—I have recently received a circular with regard to the Ide Color Test for syphilis Such a simple and convenient test would be very valuable What is its present status as to accuracy?

MD, Burlington Iowa

ANSWER—Sobel Ide and Tamao Ide reported on their test in the *Journal of Laboratory and Clinical Medicine* 21 1190 (Aug) 1936 No significant comparative studies with well established tests have as yet appeared in the literature hence it is impossible to comment at this time as to the dependability of this test

SALT TABLETS FOR HEAT—POSSIBLE OVERDOSAGE

To the Editor—What information can you give me on the use of salt tablets in excessive heat? What dangers are there in overdosing in early cases of arteriosclerosis and/or nephritis with potential edema?

MD New York

ANSWER—The use of salt tablets to combat the ill effects of heat has become an almost standard procedure in hot industries During very hot weather the majority of all larger manufacturing establishments resort to this practice A worker engaged in active physical duties on a hot summer day may perspire as much as 6 liters, although the average is lower The saline content of perspiration is such that as much as 20 Gm of mineral material may be lost from the body in a single twenty-four hour period This mineral loss has proved to be the cause or contributing cause of muscle cramps, excessive fatigue and gastro-intestinal upsets The consumption of water alone or oatmeal water or dextrose water will not allay

the physical difficulties resulting from mineral losses So great is the loss of chloride through profuse sweating that it is almost impossible to replace total loss fully through the consumption of salt tablets or salted fluids Workers are encouraged to take one tablet (usually 0.65 or 1 Gm of sodium chloride) with every drink of water Seldom do workers consume more than ten tablets a day The average number is nearer five If the high number of ten tablets is daily consumed, this represents not more than 10 Gm of sodium chloride, which does not exceed the average loss of salt through perspiration on a hot summer day Naturally, considerable salt is taken into the body along with foods, but the combined intake rarely exceeds perspiration losses In the absence of foolhardy acts of workers who occasionally ingest a handful of salt tablets as an act of bravado, it is not known that any harmful results will arise from the use of salt tablets in industry, in homes and elsewhere The desideratum of course is to keep the salt replacement at a level or near to the salt losses through excretions and secretions In early cases of arteriosclerosis or nephritis, with potential edema, no apprehension as to ill effects is warranted so long as the salt intake is maintained on a replacement basis in the body, which is rarely exceeded in the hot industries or during hot summer months through the use of from five to ten salt tablets daily

BRASS POISONING

To the Editor—I should appreciate receiving detailed information concerning the subject of brass poisoning—signs, symptoms diagnosis and treatment.

V N FELDMAN MD Holyoke Mass

ANSWER—Ordinarily the term brass is applied to an alloy of copper and zinc Frequently, however, the term is applied to other metallic materials in which copper is the chief component Some brass may contain lead to as high a percentage as 50 Nearly all brass contains at least traces of lead as an impurity Likewise, arsenic may be present as an impurity in quantities sufficient to produce arsenic poisoning Therefore the term "brass poisoning" is an anomalous one and any chronic disease resulting from exposure in brass manufacture is likely to be either lead or arsenic poisoning The copper component of brass seldom gives rise to any occupational disease, although copper may not be regarded as entirely innocuous Molten copper, like many other metals, may give rise to metal fume fever Green perspiration and greenish discoloration of the hair may be associated with exposure to copper, but such conditions do not constitute genuine diseases Copper at times leads to a dermatitis, which as an occupational disease is relatively unimportant On the other hand, the zinc component of brass may lead to a clear cut occupational disease of acute nature In the making of brass, the melting point of the zinc is so much lower than that of copper that it is necessary to boil the zinc in order to melt the copper This leads to the evolution of appreciable quantities of zinc oxide in the atmosphere Workers inhaling this zinc oxide may develop a variety of metal fume fever which in different trades is termed "brass poisoning" "brass workers' ague," "zinc chills" or "foundrymen's chills" The probability of this disease naturally is in proportion to the extent of exposure Winter weather with enclosed work places favors the occurrence of the disease This is also true of wet, snowy weather New workers are prone to acquire the disease until inured Older workers, absent from the work place, lose their tolerance and may develop difficulties Commonly the disease does not arise during the work day and during exposure but first appears at night, after exposure on the preceding day The attack may be characterized by a severe chill and marked thirst These manifestations commonly give way to a period of profuse sweating, association with some degree of prostration, distaste for food, and indolence The experienced workman comes to know that he may return to work on the following day, without marked discomfort, perhaps only to suffer from another attack during the following night Associated with the zinc chills there appears to be a predisposition to respiratory infection, so that some few individuals may lose time from employment on this account No chronic form of the disease is known and repeated attacks lead to no direct manifestation of impairment other than those associated with lack of sleep, lack of food and frequently the ill effects of undue alcoholism, since the thirst connected with these attacks favors high alcoholic intake Gastro-intestinal upsets are a frequent concomitant of this form of brass poisoning There is no known specific treatment, but preventive measures carried out in the plant, such as the wearing of respirators or the procurement of proper ventilation, may ward off attacks The attack itself calls for no specific treatment In industries apart from brass founding, such for example as galvanizing the zinc oxide produced, combinations with other vapors, such

ns sulfuric acid, from pickling vats, leading to the formation of zinc sulfate, may occur. Exposure to such a zinc compound may give rise to dissimilar and more serious manifestations than those described for zinc chills.

OPHTHALMOPLÉGIA AND GASTRIC UPSETS IN CHILD WITH POSITIVE WASSERMANN REACTION

To the Editor—I have a boy aged 6 years under my care who was in good health up to 1934 when he began to have attacks of pain in the stomach without vomiting for two or three days followed by evidence of oculomotor nerve disturbance (i. e. drooping of the right eyelid and strabismus of the right eye) for three or four days. This cycle was repeated regularly every three months almost to the day. The father's Wassermann and Kahn reactions were found to be 4 plus. The mother's on two separate occasions were entirely negative. The paternal grandfather died of unknown cause in an insane asylum. The child's Wassermann reaction was 4 plus. Physical examination of the child was negative either for acquired or for inherited evidence of syphilis. The eye symptoms clear up entirely within three or four days. Vision accommodations are entirely normal at intervals. Treatment has consisted of sulfarsphenamine intramuscularly 0.2 Gm per kilogram (the child is uncooperative in treatment intravenous therapy being impossible) once a week for six weeks followed by a bismuth compound intramuscularly for six weeks with a four weeks rest period. One of these courses has been given. The expectant time of disturbance arrived during the course with no stomach symptoms but with an eye disturbance lasting only two days. The Wassermann reaction at the end of the course was negative. Is the outlined course of treatment adequate or would a continuous type of therapy be advisable? Please advise as to drugs. Would mercury chloride be preferable to bismuth?
M D Pennsylvania

ANSWER—The evidence offered is not sufficient to warrant a diagnosis of gastric crisis. It would seem advisable to have a spinal fluid examination, using a general anesthetic if the child is noncooperative. The eyegrounds also should be examined. The history of recurring ophthalmoplegia in association with the gastric upsets is quite unusual. The use of an arsphenamine preparation for intramuscular administration is advisable in a child of this type. However the development of blood dyscrasias from the use of sulfarsphenamine has been encountered frequently enough to make its use attended with some risk. Bismuth arsphenamine sulfonate might be used in its place, followed by the bismuth course as suggested or even by mercury injections. If the spinal fluid is positive, more intensive measures may have to be adopted, such as intraspinal therapy or malaria therapy. The child should have at least three courses of injections of an arsphenamine with courses of bismuth or mercury compounds interspersed according to the continuous system of treatment, before the more intensive measures are adopted.

SOFKURD MILK

To the Editor—What is SofKurd mineral exchange milk? How does it compare with ordinary pasteurized milk in digestibility and nutritive value?
M D Ohio

ANSWER—SofKurd Milk is a trade name for a pasteurized milk from which a portion of the ionizable calcium has been removed. This is effected by passing the milk over "sand" consisting of one of the zeolites. These are hydrated silicates of aluminum and of sodium, potassium or calcium. Compounds of this type containing sodium and potassium exchange these elements for some of the calcium of the milk, which is allowed to flow over them. The procedure is similar in some respects to a method of softening water. If suitable proportions of sodium and potassium are used in the zeolites, the treated milk contains these elements in practically unchanged ratio. Part of the calcium shifts from the milk to the zeolite and along with it goes some of the phosphate by a mechanism that is not well understood. The ratio of calcium to phosphorus in the milk, however, is not changed by this treatment. The chief chemical difference between SofKurd Milk and ordinary pasteurized milk is that the former contains 20 per cent less calcium and phosphates. The originators of the method (Lyman, Brown and Otting *Indust & Engin Chem* 25 1297 1933) showed that the removal of part of the ionizable calcium prevented the formation of a clot by rennin. This milk also forms a soft curd when treated with pepsin and hydrochloric acid. The significance of soft curd qualities has been discussed in a recent report of the Council on Foods (*THE JOURNAL*, June 19, p 2122) with the conclusion that milk yielding a soft friable curd in the stomach is well tolerated and more readily (but not necessarily more completely) digested in the stomach than milk producing a hard curd. It should be noted that the determination of the curd tension of "SofKurd mineral exchange milk" by the well known Hill method gives high results unless the coagulating agent is pepsin and hydrochloric acid. This is because the Hill reagent (pepsin plus HCl) adds much more calcium than has been removed by the zeolite treatment. The

curd tension observed with pepsin and hydrochloric acid as the coagulant is usually around zero and in this respect the milk resembles breast milk. Hess, Poncher and Woodward (*Am J Dis Child* 48 1058 [Nov.] 1934) carried out a balance experiment with an infant 80 days old who was fed this type of milk. Throughout the experiment the infant was in positive calcium balance and retained a slightly greater amount of calcium (and therefore a greater proportion of the calcium of the food) when liquid zeolite-treated milk was used than when ordinary milk was fed. In vitro studies indicate that the proportion of ultrafiltrable calcium is greater in 'base exchange' milk, which may explain the high proportion of calcium reported to have been retained by the infant on that type of milk. Rogers, Pavey and Williams (*Ohio State M J* 30 441 [July] 1934) used SofKurd Milk as a complementary food for the newborn and recorded that fifty infants fed this type of milk made better gains and suffered fewer losses than fifty babies fed untreated milk. These reports, which are favorable to SofKurd Milk, can hardly be regarded, however as conclusive proof of the superiority of this product over ordinary boiled milk as a principal food for infants. More extensive clinical investigations would be desirable to establish its nutritive value in the feeding of infants. It seems rational to suppose, however, that any milk which yields a soft curd would be of value in the feeding of older children and of persons who do not easily tolerate ordinary pasteurized milk.

EFFECTS OF SYMPATHECTOMY IN HYPERTENSION

To the Editor—Will you please furnish me with information concerning the results of celac ganglionectomy and lumbar sympathectomy with respect to the following points: 1 In an early essential hypertension of two years duration in a man aged 35 with a blood pressure of 150 systolic 110 diastolic what is the immediate effect? 2 Does the diastolic pressure return to its original level after the initial fall? If so what is the cause of this secondary rise? Is it from replacement of paralyzed smooth muscle with contracting fibrous tissue? 3 Does the pressure continue to rise past the preoperative level? 4 What are the possible untoward results from these operations immediate and late? 5 Are any functions other than the vascular affected? 6 In experimental animals with normal blood pressure does such an operation result in arteriosclerosis of the splanchnic vessels and a secondary rise in pressure above normal?
M D Ohio

ANSWER—1 There is some doubt as to whether extensive sympathectomy combined with first and second lumbar ganglionectomy is indicated. In the first place one should be sure that the man had essential hypertension. This can be determined by hourly readings over a twenty-four hour period and by blood pressure readings taken during immersion of the hands in ice water. If the patient has true hypertension the systolic pressure will rise from 20 to 50 mm of mercury. Furthermore, the operation would not be advisable unless the systolic and diastolic pressures drop to normal under the administration of sodium amylal, and unless the pressures drop to normal under the administration of sodium ethyl (1 methyl butyl) thio-barbiturate. In the event extensive sympathectomy (which includes resection of all three splanchnic nerves combined with first and second lumbar ganglionectomy performed bilaterally with a ten day interval between the operations) is carried out the immediate effect would result in a return of the pressures to normal or subnormal readings.

2 The immediate pronounced drop is undoubtedly due to the marked vasodilatation that follows extensive sympathetic resection. The subsequent rise to a normal level is probably due to the maintenance of muscular tone by a pressor substance floating within the blood stream. It is doubtful that the contracting fibrous tissue is capable of producing this rise. It is known that the pressures fail to fall following sympathectomy when sclerotic changes are present. Therefore it is fair to assume that the drops in pressure are undoubtedly due to the vasodilatation that takes place when the central nerve impulse has been interrupted.

3 No, if the case has been properly selected. If a patient has an advanced sclerosis, the pressure will continue to rise in spite of sympathectomy.

4 There may be dryness of the skin below the somatic segment section, with excessive sweating above the level. In men there is a loss of ejaculatory power, but this does not disturb the potentia coeundi or libido.

5 Yes, some patients may have diarrhea for a limited period. 6 Apparently no animals have been studied long enough to prove or disprove the point.

Some authorities believe that sympathectomy for hypertension has no sound foundation and has only served the purpose of destroying a large and important system of nerve fibers to obtain varied and nonuniform responses. The question has been raised as to whether the operation, even though it does

alter blood pressure, has actually changed the course of the progressive pathologic process in true essential hypertension. The eyeground studies in one series of patients certainly showed no improvement in the vascular disease or in the morbidity.

THALAMIC SYNDROME

To the Editor—A man aged 70 sitting on a bench Oct 24 1936 felt weak and collapsed and had to be carried to his home. He did not lose consciousness. He complained of headache and tingling and numbness of the right side of the body. Physical examination revealed a hemianesthesia of the entire right half of the body with a definite line of demarcation. There was muscular weakness on the affected side but no motor paralysis. The eyes reacted sluggishly to light and in accommodation. The right corneal reflex was gone the tongue protruded well without deviation. There was no distortion of the face. The heart rate was 84 regular and of good quality. The blood pressure was 212 systolic 110 diastolic. The lungs were clear. The abdomen was flabby and somewhat distended the reflex on the right was hypoactive. The knee jerks were bilaterally diminished with a suggestive Babinski on the right and no ankle clonus. The right side of the body was insensitive to pin prick temperature or deep pressure. The Wassermann reaction was negative. The urine at the first examination showed albumin ++ and a few granular casts but on a later check up was clear. The blood nonprotein nitrogen was normal. A diagnosis of hypertension arterio sclerosis and left sided cerebral hemorrhage in the area of the thalamus the posterior portion of the internal capsule was made. A neurologic consultation was held. Nursing care with absolute rest in bed was prescribed. Glyceryl trinitrate $\frac{1}{150}$ grain (0.4 mg) and sedatives caused marked improvement in his condition. There was a gradual return of sensation first pin prick then temperature and lastly ability to distinguish the form and shape of objects felt. His blood pressure ranged from 180/200 systolic and 98/108 diastolic. He was able to get up from bed within the month and gradually get up and about the house. However there appeared marked paresthesias—a sensation of burning coldness sweating and shooting like pains on the right side of the body being most marked in the right upper extremity. These have persisted since and in the past week they have been so pronounced as to cause him again to become bedridden. It has also affected him mentally for he has become despondent and gloomy giving way readily to crying spells. Sedatives such as bromides and amylal analgesics aminopyrine salicylates nitrites iodides and lastly narcotics have been of no avail. Local therapy to the extremities consisting of dry and moist heat also have given no benefit. I have sought the advice of a neurologist and medical men but have been unable to obtain information that has been of aid. Any suggestion as to possible therapy for relief of the paresthesia burning and coldness will be greatly appreciated.

MAX B. FERSHMAN MD Bronx N Y

ANSWER—The patient no doubt has what is described as thalamic pain as well as a thalamic syndrome. The pain and the emotional state mentioned are typical of involvement of that structure especially when they occur in conjunction with or follow a hemiparesis, hemianesthesia and hemianopia. Often there is considerable pain with loss of pin prick sensibility over the painful regions. This is known as *analgesia dolorosa*. The pain and paresthesias sometimes become intractable. Fortunately, in most of the cases the pain ultimately disappears with the return of partial thalamic function. Until then one may have to resort to morphine, codeine or strong hypnotics. If, however the pain does not subside, posterior commissure section or chordotomy can be done in the cervical cord.

FRENUM OF UPPER LIP

To the Editor—A child aged 11 months has a separation of the upper central incisors due to hypertrophy of the frenum of the upper lip which is attached to the roof of the mouth. At what age should this muscle be cut and at what place? Should the teeth be wired now or should one wait until the permanent teeth appear?

MD Arkansas

ANSWER—In general the best time for operation on the frenum labii superioris is between 5 and 6 years or between 9 and 10 years. Separation of the central incisors either temporary or permanent is not in itself an indication for operation. The median suture between the intermaxillary bones normally persists in the anterior portion until quite late in life. The central incisors, therefore, both temporary and permanent normally erupt with quite a wide space between. The permanent centrals are normally brought in contact by the pressure of the erupting laterals and canines.

There is a wide range of variation within normal limits in the structure and attachment of the frenum. Usually at birth or some time afterward it is attached at the crest of the alveolar process. As the alveolar process grows downward and forward carrying with it the temporary incisors, the attachment of the frenum should be left behind. It occasionally happens that the frenum extends over the crest of the alveolar process and is attached to the fibrous tissue of the incisal papilla on the palatal slope. In such cases the attachment is not left behind on the labial surface of the process but extends between the incisor teeth as a pad or mat of fibrous tissue, which prevents the

central incisors from coming together. This condition cannot usually be positively determined before the fourth or fifth year. When operation is indicated this dense mat of fibrous tissue should be dissected out from between the teeth and removed the wound being closed by two or more sutures in the gum tissue.

When operation is delayed until the ninth or tenth year the teeth should be moved together by a mechanical appliance first and then the appliance removed, the teeth will separate in a few days. The operation is then to be performed, the tissue dissected out and the appliance replaced and the teeth immediately brought together so that in healing the connective tissue fibers will unite from tooth to tooth as they should. This band, extending from the mesial surface of one central to the other, normally holds these teeth in contact and unless this attachment is formed immediately after the operation the teeth will eventually separate. Operation before the completion of the temporary denture is seldom if ever indicated.

ORDINARY OR ENTERIC COATED GLANDULAR PRODUCTS

To the Editor—1 Are glandular products such as thyroid ovarian pituitary or adrenal when prescribed in ordinary capsules destroyed by the acid present in the stomach? 2 What is the opinion at present on enteric coated medication? What chemical is used and what proof is there that the capsules pass unchanged through the stomach?

ROBERT D. KANE MD Elmhurst N Y

ANSWER—1 Of these endocrine products it is only thyroid that is definitely known to be active when given orally. Its activity is not appreciably destroyed by the digestive juices and it need not be given in enteric coating. The others have no clearly demonstrated value when given orally whether in ordinary or in enteric capsules. 2 Enteric coating is accomplished by phenyl salicylate, keratin, shellac or mixtures of these, or by gelatin hardened with formaldehyde. X-ray examination after the swallowing of opaque (e.g., barium sulfate containing) capsules yields the most obvious proof as to the location of disintegration. When an enterically coated capsule containing sodium iodide and methylene blue is swallowed, marked delay in the appearance of the iodide reaction in the saliva indicates that the capsule probably did not disintegrate in the stomach, while lack of appearance of greenish color in the urine would indicate that the capsule did not disintegrate at all. The sifting of the stools would, of course, also demonstrate lack of disintegration.

LARGE INGUINAL RINGS AND DEVELOPMENT OF HERNIA

To the Editor—What attitude should a physician examining factory employees take regarding large external inguinal rings? I find men with no hernia but rings that will admit a finger for a full joint (size $7\frac{1}{2}$ hand) and some rings nearly two fingers across. Are these patients more likely to develop hernias than the normal tight ringed persons?

MD Michigan

ANSWER—Erdman (Nelson Loose Leaf Surgery, vol 4, p 610) stated that the enlargement of the external ring, which was found in 22 per cent of 2,000,000 drafted men, according to the report of the surgeon general, may be an important determining factor in the occurrence of primary direct hernia. Gorton (Compensable Hernia, *J Indiana M A* 23:521 [Nov.] 1930) believed that hernia of weakness which may be due to congenital weakness of the abdominal muscles, or atrophy following disease in the absence of a preformed sac, is rare.

Some believe that the so called hernia of weakness may be either direct or oblique. The latter type occurs lateral to the inferior epigastric vessels and outside the cord. It is much more common than is generally realized.

It is probable that with an unusually large external inguinal ring in the absence of a preformed sac, there is a tendency to the development of the so called hernia of effort. This belief is further strengthened by the observation that there is often an associated weakness of the deeper layers of the abdominal wall together with an imperfect development of the external oblique fascia.

While adequate support from all layers of the inguinal region, even if weakened might be strong enough to withstand ordinary intra-abdominal pressure the absence or weakness of the external oblique fascia may be sufficient to permit herniation, particularly under effort.

A number of persons who were refused work by company physicians because of an unusually large external ring have been operated on. In a fairly large percentage there was a definite weakness in Hesselsbach's triangle and in some an incompletely obliterated peritoneal process which could not be determined before operation.

INFECTIONS OF HANDS IN MEAT HANDLERS

To the Editor—I am called on at times to treat infections of the hands of butchers and others who handle meat. They seem to be the result of infected cuts and scratches. I have been told that mutton is the cause but I have had instances in which no mutton was handled. In one instance it followed a small scratch on the thumb made by a spicule of beef bone. This acted in some respects like erysipelas but there was little systemic reaction just a dusky area of redness which spread down the thumb and across the palm. The redness was deepest where the saw and cleaver would bruise the hand. Some cuts will fill with pus and resemble a pyocyanus infection. What is the nature of these infections? Allergic? Streptococci? Is it the meat itself or a subsequent pollution? One man stated that smoked meat never bothered him but that fresh meat was a frequent cause.

THEODORE BAKER MD Blairsville, Pa

ANSWER—The infections referred to are doubtless due to inoculation of open wounds with pathogenic organisms of varying virulence. Meat is an excellent culture medium for bacteria of all sorts, just as is milk and every other form of perishable food. The hands of butchers are constantly exposed to bacterial contamination and it is only logical that when they receive cuts the open wounds should frequently become infected. The type of infection and the wound secretion, just as in other cases, depends essentially on the type and virulence of the organism and the patient's resistance. Since meat is usually kept at comparatively low temperatures, the virulence of the organisms on its surface is likely to be diminished. On the other hand, some of the most violent and rapidly spreading infections that one sees in general hospital practice may be due to trivial injuries from a spicule of bone that has caused a penetrating wound of a finger tip.

As a matter of prophylaxis there is nothing more effective than frequent washing of the hands with warm water and soap during the course of the day's work.

MINE GASES AND THEIR EFFECTS

To the Editor—Will you kindly furnish me with information concerning mine gases and their effects on the human body.

E F SHEPPARD MD Jenkins, Ky

ANSWER—Solely for the purposes of this brief discussion, mine gases may be divided into two groups (1) those arising from natural agencies and (2) those produced by dynamite firing and fires. In the former may be found carbon dioxide ("black damp"), although this gas is more often in the second category as a component of "after damp," methane ("fire damp") and hydrogen sulfide ("stink damp"). The popular terms "black damp" and "after damp" do not strictly apply to carbon dioxide, but instead to a mixture of carbon dioxide with nitrogen and other gases commonly produced as a result of explosions. Of the three gases mentioned, carbon dioxide and methane (sometimes ethane as well) act only as asphyxiants. Hydrogen sulfide is highly toxic, causing symptoms in any concentration that may be measured. As little as 0.05 per cent may produce death. In high concentrations this gas leads to quick death from actions on the higher nerve centers. In lower concentrations eye irritation leading to corneal ulcers and inflammation of the eustachian tubes and respiratory tract are characteristic features. This gas as well as methane in certain proportions is highly explosive.

In the latter group may be found the carbon dioxide-nitrogen mixture and hydrogen sulfide and, in addition, carbon monoxide ("white damp") and various oxides of nitrogen. The action of carbon monoxide is too well known to require discussion here. The oxides of nitrogen, of which the peroxide is perhaps the most dangerous, lead insidiously to pulmonary edema, inflammation of the respiratory tract and pneumonia. The slow burning of explosives is far more productive of dangerous gases than their actual explosion. Some or all of the gases mentioned may arise from coal fires, coal dust explosions and gas explosions as well as from the burning or firing of explosives.

COLON BACILLUS PROSTATITIS AND VAGINITIS

To the Editor—How common is colon bacillus prostatitis and urethritis in the male and vaginitis in the female? Kindly outline a successful course of treatment for both of these conditions.

YEN PUI CHIANG MD Lihue Kauai Hawaii

ANSWER—Colon bacillus prostatitis is a common condition, as about 10 per cent of prostatic cultures will show the colon bacillus. It almost invariably accompanies infection of the urinary tract caused by the colon bacillus. Sulfanilamide has been used with success in the treatment of colon bacillus prostatitis and urethritis. If the patient is an adult of average weight, 5 Gm may be given daily for one or two days, then 4 Gm for one or two days, followed by 2.5 Gm daily for from seven to ten days. This dosage should be immediately reduced,

or even discontinued, if toxic symptoms or untoward reactions develop. It must be remembered that acidosis sometimes follows the administration of sulfanilamide. Other undesirable effects, such as jaundice and urticaria have been reported. Certain studies indicate that blood changes may follow prolonged administration of sulfanilamide. These include methemoglobinemia, sulfhemoglobinemia, granulocytopenia and even hemolytic anemia. It is advisable, therefore to examine the blood in cases in which there is extensive use of sulfanilamide.

Colon vaginitis is a rare disease even though colon bacilli are commonly found in the vagina. Before such a diagnosis can be made, the presence of cervicitis, Trichomonas infestation and mycotic vaginitis must be ruled out. There is no specific treatment. One per cent gentian violet and a 0.5 per cent solution of acriflavine in glycerin or phenylmercuric nitrate 1:1,500 solution by instillation followed by douches of 1:20,000 can be tried. Wool tampons saturated with merthiolate 1:2,000 are often of value. It must always be remembered that vaginitis is resistant to treatment until cervicitis has been corrected.

ELECTRIC ARC WELDING

To the Editor—Is there a minimum distance advised for spectators or workmen working around arc welding operations without protective goggles or does this depend primarily on the susceptibility of different individuals?

W S CRAWFORD, MD Tulsa Okla

ANSWER—If all electric arcs were the same size and the environment surrounding the arc were constant, it is probable that a fixed minimum distance might be determined beyond which little or no damage would be likely. Light and heat waves are forms of radiant energy appearing in waves of varying lengths. The damaging rays arising in arc welding are ultraviolet, infra-red and visible light rays, which are the source of glare. At the point of formation these rays are concentrated, but obviously they become diluted as the distance from the point of origin increases. Thus the quantity of such rays affecting the eye would be much less at 200 feet than at 20 feet. It is believed that there is a minimum distance of beginning safety for spectators or workmen in arc welding operations, unprotected by goggles or otherwise, but this distance is probably theoretically different for every single arc and depends, among other factors, on the quantity of arc produced, the general level of illumination in the room or other space where arc welding is carried out, and the amount of glare produced.

Studies made by the Medical Department of the U S Navy using a thermopile device have been directed to this problem of the distribution of radiant energy around welding operations. The office of the surgeon general of the navy is a likely source of extended information in this matter.

For practical purposes, workmen are little concerned in the dangers of arc welding if the distance from the arc is more than 200 feet, under ordinary circumstances.

EPIDEMIC CATARRHAL JAUNDICE?

To the Editor—I have been having numerous cases of what I thought was catarrhal jaundice. The cases are similar. Ordinarily the patient appears for treatment jaundiced. There is no pain in the upper right quadrant or other gallbladder symptoms of sufficient severity to account for the jaundiced condition. In a few days that condition clears up and the patient is then in apparently normal condition. I should like to have your opinion as to what is or may be the cause of this condition so that if possible, I may trace it down and eliminate it.

CHARLES E VESTLE MD Lansing Kan

ANSWER—The question omits details that would be of value in arriving at a solution. Were there fever, malaise or other signs of acute infection at the onset of the jaundice? Were the stools acholic and did bile pigment appear in the urine? Was there an estimation of the concentration of bile pigment in the blood?

Generally speaking, jaundice is obstructive, toxic or hemolytic. Infectious jaundice is fundamentally obstructive and will be so considered in this discussion. If these were cases of true jaundice it would seem that they must be obstructive, because toxic or hemolytic jaundice would persist over a longer time. Indeed it is difficult to see how any true jaundice would disappear "in a few days."

The term catarrhal jaundice is used to designate the jaundice resulting from duodenitis with swelling of the distal end of the common bile duct as well as the jaundice resulting from cholangitis that involves the bile ducts all the way into the liver.

When the inflammatory reaction is confined to the duodenum and common duct, the jaundice is likely to be of relatively short duration. The symptoms of acute infection are usually

present fever, malaise and muscle pain. This condition not infrequently is epidemic and affects a community in a fashion similar to an influenza epidemic.

Specific infectious jaundice, resembling Weil's disease, has occurred in American communities. The specific spirochete can usually be found and the course is longer than the course described in these cases. This disease may be transmitted from person to person.

The possibility of the skin being stained by a substance other than bile must be considered unless an elevation of bile pigments in the blood and urine has been demonstrated.

A hypercarotenemia from overindulgence in certain fresh vegetables may produce a yellow stained skin.

Certain chemicals, notably trinitrophenol and certain sulfur derivatives, produce a stain in the skin resembling jaundice.

If, as it seems probable, these cases are "epidemic catarrhal jaundice," the epidemic will be self limited.

DRUGS FOR PARALYSIS AGITANS

To the Editor—A patient, aged 31 with paralysis agitans has shown improvement under treatment with 6 grains (0.4 Gm) of stramonium daily. 1 What is the maximum dose of stramonium and over how long a period may this be given without fear of untoward effects? 2 Do the powdered leaves possess any advantage over the fluidextract? 3 What are the relative merits of stramonium and scopolamine in the treatment of this disease? 4 What drugs besides these two are of value, and what are the dosages?

M D, Indiana

ANSWER—1 The dose of stramonium as well as of the other drugs of the belladonna series used in paralysis agitans is "dose enough" to accomplish the result without excessive discomfort. The dryness of the mouth and skin and the dilatation of the pupil are sufficiently distressful to make it unlikely that a sufficient dose will be taken to do any real harm.

2 It is not known that the powdered leaves possess advantage over the fluidextract, but it is known that sometimes one tincture of stramonium acts better than a tincture of another lot, so that the question may well be raised whether there might be differences in the extraction of the drug or in the drug itself. The use of the powdered drug would eliminate any doubt as to the possible incomplete extraction of active principles or their alteration during the process of extraction.

3 It is a curious fact that patients with paralysis agitans may find one of these drugs of similar action preferable to the other. Thus there are some patients who seem to get most benefit from scopolamine hydrobromide.

4 Atropine may succeed in cases in which scopolamine and stramonium fail. The same principle governs the method of using atropine that is employed in apportioning the dosage of the other agents of this series in this condition. Thus Benhamou, Fournes and Cuvous (*Paris med* 2 484 [Dec 14] 1935) recommend atropine sulfate in a solution of 0.5 Gm to 100 cc, a drop, therefore, corresponding to 0.25 mg ($\frac{1}{240}$ grain) of atropine. The schedule starts with one drop three times a day, at breakfast, in the middle of the day and in the evening. From one to two drops is added each day until the amelioration of the symptoms does not increase. After from seven to eight days the dosage is progressively diminished drop by drop until the motor spasms recur. It is then continued at the minimal dose that produces optimal results. A daily dosage as high as from 100 to 140 drops (from 25 to 35 mg) of atropine may be reached without the occurrence of toxic symptoms.

TEST FOR ALCOHOL IN BLOOD

To the Editor—In THE JOURNAL Dec 26 1936 page 2145 appears an alcohol blood test by Widmark used by Berlin police. Is this test reliable? If so where can I find how to do this test?

M PAUL TRAVERS M D Miami Fla

ANSWER—The Widmark test for determining the concentration of alcohol in the blood is reliable within a fraction of 1 per cent. It requires, however, a considerable chemical technique and is rather time consuming. All information dealing with this test appears in the German literature. Widmark's original contribution appeared in the *Biochemische Zeitschrift* 131 473, 1922. There are numerous references to the test in the German literature subsequent to this. Two of the recent ones are as follows:

Koller Josef Zur Technik der quantitativen Alkoholbestimmung im Blut nach der Methode von Widmark *Deutsche Zeitschrift für die gesamte gerichtl. Med* 19 513 1932
Kuntz H R Bemerkungen zur Technik der Blutalkoholbestimmung nach Widmark für reichen Untersuchungen *ibid* 24 273 1935

A modification of the Widmark test, much simpler, less time consuming, and accurate within clinical limits is described by

J C Ables in the *Proceedings of the Society for Experimental Biology and Medicine* (34 346 [April] 1936) under the title "A Simple Method for the Determination of Ethyl Alcohol in Blood."

RUPTURE OF LIVER

To the Editor—Would you kindly send me information regarding the mortality, the prognosis and the number of cases of recovery following operation for rupture of the liver due to trauma.

M D, New York

ANSWER—According to Deaver and Ashhurst (*Surgery of the Upper Abdomen*, ed 2, Philadelphia, P Blakiston's Son & Co, 1921, p 598) the mortality in cases of rupture of the liver not treated operatively is probably about 80 per cent. Tilton (*Ann Surg* 41 27, 1905) considers the mortality in cases in which operation is performed about 60 per cent. Undoubtedly there are many minor ruptures of the liver that recover without operation. In cases in which the hemorrhage is subcapsular, the need for immediate operation is less pressing. Moynihan (*Abdominal Operations*, ed 4, Philadelphia W B Saunders Company 2 236, 1926) Ochsner and DeBakey in *Christopher's Textbook of Surgery*, Philadelphia, W B Saunders Company, 1936, p 1283) believes that instant operation is advisable in suspected cases. The mortality is definitely increased in delayed operation.

SOLUTION OF POSTERIOR PITUITARY IN TREATMENT OF HERPES OF EYE

To the Editor—Will you kindly advise me regarding the therapeutic effect of double strength solution of posterior pituitary in treating herpes and dendritic ulcer of the cornea. Has this drug any healing properties or does it merely relieve the pain? In *Gifford's Ocular Therapeutics* page 125 it is intimated that solution of posterior pituitary should be given for the pain only but says nothing as to its healing or curative effects.

C L CHAMBERS M D Des Moines, Iowa

ANSWER—The use of solution of posterior pituitary is not advised in the treatment of dendritic ulcer of the cornea (herpes simplex) but only for herpes zoster ophthalmicus. In this condition it seems to affect the pain alone and none of the other signs of the disease. If the cornea is involved, other local treatment will be necessary. The only mode of general treatment that affects the course of herpes zoster seems to be the use of convalescent serum or whole blood of convalescents in large quantities. Serum from patients who have recently had varicella seems to be of almost equal value if zoster serum is not available.

RAYNAUD'S DISEASE

To the Editor—A woman aged 42 has Raynaud's disease. At present the fingers and toes get white to purplish, painful and numb. From laboratory tests all defects of the body are being cared for and she feels somewhat improved. What suggestions have you?

M D California

ANSWER—In some instances Raynaud's disease is not particularly harmful since it does not progress. In most instances there is a tendency to gradual progression characterized by increasing ease with which attacks of discoloration of digits are induced, by recurrent infections about the fingernails, by small, painful ulcerations on the ends of the fingers, or by scleroderma.

Sympathectomy, with which neurosurgeons have had a wide experience, is uniformly successful when performed for Raynaud's disease involving the lower extremities. This uniformity of success is lacking to some degree in operations on the sympathetic nervous system for Raynaud's disease affecting the upper extremities. However, in the hands of an experienced neurosurgeon the probabilities of complete cure or significant amelioration are good.

It is probable that this patient should have a sympathectomy. The subject is reviewed and references are made to other articles by Allen and Brown in their article on Raynaud's Disease in THE JOURNAL, Oct 29, 1932, page 1472.

VITAMIN B AND HAIR COLOR

To the Editor—Please give me references to reports on the use of the B vitamins in restoring natural color to gray hair.

ISIDOR F SHAPIRO, M D Bronx, N Y

ANSWER—Claims that any of the vitamins restore gray hair to its normal color should be regarded with suspicion. Search of the recent literature of vitamins gives no ground for such a claim. According to R A Peters (*The Vitamin B Complex*, *Brit M J* 2 903 [Nov 7] 1936) the symptoms of vitamin B₁ deficiency may be loss of appetite, edema, palpitation, breathlessness, especially when there is defective removal of blood lactic acid after exercise, neuritic conditions and painful muscles.

Deficiency of vitamin B is believed to be an important factor in the causation of pellagra. The lack of vitamin B₆ causes dermatitis in rats. Other parts of the vitamin B complex may play a part in the causation of pinta disease of children, black tongue in dogs, some heart conditions and some forms of cataract.

TUBERCULOUS EPIDIDYMITIS AND COITUS

To the Editor—A man 44 years of age married by renal tuberculosis with unilateral epididymitis and orchitis of several weeks duration. His temperature is normal and there is little pain at present. He has been advised to abstain from coitus but states that he is nervous and irritable and that in spite of the advice he has had intercourse once or twice and feels much better for several days afterward. How much harm will this do him? Is there danger of coitus causing a bilateral involvement?
M D Colorado

ANSWER—It seems unlikely that the patient will do himself harm by having coitus once or twice a week especially since he feels better for several days afterward. In cases of tuberculosis of one epididymis there is always the possibility of involvement of the opposite side. The second epididymis becomes involved in about 40 per cent averaging about two years after the onset of the tuberculosis in the first epididymis so that bilateral involvement may take place either with or without coitus. Therefore it seems justifiable to grant permission for coitus.

ARGYRIA FOLLOWING NEOSILVOL NOSE DROPS

To the Editor—What is the possibility of development of argyria following prolonged use of neosilvol in the form of nose drops? I can find no reference to this subject in the literature I have consulted.

M D North Carolina

ANSWER—In their summary of generalized argyria Gaul and Staud (Clinical Spectroscopy, *THE JOURNAL*, April 20, 1935, p 1387) state that "argyria developed in 65 per cent following pharyngeal and intranasal applications and in 35 per cent following peroral administration. The duration of the local and systemic treatment varied from one month to eleven years. Neosilvol was used in 20 per cent, collargol in 22 per cent, and argyrol in 55 per cent of the cases." In a table they give references to fifteen articles citing neosilvol as the cause of generalized argyria.

STERILIZATION AND PRESERVATION OF COCAINE SOLUTION

To the Editor—Please tell me the proper way to make a sterile solution of cocaine for use as a local anesthetic in the eye and how long it will remain sterile if not contaminated.

M D Ohio

ANSWER—Cocaine solutions may be sterilized in the autoclave at 15 pounds for fifteen minutes without interfering seriously with their effect. Such solutions when kept sterile can be used for two to three weeks and probably longer. With solutions for instillation which are opened frequently it is best to add 40 grains of boric acid crystals to the ounce to prevent mold and bacteria. The solution prepared in this way remains clear and retains its effect for several months.

CONTACT LENSES

To the Editor—A recent magazine article described the use of contact lenses in place of ordinary glasses. This article appeared in *Collier's* for June 26. I have been requested by a patient to get some information on this subject. What is the current opinion as to the safety of such lenses?

LEWIS BOOKER M D New Castle Del

ANSWER—There is a thorough review of the question of contact glasses in the June issue of the *Archives of Ophthalmology* by Mr T E Obrig of New York. Among those who have had experience with contact glasses it is believed that there is less danger of injury to the eye by breakage than from ordinary spectacles.

IS THERE A MALE CLIMACTERIC?

To the Editor—Is there a male climacteric and is it attended by physical and nervous phenomena? What therapy is available?

M D Pennsylvania

ANSWER—Although the term "male climacteric" has been used by several writers, the accuracy of the term is doubtful. The female climacteric represents the definite cessation of a function accompanied by certain phenomena which vary in intensity and the entire clinical picture may take a few years and does not start or terminate at the same time in different women. In the male, however, there is no such definite cessation of function. One man may lose his sexual vigor at 30 and another man may continue to be sexually vigorous beyond 70. It is true that as a rule between 55 and 60 the sexual

vigor declines and also around this time the prostate may give trouble, but these symptoms do not necessarily appear, whereas the menstrual function in the female must stop at some time, generally between 45 and 50. It seems no more logical to speak of a male climacteric than it would be to call the ages between 5 and 10 the measles period because many children get measles at this time.

FRENUM OF UPPER LIP

To the Editor—Will the removal of the frenum of the upper lip at its attachment between the central incisors prevent too large a space between the central incisors in babies and will it cause a narrowing of this space? Would you consider this an accepted surgical procedure?

E P WEIN M D Clinton Iowa

ANSWER—Removal of the frenum of the upper lip, at its attachment, is of benefit in narrowing the space between the central incisors. However, this procedure is not advisable until the permanent upper lateral incisors have erupted. When these teeth erupt, they often force the central incisors together. If, however, after the lateral incisors have erupted, the space between the central incisors is still too wide, removal of the attachment of the frenum to the periosteum is an acceptable procedure.

SYPHILIS IN PREGNANCY

To the Editor—The answer under Syphilis in Pregnancy (*THE JOURNAL* August 7 p 451) contains a serious mistake which deserves correction. It states that a positive Wassermann reaction on the cord blood specimen is a reliable criterion of syphilitic infection of the new born infant. Modern literature is filling up with corrections of this old misconception. A positive Wassermann (or other reliable serologic test for syphilis) on the cord blood or on venous blood of the new born infant may and very often does simply reflect the presence of syphilitic reagents transmitted from the Wassermann positive mother to her infant in utero. This transmitted reaction may persist for several weeks or months. One way of evaluating it is to titrate the strength of the reaction a falling reaction presumably indicating such a passive transfer of reagents from the mother. A rising titer would indicate probable syphilitic infection of the infant.

Not all laboratories are equipped to carry out such a titration. In that case reliance should be placed on physical examinations, roentgenograms of the long bones and a persistence of the positive serologic reaction. According to a personal communication from Dr Christie of Harriet Lane Home Johns Hopkins Hospital a definitely positive serologic reaction at four months probably indicates syphilis. One should add that even the best and most sensitive tests on the serum are not always positive on a single examination but certainly they are when the infant has clinical signs of congenital syphilis.

One should emphasize the point that the washing out of the early positive transmitted reaction does not necessarily preclude the later development of a true positive reaction and clinical signs of syphilis. Therefore an apparently uninfected infant born of a syphilitic mother should be kept under observation for at least one year.

JOHN V DAVIES M D Boston

ERGOTAMINE TARTRATE IN MIGRAINE

To the Editor—In Queries and Minor Notes (*THE JOURNAL* August 7 p 450) you recommend the hypodermic use of 1 mg of ergotamine tartrate. Relief afforded by the hypodermic injection of ergotamine tartrate (1 mg) at the onset of a seizure would be of further diagnostic value. Having had experience in the use of the drug I should like to call your attention to the fact that the injection of such a quantity might prove distinctly dangerous. It has been our custom never to inject at a single time more than 0.5 mg (1 cc) of ergotamine tartrate (gynecten); the usual initial dose being 0.25 mg. May I take the liberty of referring you to Lennox and von Storch, Experience with Ergotamine Tartrate in 120 Patients with Migraine (*THE JOURNAL* July 20 1935 p 169 and von Storch, *New England M J* 217:247 [Aug 12] 1937).

I am in the process of preparing a study of the dangers and accessory effects concerned in the use of ergotamine tartrate in the treatment of migraine in a series of patients treated for from three to five years. In brief large doses of ergotamine tartrate may be given over a long period of time if the following precautions are rigidly observed: not more than 0.5 mg at a single hypodermic injection nor more than two such injections in twenty-four hours; 0.25 mg always to be used as the initial dose when introduced intravenously, not more than five 1 mg tablets to be used by mouth followed by two per hour to a total of eleven. Contra-indications are coronary disease, obliterative vascular disease, hypovitaminosis (C) active infection and hepatic disease.

T J C VON STORCH M D Neurological Unit Boston City Hospital Boston

EOSINOPHILIA IN PERIARTERITIS NODOSA

To the Editor—In *THE JOURNAL* August 7 p 453 in Queries and Minor Notes is a reply to a question regarding eosinophilia in which mention is made of various diseases that may cause eosinophilia. No mention is made of periarteritis nodosa. About 12 per cent of the cases reported have shown an eosinophilia in one case of 77 per cent. I recently had a case with a total leukocyte count of 20,000 with 50 per cent eosinophils. Textbooks on hematology do not include it as a cause of eosinophilia. Biopsy of a tender area in the calf muscles or deltoid should be done.

BENJAMIN P Sandler M D Bronx New York

Medical Examinations and Licensure

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NATIONAL BOARD OF MEDICAL EXAMINERS SPECIAL BOARDS

Examinations of the National Board of Medical Examiners and Special Boards were published in THE JOURNAL September 11 page 896

Utah June Report

Mr S W Golding director, Department of Registration reports the written examination held by the State Board of Medical Examiners in Salt Lake City, June 21-23, 1937. The examination covered 10 subjects and included 100 questions. An average of 75 per cent was required to pass. Ten candidates were examined all of whom passed. Thirteen physicians were licensed by reciprocity. The following schools were represented:

School	PASSED	Year Grad	Per Cent
University of Colorado School of Medicine	(1933)	88 5	86
George Washington University School of Medicine	(1935)	86	86
Northwestern University Medical School (1937)	83 5 *	85 8 2	88 5
Rush Medical College	(1936)	87 7	86
Louisiana State University Medical Center	(1937)	86 7	86
University of Oregon Medical School	(1937)	89 3	87
Temple University School of Medicine	(1936)	87	87

School	LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
University of Colorado School of Medicine	(1936)	Colorado	
Northwestern University Medical School	(1935)	Illinois	
School of Med of the Division of the Biological Sc	(1935)	Arizona	
Indiana University School of Medicine	(1935)	Indiana	
University of Louisville School of Medicine (1926)	(1936)	Kentucky	
Tulane University of Louisiana School of Medicine (1936)	(1935)	Florida	
University of Maryland School of Medicine and Col lege of Physicians and Surgeons	(1936)	Maryland	
University of Michigan Medical School	(1934)	Michigan	
Washington University School of Medicine	(1935)	Missouri	
Cornell University Medical College	(1933)	New York	
Memphis Hospital Medical College	(1909)	Tennessee	

* This applicant has received the M B degree and will receive the M D degree on completion of internship. License has not been issued.

† License withheld pending completion of internship.

Illinois April Examinations

Mr Homer J Byrd superintendent of registration Illinois Department of Registration and Education, reports the written and practical examination held at Chicago, April 6 8 1937. The examination covered 10 subjects and included 100 questions. An average of 75 per cent was required to pass. Fifty-one candidates were examined, 50 of whom passed and one failed. The following schools were represented:

School	PASSED	Year Grad	Per Cent
Chicago Medical School	(1937) 80	83 *	86 87 92
Loyola University School of Medicine	(1937)	87	87
Northwestern University Medical School	(1934)	87 *	87
(1935) 86 (1936) 84 85 *	86 89 (1937) 84 84 84		
Rush Medical College	(1936)	86	
(1937) 83 84 84 84 85 85 86 86 86 86 87			
School of Medicine of the Division of the Biological Sciences	(1935) 89 (1936) 83 *	(1937)	84
University of Illinois College of Medicine	(1936)	89	
University of Buffalo School of Medicine	(1933)	84	
Hahnemann Medical Col and Hosp of Philadelphia	(1935)	81	
Meharry Medical College	(1935)	80 84	
University of Toronto Faculty of Medicine	(1935)	87	
Medizinische Fakultät der Universität Wien	(1933)	86 1	
Friedrich Wilhelms Universität Medizinische Fakultät Berlin	(1925) 84 †	(1936)	82 1
Hamburgische Universität Medizinische Fakultät	(1920)	85 1	
Rheinische Friedrich Wilhelms Universität Medizinische Fakultät Bonn	(1929)	86 1	
Universität Basel Medizinische Fakultät	(1934)	87 1	

School FAILED Year Grad (1937)

Chicago Medical School

Eighteen physicians were successful in the practical examination for reciprocity and endorsement applicants given in Chicago April 8. The following schools were represented:

School	PASSED	Year Grad	Reciprocity with
University of Arkansas School of Medicine	(1934)	Arkansas	
Northwestern University Medical School	(1934)	California	
Rush Medical College	(1937)	Alabama	

University of Illinois College of Medicine
State University of Iowa College of Medicine
University of Kansas School of Medicine
(1934)* Kansas
Wayne University College of Medicine
St. Louis Univ. School of Med. (1930) * (1932) *
University of Cincinnati College of Medicine
Temple University School of Medicine
Baylor University College of Medicine
Medical College of Virginia

(1935) California
(1930) Iowa
(1932) Missouri
(1934) Michigan
(1935) Missouri
(1918)* Ohio
(1927) Minnesota
(1934)* Texas
(1932) Virginia

School PASSED
Loyola University School of Medicine
Northwestern University Medical School

Year Endorsement
Grad of
(1936) N B M Ex
(1934) * (1935) N B M Ex

* License has not been issued

† Verification of graduation in process

Book Notices

A Brief Outline of Modern Treatment of Fractures By H. Waldo Spiers, A.B., M.D., Professor of Orthopaedic and Fracture Surgery, College of Medical Evangelists, Los Angeles, California. Second edition. Cloth. Price \$2. Pp. 137 with 114 illustrations. Baltimore: William Wood & Company, 1937.

The author states in his preface that the book "aims to illustrate the fundamentals in bone surgery and to touch only the high spots in their practical application. Modern textbooks are so filled with illustrations and demonstrations of operative technic, with the discussion of so wide a variety of methods, that the average student or intern is frequently at a loss to know what it is all about." In the main he has adhered to this theme, and the little book has much solid meat in it and should be of use to senior students and those preparing for state board examinations and the like. With such a clear statement as to the purpose, it is strange to find inserted various detailed accounts of operations such as the Watson-Jones approach to the hip joint but with it no reference to where the original article may be found. Bibliographies would be valuable in this book to enable the reader to refer readily to the article cited. The first chapter is devoted to a consideration of fracture problems in general. The statements of the author are necessarily dogmatic and in many spots are plainly taken from lectures to students. The very terseness of the author's statements lose certain of their effectiveness because the reasons back of the assertions are not given, e.g., no mention is made of peroneal paralysis and ulnar paralysis although warning is issued against pressure over the head of the fibula and the internal condyle of the humerus. No mention is made of the much talked of prone position in transporting persons who have sustained fracture of the spine. Exception can be taken to such a loose statement as "fibrous ankylosis is present in all joints which have been immobilized for any great length of time," particularly when the rest of the paragraph clearly shows that the author is well aware of the true pathology of the type of stiff joints that he is discussing. Another statement "The popularity of open reduction of fractures is probably based on the fact that to an extent at least the fee will be proportionately larger," is entirely uncalled for and except in rare instances is untrue and has no place in such a book. It takes no great flight of the imagination to see how this may be seized on by unfriendly lawyers and other persons to use against the medical profession. Likewise the statement "In this day of scientific treatment of fractures it is almost criminal neglect to fail to check up the results of reduction by x-ray films" is a two edged sword and surely the very evident necessity of such a procedure could have been couched in more fitting language. The remaining chapters are devoted to special types of fractures and, considering the pages at the author's disposal, are well done. His brevity in discussing such an important condition as ankle fractures might be criticized. The statement that the rather rare but potentially vicious trimalleolar fracture accompanied by posterior displacement of the foot usually required operation to replace the posterior tibial marginal fragment can be questioned for it is generally agreed that such an operative procedure is but seldom required. The author is evidently a staunch supporter of Bohler's methods. The last chapter, devoted to fractures of the mandible is evidently inserted in this edition to make for completeness and which opens with the advice that patients so afflicted are best

handled by the oral surgeon. All in all here is a useful little book, and the fact that there has been a demand for a second edition may mean that further opportunity for improvement will be afforded the author.

Methodik der Hormonforschung Band I Schilddrüse Nebenschilddrüse Nebennierenrinde Nebennierenmark Pankreas Von Dr. phil. Christian Bomskov. Paper. Price 54 marks. Pp. 716 with 231 illustrations. Leipzig: Georg Thieme, 1937.

The author of this treatise has endeavored to include in one book all the essential methods of investigation on the glands of internal secretion. There are detailed reference in this first volume to the thyroid, parathyroid, adrenal cortex, adrenal medulla and pancreas. The result is encyclopedic. A vast amount of information not elsewhere accessible in convenient form is gathered here. This includes details of anatomy, surgical technic (including forms and dosages of anesthetics for various laboratory animals), methods of handling and administering extracts to animals, blood histology and blood chemistry of different species, histologic technic, methods of recording physiologic changes, methods of extraction and purification of glandular extracts, methods of controlling hydrogen ion concentration including tables of indicators, detailed consideration of the physiology of each of the five glands mentioned with reviews of the literature, tables of patents on glandular products and a thousand other items too numerous to mention. It is therefore a useful reference book. But it has a serious fault common to many compilations of this type. The good and the bad are included indiscriminately and quite uncritically. No adequate effort has been made to weed out unsatisfactory methods or to sift carefully the literature on glandular physiology. The errors of fact and judgment in this volume are plentiful. The section on the adrenal cortex being an especially unfortunate example. Many typographic errors occur also. Bomskov's work may therefore be recommended only to experienced investigators in endocrinology, who will find a wealth of useful material but will not be misled by the abundant nonsense that has inadvertently crept in. The book is profusely illustrated with excellent reproductions of photographs and drawings.

Annual Reprint of the Reports of the Council on Pharmacy and Chemistry of the American Medical Association for 1936 with the Comments that have appeared in The Journal. Cloth. Price \$1. Pp. 104. Chicago: American Medical Association, 1936.

This small annual volume is indispensable to the library of physicians, pharmacologists and others who need to keep abreast of the latest developments on the frontiers of medical progress. It gives the details of the Council's consideration of products which have been found unacceptable as preparations for use in rational therapeutics and its reports on those which show promise but are not yet ready for general acceptance.

Among the reports on out-and-out unacceptable products are Amends Solution and the "Igol" products, iodine preparations marketed under misleading or unacceptable claims, the latter under an uninformative proprietary name, Androstine Ciba, claimed to be a testicular extract and found to be an irrational combination of inactive preparations marketed with unwarranted and misleading claims, Gadomont, a preparation of cod liver oil in a wax base with zinc oxide, benzoic acid and phenol, proposed for use in the treatment of burns, cuts and minor skin irritations, found unacceptable as being an unoriginal product of insufficiently declared composition marketed under a coined proprietary name with unwarranted therapeutic claims, and indirectly advertised to the public, the "Carasyl" preparations, which are essentially mixtures of psyllium flour, karaya gum and fig flour, marketed with unsubstantiated therapeutic claims under a proprietary name.

In 1934 the Council sponsored an exhaustive report on bacteriophage therapy which pointed out that in view of the present status of knowledge, no such preparations could be accepted for New and Nonofficial Remedies. In this volume of the collected Council reports the Council declares the "Phagoid" preparations, a line of bacteriophage products, definitely unacceptable because they are offered to the medical profession with unscientific, unwarranted claims thus encouraging physicians to use in a routine way medicaments the therapeutic value of which has not been established and because the preparations conflicted in other ways with the rules of the Council.

This volume includes a preliminary report on Trichophyton and Oidiodermis—trichophyton preparations marketed by Lederle Laboratories, Inc. This report is a sequel to the preliminary report on Trichophyton Extract issued in 1932, which postponed consideration to await development of further clinical evidence on trichophyton therapy. Also included in this volume is a report on the unacceptability of two trichophyton preparations, Dermatocol and Dermotricofun, distributed in this country by Ernst Bischoff Co., Inc., under the stated proprietary names without sufficiently declared composition and with unwarranted therapeutic claims.

Other preliminary reports are Refined and Concentrated Antipneumococcal Serum Type VII—Lederle, Present Status of Tetrachlorethylene (since accepted for N N R), Smallpox Vaccine (From Chick Chorio-Allantoic Membrane)—Lilly, and Use of Trichloroethylene for General Anesthesia.

A short report in this volume relegates to the therapeutic scrap heap the following, which formerly stood accepted: Filicic Acid and Related Substances, Ipecac Principles and Preparations, Manganese Compounds, Betanaphthyl Salicylate, Thorium Salts and Preparations, and Silver Citrate.

Important general reports are those on Injection Treatment of Hernia and Nomenclature of Endocrine Principles. Under the latter are included reports on the nomenclature of corpus luteum hormone, the estrus-producing compounds and the "male hormones." This valuable report enhances the prestige of the Council as a leader in the field of scientific nomenclature.

Studies in Sibling Rivalry. By David M. Levy, M.D. Research Monographs No. 2, American Orthopsychiatric Association. Lawson G. Lowrey, M.D., Editor. Paper, Pp. 96 with 12 illustrations. Menasha Wisconsin. George Banta Publishing Company, 1937.

This work consists of two studies, originally published in the *American Journal of Orthopsychiatry*. They are presented primarily as an experiment in methodology in which the play activities of children, under controlled conditions, are used to study "principles of motivation in social relationships." The first paper, on the use of play technique as experimental procedure, presents statistical summaries of studies in sibling rivalry. A standardized play situation is used. The child is exposed to a play with dolls in which a brother or sister doll observes a new baby nursing at the mother's breast. The author summarizes the activities observed in response to this hostility-provoking situation and presents the details of the dynamic patterns noted. More particularly he notes distinctive primitive patterns of hostility and definite modifications of these of the nature of atoning for, undoing or denying the effects of the hostile acts.

The second paper is a more detailed study of the patterns of hostility observed in the sibling-rivalry experiments. The subjects were twelve 3 and 4 year old children. Here the author summarizes and graphically charts the precise reactions of the children to the controlled play situation. In addition to the uninfluenced responses of the children, he also observes the effect of offering a direct stimulus toward manifestations of hostility. The activities of the children in attempting to prevent the carrying out of hostile actions, the exact forms and methods whereby hostile acts are carried out, the efforts to make restitution, and the methods whereby the child defends himself against the possible consequences of his hostile behavior are minutely recorded.

It is demonstrated that the dynamics of behavior is essentially the same through the entire series of cases. While details of the pattern vary somewhat, they remain consistent for a given child in repeated experiments. These differences are not accidental but are determined by the child's previous responses in actual sibling-rivalry situations and by other features of his psychic life. The child, at the age of 3 years, already manifests reactions to his hostile tendencies of the nature of checking or controlling them. If the hostile feeling is released, it follows the pattern typical for the child following which "self-redeeming" behavior is manifested.

The author discusses the possible therapeutic effect of exposing children to the opportunity for manifestation of hostility afforded by the experiments. He is able to show that certainly immediate effects of the experiment can be observed, usually of the nature of freer expression of hostility on the part of the child. A favorable change in relationship with the real mother

and baby is observed when there has been free release of hostility in the repeated experiments. It is not demonstrated, however, that lasting effects are achieved as a result of the experiments. Some of the children were under active psychotherapeutic treatment other than that connected directly with the experiments.

These studies are of first importance chiefly on account of the demonstration of an objective use of play in the study of the mental life of the child. Stimulated by psychoanalytic experience, the interpretation and meaning of the behavior are derived by direct observation of the repeated sequences. Dr. Levy definitely points a way that should yield fruitful results in the hands of investigators who can be as discriminating as he is in these studies.

What It Means to Grow Up. A Guide in Understanding the Development of Character. By Fritz Kunkel, M.D. Translated by Barbara Koppelman Compton and Hulda Nebuhr. Cloth. Price \$2. Pp. 180. New York & London: Charles Scribner's Sons, 1936.

Kunkel outlines simply and directly the dynamics of the development of personality types and enumerates the basic determinants in the formation of various behavior patterns. The book identifies critical situations in growth and stresses the necessity of the individual facing them to alter his personality structure in the direction of maturity. Maturity, Kunkel states, is gaged by the development of "tension capacity," the possession of which differentiates adult behavior from immature reaction patterns. Tension capacity, which in everyday life is synonymous with courage, enables one to ignore egocentric drives and achieve objective attitudes. A person who lacks this faculty adheres to selfish patterns and is unable to meet menacing life situations satisfactorily. In the last chapter a discussion of the critical growth period from childhood to maturity is well treated. The suggested philosophy of life is constructive and is founded on tangible principles. In emphasizing the part played by early experiences in shaping reaction patterns, the book recalls the extreme attitude of the behavioristic school of Watson. A nontechnical terminology is employed throughout. If only as a popular reformulation of generally accepted principles, the book should prove interesting to parents, teachers and those concerned with child guidance.

Le traitement du diabète infantile par l'insuline. Par M. E. Aubertin, professeur à la Faculté de médecine de Bordeaux. Association Française de Pédiatrie. Neuvième Congrès des pédiatres de langue française tenu à Bordeaux les 23, 29 et 30 Mai 1936. Paper. Pp. 67. Bordeaux: Imprimerie M. Durand, 1936.

This is an excellent summary not only of the use of unmodified insulin in juvenile diabetes but of the dietary treatment and course of the disease. It is divided into four parts, consisting of a discussion of dietary treatment, indications and use of insulin, the accidents of insulin, the indication for insulin therapy in the course of special conditions and end results in treatment. The author believes that practically all cases of juvenile diabetes should be treated with insulin and with a quantitative diet, which prevent the progression of the disease and its complications. He discusses all the dietary forms of treatment, including an unusually good discussion of Stolte's diet. He refers to Allen's experiments of producing degeneration islets by overfeeding and the experiments of La Coste and Saric, who, by undernutrition and insulinization of normal persons, produced a depression of endogenous insulin output. He concludes that a middle course in the treatment of diabetes is indicated, namely, that the carbohydrate should form from 35 to 40 per cent of the total calories, the protein 15, 12 and 10 per cent, according to age, and the fat from 45 to 50 per cent. The calorie value of the diet begins at the age of 1 year with 1,000 calories, and to this he adds 100 calories each year. He points out that the four unusual accidents of insulin administration are infections, hypodystrophy, anaphylaxis and edema. He discusses hyperinsulinism in detail and the fatal cases reported in the literature. In the third part the infrequent occurrence and the treatment of infantile diabetes is discussed, and the treatment during infections and surgery. Tuberculosis he finds, is a rare complication and hypochlosterolemia an index of poorly controlled diabetes. Cataracts, arteriosclerosis and hepatomegaly are the sequels of failure to control the disease. He concludes with a discussion of preventable causes of death. The work may be highly recommended to all students of the subject.

Toe Casting and Liquid Rubber Technic By William H. Woolf, Pod G Instructor in Podiatry, The First Institute of Podiatry, New York. Edited by Maurice J. Lewi, M.D., President, The First Institute of Podiatry. Cloth. Price \$1.50. Pp. 88 with 73 illustrations. New York: Harriman Printing Company, Inc. 1937.

This little book was written by a chiropodist and edited by a physician. The subject is laboratory technic. It presents the methods by which one can make models of toes, arches, bunions, corns and other minor distortions of the foot. It reveals the way liquid rubber can be utilized in the preparation of corn splints, bunion shields, hammer toe protectors and arch supports. Traction bunion splints can also be made. These liquid rubber appliances are easy to keep clean and can be used a long time. The use of liquid rubber in chiropody will gradually supplant the present leather and felt appliances for foot comfort. It requires some practice to make good models by casting and also practice to use the liquid rubber successfully. It takes too much time for any one but a laboratory technician or appliance maker. The making of these rubber appliances will appeal chiefly to chiropodists and it is for them that this volume was written. The use of liquid rubber has merit and time will improve the technic of preparation and its usefulness.

Diagnóstico dos aneurysmas da aorta torácica Por Geraldo de Andrade, docente livre de clínica médica da Faculdade de medicina do Recife. J. Aguiñaldo Lins, director do Instituto de Radiologia do Hospital Portuguez Recife. Bibliotheca medica brasileira. Monographias. Serie II. Vol. IV. Faprilkoid. Pp. 329 with 93 illustrations. São Paulo: Companhia Editora Nacional. 1936.

This book reports the results of a large clinical and anatomopathologic study of aneurysms of the thoracic aorta, including the ascending, transverse and descending portions. The first and second chapters deal with etiology, pathogenesis and differential diagnosis. Special reference is made to the incidence of aneurysm in relation to age, sex, geographic region and type of work, and on the role of either physical or psychic trauma and constitutional (especially cardiac) malformations. This is followed by chapters on the value of certain objective signs in diagnosis, such as the presence of anisocoria, the Argyll Robertson pupil, exophthalmos, Horner syndrome, pallor, congestion of the face, the technic and significance of palpation, and the effects of aneurysms of the thoracic aorta on the radial pulse, the heart rhythm and the arterial and venous pressures. The detailed aspects of the book are illustrated by the presence of chapters on auscultation and x-ray examination of the lungs, the role of pain in diagnosis, and the symptoms of aneurysm, which take up four chapters. The x-rays, especially with regard to differential diagnosis, are discussed exhaustively. The bibliography covers eight pages. The book is well prepared, and the printing and the illustrations are neat and clean. The book should be of use to cardiologists, internists and syphilologists.

Wundheilung Von Prof. Dr. Wilhelm Lohr, Direktor der chirurgischen Klinik des Städtischen Krankenhauses Magdeburg Altstadt. Paper. Price 21 marks. Pp. 234 with 141 illustrations. Leipzig: Johann Ambrosius Barth. 1937.

The aim of this book is to emphasize the importance of the nutrition therapy of wounds, and especially of local vitamin therapy by means of cod liver oil, which was introduced by the author over six years ago as a result of his twenty year study of the systemic reaction of the body to wound metabolism. In tabular form the author shows that many therapeutic diets are greatly deficient in the minimal vitamin requirement, particularly of B and of C. This is especially true for the peptic ulcer diet, various dyspepsia diets, the Karell diet and the ketogenic diet. As healing and defense against infection demand an increased supply of vitamins, it is probable the author believes, that the vitamin deficiency of these diets must be corrected to secure optimal therapeutic results. To remedy this defect he adds yeast to milk in his clinic and employs a diet rich in vitamin C in all acute febrile as well as chronic infections (typhoid, tuberculosis, pneumonia, gastro enteritis, wounds). Whenever there is doubt as to the proper absorption of vitamin C on account of unfavorable conditions in the digestive tract, he gives it parenterally. The oil soluble vitamins A and D, he employs whenever possible by local application, although even internal administration of cod liver oil hastens

the healing of wounds. He employs with asserted good success, in addition to the Leube diet, 20 Gm. of unrefined cod liver oil four times daily, the last dose at bedtime. The oil is administered either in lemon juice or in apple sauce. Lohr points out that commercial cod liver oil is sterile and that experiments have shown that the best results are obtained by mixing it with petrolatum of a melting point near the body temperature. The addition of cholesterol has proved irritative. He injects from 3 to 4 cc. of pure cod liver oil into chronically inflamed joints with alleged good results. Another item in wound therapy on which the author lays great stress is the closed plaster-of-paris cast, which he applies to all wounds after filling the unsutured wound with cod liver oil ointments. Photographs showing remarkable results with this method are reproduced. He treats in the same manner the large defects left after surgical extirpations and operations, e.g., osteomyelitis and even gas gangrene. He also recommends cod liver oil ointments in burns, no matter how extensive, including those due to x-rays. He ascribes his good results largely to the absolute immobilization secured by his method and avoidance of chemicals, drains and gauze. The author feels emboldened by his results and those of others to suggest that his cod liver oil-plaster-of-paris dressing may make mutilating debridement a thing of the past. To all surgeons the perusal of this book is recommended as a lesson of the *vis medicatrix naturae*. Unfortunately, the author does not see fit to give the exact formula of the salve that he employs even though he lays great stress on its correct preparation, referring the reader to a special salve made by a manufacturer who is "expert" in this field.

Materia Medica including Pharmacology and Therapeutic Hints By S. Chatterjee, B.Sc., M.B., Pharmacology Department, Calcutta Medical Institute. Cloth. Price 6s. 6d. Its. 4/. Pp. 391. Calcutta: Medini Publishers. 1935.

This book is designed primarily for the use of students at the Calcutta Medical School. It is a brief treatise of materia medica and pharmacology in outline form. It contains much essential information, which is readily available because of the size of the book. It is obvious, of course, that a book of this nature cannot serve as a textbook but should prove useful when reference to the more salient features of drug actions, toxicology and therapeutics suffices. A classification of drugs similar to the therapeutic index in *Useful Drugs*, extended to cover the details of the uses, is included in the book along with the usual tables on foods, incompatibilities and abbreviations. Under "Drugs Acting on the Generative Organs" there is a subheading "Direct Aphrodisiacs"—strychnine, camphor, alcohol, opium, cannabis indica and cantharides, and under "Indirect Aphrodisiacs"—drugs that cause general improvement of health—"iron, arsenic, strychnine and glandular products." The index is followed by advertising pages, which include the promotion of some rather unusual preparations. The first is "Hewlett's Mixture"—Mist Pepsinae Co c Bismutho (similar to the British Pharmaceutical Codex preparation *Mistura Bismuthi Composita cum Pepsino*), which is indicated to be "useful in all forms of dyspepsia, pyrosis, gastric pain, vomiting and for alleviating pain in cases of ulcer and cancer of the stomach." Other advertisements include "Gametoxan," said to be diethanol dihydroquinamine uranyl hydrochloride, "Neotropin"—no formula given, and "Sulfarscnol"—the latter without any indication that it is a brand of sulfarsphenamine. The book is intended primarily to promote the rational use of drugs common to the practice of medicine in Calcutta and it is therefore rather surprising to find so many advertisements for patent medicines.

For Peace and Good: A Handbook of Contemporary Politics By Joseph Tiberius Trenchard, Ph.D. Cloth. Price \$2.50. Pp. 174. New York: Economists Incorporated. 1937.

Although the blurb on the jacket says that the author "is recognized as one of the best informed consulting economists" there is little in the book to indicate that he has a knowledge of even the most elementary principles of any recognized school of economics. The work is essentially one of the utopian schemes which seem to have come forth constantly since the time of Plato. He rewrites the constitution of the United States and proposes a complete reorganization of the American system of government. In spite of the announcement that a

middle course between communism and fascism is to be taken, the author rejects most of the essentials of democracy and follows the pattern of the totalitarian states. He would regulate hours and wages, limit free education to the common school, bar married women from industry, introduce a system of health insurance, and impose a bachelors tax. The final touch is furnished by the reproduction of a form letter such as every one writing to the President receives, as if it were a presidential recommendation.

Über einige neue Arzneimittel II. Von P. Wolff. Sonderabdruck aus dem Schweizerischen medizinischen Jahrbuch 1937. Paper. Pp. 87. 114. Basel: Benno Schwabe & Co. [n. d.]

The steady increase of diabetes mellitus among civilized nations and the extensive search for a prolonged acting insulin brought forth protamine zinc insulin for the treatment of the diabetic patient. In this book the existing literature on insulin and its longer acting substitutes is thoroughly reviewed. Any one acquainted with the subject knows how difficult this task is. This monograph, which appeared in the Swiss medical year book, can be highly recommended to research workers and clinicians who wish to be informed on the various aspects of insulin therapy. Its special usefulness lies in the extensive bibliography.

Manual of Public Health Laboratory Practice. By J. R. Currie. Henry Mehan, Professor of Public Health, University of Glasgow and Contributors. Cloth. Price \$6.75. Pp. 378. With 169 illustrations. Baltimore: William Wood & Co. 1936.

The author distinctly wants it understood that this manual is written primarily for medical graduates. The subjects include chemistry, bacteriology, protozoology, helminthology and meteorology. It is written with directness, so that there is little waste space. Because of the difference in English pure food laws, many of the food analyses might not apply to American equivalents. The author does not expect physicians to be trained chemists and hence this material is condensed and all discussions are brief, much that is considered to be outside the realm of the ordinary public health officer being dispensed with. There are, however, much information and many illustrations which a doctor called on to assume part time public health duties would find of assistance. While not meeting any urgent need in this country because of legal and geographic variations, this is an eminently practical book.

Bernhard Bang. Selected Works. Edited by Vald Adersen. Professor at the Royal Veterinary and Agricultural College, Copenhagen. Paper. Pp. 560. With illustrations. London: Oxford University Press. Copenhagen: Levin & Munksgaard. 1936.

The Danish veterinary pathologist Bernhard Bang died June 2, 1932, in the eighty-fourth year of his life. Shortly before his death Professor Bang was asked to publish in the chief languages a selection of his most important scientific works, which had secured for him a world-wide reputation. The negotiation had not been completed when Professor Bang died. The present volume was edited by Professor Adersen under the sponsorship of the Rask-Ørsted Foundation. The works included in the present selection of Professor Bang's extensive literary productions have been divided into three groups, in each of which they are arranged in chronological sequence. The first group comprises Bang's investigations on a series of important animal diseases (infectious abortion of cattle, actinomycosis, mastitis in cattle, infections caused by the bacillus of necrosis, endocarditis in swine, erysipelas, chronic bacterial enteritis in cattle, and abortion due to tuberculosis). The second group comprises Bang's investigations on tuberculosis of the udder and on tuberculous milk. The last group comprises a selection of Bang's works on tuberculin and its employment in combating tuberculosis in cattle. Bang's comprehensive literary productions are characterized by an extraordinary degree of simplicity, clarity and conciseness. All students of diseases of animals transmitted to man will profit greatly by a perusal of this volume, particularly as relates to Bang's investigations of those diseases which brought him well merited acclaim: infectious abortion of cattle (Bang's disease), tuberculosis and actinomycosis. Many of the papers are published in the English language; others are written in French or German. The fundamental contribution of Bang in his discovery of the causation of contagious abortion of cattle provided other investigators

with the knowledge that led to the later discovery by Evans of the etiologic unity of this disease in cattle and brucellosis (undulant fever) in human beings.

Surgical Anatomy. By Grant Vassle, M.B. M.S. F.R.C.S. Assistant Surgeon, Guy's Hospital, London. Third edition. Cloth. Price \$6.50. Pp. 468. With 153 illustrations. Philadelphia: Lea & Febiger, 1937.

Compendiums of anatomy must be brief, concise, accurate, and above all lucid. This small volume possesses all these qualities in a form sufficient to satisfy most persons. Written mainly for the intern and last year medical student, it will fill their needs as well as any other short anatomic reference book. The author strikes a satisfactory balance between anatomy and clinical application and at the same time does not stifle his immature reader with voluminous detail. Illustrations are ample in most cases to describe the text; they are well labeled and fully summarized. While in no sense a substitute for an anatomy book, this volume will serve admirably to refresh the memory on the relation of bodily structure to surgical problems.

Childbirth Yesterday and Today. The Story of Childbirth Through the Ages to the Present. By A. J. Rongy, M.D. F.A.C.S. Attending Obstetrician and Gynecologist, Lebanon Hospital, New York City. Cloth. Price \$2. Pp. 192. With 20 illustrations. New York: Emerson Books Inc. 1937.

This book describes the way in which women of the primitive ages, and those in various civilized countries, coped with the problems of pregnancy and childbirth. In the discussion on childbirth among primitive people is included tribal customs and traditions, and an insight is given into the way in which childbirth was regarded by the Hebrews, Egyptians, Greeks and Romans. Successive chapters discuss the glory and weaknesses of the midwife, history of child care, and history of childbirth. The chapter on the reign of superstition reveals the source of many of the mysterious customs that arose from ignorance and tradition. Finally birth control and the present day problem of maternal mortality are presented. Those interested in obstetrics and maternal mortality will find much of interest in the book.

Lehrbuch und Atlas der Haut und Geschlechtskrankheiten. Von Dr. Karl Zieher, o. o. Professor und Vorstand der Universitäts Klinik und Poliklinik für Haut- und Geschlechtskrankheiten in Würzburg. Textband. Tafelband. In two volumes. Fourth edition. Cloth. Price 56 marks. Pp. 684. With 171 illustrations. 196. With 378 illustrations. Berlin & Vienna: Urban & Schwarzenberg. 1937.

One of the most valuable features of this textbook is the series of drawings in black and white by Freytag. These illustrations are admirably done. The colored plates also, which are from Jacobi's historic atlas, are masterpieces of their kind. The text, for so large a volume, is rather sketchy and incomplete. The section on syphilis, pages 382 to 566, probably is best. The suggestions regarding treatment are practical. Apparently the author has great confidence in mercury as a spirocheticide. Malarial therapy in syphilis is discussed, but heat treatment does not receive the attention that its value merits. About 10 per cent (seventy pages) of the first volume is devoted to the history, symptomatology and treatment of gonorrhea. The index is comprehensive.

Diabetes. A Modern Manual. By Anthony M. Shindler, Jr., M.D. Chief of the Diseases of Metabolism at the St. Agnes Hospital, Philadelphia. Introduction by Morris Fishbein, M.D. Editor, Journal of the American Medical Association. With a foreword by George Morris Pier, M.D. B.S. M.D. Professor of Medicine, Graduate School of Medicine, University of Pennsylvania. Whittlessey House Health Series. Morris Fishbein, M.D. Editor. Cloth. Price \$2. Pp. 240. With 5 illustrations. New York & London: Whittlessey House. McGraw-Hill Book Company Inc. 1937.

This manual on diabetes is one of a series for the patient and the physician. It is well written, in a style easy for a patient to read. Any intelligent person can easily grasp the subject matter. It offers much also to the physician in general practice, who can well afford to read it. The summaries at the end of each chapter help to outline quickly the main points and should be of much help to the busy practitioner. Any one who knows its contents can practice diabetes in a rational manner. The book includes some of the most recent work in this subject and is therefore a handy compendium. A whole chapter is devoted to questions asked by the patient and the answers to them, which practically cover the subject. It is not a reference work but a practical manual.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Hospitals Degree of Care to be Exercised by a Hospital—An operation was performed on the appellee in the appellant hospital under spinal anesthesia. Prior to and during the operation an opiate, pantopon, was administered to the patient. Following the operation, the patient was returned to his room where, after an interval of approximately forty minutes during which time the attending physician was present, he was left in the care of a hospital nurse. Subsequently, about eighty minutes after the operation, the nurse left the room for five minutes to make some entries on a chart. During her absence, the patient fell from bed and fractured a thigh bone. In this suit against the hospital, the patient alleged that his injury was attributable to the negligence of the nurse in leaving him unattended. The jury returned a verdict for the hospital, but the trial court granted a new trial because it concluded that it had erroneously instructed the jury. The hospital then appealed to the Supreme Court of Alabama.

An instruction, said the court, was not erroneous which told the jury that, even if it constituted bad judgment on the nurse's part to leave the patient alone in the room, a finding for the patient would not be justified if the jury was reasonably satisfied from the evidence that the nurse did nothing more than any reasonably prudent, careful, skilled and diligent nurse would have done under the same or similar circumstances. It did not predicate negligence only on acts of commission and ignore acts of omission. The instruction clearly stated that, if the act of leaving the room was no more than any reasonably prudent, careful, skilled and diligent nurse would have done under like circumstances, the patient could not recover damages. But, said the court, an instruction was palpably erroneous that told the jury "unless you are reasonably satisfied from the evidence that the servants, agents or employees of defendant, in and about the treatment of Mr. Galloway, used the same degree of care, skill and diligence as used by hospitals generally in this community, then you cannot find for the plaintiff." This instruction told the jury not to find for the patient unless there was no negligence on the part of the hospital's employees. It was in direct contradiction of other instructions and at variance with the pleadings and all the evidence presented under the issues. This instruction, the court said, obviously did not express what was intended by counsel, and was given by the trial court through oversight.

The trial court instructed the jury that the hospital was required to exercise "the same degree of care, skill and diligence as used by hospitals generally in this community." The patient apparently contended that a greater degree of care was required, relying on the case of *Birmingham Baptist Hospital v. Branton*, 218 Ala. 464, 118 So. 741, in which it was said that a hospital was required to exercise "that degree of care, skill, and diligence used by hospitals generally in that community and by the express or implied contract of the undertaking." Broadly speaking, said the court in the present case, that care which persons of common prudence exercise under like conditions is the degree of care recognized by the courts throughout the country. This implies a care having regard to the conditions of the particular case and to the fact that the subjects of nursing are sick people. A hospital is liable for want of ordinary care, whether for incompetence of a nurse or failure of duty by a fully qualified nurse. The added expression in the *Birmingham Baptist Hospital* case and by the express or implied contract of the undertaking is unquestionably correct and pertinent, said the court in framing an inclusive statement of the law applicable to all cases. It does not, however, impose a greater degree of care, skill and diligence than that "used by hospitals generally in that community" unless there is some evidence of an express or implied contract imposing a higher obligation than that implied from the admission of a patient. There was no such contract in the present case. The

hospital, continued the court, is not an insurer of the safety of a patient nor is the doctrine of *res ipsa loquitur* applicable to a case of this type.

The fact that undergraduate nurses are, by the practice of hospitals generally, put in charge of patients following operations in which anesthetics have been employed is not evidence of a want of ordinary care. Such practice must be left to the judgment of those specially qualified by experience and learning. If reasonable and ordinary care and skill are not employed in protecting the patient, the hospital is liable for the consequences, whether the employee in charge is a graduate or an undergraduate nurse. Under the evidence it was a question for the jury to determine whether or not the patient, to all reasonable appearances, had become sufficiently oriented to his surroundings for it to be safe to leave him alone for a few minutes.

Since the trial court did erroneously instruct the jury, its action in granting a new trial was affirmed.—*South Highlands Infirmary, Inc. v. Galloway (Ala.)*, 171 So. 250.

Medical Practice Acts Lectures on the Healing Art, with Incidental Demonstrations, not Practice of Medicine—Hurley, being unlicensed, conducted a school of healing and incidental thereto gave class demonstrations of the application of the theory of healing he taught. Briefly, the central thought of his theory was that if the human body was restored or adjusted to the "center of gravity" and kept so the physical ills of mankind would largely cease. In demonstrating his conception of what would restore the center of gravity, Hurley would cause one of the class to present his nude back to the view of the remaining members of the class and to stand in relation to a plumb line suspended from the ceiling in line with his spinal column, so that departures of the body from gravity would be observable. In promoting restoration of the center of gravity of the body toward its normal, he would lightly touch the subject "on the muscle known as gluteus maximus, on the buttocks," and on other muscles, which he claimed would cause relaxation and induce return to normal. The whole result, he claimed, would be that ills having seat in abnormal distortions of the body, which he said exhausted the category of ailments, would yield to restore gravity. He did not treat individual cases nor did he treat other than in classes, he made no examination as to the physical condition of pupils entering or desiring to enter his classes and did not inquire of them as to whether they were suffering from any ailment. He made no diagnosis in any instance and assured all that his purpose was to teach a technic calculated to eliminate that which he claimed was the cause of all ills. He was convicted under an information which in separate counts accused him of practicing medicine and chiropractic, respectively, without a license. He appealed to the Supreme Court of Colorado.

Hurley, in the opinion of the Supreme Court, was engaged in the practice neither of medicine nor of chiropractic. He did not diagnose and gave no treatment to individuals. A person who does not diagnose does not practice medicine. He taught but one thing—the correct pose of the body and its beneficial effect on general health. He did not profess to cure this man of that disease, but all men of whatever ailment they suffered by imparting one principle of universal application. Furthermore, the practice of chiropractic is defined in Colorado as "the Science of locating and removing interference with nerve transmission." Hurley did nothing within that statutory definition. Nothing that Hurley did, said the court, was inimical to public health, safety, morals or general welfare. To forbid such teaching or to visit criminal prosecutions and penalties because of it would encroach not only on the teacher's right to engage in a lawful activity but on the rights of those who may wish to pursue the outlined course.

Considering the fact that in scientific professional and legislative conception the schools of medicine and chiropractic are wholly different, continued the court, it is inconceivable that Hurley violated both statutes. His acts were in contravention of one or the other statute, or of neither, but not of both. The verdict of guilty returned on either count was equivalent to a verdict of not guilty on the other count. The two verdicts of guilt were at the same time verdicts of not guilty. They were inconsistent and repugnant. Each negated the other.

The trial court, in the opinion of the Supreme Court, should have directed a verdict in favor of Hurley. The judgment of conviction was accordingly reversed—*Hurley v People (Colo)*, 63 P (2d) 1227

Malpractice Limitation of Actions, Suit Based on Tort, Not on Contract—The plaintiff instituted suit against the defendants, two physicians, Feb 18, 1932, alleging that in December 1928 she was suffering from an illness due to some ailment of the uterus, that she verbally employed the defendants to diagnose and treat the condition, that they accepted the employment and agreed to use proper care and skill in diagnosing and treating her ailment, that they treated her until March 1, 1929, when they were discharged and another physician was employed, and that the defendants improperly and unskilfully treated her with radium and certain cauterizing agencies and medicine. The trial court overruled the defendants' demurrer to the evidence and they appealed to the Supreme Court of Kansas.

The sole question before the court was whether the action could be classified as one for damages for breach of an oral contract, to which a three year statute of limitations applied, or as one for damages for malpractice, to which a two year statute of limitations applied. If it were an action for damages for malpractice, it was agreed that the statute had run before the institution of the action and that the trial court should have sustained the demurrer. The evidence, said the Supreme Court, tended to show that the defendants were unskilful and negligent in their diagnosis, that under methods well known they could have determined whether the patient had cancer, but the methods were not used, that they were also unskilful and negligent in their treatment, and that bad results followed. Under this evidence it was clear to the court that the gravamen of the action was malpractice irrespective of any allegation or testimony tending to show a contract for treatment. The action, therefore, sounded in tort and the two year statute of limitations applied. The trial court should have sustained the demurrer. The Supreme Court accordingly directed the trial court to render a judgment for the defendants—*Coulter v Sharp (Kan)*, 64 P (2d) 564

Malpractice Liability for Negligence of Hospital Nurse—An operation was performed on the appellee at the appellant hospital, during which the patient suffered a "collapse." The operating physician, after directing that the patient be removed to her room and that a saline solution be injected, apparently left the hospital and was not thereafter connected with the case. Another physician, whose connection with the case is left in obscurity by the record injected the saline solution, during the course of which injection a hospital nurse "without proven directions therefor" placed an unshielded light globe on the patient between her forearm and breast and covered it with a towel. Severe burns resulted for which the patient sued the hospital. From an adverse judgment, the hospital appealed to the Supreme Court of Oklahoma.

The hospital denied liability on the ground that the two physicians, not it, were responsible for the nurse's negligence. An operating physician, said the Supreme Court, during an operation is responsible for the acts of the attendants and nurses, although they are employees of the hospital. Likewise an operating physician is responsible for the negligence of nurses and attendants when he accompanies and attends the patient and directs treatment after the operation. But for a hospital thus to escape responsibility for the negligence of an employee in caring for a patient after an operation, it must appear that the operating physician "actually exercised supervision and control over the servants" of the hospital at the time of the negligence or lack of care. In the present case the patient was burned after the departure of the operating physician. The hospital insisted that the presence of the other physician in the room when the patient was burned relieved it of liability for the negligent act of the nurse. But, said the court, there was no evidence that this physician was employed by the patient to attend her at the hospital or that he had any authority from the patient to exercise any supervision and control over the servants of the

hospital so as to relieve the hospital from liability. Furthermore, a physician who is working over a patient after an operation to save him from heart failure is not responsible for the negligence of a nurse who burns the patient, it being clear that where an immediate emergency requires all of the physicians' attention, he must leave details to the nurse. *Marchand v Bertrand*, Rap Jud Quebec, 39 C S 49, found in Quebec Official Law Reports, vol 39, p 49, 1910, 60 A L R 152. Again, a physician is relieved from liability for the negligence of nurses and attendants furnished by a hospital when such negligence is not known or discoverable by the physician in the exercise of care and skill by him. *Harris v Fall*, 177 F 79, 27 L R A (N S) 1174

The hospital also contended that the patient had recovered a judgment against the operating surgeon and the physician who administered the saline solution and that that case was determinative as to the absence of liability on the part of the hospital for the negligence of the nurse. The court, however, refused to consider that judgment as determinative of the hospital's liability because the hospital was not a party to the prior case and because in that case it could not have well been determined whether the hospital had complied with its contract to provide plaintiff competent servants, ordinary care and protection.

For the reasons stated, the judgment in favor of the patient was affirmed—*Floever Hospital v Hart (Okla)*, 62 P (2d) 1248

Society Proceedings

COMING MEETINGS

- Academy of Physical Medicine Philadelphia Oct 19 21 Dr Herman A. Osgood 144 Commonwealth Ave Boston Secretary
American Academy of Ophthalmology and Otolaryngology Chicago Oct 10 15 Dr W P Wherry, 107 South Seventeenth St Omaha Executive Secretary
American Association of Obstetricians Gynecologists and Abdominal Surgeons Hot Springs Va Sept 20 22 Dr James R Bloss 418 Eleventh St Huntington W Va Secretary
American Association of Railway Surgeons Chicago Sept 20 22 Dr Daniel B Moss 547 W Jackson Blvd Chicago Secretary
American Clinical and Climatological Association Baltimore Oct 11 13 Dr Francis M Rackemann 263 Beacon St Boston Secretary
American College of Surgeons, Chicago Oct 25 29 Dr George W Crile 40 East Erie Street Chicago Chairman Board of Regents
American Congress of Physical Therapy Cincinnati Sept 20 24 Dr Richard Kovacs 1100 Park Ave New York Secretary
American Public Health Association New York Oct 5 8 Dr R M Atwater 50 West 50th St New York Executive Secretary
Association of American Medical Colleges San Francisco Oct 24 26 Dr Fred C Zapffe 5 South Wabash Ave Chicago Secretary
Association of Military Surgeons of the United States Los Angeles Oct 14 16 Dr H L Gilchrist Army Medical Museum Washington D C Secretary
Central Association of Obstetricians and Gynecologists Dallas Texas Oct 14 16 Dr Ralph A Reis 104 South Michigan Blvd Chicago Secretary
Clinical Orthopaedic Society Chicago Oct 14 16 Dr H Earle Conwell 215 Medical Arts Bldg Birmingham Ala Secretary
Colorado State Medical Society Colorado Springs Sept 22 25 Mr Harvey T Sethman 537 Republic Building Denver Executive Secretary
Delaware Medical Society of Wilmington Oct 12 13 Dr W H Speer 917 Washington St Wilmington Secretary
Indiana State Medical Association French Lick Oct 4 6 Mr T A Hendricks 23 East Ohio St Indianapolis Executive Secretary
Inter State Postgraduate Medical Association of North America St Louis Oct 18 22 Dr W B Peck 27 E Stephenson St Freeport Ill Managing Director
Michigan State Medical Society Grand Rapids Sept 27 30 Dr L Fernald Foster 311 Center Ave Bay City Secretary
Mississippi Valley Medical Society Quincy Ill Sept 29 Oct 1 Dr Harold Swanberg 510 Maine St Quincy, Ill Secretary
Nevada State Medical Association Elko Sept 24 25 Dr Horace J Brown 120 N Virginia St Reno Secretary
New York State Association of Public Health Laboratories Albany Oct 29 Miss M B Kirkbride New Scotland Avenue Albany Secretary
Omaha Mid West Clinical Society Omaha Oct 17 22 Dr J D McCarthy 107 South Seventeenth Street, Omaha Secretary
Oregon State Medical Society Salem Oct 21 23 Dr Norris L Bridgeman 1020 S W Taylor St Portland Secretary
Pennsylvania Medical Society of the State of Philadelphia Oct 4 7 Dr Walter F Donaldson 500 Penn Avenue Pittsburgh Secretary
Vermont State Medical Society St Johnsbury Oct 14 15 Dr A B Soule Jr Mary Fletcher Hospital Burlington Secretary
Virginia Medical Society of Roanoke Oct 12 14 Miss A V Edwards 1200 East Clay St Richmond Secretary

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers in continental United States and Canada for a period of three days. Periodicals are available from 1927 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them. Titles marked with an asterisk (*) are abstracted below.

American Heart Journal, St. Louis

14 1126 (July) 1937

- Some Remarks on Technic in Clinical Electrocardiography with Precordial Derivation. K. H. Larsen, Copenhagen, Denmark.—p. 1
- Rational Principle for Connections of Leads of Electrocardiograph in Clinical Electrocardiography with Precordial Derivation. K. H. Larsen and E. J. Warburg, Copenhagen, Denmark.—p. 7
- Heart Murmurs. From the Point of View of an Actuary. A. Hunter, New York.—p. 10
- Hemodynamic Studies in Experimental Coronary Occlusion. III. Denervated Heart Experiments. M. Mendlowitz, G. Schauer, and L. Gross, New York.—p. 21
- Electrocardiographic Changes in Acute Pericarditis. Clinical and Pathologic Study. J. B. Vander Veer and R. F. Norris, Philadelphia.—p. 31
- Circulation Time of Blood of Dogs Determined by Ionization (Geiger Counter) Methods. I. Effects of Physiologic Agents and of Drugs. E. C. McCracken, H. E. Essex, and C. Sheard, Rochester, Minn.—p. 51
- Id. II. Effects of Digestion. E. C. McCracken, H. E. Essex, and C. Sheard, Rochester, Minn.—p. 60
- *Electrocardiography in Infants and Small Children. Suggestions on Technic. R. E. Glendy and Margaret M. Glendy, Boston.—p. 66
- Characteristic Serial Changes in Fourth Lead After Acute Coronary Thrombosis. M. A. Feinstein and A. Lieberman, New York.—p. 69
- Duration of Systole in Hypocalcemia. P. S. Barker, F. D. Johnston, and F. N. Wilson, Ann Arbor, Mich.—p. 82
- Postural Effects on Blood Pressure Following Interruption of Vasomotor Nerves of Man. Grace M. Roth, Rochester, Minn.—p. 87

Electrocardiography in Small Children.—The Glendys use the following modifications in electrocardiographic studies in children. Sanborn red wax paste was used as the contact material in applying the electrodes, which were placed on the dorsum of the forearms, on the anterior fleshy portion of the left lower leg and at the cardiac apex to record the chest lead, the leg electrode being left in place as the indifferent electrode. The sites of application, after being cleansed with alcohol, were rubbed gently with a small amount of red wax paste and a dab of paste the size of a small pea was smeared on each electrode before it was put in place. The electrodes on the extremities hold firmly in place when the metal ring on one end of the retaining strap is placed over the central post of the electrode at its base and the loose end carried round the extremity and adjusted to the proper snugness by sinking the sharp point of the post into the elastic webbing. Similarly, in applying the electrode to the chest, one of the larger openings at one end of the rubber strap is placed over the base of the central post of the electrode, the strap is then carried round the chest and the electrode made fast by placing one of the many small holes over the tip of the post.

14 127 254 (Aug) 1937

- Effect on Circulation of Mechanical Occlusion of Individual Arteries of the Extremities. Relation to Arterial Embolism. R. E. McEchlin and E. V. Allen, Rochester, Minn.—p. 127
- Approach to Diagnosis of Congenital Heart Disease. T. J. Dry, Rochester, Minn.—p. 135
- Chest Lead Tracings in Arterial Hypertension with Cardiac Enlargement. I. R. Roth, New York.—p. 155
- Coronary and Extracoronary Factors in Hypertensive Heart Failure. H. Gross and C. Spark, New York.—p. 160
- Auricular Paroxysmal Tachycardia (Possibly Nodotopic) with Variable Auriculoventricular Conduction Time. Study of a Case of Exceptional Duration with Gradual Slowing of the Heart Rate. K. Maddox, Sydney, Australia.—p. 183
- *Puberty and Prognosis in Rheumatic Fever. M. Leonard, New Haven, Conn.—p. 192
- Effects of Epinephrine on the Heart. G. Milles and P. W. Smith, Chicago.—p. 198
- Introduction by Epinephrine of ST Changes in the Electrocardiogram of the Cat. Similar to Those of Coronary Occlusion. A. H. Douglas, B. Gelfand, and C. Shookhoff, Brooklyn.—p. 211
- Anomalous Origin and Course of the Left Coronary Artery in a Child. So Called Congenital Absence of the Left Coronary Artery. S. Sanes, Buffalo.—p. 219

- Apparent Increased Velocity of Blood Flow in Cases of Congenital Heart Disease with Septal Defects Having Right to Left Shunt. J. McGuire and F. Goldman, Cincinnati.—p. 230
- New Apparatus for Recording Heart Sounds. E. W. Hollingsworth, L. M. Sorensen, and A. Van den Driessche, Hines, Ill.—p. 236

Prognosis in Rheumatic Fever.—Leonard studied the relationship of age to susceptibility and resistance in rheumatic fever in 500 patients who had sustained one or more known attacks of rheumatic fever. Just as first attacks of rheumatic fever show a sharp decline in frequency preceding the age of puberty, so also do recurrent (second or third) attacks show a decline during or just after the same age period. Factors responsible for this decline will probably remain unknown as long as the pathogenesis of rheumatic fever remains obscure but two influences were evinced which seem to contribute to it. One of these is that since there is a sharp decline in primary attacks before puberty there will be a sharp decline in recurrent attacks during the years immediately following, for recurrent attacks are more apt to follow a primary attack. However, this is not entirely responsible for the improvement noted at puberty, for another contributing factor is apparent in the analysis of groups of patients who had sustained their first attacks at different periods of childhood. A gradual decrease in susceptibility occurs, which covers the ten year period following the ages of 7 to 9 years. These two factors then, and possibly others, chance to coincide at about the age of puberty to cause a distinct lessening of the number of recurrences. The recognition of this improvement at the age of puberty is of some value in prognosis.

American Journal of Anatomy, Philadelphia

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- Cytologic Changes in Rat Thyroid Following Exposure to Heat and Cold and Their Relationship to Physiology of Secretion. R. N. Baillif, Minneapolis.—p. 1
- Observations on Structure of Nephron in Common Eel. A. L. Grafflin, New Haven, Conn.—p. 21
- Observations on Migration of Neural Crest Cells and on Development of Spinal Ganglions and Vertebral Arches in Amblystoma. S. R. Detwiler, New York.—p. 63
- Meningeal Relations of Hypophysis Cerebri. II. Embryologic Study of Meninges and Blood Vessels of Human Hypophysis. G. B. Wislocki, Boston.—p. 95
- Genito Urinary System of Elephas Indicus Male. T. L. Schulte, San Francisco.—p. 131

American Journal of Pathology, Boston

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- *Pathology and Pathogenesis of Clinical Acute Nephritis. E. T. Bell, Minneapolis.—p. 497
- Parathyroid Hyperplasia in Chronic Renal Insufficiency. B. Castleman and T. B. Mallory, Boston.—p. 553
- Response of Guinea Pig Bone Marrow to Liver Extract. E. A. Gall, Boston.—p. 575
- Pathogenesis of Cortical Necrosis of Kidneys in Rabbits Following Injection of Staphylococcus Toxin. J. H. Glynn, Montreal.—p. 593

Clinical Acute Nephritis.—Bell includes under the term "clinical acute nephritis" all cases of acute renal disease that exhibit a definite impairment of renal function indicated by retention of nitrogenous products, decreased ability to excrete phenolsulfonphthalein, inability to form a concentrated urine, loss of large amounts of protein in the urine, bleeding from the parenchyma of the kidney and severe oliguria or anuria. The 110 cases of acute nephritis that were available for study were subdivided into groups in accordance with the structural changes in the kidneys. There were thirty-one cases of uncomplicated acute glomerulonephritis and twenty cases in which the nephritis was associated with another disease. In the normal glomerulus and in subclinical glomerulonephritis it may be seen that all the capillaries of the lobules are completely invested with a basement membrane, but in clinical glomerulonephritis the capillaries within the lobule become fused together and their inner basement membranes split to form the characteristic intracapillary fibers. The lesions are all intracapillary. In five cases uremia was due to numerous massive lesions of the embolic type, in the absence of endocarditis. Eleven cases are reported in which the principal symptoms were septicemia, hematuria and uremia. This is called the hemorrhagic type of glomerulonephritis. Albuminuria, hematuria and edema of renal origin are evidences of glomerular injury. Tubular disease is evidenced by oliguria and anuria. In rare instances acute uremia is due to multiple thromboses of small renal arteries.

Occasionally tubular nephritis is due to other causes than mercury bichloride poisoning. The acute uremia following transfusion with incompatible blood is due chiefly to obstruction of the collecting tubules by casts of hemoglobin. There is a group of cases in which uremia seems to be partly of extrarenal origin and partly due to distention of the convoluted tubules with minor degenerative changes in their lining cells. In purely extrarenal uremia the kidneys are normal and the azotemia is due chiefly to dehydration and to increased destruction of protein. Decrease of blood chloride is apparently not a cause of azotemia. The azotemia of diabetic coma is due in part to tubular injury in some instances.

American Journal of Tropical Medicine, Baltimore

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- Geographic Distribution of Immunity to Yellow Fever in Man in South America F L Soper Rio de Janeiro, Brazil—p 457
Possible Significance of Low Blood Pressures Observed in Guatemalans and in Yucatecans G C Shattuck Boston—p 513
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Morphologic and Serologic Relationships of Various Fungi Causing Dermatitis Verrucosa (Chromoblastomycosis) N F Conant and D S Martin Durham, N C—p 553
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Invasion of Submucosa of Human Small Intestine by *Ancylostoma braziliense* C Bonne Batavia Java—p 587
Yellow Fever in Venezuela in 1929 E I Benarroch Caracas, Venezuela—p 595
Splenomegaly in Experimental Monkey Malaria L T Coggeshall, New York—p 605
Studies on Vitamin G Deficiency in Monkeys H G Johnstone and A C Reed, with technical assistance of Margaret K Iverson San Francisco—p 619

American Review of Tuberculosis, New York

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- The Clinic the Laboratory and the Field Address of the President E R Long Philadelphia—p 1
Ulcerative Tuberculosis Tracheobronchitis J B Barnwell J Littig and J E Culp Ann Arbor Mich—p 8
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Size of the Heart in Pulmonary Tuberculosis Report of 400 Cases R E Porter and W H Gordon, Fort Stanton N M—p 82
Tuberculin Allergy Produced by Parenteral BCG Vaccination Camille Keresztesi H A Rosenberg and W H Park New York—p 90
Treatment of Pulmonary Tuberculosis with Gold Sodium Thiosulfate M Tess Koch Mo—p 100
*Pneumoperitoneum in Treatment of Pulmonary Tuberculosis Preliminary Report H G Trimble Oakland Calif and B H Wardrip San Jose Calif—p 111
Effect of Splenectomy on Tuberculous Infection in Mice Jessie Marston New York—p 119
Certified Diagnosis of Tuberculosis Further Practical Studies on Detection of Tubercle Bacilli M Greenberg and M L Cohn Denver—p 126

Pneumoperitoneum in Treatment of Pulmonary Tuberculosis—The pregnant tuberculous woman suggested to Trimble and Wardrip the possible value of pneumoperitoneum in pulmonary tuberculosis, which reproduces the mechanical effects of pregnancy. The amount of elevation of the diaphragm even during the latter months of pregnancy may be only from 2 to 3 cm, but it is apparently sufficient to be of benefit to pulmonary lesions. If the amount of elevation caused by pregnancy is of value, one can be quite certain that the amount obtained by the use of pneumoperitoneum will also be helpful because as much as two or three times this amount can be obtained. The greatest degree of collapse has been obtained by the use of pneumoperitoneum in conjunction with phrenic nerve paralysis. With the addition of subphrenic pressure by pneumoperitoneum, the paralyzed leaf of the diaphragm may rise sufficiently to reduce the volume of the lung to as little as one third of its original volume. The amount of diaphragmatic rise varies with the individual, but a rise to as high as the third interspace anteriorly on each side has been noted from pneumoperitoneum alone. The elevation of the diaphragm was a little greater with the patient in the upright position also if the patient was on one side constantly the uppermost hemidiaphragm was more affected. Consequently, when pneumoperitoneum is used in conjunction with phrenic nerve paralysis, the patient is kept on his good side. This, of course, is contrary to the procedure when a patient is placed at postural rest or on a bolster. The technic of pneumoperitoneum is very

similar to giving pneumothorax refills. To date three far advanced cases have been made sputum negative. Cough and sputum have frequently been diminished and the patient made more comfortable. Cavities that have failed to close by any other available procedure have been closed by pneumoperitoneum. This is particularly true of basilar cavities. In one case it was effective in closing a large subclavicular cavity which had been present for two years. The beneficial psychologic effect on these patients for whom previously there was little to offer has been marked.

Annals of Internal Medicine, Lancaster, Pa

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- Recent Knowledge Concerning Influenza R E Shope Princeton N J—p 1
Clinical Investigations of Insulins with Prolonged Activity R M Wilder Rochester, Minn—p 13
Hematopoietic Liver Principle G E Wakerlin, Louisville Ky—p 31
Hematopoietic Response Following Oral Administration of Desiccated Duodenal Mucosa J C Thompson, Lincoln, Neb—p 39
Origin of Paroxysmal Tachycardias as Determined by the Esophageal Electrogram A M Harvey, Baltimore—p 57
Studies on Experimental Hypertension V The Pathogenesis of Experimental Hypertension Due to Renal Ischemia H Goldblatt Cleveland—p 69
*Nature of the Cardiovascular Disturbances in Nutritional Deficiency States (Beriberi) S Weiss and R W Wilkins Boston—p 104
Chronic Bilateral Pyelonephritis Its Origin and Its Association with Hypertension W T Longcope Baltimore—p 149
Primary Inflammation of Arteries H T Karsner Cleveland—p 164
Healed Bacterial Endocarditis L Hamman Baltimore—p 175
Psychobiology of Breathing C Binger New York—p 193

Nature of Cardiovascular Disturbances—To determine whether cardiovascular disturbances in nutritional deficiencies exist as a clinical problem, Weiss and Wilkins investigated the records of some 900 patients suffering from various types of nutritional deficiency, including general malnutrition, chronic alcoholism with or without polyneuritis, pellagra, neuritis of pregnancy and diabetes. There were eighty-five cases in which cardiovascular dysfunction of varying severity could not be ascribed to the usual etiologic factors. Because all instances in which organic lesions of the cardiovascular system existed were eliminated and because many of the cases were observed by physicians not experienced in cardiovascular problems, the number selected must be considered minimal. This conclusion is corroborated by the fact that within a period of two years the authors have personally studied thirty-five patients from a total of 5,506 admissions to two general medical services in this hospital. The observations here presented are therefore based on a total group of 120 cases. The cardiovascular disturbances caused by nutritional deficiencies do not form a rigid clinical syndrome. Right and left ventricular failure, arteriolar dilatation and increased blood flow peripheral circulatory collapse and shock, singly or in combination, have been observed. The onset of the disease may be sudden or gradual. Patients with the severe form of the disease show a tendency to fever, to bronchopneumonia and to acute fatal circulatory collapse. Under therapeutic measures such as rest, cardiac drugs, diets rich in vitamin B₁ or crystalline vitamin B₁, all the cardiovascular disturbances usually revert to normal. The clinical symptoms and signs, the blood chemistry, the myocardial changes, the hemodynamics and therapeutic responses correspond to those described in "beriberi heart" in the Orient. The disease as observed in Boston, however, is characterized by more varied and more generalized involvement of the cardiovascular system. Vitamin B₁ deficiency plays a primary part in the precipitation of the disease. Alcohol also is a significant factor, not only because it supplies calories without vitamin B₁ but also because its metabolic effect is similar to that of a pure carbohydrate. The rate of response to vitamin B₁ in "alcoholic" and "nonalcoholic beriberi" varies. The arteriolar system shows a more rapid change than the heart. The cardiovascular disorder usually disappears before the polyneuritis. The condition described bears pertinently on the clinical behavior and the mortality rates of alcoholic and nonalcoholic patients with vitamin B deficiencies (beriberi and pellagra). It may explain the poor reaction of these patients to increases in metabolic rate, such as occur in febrile infections, in hyperthyroidism or under surgical operations.

Annals of Medical History, New York

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The History of Steam Sterilization T B Magath, Rochester Minn—p 338
Notes on Medical History of Vienna H M Kornis, Iowa City—p 345
The Doctor on the Stage Medicine and Medical Men in Seventeenth Century English Drama H Silette University Va—p 371

Archives of Dermatology and Syphilology, Chicago

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- *Distinctive Exudative Discoid and Lichenoid Chronic Dermatitis Nine Cases M B Sulzberger New York and W Garbe Toronto—p 247
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*Smallpox Vaccine in Treatment of Recurrent Herpes Simplex P D Foster Los Angeles and A B Abshier New York—p 294
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Keratoma Palmare et Plantare Hereditarium with Especial Reference to Its Mode of Inheritance as Traced in Six and Seven Generations Respectively in Two Chinese Families Hwei Lan Chung Peiping China—p 303
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Simplified Office Photography F Ronchese Providence R I—p 344
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Exudative Discoid and Lichenoid Chronic Dermatitis
—Sulzberger and Garbe observed nine cases of distinctive exudative discoid and lichenoid chronic dermatitis. The condition has been confined to men of the Jewish race, appearing during the fourth or fifth decade of life. The onset of the dermatosis has usually been sudden, the generalized eruption was sometimes preceded by a circumscribed dermatitis which was irritated by treatment. The foreground of the picture is dominated by pruritus—by the intractable and uncontrollable itching with its nocturnal accentuation and its frequent veritable crises. The general health remained to a great extent unimpaired throughout, if the transitory loss of weight and the irritability and fatigue are accepted as presumably due to the severe subjective sensations and to the ensuing sleeplessness. The most characteristic objective lesions were sharply demarcated oval and discoid plaques showing rapid variations in consistency and appearance: these plaques were at times flat and scaly, elevated and edematous or oozing and crusting; they would speedily pass through many of the clinical stages considered characteristic of eczematous lesions. The brief oozing surfaces of the plaques and particularly the delicate and often punctate crusts (status punctosus) allowed one to infer that exudation and at least histologic vesiculation had been present. The oozing yielded more or less rapidly to topical therapy or underwent spontaneous involution recurring however either spontaneously or after bouts of scratching and irritation. In all nine cases the more persistent lesions in the form of certain circumscribed disks and plaques as well as certain diffusely affected areas seemed at times to be definitely infiltrated and at these times the picture was suggestive of a premycotic eczema or of some other leukotic dyscrasia. Although no part of the skin could be considered entirely immune to the discoid and oval lesions there was an obvious preference for extensor, as compared with

flexor, surfaces and the perimamillary areas, the anterior and posterior aspects of the axillary folds, the scrotum, the circumoral region, the bridge of the nose, the abdomen and the scapular areas. On the trunk, the long axes of the oval lesions showed a consistent tendency to follow the lines of cleavage. Besides these disks and oval plaques all the patients presented the lichenoid phase and the phase resembling the premycotic stage of mycosis fungoides. Marked cutis anserina and diffuse follicular involvement with often persistent somewhat follicular papules like those of lichen planus were observed in all but one case. Other manifestations which compelled attention were the frequent and often persistent erection of the nipples in seven cases, the edema and swelling and even the complaint of "soreness" of the mamillae and perimamillary areas (seven cases). The usual methods of therapy and superficial application of unfiltered roentgen radiation in the usual dose seemed only to aggravate the condition. Except in one case, removal of certain evident foci of infection was not followed by cure or even by any definite alteration in the course of the disease. On the other hand, hospitalization and certain other changes of environment repeatedly resulted in marked improvement in all but one case. Histologic observations did not enable them to characterize the disease clearly, nor did they permit the classification of the cutaneous lesions as those of any known definite dermatologic entity. In none of the cases were there changes diagnostic of dermatitis herpetiformis, of lichen planus or of mycosis fungoides, of other leukotic dyscrasias or of any other dermatologic entity. The only permissible conclusion seems to be that the process was exudative and inflammatory, favoring the blood vessels, being most severe in the upper layers of the cutis and in the papillary bodies and being accompanied by eczematoid changes in the epidermis.

Smallpox Vaccine in Treatment of Recurrent Herpes Simplex—Foster and Abshier treated thirty-five patients for frequently regular recurrent herpes simplex, by vaccination with variola (smallpox) vaccine. Each patient was vaccinated approximately four times at intervals of two weeks unless a take was noted in which case the reaction was allowed to subside before the treatment was continued. Among this group five takes were noted. The majority gave reactions of immunity which subsided after the interval of two weeks. A follow up after two years showed that in four there had been slight recurrences and in one, no result. This gives a 14 per cent ratio of recurrence. Treatment was not attempted in patients with concomitant diseases, such as pneumonia, known drug eruptions or herpes menstrualis. Treatment with vaccine is suggested as an effective means of combating a comparatively insignificant yet troublesome eruption.

Archives of Otolaryngology, Chicago

26 1 126 (July) 1937

- Climate and Upper Respiratory System C C Charlton Atlantic City N J—p 1
Osteomyelitis of Skull Comparison of Two Cases Observed Seventeen and Fourteen Years Ago with Two Observed in Past Two Years F T Hill Waterville Maine—p 9
Prognosis in Laryngeal Tuberculosis J B Greene Asheville N C—p 18
Cholesteatoma of Frontal Sinus G M Coates Philadelphia—p 29
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- Origin of Fetal Adenoma in Thyroid Gland W B Murphy and G Ahnquist New York—p 211
- Experimental Joint Sprain Pathologic Study L J Miltner, C H Hu and H C Fang Peiping China—p 234
- Subphrenic Abscess Original Extraleptural Operation G L McWhorter Chicago—p 241
- Injection of Ether into Biliary Tract as Treatment for Cholelithiasis J G Probst and C T Eckert St Louis—p 258
- Carcinoma of Intrapapillary Portion of Duodenum M M Lieber, H L Stewart and H Lund Philadelphia—p 268
- Experimental Peptic Ulcer Produced by Cinchophen Methods of Production Effect of Mechanical Irritant and the Life History of the Ulcer L K Stalker J L Bollman and F C Mann, Rochester Minn—p 290
- *Cerebriform Nevus Resembling Cutis Verticis Gyrate G Hammond and H K Ransom Ann Arbor, Mich—p 309
- Fractures of the Ankle G Apfelbach and L Boim Chicago—p 328
- Retroperitoneal Teratoma P M Mecray Jr and W D Frazier, Philadelphia—p 358
- Treatment of Compound Fractures Results in 100 Cases of Compound Fractures of Tibia E H Caldwell New York—p 368
- A Review of Urologic Surgery A J Scholl, Los Angeles F Hinman San Francisco A von Lichtenberg Budapest Hungary A B Hepler Seattle R Gutierrez New York G J Thompson J T Priestley Rochester Minn and V J O'Connor, Chicago—p 373

Cerebriform Nevus Resembling Cutis Verticis Gyrate—Hammond and Ransom report two cases of cerebriform nevus of the scalp resembling cutis verticis gyrate which constitute a condition distinctly different, both clinically and pathologically, from all the other types of cutis verticis gyrate. Since this condition presents so few features in common with cutis verticis gyrate, they suggest that it be removed from this classification and designated as cerebriform nevus of the scalp. In the literature and textbooks this convoluted nevus is referred to as cutis verticis gyrate when it occurs on the scalp but as nevus cerebriformis or cerebelliformis when it occurs elsewhere on the surface of the body. Cutis verticis gyrate should be considered only a descriptive term (Madden) and it should be generally understood that several different pathologic processes in the scalp may result in the formation of convolutions and furrows. In any patient exhibiting cutis verticis gyrate, a careful differential diagnosis should be made to determine the underlying cause so that appropriate treatment can be recommended. The authors believe that Masson has shown rather conclusively that a nevus represents a proliferation of the chromatophores, tactile corpuscles and nerve cells, forming the end apparatus of the sensory nerve filaments of the skin. There seems to be little doubt of the relationship of the nevus to the neurofibroma. The results of the histopathologic study in the two cases reported support Masson's concept of the neurogenic nature of the nevus. The differences of opinion among different writers as to the most satisfactory form of treatment of a nevus is noted. The methods of therapy range from the application of the electric needle, solid carbon dioxide, cautery, caustics, radium and liquid air to electrolysis, roentgen irradiation, endothermy, electrodesiccation and electrocauterization. It is believed that the best form of treatment is complete surgical excision.

Canadian Public Health Journal, Toronto

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- Public Health Yesterday, Today and Tomorrow M R Bow, Edmonton Alta—p 311
- Some Aspects of the Management of the Diabetic Patient. W R Campbell Toronto—p 318
- Public Health and the Traffic Accident Problem N L Burnette Ottawa Ont—p 327
- The Rural Health District G M Little Red Deer, Alta—p 333
- *Ascorbic Acid Content of Milk E J Reedman Toronto—p 339
- Communicable Disease Control in Scarborough Township Ontario C D Farquharson Agincourt Ont—p 341

Cevitamic Acid Content in Milk—Reedman determined the cevitamic acid content of milk from four breeds of dairy cows. The acid content varied little between breeds or among the animals of the same breed and, further, little variation was noted in the stages of lactation or with the age of the cattle. The cevitamic acid content of milk was found to decrease gradually on storage. Samples of raw milk cooled immediately to 5 C and stored in the dark retained approximately 75 per cent of the original value after forty-eight hours. Added cevitamic acid behaved similarly. Only reduced cevitamic acid

is found in fresh raw milk stored in the dark. It would seem that cevitamic acid oxidase is absent, or present in very small amounts in milk. Milk pasteurized thirty minutes by the holder method retained more than 70 per cent of the original vitamin C content. Buttermilk, whey, powdered whole milk and evaporated milk contain a small amount. Raw skimmed milk averages 25 mg of cevitamic acid per hundred cubic centimeters, while skimmed milk powder may contain as much as 267 mg per hundred grams if dried by the just drum method. It is true that milk alone will not supply sufficient vitamin C in the diet, but it is equally true that it would not normally be required to do so. As an average, a pint of milk may be said to contain 10 mg of cevitamic acid after pasteurization. The nutritional value of milk is practically unchanged by properly conducted pasteurization.

Florida Medical Association Journal, Jacksonville

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- Hypoglycemic Shock Therapy in Dementia Praecox H M Smith Tampa—p 11
- Summary of Present Status of Fever Therapy Produced by Physical Means K Phillips Miami—p 20
- The Battle of the Children R H Williams Eustis—p 22
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- The Christian Fathers and Medicine S A Shoemaker, Orlando—p 33
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Georgia Medical Association Journal, Atlanta

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- Story of Vitamins in Infant Nutrition I A Abt, Chicago—p 355
- Importance of Tropical Medicine to Southern Physicians C F Craig New Orleans—p 364
- Sex Hormones in Gynecology Clinical Value of Present Preparations E C Hamblen Durham N C—p 368
- Medicine in a Changing Era E H Greene, Atlanta—p 375
- Practical Aspects of Human Genetics in Medicine J Krafka Jr Augusta—p 378

Journal of Allergy, St Louis

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- Limitation of Passive Transfer in Food Sensitive Children R Chabot and G Hurwitz New York—p 427
- Observations on Transmission of Passive Anaphylactic Sensitivity in the Guinea Pig M B Cohen and B H Woodruff Cleveland—p 437
- Anaphylaxis and Vitamin C J van Niekerk, Weesp Holland—p 446
- Investigations in Passive Transfer Experiments A Romanoff and G Brooks New York—p 450
- Protein Nitrogen Unit for Standardization of Inhalant Extracts for Diagnosis and Treatment of Allergic Diseases A Stull R A Cooke and Mary Ghidlen New York—p 454
- Optimal Doses in Pollen Therapy G L Waldbott and M S Ascher Detroit—p 457
- Incidence and Importance of Tree Pollen Hay Fever with Particular Reference to Philadelphia and Vicinity L Tuft and G Blumstein Philadelphia—p 464
- Critical Analysis of Animal Dander Reactions S E Ryner Philadelphia—p 470
- Effects of Adrenalin on Skin Reactions O Swineford Jr, University, Va, and P T Grove New Orleans—p 475
- Incidence of Air Borne Fungus Spores I Alternaria O C Durham North Chicago Ill—p 480
- Statistical Analysis of Leukopenic Index C J Sullivan Richmond Va—p 491
- *Skin Tests with Bacterial Products in Arthritic and Nonarthritic Individuals E F Traut, Chicago—p 501

Skin Tests with Bacterial Products—Traut made intradermal injections of whole bacteria and the supernatant broth of their forty-eight hour cultures into patients with chronic rheumatoid arthritis and into allergic and nonallergic controls. Previous observations of increased tendency of arthritic patients to react to streptococci or their products were confirmed. Hemolytic streptococci again gave the most marked and most frequent reactions. The increased cutaneous sensitivity was limited to streptococci. The staphylococci and gram-negative organisms did not similarly affect the skin of arthritic patients. None of the observations justified the assumption of a specific

organism. A history of hay fever, asthma, urticaria or eczema profoundly affects the results of tests with the supernatants of broth cultures. The number of positive tests is directly proportional to the content of irritant, nonspecific substances. This nonspecific irritant factor renders valueless skin tests of an individual with unstandardized autogenous bacterins or other autogenous bacterial products not previously standardized by tests on control individuals.

Journal of Biological Chemistry, Baltimore

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Relation of Protein to Hemoglobin Building P B Pearson C A Elvehjem and E B Hart Madison Wis—p 749
*Variations in Lipemia of Normal Subjects Evelyn B Man and E F Gildea New Haven, Conn—p 769

Determination of Acetone in Blood and Urine—The reagents that Abels uses for determining acetone in the blood and urine are a 5 per cent solution of sodium bisulfite in water, Nessler's solution, a 1:1 dilution by volume of sulfuric acid and a standard acetone solution. A stock solution containing 0.1 mg per cubic centimeter of acetone is prepared and checked gravimetrically by the method of Van Slyke. The standard solutions used are made by a 1:10 dilution of this, so that 1 cc contains 0.01 mg. This should be prepared daily. The apparatus consists of a 50 cc Erlenmeyer flask and a tightly fitting cork. Suspended from the under surface of the cork by means of a pin (6 cm long) is a cotton pencil (dental roll). The pin is stuck first through the cotton plug and then into the cork. The urine is made acid to congo red with 1:1 sulfuric acid, and 0.5 cc is pipetted onto the cotton roll. In the case of the blood, no previous acidification is necessary, and the 0.5 cc sample may be used directly. Five-tenths cc of the 5 per cent sodium bisulfite solution is spread over the bottom of the flask and the cork is carefully and firmly inserted so as to allow the blood or urine sample to suspend about 1 cm over the level of the bisulfite. The flask is heated in a boiling water bath for fifteen minutes and, when cool, the cork and cotton roll are removed, 1 cc of water is added and then 1 cc of Nessler's solution, bringing the total volume to 25 cc. The solution is poured into a test tube (6 inches by one-half inch) and the amount of turbidity is compared with the standard set. The standards are prepared at the same time in similar test tubes from 0, 0.002, 0.004, 0.01 mg of acetone, water to 1 cc, 0.5 cc of 5 per cent sodium bisulfite, and 1 cc of Nessler's solution. The full development of the turbidity takes fifteen minutes, during which time the tubes should be shaken occasionally. If exposed as little as possible to the light, they keep for about twenty-four hours. When abnormal amounts of acetone are suspected in the blood or urine, a stronger set of standards containing 0, 0.005, 0.01, 0.05 mg of acetone should be prepared.

Variations in Lipemia of Normal Subjects—Man and Gildea determined the serum cholesterol, phosphatides, fatty acids and generally the total protein, albumin and globulin content of six women and four men between 24 and 45 years of age at intervals throughout a total length of time of from three months to four years. The intervals between blood studies were irregular in four persons, were of two weeks duration throughout three months in two men and two women,

and then were prolonged to approximately one month in one man and two women. Such timing of the blood studies has permitted investigation of the level of serum lipids in relation to the season of the year, to the menstrual cycle of women and to the constancy of lipemia after intervals as prolonged as one and one-half years in two subjects, two and one-half years in one man and four years in one woman. There was a wide range in the serum cholesterol, lipid phosphorus, titrated fatty acids and total protein of any one person. The minimal and maximal serum cholesterol varied by as much as 31 per cent, lipid phosphorus by 23 per cent, titrated fatty acids by 37 per cent and proteins by 14 per cent. Differences in lipids were not related to changes in hemoconcentration when serum proteins were employed as a criterion of blood volume. Variations in lipids were not related to slight changes in body weight. In women the course of serum cholesterol could not be correlated with the menstrual cycle, and, moreover, changes in the cholesterol of men exceeded those in women. No definite trend in serum lipids in relation to the season of the year could be traced from person to person.

Journal of Immunology, Baltimore

33 186 (July) 1937

- Response of Infants to Inoculation with Type I Pneumococcus Carbohydrate J A V Davies Boston—p 1
Influence of Urethane on Anaphylactic Reactions. Contribution to Dale's Theory of Anaphylaxis L Farmer New York—p 9
Presence of M Agglutinogens in Blood of Monkeys K Landsteiner and A S Wiener New York—p 19
Studies on Serum Fractions. III. Precipitation of Antibody by Precipitin Serum K Ando K Manako R Kee and S Takeda Darien Manchuria—p 27
Id. IV. Fractions Absorbed from Immune Horse Serum by Specific Antigen K Ando with technical assistance of K Takeshima Darien Manchuria—p 41
Bactericidal Power of Blood and Protection Against Meningococcal Infection N Silverthorne, with technical assistance of C Cameron Toronto—p 51
The Nature of Antibodies S B Hooker Boston—p 57
Influence of Temperature on Anaphylaxis in Guinea Pigs Passively Sensitized with Globulins of Types I and II Antipneumococcus Horse Serum and Shocked with Type Specific Carbohydrates G H Bailey and S Raffel Baltimore—p 75

Journal of Nutrition, Philadelphia

14 111 222 (Aug) 1937

- Individual Variations in Susceptibility to Dietary Deficiency A L Bloomfield San Francisco—p 111
Latent Deficiency in Rats. Variations in Weight Loss on Repeated Feeding of Defective Diet L R Trench and A L Bloomfield San Francisco—p 117
*Further Studies on Growth Promoting Factor Associated with Summer Milk G O Kohler C A Elvehjem and E B Hart Madison Wis—p 131
Undernutrition, Starvation and Phagocytosis E Gellhorn and J O Dunn Chicago—p 145
The Role of Manganese and Certain Other Trace Elements in the Prevention of Perosis H S Wilgus Jr L C Norris and G T Heuser Ithaca N Y—p 155
Effect of Vitamin E Deficiency on Growth Gladys A Emerson and H M Evans Berkeley Calif—p 169
Basal Metabolism of Rats in Relation to Old Age and Exercise During Old Age F G Benedict and H C Sherman with collaboration of H L Campbell and Anna Zmachinsky New York—p 179
Effect of Vitamin B Deficiency on Heat Production of Rat L Voris State College Pa—p 199
Further Contribution to Derivation of Factors for Computing Gaseous Exchange and Heat Production in Metabolism of Proteins M Kriss and L Voris State College Pa—p 215

Growth Factor in Summer Milk—Kohler and his collaborators attempted to demonstrate the identity factor found in grass juice with known vitamins. A series of supplements was fed to rats receiving mineralized winter milk ad libitum. Growth was stimulated by daily supplements of 3 Gm of fresh grass, 3 cc of grass juice, 0.6 Gm of dried oat grass, 0.2 Gm of rice bran or 0.2 Gm of liver extract. The known essential food factors as well as flavine, choline, goat milk factor and alcohol-ether precipitate factor have been eliminated from consideration as being the active principles by the inferior responses to growth produced by daily doses of 2 drops of cod liver oil, 1 cc of orange juice, 0.5 Gm of brewers' yeast, 0.25 Gm of dried bran and 1 Gm of defatted wheat germ. Increased growth of rats on mineralized winter milk receiving a supplement of grass or grass juice over that of controls receiving no supplement is accompanied by an increase in the consumption of milk. Fresh or carefully dried tissues of green plants con-

tain a substance (or substances) which is the limiting factor for growth of rats on mineralized winter milk. The activity of the tissues of fresh plants may be demonstrated by use of the expressed juice. The daily dose of juice necessary to produce optimal growth is 0.1 Gm on the dry weight basis. Other supplements produced slight increases in growth over the controls. Von Wendt has published work which indicates that the seasonal variation in the nutritive quality of milk is of importance in human nutrition in territories in which milk and its products are the chief articles of diet.

Laryngoscope, St. Louis

47 365 434 (June) 1937

- Anatomy and Physiology of the Neural Mechanism of Hearing. Physiology of Hearing and Anatomy of the Inner Ear. S. R. Guild. Baltimore—p. 365.
Id. Sensory Endings in Cochlea. R. Lorente de No. New York—p. 373.
Id. Central Auditory Pathways to Temporal Lobes. J. C. Hinsey. New York—p. 378.
Id. Point of View of the Physicist. H. Fletcher. New York—p. 389.
Pathology of the Neural Mechanism of Hearing. Perilymphatic and Endolymphatic Systems. B. J. Anson. Chicago—p. 395.
Id. The Pathology of Nerve Deafness. F. H. Lewis. Philadelphia—p. 409.
Id. Pathology of the Organ of Corti. M. H. Lurie. Boston—p. 418.
Motor Disorders of Central Nervous System and Their Significance for Speech. Part II. Clinical Forms of Motor Defects (The Spastic Child). P. J. Zentgraf. St. Louis—p. 421.

Military Surgeon, Washington, D. C.

80 411 484 (June) 1937

- Standard Technique for Bacteriologic Examination of Eating Utensils. J. G. Cumming and N. E. Yongue—p. 411.
Gonococcal Endocarditis. J. O. Gillespie and R. M. Thompson—p. 418.
Severe Gunshot Wound of Face. R. F. Dorset—p. 429.
Mosquito Control Program. C. L. Leedham—p. 431.
*Shock. H. P. Makel—p. 436.
Appendicitis Following Tonsillitis and Respiratory Infections. G. R. Dawson Jr.—p. 447.
Interpretation of Normal Blood Pressures and Pulse Rates in Routine Physical Examinations. H. G. Armstrong—p. 456.

Shock—Makel declares that to save life not only must shock be recognized when the classic symptoms are present, but conditions causing, and signs indicating, the probability of secondary shock must be known and proper prophylaxis given. Once shock has developed, treatment must be instituted without delay. "The critical level of blood pressure once reached it will not rise again without assistance. The best guide as to the procedure to be followed is the degree of shock present as determined by depression of the blood pressure. Mild shock responds quickly to measures directed toward increasing body heat, the relief of pain and free oral administration of fluid and avoidance of movement. In severe shock the indication is to increase immediately the diminished blood volume. The intravenous administration of physiologic solution of sodium chloride to which dextrose is added usually results in an immediate restoration of the blood pressure. The most effectual means of restoring a diminished blood volume is transfusion of blood. In the domain of surgical technique there is need of greater gentleness in handling the tissues and of more painstaking care in eliminating every factor contributing to shock. The use of powerful mechanical retractors, the neglect of hemostasis, the unnecessary bruising of organs and traction on them are all too common. The surgeon should shrink from needless trauma as he would from the conscious introduction of infection. Food and water deprivation and exposure to cold increase the ease with which shock can be produced. Prolonged anesthesia may greatly exaggerate the condition. Treatment may be summarized thus: removal of all contributing causes. These are not only associated with physical trauma but include psychic and nervous aberrations. Drugs and agencies to stimulate and maintain blood pressure should be used.

New England Journal of Medicine, Boston

217 123 160 (July 22) 1937

- Treatment of Septic Compound Fractures of Tibia with Maggois. S. Vaddock and Dorothy Jensen. Boston—p. 123.
Hypoglycemia Due to Insulin. A. Marble. Boston—p. 130.
Chickenpox Encephalitis. Report of Case. C. F. Walcott, Boston—p. 136.
Progress in Pediatrics. R. C. Elev. Boston—p. 137.

New Orleans Medical and Surgical Journal

90 154 (July) 1937

- Head Injuries. C. P. Gray and C. P. Gray Jr. Monroe, La.—p. 1.
Practical Tuberculosis Case Finding Program. R. A. Brown. Montgomery, Ala.—p. 6.
Modern Trends in Public Health Work in Louisiana. W. K. Sharp Jr. New Orleans—p. 8.
Lymphogranuloma Inguinale (Lymphopathia Venerea). J. W. Tedder, New Orleans—p. 13.
Superior Pulmonary Sulcus Tumor. Report of Case. A. Mayoral and I. H. Wilson. New Orleans—p. 20.
Lung Abscess. Report of Case in a Child. P. C. DeVerges. New Orleans—p. 25.
Macroductylism. J. D. Bloom, New Orleans—p. 29.
*Local Use of Quinine in Ophthalmology. G. W. Robinson. New Orleans—p. 30.
Lateral Pyelogram as an Aid in Diagnosis of Perinephric Abscess. Preliminary Report. J. G. Menville. New Orleans—p. 37.

Local Use of Quinine in Ophthalmology—During the last six months Robinson has used quinine bisulfate in solutions and ointments (2 per cent) in the treatment of catarrhal conjunctivitis and has found its results most gratifying. In fifteen cases so treated, the conjunctival infection decreased by one half within two days, on the average. Exudates from such eyes examined microscopically after one week were found to be sterile. The average case cleared up in from seven to ten days. The disease process was longer in being brought under control when the solution was used. The use of a 2 per cent quinine bisulfate ointment along with the use of atropine as a postoperative treatment in ten cases of pterygium has greatly reduced scarring when compared with the records of cases in which such treatment had not been used. Similar results were observed in a number of postoperative cataract cases in which the intracapsular method with a corneal suture was employed. Ethylhydrocupreine hydrochloride in solutions of from 0.5 to 1 per cent has been used in seventy-five cases of pneumococcal conjunctivitis, proved with the microscope, during the last year and in less than 3 per cent of these cases the drug did not halt the condition. Ten patients with hordeola after removal of the dead hair and evacuation of the exudate were placed on 0.5 per cent ethylhydrocupreine to be used thrice daily and in no case was there any sign of conjunctivitis seen at any time. Although ethylhydrocupreine and quinine as ocular therapeutic agents are still in their experimental stage, the author states that both drugs are highly beneficial in their effects on infectious microorganisms of the conjunctiva and the repair of ocular adnexa, and that they act synergistically with each other and are not hampered by the use of their supposed antagonistic drugs such as mercury, iodides, bromides, lead, zinc, copper and ammonia, and that the two drugs may be combined over long periods without producing injury to any of the ocular adnexa.

Oklahoma State Medical Assn Journal, McAlester

30 243 280 (July) 1937

- Surgical Pediatrics. G. E. Stanbro. Oklahoma City—p. 243.
Bilateral Acute Mastoiditis with Many Complications. Recovery. M. D. Henley. Tulsa—p. 247.
Operative Procedures of Nose for Cosmetic Purposes. C. von Wedel. Oklahoma City—p. 249.
Hyperpyrexia as a Therapeutic Measure. S. C. Shepard. Tulsa—p. 257.
*Infantile Eczema. H. A. Foerster. Oklahoma City—p. 260.
Treatment of Gonorrhea in the Male. D. W. Branham. Oklahoma City—p. 262.

Infantile Eczema—Foerster declares that the following conditions must be ruled out before one has the true atopic variety of infantile eczema: dermatitis, seborrhea, infectious eczema, fungus infection and contact dermatitis. When these conditions or types of eczema are eliminated then and only then is one qualified to call the case one of atopic or true infantile eczema. The treatment of (atopic) infantile eczema is usually of a dual nature, that is, local soothing measures and that which is directed toward finding the cause. The three most important things to test for are milk, egg and wheat as these are the basis of most infant diets. An infant genuinely sensitive to cow's milk cannot take boiled, acidified or any form of canned cow's milk without keeping the eczema flared up. The author advises putting these infants on a goat's milk formula. Breast-fed infants are usually egg sensitive, the condition being transmitted through the mother's milk. Eggs should be eliminated from the diet, care being taken that the

infant or mother does not get traces of egg in cake, bread, custard, pretzels and the like. Often milk sensitive infants are barley sensitive, and many of the soya bean milk preparations contain barley, this may be the explanation of failure of soya bean milk substitutions to help the eczema. Atopic infants, if followed closely, all have an allergic background, and one can expect from 50 to 75 per cent to continue to develop new sensitivities as they grow older and as more foods are added to their diet, they progress to the stage of neurodermatitis and later pass into the asthmatic and hay fever category. Therefore it behooves one to follow these cases carefully from year to year and to be cautious with regard to a too favorable prognosis.

Physiological Reviews, Baltimore

17 335 484 (July) 1937

- Role of Fat in Diet W E Anderson New Haven Conn and H H Williams Detroit—p 335
Drugs Affecting Parasympathetic Nerves A E Henderson and M H Roepeke Toronto—p 373
Physical Factors Involved in Activities of Mammalian Kidney F R Winton Cambridge England—p 408
Fatigue in Mental Work A G Bills Chicago—p 436
Reversible Inactivations of Certain Hydrolytic Enzymes L Hellerman Baltimore—p 454

Public Health Reports, Washington, D C

52 989 1026 (July 23) 1937

- Some Factors Which Affect Relationship Between Housing and Health J M DallaValle—p 989
Age of Gainful White and Negro Male Workers of the United States 1920 and 1930 Studies on Age of Gainful Workers No 4 W M Gafafer—p 999

Puerto Rico J Pub Health & Trop Med, San Juan

12 369 498 (June) 1937

- Study of Parasite Control in Puerto Rico Over a Period of Five and a Half Years G W Bachman R Rodriguez Molina W A Hoffman and J O Gonzalez San Juan—p 369
Health and Socio-Economic Studies in Puerto Rico I Health and Socio-Economic Conditions on Sugar Cane Plantation P Morales Otero M A Perez R Ramirez Santos Rafaela Espino Adriana Ramu J L Fuster Dolores Gonzalez and M Marrero San Juan—p 405

South Carolina Medical Assn Journal, Greenville

33 161 184 (July) 1937

- The South Carolina Workmen's Compensation Law J H Dukes Columbia—p 161
*Amebic Abscess of Liver J R Young and L J Bristow Anderson—p 164

Amebic Abscess of Liver—Young and Bristow review the cases (twenty-five) of amebic abscess of the liver that have occurred among the last 34,994 admissions. Of the patients admitted for primary pathologic changes of the liver 37 per cent, or one in three, had amebic abscess. A past history suggestive of amebiasis was obtained in only thirteen patients, and only six had a diarrhea on admission to the hospital. The relatively high incidence of persons who have an amebic abscess of the liver with no antecedent history of a dysentery is explained by the fact that slight amebic infections limited to the right half of the intestine may not produce diarrhea, while the same degree of infection in the left half may produce symptoms, and the nearer the rectum is approached by the infection, the more pronounced are symptoms produced. Only five patients had received emetine previous to the present illness. If used oftener, amebic abscesses would be less frequent. From the histories, as nearly as could be determined the average duration of symptoms was more than twenty-one weeks, the extremes being eighteen months for the longest and two weeks for the shortest. In reviewing the symptoms as presented, pain and/or tenderness in the region of the liver and fever occurred in all cases. Pain in the upper right quadrant associated with an enlarged tender liver and a sallow, muddy skin should make one suspicious of amebic hepatitis, whether or not the patient gives a history of a past diarrhea. The other most frequently noted symptoms were loss of weight and vomiting in fifteen cases, chills in thirteen and sweats in ten, while seven patients gave the history of having pain in the right shoulder. All the patients had a secondary anemia. Stool examinations are helpful only when positive, and a negative stool by no means rules out amebiasis. Roentgenoscopy is one of the most important and reliable diagnostic aids, especially fluoroscopy, where

elevation and fixation of the right leaf of the diaphragm is a constant occurrence. The treatment of amebic abscess of the liver consists of specific therapy, closed drainage (aspiration), open drainage or a combination of these methods. As soon as the diagnosis is made or suspected, 0.065 Gm of emetine daily for from six to ten days is given. If the patient is not relieved, the abscess should be emptied by aspiration. If aspiration is not done or is not successful, open drainage of the abscess by the transpleural or abdominal approach is indicated depending on where the abscess is "pointing." No matter what method of drainage is used emetine should be given to every patient having abscess of the liver.

Southern Surgeon, Atlanta, Ga

6 267 350 (Aug) 1937

- Improvements in Operative Treatment of Intestinal Carcinoma W W Babcock Philadelphia—p 267
Problems in Osteomyelitis J S Gaul Charlotte N C—p 275
Small Bowel Tumors with Especial Reference to Melen F W Rankin and A E Grimes Lexington Ky—p 280
Evaluating Functional Element in Diagnosis and Treatment of Surgical Diseases J M Donald Birmingham Ala—p 288
Inexpensive Traction Irons for Well Leg Countertraction Without Use of Bone Pins H C Dozier Ocala Fla—p 293
Observations on Early Diagnosis of Gastrointestinal Cancer E Jelks Jacksonville Fla—p 299
Pylorospasm as an Entity in Diagnosis E D Mitchell Jr Memphis Tenn—p 305
Present Status of Surgery of Ovary H L Rush and L V Rush Meridian Miss—p 314
Benign Tumors That Destroy the Patient C D Lucas Charlotte N C—p 319
Serious Complications of Gallbladder Disease W R Meeker Mobile Ala—p 330

Surgery, St Louis

2 1162 (July) 1937

- Uretero-Intestinal Implantation C C Higgins Cleveland—p 1
Implantation of Ureters into the Colon W Walters Rochester Minn—p 12
*Aseptic Ureterosigmoidostomy New Method Providing Definite Asepsis in Respect of Both Fecal and Urinous Soiling Preliminary Report F E B Foley St Paul—p 18
Rhabdomyosarcoma of Kidney Case Report with Autopsy Findings W J Messinger and W D Jarman Rochester N Y—p 26
Effects of Obstruction of Common Bile Duct on Portal Blood Flow and Oxygen Consumption S E Levy and A Blalock Nashville Tenn—p 33
Cholecystoscopy H G Hollenberg and W C Eikner Clifton Springs N Y—p 37
Use of Meclaine in Spinal Anesthesia E B Tuohy Rochester Minn—p 39
Effect of Sympathectomy on Peripheral Vascular Disease G de Takats Chicago—p 46
Arterial Repair by Muscle Transplants R W McNealy and P F Shapiro Chicago—p 61
Surgical Complications During Pregnancy at the Chicago Irving Hospital W J Diekmann Chicago—p 71
Treatment of Carcinoma of Cervix by Combined Use of Relatively Small Amounts of Radium and Deep X-Ray D R Murphey Jr Tampa Fla—p 82
Surgical Correction of Mandibular Protraction Retraction and Fractures of Ascending Ramus G C Hensel San Francisco—p 92
Calcification of Semilunar Cartilages of Knee Joint I Balensweig and D M Bosworth New York—p 120

Aseptic Ureterosigmoidostomy—Foley devised an aseptic method of uretero intestinal anastomosis. It is definitely aseptic in respect of both fecal and urinary soiling. It involves use of a new snare or guillotine instrument within the intestinal lumen but imposes no technical elaborations or difficulties. The ligated end of the ureter, pushing a small invaginated tent of intestinal submucosa before it is inserted into the snare. The two structures are held in the grip of the snare while the ureter is embedded in the intestinal wall by suture and the abdomen is closed, all of which is accomplished without even a suture needle penetrating the lumen of either intestine or ureter. Later with supply of a cutting current to the instrument the snare amputates within the intestinal lumen the ligated end of the ureter and the invaginated tent of intestinal submucosa covering it thus establishing the uretero intestinal communication. The new instrument has been called a ureteral transplanter.

West Virginia Medical Journal, Charleston

33 289 340 (July) 1937

- Value of Sedimentation Rate in Medicine O B Biern Huntington—p 289
Gastro-Intestinal Allergy A H Hoge Bluefield—p 296
Diagnosis and Treatment of Trichomonas Vaginalis Vaginitis C John Morgantown—p 302
Internal Derangements of Knee H A Swart Charleston—p 304
Personality Panel in History F F Rea Jr Huntington—p 310

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Dermatology and Syphilis, London

49 293 346 (July) 1937

- Relapsing Phlyctenular Dermatitis of Extremities. Case (Dore). W N Goldsmith with histologic account by W Freudenthal—p 293
 *Three Clinical Types of Ringworm Due to Trichophyton Gypseum. Eleanor Silver Dowling and H Orr—p 298
 Neuropathic Eczema. E Ramel—p 307

Ringworm Due to Trichophyton Gypseum—Dowling and Orr set out to estimate the prevalence of Trichophyton gypseum in Alberta and to describe the clinical varieties of ringworm it may produce. Trichophyton gypseum was identified by the gross appearance of the cultures and by the size and shape of the spores, particularly the macroconidia. During 1935 and 1936, tissue from about 200 patients was examined in potassium hydroxide solution for fungal infection and, from the tissue containing fungi, cultures were obtained whenever possible. It was found that the commonest dermatophyte was Trichophyton gypseum, which was responsible for 67 per cent of the ringworm. Sixteen cultures of dermatophytes were obtained which were identified with certainty as Trichophyton gypseum. Of the sixteen isolates, seven of them were derived from lesions of the arm, five from chronic, scaly, sometimes vesicular lesions of the skin of the feet and four strains were derived from deep-seated inflammatory lesions—one from kerion of the scalp and three from pustular, boggy, granulomatous-like lesions of the beard. Only seven of the sixteen strains resembled published descriptions of the species in every particular. The seven identical strains were responsible for a variety of clinical types of ringworm, vesicular lesions of the glabrous skin, chronic scaly lesions of the feet, pustular boggy lesions of the beard. Furthermore, both typical and atypical cultures of Trichophyton gypseum have been isolated from each of the types of ringworm, so that no correlation could be found between the type of lesion produced by the fungus on the patient and any peculiarities in the appearance of the culture on Sabouraud's medium. The most obvious variations in the cultures of Trichophyton gypseum were in the color of the mycelium and in the pigmentation of the culture medium on which it grows.

British Journal of Radiology, London

10 501 572 (July) 1937

- Visualization of Pulmonary Artery by X Rays. E L Rubin—p 501
 Distribution of Gamma Rays Round Ring Source. J E Roberts and Joan M Honeyburne—p 515
 New Viewing Lantern. W V Mayneord—p 527
 Contribution of Radiology to the Cancer Problem. J H D Webster—p 529
 *Some Histologic Changes Produced in Mammalian Brain by Exposure to Radium. H A Colwell and R J Gladstone—p 549
 The Size of the Living Heart. Additional Note. J H Barrett—p 564
 Absorption of X Rays by the Skin. H L Brose and E H Molesworth—p 567

Changes Produced in Brain by Exposure to Radium—

The changes in the brain that Colwell and Gladstone observed in their investigation of rat brains after exposure to radium were those of a nonsuppurative reactionary inflammation. 1 Immediate effects of irradiation were vascular engorgement and changes in the nerve cells, more especially the larger cells of the cortex of the hemispheres and cerebellum, and in the basal ganglions, pons and medulla oblongata. Frequently two adjacent cells of similar type in the same microscopic field exhibit marked contrast in the degree of damage that has been inflicted. 2 With lapse of time no attempt at repair was observed. On the contrary, degenerative changes have taken place in the damaged cells and are progressive. Adjacent cells continue to show the same contrasts, especially with regard to staining reactions. The staining reactions of the altered cells consist chiefly of the coloring of the cell body and nucleus, with the hematoxylin-eosin method, a deep purple. The stain is diffuse in distribution, coloring the broken down granular material of the cell body and chromatin material of the nucleus, and the matrix of the cytoplasm and nucleoplasm. 3 These changes are similar to those occurring in the area of hemor-

rhages or mechanical injuries, such as may occur in removal of the brain immediately after death. 4 The vascular dilatation that follows immediately after irradiation is accompanied by the escape of red blood corpuscles. 5 Twenty-four hours after irradiation the initial stages of inflammation of the membranes are accentuated and there is some proliferation of the vascular endothelium and a perivascular accumulation of small round cells. There are also signs of localized stases. 6 Evidences of inflammatory reaction, which are seen in the earlier stages, progressively increase with the lapse of time and are attended by disintegration and total destruction of nerve cells and occasional hemorrhages into the nerve tissue and ventricles of the brain, in some situations there is contraction of arterioles with interference of the vascular supply, and patches of necrosis in the affected areas.

British Medical Journal, London

2 49 100 (July 10) 1937

- *Partial Gastrectomy. Review of 320 Cases. N C Lake—p 49
 Tests for Renal Function. C S D Don—p 54
 Causes and Treatment of Retained Placenta. D Currie—p 57
 Ocular Headache. D S Stewart—p 59
 Luminal and Prominal in Epilepsy. Comparative Study. C G Millman—p 61
 Prominal in Treatment of Epilepsy. C J Henderson—p 63

Partial Gastrectomy—Lake declares that in the last ten years there have been two peaks of medical interest in gastrectomy: the reintroduction of intensive alkalization and recently treatment by histidine. The lesions for which the operation has been performed in his 320 cases under review were gastric, duodenal, pyloric and jejunal ulcers and carcinoma. Some of the gastric ulcer cases had progressed to hour glass contraction (eleven cases), some of the pyloric and duodenal ulcers had caused obstruction with dilatation of the stomach (twelve cases), and some of the jejunal ulcers had previous gastric operations (perforation ten cases, gastro-enterostomy eight cases, local excision two cases). In a considerable proportion of instances the ulcers have been multiple. A majority of the cases (198) have been followed for more than two years, and only fifteen of these are unsatisfactory. The after history of some cases has been studied for periods up to fifteen years after operation. The gross mortality from all causes was 9.5 per cent in ulcer cases, 14.8 per cent in anastomotic ulcers and 14 per cent in carcinoma. If an ulcer is situated in the pyloric region, the mortality of the operation is but 5.3 per cent. The commonest causes of postoperative death are lung complications and peritonitis. The incidence of jejunal ulceration after partial gastrectomy is less than 2 per cent. No cases of postoperative pernicious anemia are recorded, but a microcytic anemia of mild degree is occasionally seen. The general permanent results in the ulcer cases are probably better than those obtained by any other method of treatment. The average duration of life in the carcinoma cases after operation was two and one-fourth years, but some patients with extensive growths lived for as long as seven and nine years.

East African Medical Journal, Nairobi

14 79 118 (June) 1937

- Cutaneous Epithelioma in an Albino African. W A Bullen—p 80
 Duodenal Ulcer in Zanzibar. S M Vassallo—p 83

Edinburgh Medical Journal

44 433 496 (July) 1937

- Communism as Anthropologic Phenomenon. W R D Fairbairn—p 433
 Clinical Recollections and Reflections. V V Treatment of Acute Pleural Empyema. W J Stuart—p 446
 Interpretation and Significance of Gordon's Test in Diagnosis of Hodgkin's Disease. Study of 100 Cases. C E Van Rooyen—p 455
 Certain Types of Alimentary Neurosis. P C McKinlay—p 465
 *Microscopic Inquiry into Etiology of Measles. A C Coles—p 483

Inquiry into Etiology of Measles—Colles examined films of the secretions or blood from fourteen cases of measles and in nearly all cases definite and distinctive red stained virus like bodies have been found, not unlike but slightly larger than the Buxton bodies of vaccinia. As far as he can see, the only structures that might be mistaken for these bodies are the escaped granules of cells. In the blood of measles the leuko-

cytes and especially the polymorphonuclears are diminished in number. When once the eye has become accustomed to the distinctive appearance of these bodies, their dissimilarity from cell granules is quite obvious. The virus-like bodies of measles are to be found in fluids like that of lacrimal secretion, in which cells are scanty or absent, especially in this case in preparations made from the breath or an infected handkerchief. It is impossible at this stage to state definitely that the elementary bodies described are the actual causal virus of measles but they certainly more closely represent a filtrable organism than anything yet described.

Indian Medical Gazette, Calcutta

72 329 392 (June) 1937

- Myeloid Leukemia Treatment by Deep X Rays L Everard Napier
P C Sen Gupta and R N Choudhuri—p 329
Cobra Venom in Therapeutics R N Chopra and J S Chowhan—
p 339
Typhren in Infection with Indian Strains of *Endamoeba histolytica*
(Chronic Intestinal Amebiasis) R N Chopra B Sen and J C
Gupta—p 348
Cyanide Poisoning and Its Treatment with Antidotes B Mukerji—
p 353
Presence of *Anopheles Sundaicus* (Ludlow) on Chilka Lake R S
White—p 361
Affections of the Eye in Malarial Fevers and Kali Azar R E Wright
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Journal of Hygiene, London

37 345 488 (July) 1937

- Suprarenal Glands in Diphtheria A Maclean—p 345
Oxygen and Carbon Dioxide Subcutaneous Tissue Gas Tensions in Cases
of Hypertension P Ellman and H J Taylor—p 369
Conception of Immunologic Specificity W T J Morgan—p 372
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*Studies on Influence of Diet on Resistance to Infection I Effect of
Various Diets on Fertility Growth and Survival of Mice M Watson
—p 396
*Id II Effect of Various Diets on Resistance of Mice to Bacterial
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Sedimentation of Virus of Foot and Mouth Disease in Sharples Super
Centrifuge M Schlesinger and I A Galloway—p 445
*Purification and Concentration of Virus of Foot and Mouth Disease by
Combined Centrifugation and Ultrafiltration Methods I A Galloway
and M Schlesinger—p 463
Reversible Neutralization by Congo Red of Anthracidal Power of Serum
J Gordon and N Wood—p 471
Spermicidal Powers of Chemical Contraceptives VII Approved Tests
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Effect of Diet on Sterility, Growth and Survival—
Watson finds that zinc cages are unsuitable for housing mice, at least for the type of experiment dealt with. There appears to be some toxic element in the metal or solder used in their construction that adversely affects the condition, growth, fertility and survival of the mice. Glass cages give far better results. "Synthetic" diets containing wheat gluten or caseinogen or a mixture of these two proteins with the addition of bran, dextrin, lard, cod liver oil, yeast and salt mixture, reduced the fertility of the mice almost to zero. They supported the growth of young mice, but growth and survival rates were both poor. A "natural" diet consisting only of whole oats to eat, and milk and water to drink, gave results that, except with regard to fertility, were as unfavorable as those given by the "synthetic" diets. With regard to the growth of young mice they were even more unfavorable. The best results, as judged by the fertility of breeding does, infrequency of litter eating, and the growth and survival of young mice, were obtained with three diets each of which contained about 25 per cent of dried separated milk. On these diets the mice thrived well in all respects.

Diet and Resistance to Bactericidal Infection—
Watson also observed that young mice bred and reared on a diet containing oatmeal dried separated milk, dextrin or flour and water biscuit, coconut oil, cod liver oil, yeast and bran and milk and water to drink, are more resistant to oral infection with *Bacterium typhi-murium*, and to the intraperitoneal injection of a toxic substance isolated from that organism than young mice bred and reared on a diet in which the amount of oatmeal is increased, and the dried separated milk dextrin or

flour and water biscuit and coconut oil are omitted. It is probable that the factor responsible for this increase in resistance is the dried separated milk.

Virus of Foot and Mouth Disease—According to Gallo way and Schlesinger, it is possible to concentrate the virus of foot and mouth disease on filter candles coated with acetic acid collodion. The degree of concentration of the virus effected was to the limit of expectancy, i.e., the increase in titer after concentration corresponded to the reduction of the volume of the liquid. By a combination of the two methods of purification of the virus, viz., washing once in the closed agitated cylinder of the Sharples super centrifuge and repeatedly on a graded collodion membrane of 25 millimicrons, very potent purified concentrates of virus can be obtained rapidly especially if the final concentration is made on filter candles, coated with acetic acid collodion. In this way a concentrate of virus with a titer of 10^{-8} and a negative sulfosalicylic acid test for protein has been prepared in one day from virulent vesicle lymph (diluted 1:2) having a titer of 10^{-6} . The possibilities of the different methods of purification and concentration of the virus are discussed and a scheme is suggested for their application.

Journal of State Medicine, London

45 373 434 (July) 1937

- The Place of the Health Department in Housing Administration J G
Wilson—p 373
Contribution of Recent Housing Legislation to Public Health T Peir
son—p 397
Food Poisoning Its Epidemiology and Bacteriology E R Jones—
p 404

Journal of Tropical Medicine and Hygiene, London

40 149 160 (July 1) 1937

- Some Experiences of Yellow Fever Endemicity in Africa and America
W H Hoffmann—p 149

40 161 172 (July 15) 1937

- Quantitative Study of Excretion of Antimony A Hassan—p 161

Lancet, London

2 61 118 (July 10) 1937

- *Value of Extracts of Suprarenal Cortex in Treatment of Addison's Dis
ease J F Wilkinson—p 61
Treatment of Cushing's Syndrome with Large Doses of Estrin A M
Gill—p 70
Thrombo-Angitis Obliterans in Father and Son F P Weber—p 72
Agranulocytic Angina Purpura and Tuberculous Laryngitis Complicating
Pulmonary Tuberculosis with Recovery A B Taylor—p 73
Accessory Spleens M Paul—p 74

Extracts of Adrenal Cortex in Treatment of Addison's Disease—Wilkinson discusses the use of two adrenal cortex extracts on the market in the treatment of nine patients with typical uncomplicated Addison's disease. Four of the patients died despite intensive treatment—three from Addison's disease and one, in remission, from cardiac muscular failure. Two of these showed tuberculosis and two complete atrophy of the adrenals. Five patients have responded to treatment and are alive and in good health, the longest period of survival to date being three years and one month and the shortest nineteen months. One was a chronic case of moderate severity—not now being treated—and four were acute severely ill patients who responded to cortical extracts and are now on daily maintenance doses of sodium chloride. With this treatment symptoms of asthenia, muscular weakness and digestive disorders were relieved, appetite returned, weight increased the mental outlook improved and the pigmentation slowly faded. There was a slight improvement in the subnormal temperature after cortical extracts but the occurrence of pyrexia is a bad prognostic sign. The blood pressure may take two or three months to show any significant improvement and then apparently only if cortical extracts are given with or followed by sodium chloride therapy. Changes in the chemistry of the blood and urine show rapid responses to adequate treatment.

South African Medical Journal, Cape Town

11 427-454 (June 26) 1937

- Some Memories and Reflections G J M Melle—p 429
Simplified Technique for Suprapubic Cystotomy R C Begg—p 431
Treatment of Cleft Palate Speech W K Ward—p 433
What Is the Correct Treatment of Pneumonia? M F Meiring—p 435
Alkalemia Producing Tetany in an Athlete L Murray—p 439

Archives Med-Chir de l'App Respiratoire, Paris

12 81 168 (No 2) 1937

- Abscess of Lung H Durand—p 81
 *Unusual Painful Forms of Pneumothorax and Spontaneous Hemothorax
 M R Castex and E S Mazzei—p 111
 Cleidectomy as Complementary Operation of Thoracoplasty L Berard
 M Dargent and J Francillon—p 122
 Favorable Action on Parenchymatous Lesion, of Contralateral Effusion
 in Course of Therapeutic Pneumothorax E Sergent M Fourestier
 and M Franchel—p 135
 Section of Adhesions D Michetti—p 143

Unusual Forms of Spontaneous Pneumothorax—Castex and Mazzei observed a number of cases of spontaneous pneumothorax with an unusual symptomatology. They point out that usually the appearance of spontaneous pneumothorax is either insidious or manifested by evident symptoms, the most frequent of which are pain, dry cough and dyspnea. The pain although variable as to type and intensity, generally has a thoracic localization. But occasionally it is localized elsewhere and may lead to erroneous diagnoses. The authors describe several cases which illustrate that pneumothorax and hemopneumothorax may begin in an extremely atypical and unusual manner and may simulate diverse disorders of other organs. The atypical forms may be classified as follows: (1) the form that is accompanied by fainting and convulsion, (2) the anginal form, (3) the brachialgic form, (4) the form with acute abdominal pain and (5) the form with chronic abdominal or lumbar pains. After reviewing a case from the literature, in which pneumothorax was accompanied by fainting, the authors say that in the anginal form of spontaneous pneumothorax the clinical picture may be exactly like that of angina pectoris. Discussing the brachialgic form, they mention two cases of pneumothorax in which the pains radiated into the arm. Further they describe a case of spontaneous pneumothorax which was masked by a pericardiac reaction. The forms of spontaneous pneumothorax that are accompanied by abdominal pains are especially noteworthy, because they may be mistaken for gastroduodenal perforation, cholecystitis or appendicitis. Their development has been explained by Pottenger as the result of viscerosensitive reflexes with a pleural point of origin.

Bulletin Medical, Paris

51 505 528 (July 31) 1937

- Modern Method of Examination of Nervous System A Pichet—p 507
 *Posttraumatic Juxtadural Hematomas E Krebs and P Puech—p 512
 Abscess of the Brain P Puech and P Winter—p 520

Posttraumatic Juxtadural Hematomas—Krebs and Puech discuss the diagnosis and the treatment of posttraumatic juxtadural hematomas on the basis of eight cases in which surgical treatment was employed. First they take up the extradural hematomas, pointing out that this type of hematoma is usually a complication of cranial fractures. In typical cases the hematoma is caused by a laceration of the middle meningeal artery or one of its branches. After describing the typical symptoms they discuss the examination of the fundus oculi and of the head and point out that in case of doubt ventriculography may be helpful. They report the histories of three cases in which extradural hematoma was present. Further they give their attention to subdural hematomas, pointing out that this type occurs chiefly in severe traumatism with or without cranial fracture or in mild traumas without fracture. In the latter cases the diagnosis is most difficult. The first symptoms appear sometimes in the week, the months or even the year following the trauma. The symptoms of subdural hematomas, if the previous trauma is unknown may readily be mistaken for those of cerebral tumor. The patients complain of symptoms that indicate intracranial hypertension, often without signs of localization. In rare cases there are neurologic symptoms, attacks of Bravais-jacksonian epilepsy, hemiparesis, ocular disturbances and so on. The roentgenologic examination of the cranium rarely reveals the signs of a fracture. It is often said that the subdural hematoma is not visible in the roentgenogram. However, some observers say that the subdural hematoma gives a clear roentgenologic picture. Chavan and David observed a noticeable disjunction of the cranial sutures with warping in two or five cases of subdural hematoma. The

authors observed the same changes in some of their cases, but they noticed them also in late traumatic serous meningitis with out hematoma. The examination of the fundus oculi may or may not reveal a stasis of the optic papilla. The authors observed stasis in four out of five cases, but, on the whole, the papillary stasis is less frequent in subdural hematoma than in cerebral tumors. As a rule the diagnosis is not certain, unless it is corroborated by trepanopuncture or by ventriculography. After discussing the evolution and the clinical forms of subdural hematomas, the authors give brief histories of five cases. Then they take up the diagnosis of the late complications and finally the treatment. Regarding the latter they say that the juxtadural hematomas are amenable to surgical treatment. The technique of the operation differs, depending on whether the hematoma is extradural or subdural. The authors describe and illustrate the operation for both types of hematomas.

Presse Medicale, Paris

45 1115 1130 (July 31) 1937

- Syndrome of Late Epilepsy in Old Craniocerebral Injuries from War of 1914 to 1918 R Targowla—p 1115
 *Can Epinephrine Be Considered as Cause of Hypertension? E Dicker—p 1117

Epinephrine as Cause of Hypertension?—In this paper Dicker considers whether the theory of the adrenal origin of hypertension can be confirmed. He reviews the studies of various investigators, giving especial attention to the reaction of Viale. He shows that this reaction is not specific and that its outcome depends partly on the diet of the examined patient. Moreover the method of Viale is not capable of determining a physiologic augmentation in the epinephrine content of the serum and does not give the amount of substances produced at the time of the coagulation of the serum. From the sum of facts presented by the author it stands out that, if involvement of epinephrine in the mechanism of essential hypertension or of the hypertension of nephritis cannot be formally rejected it appears impossible to produce experimental proof for the hypothesis that attributes to the adrenals a primary role in the pathogenesis of these two types of hypertension.

Schweizerische medizinische Wochenschrift, Basel

67 685 704 (July 24) 1937 Partial Index

- Relations of Essential Rheumatic Arthronosis Deformans to Primary Chronic Rheumatic Polyarthritis and to Chronic Articular Diseases K von Neergaard—p 685
 Reflexes of the New Born R A Lyon—p 699
 *Criticism of Methods of Determination of Uric Acid in Blood and Organs H Pinosch—p 694

Criticism of Determination of Uric Acid—On the basis of experiments, Pinosch is of the opinion that the newer modifications of the colorimetric methods for the determination of the uric acid produce unreliable results in that frequently only a small portion of the uric acid is detected and then again several times as much as is actually present. He thinks that the following factors are responsible for the erroneous results: 1 A greater or smaller portion of the uric acid is absorbed by the sediment during the process of deproteinization. 2 In the deproteinized fluid, the uric acid cannot be quantitatively precipitated, whereas this is readily possible in pure uric acid solutions. 3 In case of the direct determination in the deproteinized extract, there is not the slightest guaranty that really uric acid and not one of the numerous other reducing substances is determined. 4 The colorimetric determination of the uric acid produces fluctuating values not only on account of excessive sensitivity but also on account of the instability of the reagents. Moreover, since extremely small quantities of uric acid have to be determined, the error of computation is extremely large. 5 The titrimetric determination of uric acid according to Flatow has about the same defects as has the colorimetric method (error of deproteinization nonspecificity and instability of reagents). The method of Edson and Krebs is entirely different. It avoids the deproteinization and determines the uric acid by manometric measurement of the urea that develop in the oxidative decomposition of the uric acid. To be sure the method is considerably more complicated than the methods employed heretofore but it seems to be the only one that produces reliable results.

Minerva Medica, Turin

2 161 196 (Aug 19) 1937

- Seasonal Cycle of Tuberculin Allergy M Rigoni and G Zanfrognini —p 161
Crave Hemoptysis Clinical and Roentgen Study of More Than One Hundred Cases O Maestri and A Bernabo Silorata —p 163
*Artificial Pneumoperitoneum After Puerperium in Pulmonary Tuberculosis U De Michelis —p 183
Relations Between Exudative Pleuritis and Pulmonary Tuberculosis G Berio —p 188

Seasonal Cycle of Tuberculin Allergy—Rigoni and Zanfrognini followed the behavior of Mantoux-Romer's intracutaneous tuberculin test all through the different seasons of the year for five consecutive years in all adult patients who entered the medical clinic of the Bologna University for treatment of different diseases. The total number of patients in whom the test was performed during that time was 1,600. The authors found that allergy to tuberculosis greatly intensifies in the spring, decreases in the summer, rises again in the autumn (although not as much as it does in spring) and again falls in the winter. The seasonal variations of allergy are constant for every year and have no relation to the organic conditions of immunity to tuberculosis. They are an epiphenomenon of the changes of the vasomotor centers due to seasonal hyperfunction of the vagal sympathetic. The biologic phenomenon is of sympathetic origin and independent from any direct action of external factors.

Artificial Pneumoperitoneum After Puerperium in Pulmonary Tuberculosis—According to De Michelis, there are several factors that aggravate the evolution of pulmonary tuberculosis after the puerperium. There are hemorrhages, loss of organic, inorganic and hormone substances through lochia and lactation and the mechanical factor of the lowering of the diaphragm. In the case reported by the author, the aggravation of the disease after the puerperium was manifest. An artificial pneumoperitoneum was established. Intraperitoneal insufflations of from 300 to 500 cc of oxygen were administered at intervals of six days for about three months. The symptoms of the disease rapidly abated and the general condition of the patient improved. The x-ray examination of the thorax showed elevation of the diaphragm. The treatment is well tolerated by the patients. The author advises resorting to it in cases of the nature of the one he reports so as to establish precise indications, the quantity of oxygen that should be administered and the possible contraindications.

Rivista di Patologia e Clinica di Tuberculosis, Bologna

11 481 552 (July 31) 1937

- *Blood Proteins After Thoracoplasty E Lenzi —p 481
Alcoholization of Visceral Pleura in Inefficient Pneumothorax S Gunella —p 485
Variations of Complemental Power of Blood in Course of Hemoptysis F Capelli —p 494
Subchronic and Chronic Hematogenous Tuberculosis of Lung V Luhich —p 499
Phrenic Exeresis and Alcoholization of Phrenic Nerve G Gullotta —p 519
Benign Lymphocytic Acute Meningitis Case G Carella —p 525
Blood in Pulmonary Mycosis J Chasis —p 534

Blood Proteins After Thoracoplasty—Lenzi says that patients having pulmonary tuberculosis also suffer from a definite disequilibrium of the metabolism of blood proteins. There is a predominant amount of globulins over that of albumins in the blood of the patients. The latter are adapted to the disequilibrium in the course of the disease. The quantitative changes of the blood proteins are harmful to the body, as they cause physicochemical disorders of the blood and body humors in their relation to blood proteins especially after thoracoplasty, when they are greatly intensified. According to the author, proteins from cells which were disintegrated by operative trauma enter the blood, alter the stability of blood proteins and break the balance of the water and colloid metabolisms of the blood in their relations to blood proteins. The latter, especially albumin, play an important part in regulating the exchanges of water between blood and tissues. The author advises the determination of proteins in the blood of patients suffering from pulmonary tuberculosis before and after thoracoplasty. The study is advisable for ascertaining the physiopathologic processes related to the operation especially in patients with

a greatly diminished amount of albumin in the blood before the operation. The author's study is based on determinations of the proteins in the blood of eight patients suffering from pulmonary tuberculosis who underwent partial thoracoplasty. The postoperative period in all cases was without complications. His article is a preliminary report.

Sperimentale, Florence

91 193 308 (June) 1937

- Researches in Experimental Poisoning from Bismuth A Previsini —p 193
*Effects of Roentgen Irradiation of Thymus on Structure of Pancreas G C Bentivoglio and C Fumi —p 219
Experimental Castration Changes of Gallbladder D Rodino —p 250
Action of Iodine on Lung Cells F Crauz —p 276
Blood Changes from Morphine and Atomorphine (Morphine Campho-carboxylate) in Rabbits with Varying Thyroid Equilibrium A Donnini —p 297
Histophysiology of Thyroid in Experimental Morphism A Donnini —p 305

Effects of Roentgen Irradiation of Thymus—Bentivoglio and Fumi's experiments were carried on to clarify their postmortem observations. An infant who suffered from thymic hypertrophy made a clinical recovery after roentgen irradiation was administered to the thymus. Five months later he died from intercurrent pneumonia. At necropsy it was found that the cortex of the thymus was atrophic and the insular tissue of the pancreas was hyperplastic and hypertrophic. The other endocrine glands were normal. The authors also treated the thymus of puppies by roentgen irradiation. Some of the animals were given only 100 roentgens, whereas others received various irradiations in different amounts. The animals showed general nutritional and somatic disorders and also bone changes of the rachitic type, all of which varied with the race and individual resistance of the dogs to the treatment. The animals were killed at the end of the second month of the experiment. It was found that involution of the thymus from roentgen irradiation causes hyperplasia and hypertrophy of the insular tissues of the pancreas which are proportional to the intensity of thymic atrophy. The necessary condition for the development of insular tissues is the selective evolution of intense atrophy of the lymphoid tissues of the cortex of the thymus with relative survival of the pancreatic medulla and Hassall's corpuscles. The phenomenon shows the existence of relations between the thymus and the insular part of the pancreas, by an indirect mechanism connected with the functions of the structures in regulating the sugar metabolism. It shows also the evolution of the thymic and insular processes that probably took place in the course of the clinical case reported by the authors.

Prensa Médica Argentina, Buenos Aires

21 1465 1508 (July 28) 1937

- Adrenal Glands Preparation of Active Extracts C Bonorino Udaondo and G P Goñalons —p 1465
*Volhard's Test in Jaundice Teresa Malamud —p 1469
Abscess of Lung and Tuberculosis J Viale J B Ticinese and R Jatenda —p 1478
Multiple Abscesses of Lung and Osteomyelitis in Premature Infant Case C M Pintos and V O Visilhe —p 1487
Free Endometrium in Lumen of Fallopian Tube Coexisting with Isthmic Nodular Adenomyosis and Internal Peritoneal Hemorrhages Case C M Casco and E V Salerno —p 1493

Volhard's Test of Water Elimination in Jaundice—Malamud followed the behavior of the elimination of water in jaundice by means of Volhard's test of induced diuresis. The test is performed on patients resting in bed. It consists in administering to the patient 1 liter of light, tepid, slightly sweetened, lemon flavored tea and determining the quantity of urine passed. Normally the urine eliminated for the first four hours following the ingestion of 1 liter of tea is equal to and sometimes more than the quantity of tea ingested by the subject. The author performed the test in twenty patients suffering from jaundice. In all the cases the renal functions were normal. The test was performed several times in the course of the disease. There was slow passage of the urine during the test in eighteen patients. In the largest number of cases the retardation of the elimination of urine was more intense during the acute period of jaundice and became normal as jaundice disappeared. In some cases the urinary disorder was intensified as the jaundice was aggravated. In a few cases however the time of elimination of urine was shorter in relation to previous tests.

during the course of progressive jaundice. According to the author the elimination of urine in Voilhard's test in jaundice does not follow characteristic curves. The test cannot be considered of clinical or operative prognostic value. The author concludes that jaundice is an important extrarenal factor in disturbing the elimination of water, which is retarded in the course of the disease.

Balneologie, Berlin

4 305-352 (July) 1937 Partial Index

- *Influence of Short Wave Treatment on Stomach K. Neidhardt and H. Schlinke—p. 305
- Thermal Waters and Their Clinical Use H. Fritz—p. 322
- Treatment of Exophthalmic Goiter in Spas G. W. Parade—p. 329
- Newer Results of Biologic Action of Therapeutic Springs W. Pfannenstiel—p. 332

Influence of Short Wave Treatment on Stomach.—Neidhardt and Schlinke studied by means of x-ray examination the behavior of the stomach after treatment with short waves, 6 meters in length. The experiments were made on fourteen patients, of whom ten were free from gastric disorders, two had an old duodenal ulcer and two had subacidity. After five minutes of exposure to the short waves there was noticeable in nearly all experiments a reduction in the tonus and the peristalsis of the stomach, whereas the secretion of gastric juice increased. When the short waves acted on the stomach for thirty minutes, the remnant of contrast medium in the stomach was in seven out of eight examined persons from two to four times as large as was the case in the same person without irradiation. Thus it may be concluded that exposure to short waves reduces the motor action of the stomach. In discussing the therapeutic use of short waves, the authors point out that it is contraindicated in bleeding ulcers. However, short waves may be tried in all spastic conditions of the stomach, whether they are due to ulcers or to other local changes, also in all conditions of hypermotility resulting from duodenal ulcer, acute gastritis, tabetic crises and so on.

Klinische Wochenschrift, Berlin

16 1009-1040 (July 17) 1937 Partial Index

- Influence of Thyroid on Carbohydrate Metabolism Intensity of Action of Insulin on Thyroidectomized Rabbits F. Meythaler and Maria Theresia Mann—p. 1009
- *Treatment of Anemia by Injection of Bone Marrow A. Schretzenmayer—p. 1010
- Development of Cutaneous Carcinomas and Sarcomas After Sun Irradiation and Photo Sensitization W. Bnngeler—p. 1012
- Familial Occurrence of Adies Syndrome with Hippus M. Dressler—p. 1013
- Determination of Lipase and Cholesterol in Multiple Sclerosis Olga Altmann and Helene Goldhammer—p. 1017
- *Progressive Muscular Dystrophy and Vitamin C Y. Hirata and K. Suzuki—p. 1019

Treatment of Anemia by Injection of Bone Marrow.—Since it was difficult to secure donors for blood transfusions (in southern China), Schretzenmayer decided to resort to the injection of bone marrow in the treatment of severe forms of anemia which resulted from malaria and from helminthiasis. He reasoned that the effect of blood transfusion was probably partly due to the stimulating action on the bone marrow. Assuming that substances which stimulate the bone marrow would be present also in the bone marrow itself, he decided to administer by intramuscular injection freshly withdrawn human bone marrow. At first he used the marrow that had been withdrawn from the patient's own sternum. Instead of withdrawing an amount just sufficient for the examination of the marrow, he withdrew slightly more and reinjected the surplus into the patient. Later, he also employed marrow from healthy persons and from patients with strongly regenerating marrow (patients convalescing from anemia). In order to determine whether this measure did influence the bone marrow, the author studied the reaction of the reticulocytes and found a great increase. Moreover, many of the patients suddenly felt much better in the days following the bone marrow injection. This subjective improvement was similar to that which is often observed after the first injection of liver in patients with pernicious anemia. The status of the blood usually required a longer time to reach the normal level. In the severe, chronic cases, several weeks usually elapsed before the blood status was normal.

Progressive Muscular Dystrophy and Vitamin C.—Hirata and Suzuki were interested in the action of vitamin C in progressive muscular dystrophy and so they studied vitamin C economy of ten patients who had the disease in a more or less severe form. Tabular reports of the results of these studies indicate that these patients had a C hypovitaminosis, and it was decided to resort to treatment with vitamin C, of which the patients were given daily from 200 to 500 mg by intravenous or intramuscular injection. In the course of this treatment the examination of the cerebrospinal fluid revealed an increase in the vitamin C content. Moreover, subjective as well as objective improvements could be noticed. The authors gained the impression that the continued oral administration of large doses of vitamin C surpasses in efficacy all other treatments of progressive muscular dystrophy. It exerts an especially favorable effect on the muscular adynamia. Although there is of course no regeneration of the already impaired muscle fibers, the muscular metabolism, particularly as regards the glycogen, the creatine-phosphoric acid and the adenylylphosphoric acid, is favorably influenced by the vitamin C and the dynamic power of the muscles is again utilized.

16 1041-1072 (July 24) 1937 Partial Index

- *Chemotherapy of Pneumococcal Infections B. Kemkes—p. 1041
- Gas Gangrene Bacillus Infection of Gallbladder M. Meister—p. 1044
- Cause of Retardation of Heart Beats by Deep Inspiration J. Wallraff—p. 1046
- Influence of Vitamin A on C/N Quotient in Urine F. Lanerssen A. Vort and H. Wendt—p. 1047
- Antianaphylactic Action of Aminopyrine and Phenyl Quinoline A. Meyer and K. Mezey—p. 1048
- Cobra Toxin in Therapy of Sensory Irritation Symptoms in Tabes Dorsalis A. Rottmann—p. 1051
- Formol Jellification of Serum (Reaction of Gate and Papacostas) H. Reichel F. Bettelheim and R. Brandt—p. 1058

Chemotherapy of Pneumococcal Infections.—Kemkes reviews the literature on the use of quinine in pneumococcal pneumonia and in view of the different evaluations of the mode of action of quinine, he decided to make systematic studies with quinine preparations. It was his aim to determine whether and to what extent these preparations exerted a bactericidal influence on pneumococci. The *in vivo* experiments were made on white mice. In summarizing his observations the author says that the *in vitro* experiments with a quinine derivative which contains quinine hydrochloride and phenylmethylpyrazolon and with a quinine glutamate solution proved that these substances exert a bactericidal action on pneumococci of types I, II, III and IV. In testing these two substances and a quinine lactate solution in white mice that had been infected with pneumococci, he found that these substances exert a considerable therapeutic action. To be sure, a single therapeutic dose was not sufficient, but it had to be repeated several times in the course of a few days.

Strahlentherapie, Berlin

59 189-382 (June 20) 1937 Partial Index

- Röntgen Therapy of Superficial Tumors P. Ott—p. 189
- Influence of Rhythmic Interruption of Röntgen Irradiation on Biologic Object P. Zacharias—p. 224
- *Biologic General Action of Röntgen Rays from Point of View of Shock Effect Caused by Histamine or Similarly Acting Substance E. Forfota and S. Karady—p. 238
- Prophylactic After Treatment H. R. Schinz—p. 291
- *Irradiation of Carcinoma After Operation H. Wintz—p. 305
- Question of Postoperative Irradiation of Cerebral Tumors L. Guttmann—p. 316
- *Röntgen Therapeutic Modification of Enlargement of Prostate G. H. Schneider—p. 346

Röntgen Rays and Histamine.—Forfota and Karady report investigations on the action exerted by histamine on the general biologic action of röntgen rays. They began these studies on the assumption that the general effect after röntgen irradiation is actually a shocklike effect. Karady and another collaborator had previously demonstrated that histamine and the related H substances have an important part in the organism. It was found that the shocklike conditions are closely connected with histamine-like actions and that there are indications that histamine treatment might be effective in the prophylaxis of shock symptoms. In this report the authors describe observations on dogs which they subjected to röntgen

irradiation without and with prophylactic histamine treatment. It was found that after a prophylactic treatment with histamine the general reactions of a roentgen irradiation were much less severe than when the histamine prophylaxis was omitted. If the general reactions after roentgen irradiation are actually the result of histamine action, there are two possible explanations for the prophylactic histamine treatment. 1 It could be assumed that the organism in response to the stimulus of repeated histamine administration forms antihistamine-like acting bodies, which in case of a new shock stimulus (roentgen rays) compensate for the suddenly released histamine, this would explain the occasionally observed hypercompensation. 2 It is possible that a prolonged histamine medication might cause an increased formation of the so called histaminase, the ferment that decomposes histamine. The greater supply of this substance would effect a rapid decomposition of the histamine that is formed by the shock stimulus (roentgen irradiation). Both theories remain to be proved.

Postoperative Irradiation of Carcinoma—Wintz points out that the problem of postoperative irradiation is much more difficult than it appears. He first evaluates irradiation after inadequate operations, then the irradiation of recurrences and then the prophylactic irradiation. Discussing the practical application of the postoperative irradiation he says that the preliminary irradiation is always better than the postoperative irradiation and that this has been proved particularly with regard to carcinoma of the breast. The postoperative irradiation may have to be postponed on account of thrombosis or other surgical complications with the consequent danger of dissemination, particularly in cases in which the operation was incomplete. The author thinks that postoperative irradiation is always justified in inadequate operations. In the event that an apparently localized carcinoma has been removed into the healthy tissue, two points of view are possible. 1 The complete removal of all carcinoma cells is extremely rare and can never be definitely determined. For this reason the postoperative irradiation of carcinoma is justified in all cases. However, if irradiation is resorted to the entire carcinoma dose must be applied. The so called prophylactic irradiation which is given with small doses and for a long period, is worthless. The second point of view is first to take an expectant attitude and refrain from irradiation. If the carcinomatous tissue has already been completely removed, the after irradiation is not necessary, if a dissemination existed before the operation or took place during it, the local treatment accomplishes nothing. The question remains whether an expectant attitude is justified if carcinoma cells remain in the surgical region. These carcinoma cells usually develop into carcinoma nodules. In these accumulations they are probably more radiosensitive than are the single cells. Accordingly, the author assumes an expectant attitude in all apparently complete operations. He resorts to irradiation as soon as a local recurrence makes it necessary. He justifies this attitude by directing attention to the fact that roentgen therapy is by no means an indifferent method that can be repeated as often as desired.

Roentgen Therapy of Enlargement of Prostate—On the basis of experiences with roentgen irradiation in twenty-four cases of hypertrophy of the prostate, Schneider describes the technic of this treatment, the indications for its use and its favorable results. Discussing the technic he points out that the irradiation with small doses will result in failure. He also stresses the absolute necessity of determining the exact distance between the skin and the prostate so as to be able to compute the correct doses. As an epithelial proliferation the hypertrophy of the prostate must be attacked with an intense concentrated cross fire method. The focus depth dose for the glandular tissue of the prostate should be about 90 per cent of the unit skin dose. Depending on whether the rays are applied to a number of small or to a few large fields this focus dose will require a skin dose of from 360 to 500 roentgens. The author prefers to apply the rays to five fields each measuring 10 by 15 cm. One field is located at the perineum and two each are parasymphysial and parasacral fields. If this is not possible he applies the rays in the front and the back to three smaller fields, approximately 6 by 8 or 8 by 10 cm. If the distance

between the skin and the center of the prostate is unusually long, he irradiates fields around the pelvis, each measuring 10 by 15 cm. In order to determine the distance between each field and the prostate, he first verifies by rectal palpation the distance between the prostate and the perineum. This one is usually shorter than that from the abdominal and from the sacral fields. The latter are determined by means of a combination pelvic compass by introducing the straight branch rectally. On account of the sensitivity of the mucous membranes of the bladder and of the rectum, the back scattering of the rays must be taken into account. To determine thus the distance between the sacrum and the pubic symphysis must be found. In this connection the author stresses the value of Baudelocque's diameter. He further says that the irradiations of the different fields should be given as close together as possible. After the first main dose has been applied, and it is found to be inadequate he gives in addition the so called saturation dose. He irradiates from a greater distance a large field either in the region of the symphysis or in this and the sacral region and perhaps also in the perineal region. Regarding the efficacy of this treatment, he says that he obtained good results in all of the twenty-four cases and that there was not a single fatality. Moreover, he stresses that it can be used even in the severe forms of the disorder.

Zentralblatt für Chirurgie, Leipzig

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- Treatment of Gas Gangrene by Complete Delimitation in Healthy Tissue A. Borchard—p 1746
- Surgery of Early Childhood H. Simon—p 1749
- Permanent Results of Surgical Treatment of Protrusion of Rectum R. Demel—p 1755
- Simple Procedure for Later Removal of Peritoneal Muscular and Sacral Sutures Especially in Appendicitis K. Kojima—p 1757
- Retroperitoneal Hematoma in Adrenal Tumor Two Cases J. Navratil—p 1758
- Subcutaneous Gas Formation as Result of Cutting Injury Contaminated by Petroleum Derivative E. Trevani—p 1763

Treatment of Gas Gangrene—Borchard reports a case in which, in a bicycle accident, a man, aged 23, sustained a small excoriation on the external surface of the little finger. The swelling spread to the upper arm and the crackling typical for gas gangrene could be heard. The rapid progress of the infection and the poor general condition of the patient indicated a highly virulent infection. Since amputation in the healthy tissue was no longer possible, the author made an incision around the area, about a hand's breadth away from the margin of the crepitant swelling. The incision surrounded the pectoralis muscle, nearly the entire scapula and reached downward to the fifth rib. Everywhere, except in the region of the neck, the incision went through the fascia. Hydrogen peroxide compresses were applied to this entire incision. Wherever accumulations of gas could be detected, wide incisions were made and finally the wound on the little finger was excised. All incisions were treated by means of hydrogen peroxide compresses. The general treatment consisted of the administration of large doses of gas gangrene serum, cardiac stimulants and oxygen. The patient recovered completely. The movement of the arm was not impaired. The author thinks that before resorting to amputation in case of gas gangrene the described method of isolating the focus of infection could be tried.

Wiener klinische Wochenschrift, Vienna

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- Leptospirosis (Weil's Disease) in Animals D. Wirth—p 1115
- Physical Exercise in Women R. Franz—p 1117
- Basophilism (Morbus Cushing) Case H. Urban—p 1122
- Development Prevention and Treatment of Contracture of Shoulder F. G. Schnek—p 1127
- Considerations on Nature and Treatment of Diabetes Mellitus J. Wegierko—p 1130
- Cardiac Echinococcus Case A. Wyzim—p 1135

Weil's Disease in Animals—Studies on 166 rats that were caught at different times in the sewers of Vienna revealed to Wirth that about 35 per cent of the rats are carriers of the type of *Leptospira* which is entirely like that causing Weil's disease. Field and house mice were likewise examined for the presence of *Leptospira* and it was found that 13 per cent of the field mice and 16 per cent of the house mice harbored *Leptospira*. The rats and mice that carry *Leptospira* eliminate in the urine

living and dead organisms. Whether this leptospiruria of the rats is the result of an attack of Weil's disease, or whether the animals just harbor *Leptospira* and remain healthy cannot be definitely stated. The examined rats that were carriers of *Leptospira* seemed healthy. In dogs leptospiroses occur under different symptomatology, Weil's disease being one form, which develops not only in old dogs but especially in young ones, frequently, an entire litter has it. The nonicteric forms of leptospiroses of dogs are known under various terms (dog typhoid, hemorrhagic gastro-enteritis and so on). Whether leptospiroses of dogs represent a danger to man cannot be definitely decided. There is no definite proof of transmission from dog to man, but the literature relates two cases in which such a transmission seemed possible. At any rate the danger seems slight. If icterohemorrhagic leptospirosis is induced in dogs, rats or mice, the animals rarely die from the infection. Guinea-pigs remain practically healthy or develop only a temporary indisposition, following infection with *Leptospira*, although the blood and abdominal punctate may contain *Leptospira*.

Case of Cardiac Echinococcus.—Wjdrin reviews the literature on cardiac echinococcus and calls attention to the fact that according to the majority of authors the clinical diagnosis of cardiac echinococcus is extremely difficult and often impossible. Many cases remain unrecognized. The author reports the clinical history and the necropsy of a case of cardiac echinococcus which likewise was not diagnosed during the lifetime of the patient. The anatomic examination disclosed echinococcosis of the liver and echinococcosis of the ventricular septum of the heart, thrombosis of the left coronary artery and sclerosis of a part of this artery. Death was caused by the thrombosis of the coronary vessels.

Nederlandsch Tijdschrift voor Geneeskunde, Haarlem

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Young Psychopaths and Practice of Family Physician. J. Van Der Spek.—p. 3526

*Contribution to Aspects of Phosphatide Lipoidosis. G. O. E. Lignac and P. H. Teunissen.—p. 3538

*Intravenous Carbon Therapy. A. Van Meeteren.—p. 3548
Culture of Tubercle Bacilli from Plug of Cotton Field Over Larynx During Cough. C. G. J. Dornick.—p. 3553

Phosphatide Lipoidosis.—Lignac and Teunissen list the different types of lipoids and then show that the lipoidoses are best classified according to the types of lipoids that are deposited in excessive amounts. They differentiate phosphatide lipoidosis (Niemann-Pick disease), cerebroside lipoidosis (Gaucher's disease) and cholesterol lipoidosis (Hand-Schüller-Christian disease). They report the clinical history of a male infant, aged 6 months. Anatomic, histologic and chemical studies proved that the child had died as the result of phosphatide lipoidosis. The authors also describe the results of the chemical analysis of the spleen of a patient with Gaucher's disease. Although this spleen had been in solution of formaldehyde for a number of years, the examination for lipoids still produced satisfactory results. Tabular reports list the results of the chemical analysis of the spleens and livers in several cases in the literature and in the authors' own cases.

Intravenous Carbon Therapy.—Van Meeteren reviews the literature on intravenous carbon therapy, pointing out that the carbon is usually administered in the form of a 2 per cent suspension of animal or wood charcoal in physiologic solution of sodium chloride. The individual dose usually varies between 4 and 6 cc. The number of injections likewise varies, the largest reported number being ten. Following these introductory remarks, the author reports the clinical history of a woman, aged 28, who developed a pneumococcal septicaemia after childbirth. After several therapeutic methods had failed including chemotherapy and serotherapy, the author resorted to the intravenous injection of a 2 per cent suspension of carbon. After that the attacks of chills ceased and did not recur. Subsequently the patient was given several additional injections of the carbon suspension. When the temperature increased again it was feared that the carbon therapy had likewise failed, but examination disclosed a pneumonia in the right lower lobe. After the last injection of carbon, the temperature decreased again and the patient recovered.

Uppsala Lakareförenings Förhandlingar, Uppsala

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Effects of Recent Changes in Requirements for Medical Study at Lund University from 1928 to 1936. H. Sjövall.—p. 331

*Epicardiac Coelothelioma. Case. N. Andolf, G. Bergmark and N. Gellerstedt.—p. 363

Ocular Torticollis in Infant. Case. A. Normark.—p. 381

Investigations on Respiratory Metabolism in Guinea Pigs Overvitalized with Cevitamic Acid. K. E. Belfrage and N. Bergqvist.—p. 385

Recollections from Uppsala Clinic from 1892 to 1895. B. Carlsson.—p. 399

*Arterial Symptoms in Deep Thrombosis of Lower Extremities. S. Lindgren.—p. 415

Frequency of Mental Deficiency. G. Dahlberg.—p. 439

Significance of Sexual Function in Resistance of Organism to Injurious Substances. I. Increased Resistance to Overdosage with Mesterol. E. Agduhr.—p. 463

Epicardiac Coelothelioma.—Andolf and his associates say that the mediastinal tumor which was clinically and roentgenologically established at the onset in a man, aged 27, decreased in size on roentgen treatment, the cerebrospinal pressure became normal and the papillary stasis diminished. Before long a tumor of the parietal bone was established, but it yielded to roentgen treatment. Some months later the mediastinal shadow had grown larger and metastases were found in the fourth lumbar vertebra, the left iliac bone and the head of the femur. A gradual decline was followed by death. Necropsy showed the heart so transformed by large masses of tumors as to be hardly recognizable. The trunks of the pulmonary artery and the ascending aorta were surrounded by a neoplastic mass 1 cc in thickness. The posterior surface of the heart was covered with more isolated tumor nodules. The pleural cavities each contained about a liter of greenish yellow fluid and showed the same characteristics as the heart. Behind the manubrium of the sternum was a mass of grayish white tumors almost as hard as cartilage. In the liver were white tumors from the size of a pea to that of a kidney bean. The manner of growth of the tumors differed according to their localization. They tended to develop in the preformed intermediary spaces of the maternal tissue, without noticeably destroying it, although destruction was fairly well marked in some places. Distinguishable were (1) a diffuse sarcoma-like structure, (2) a trabecular structure with greater resistance to infiltration and (3) a type of alveolar kind in the metastases to the liver, lymph nodes and lungs. In the bone metastases the tumors in general resembled endothelial cells. In the vertebral column were an osteoplastic and an osteoclastic type. Twelve cases of endothelial tumors of the pericardium are cited. The authors conclude that the primary tumor in their case originated in the heart and they consider the serous endothelial cells the mother tissue of the tumor. They also say that epileptic attacks occurred during attacks of coughing at the time of the marked cerebral stasis, choked disk and augmented cerebrospinal pressure before the roentgen treatment of the mediastinal tumor and disappeared when the mediastinal tumor decreased in size under roentgen treatment and that the attacks of coughing ceased, which seems to them proof that marked cerebral stasis, acutely increased, can induce attacks of epilepsy.

Arterial Symptoms in Deep Thrombosis in Lower Extremities.—Lindgren says that a weakened femoral pulse is a frequent and early, if not constant, phenomenon in thrombosis of the deep veins and describes eleven cases of thrombosis in the femoral-iliac vein in which examination by the oscillographic method revealed more or less marked reduction of oscillation on the affected side. He also presents three cases of clinically established deep venous thrombosis in which no decrease in oscillation could be detected. He states that examination of ten cases of thrombophlebitis in the saphenous vein showed no diminution in oscillation and that no change in oscillation appears in thrombosis limited to the peripheral veins. The best prospect of establishing deep thrombosis by oscillogrometry is at the start of the thrombosis. If in a case, usually postoperative, beginning development of deep thrombosis is feared oscillogrometry is a valuable aid in diagnosis. Prognostically no conclusion can be drawn from the result of the examination, cases of long continued marked reduction of the oscillogram are reported in which no graver disturbances in circulation occurred than in cases with less pronounced reduction.

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URINARY ANTISEPSIS

HISTORICAL REVIEW AND PRESENT EVALUATION

CHAIRMAN'S ADDRESS

HENRY W. E. WALTHER, M.D.

NEW ORLEANS

No ideal urinary antiseptic for internal use has yet been found. No single bactericide, when taken by mouth, will destroy all bacteria in the urinary tract. The physical and chemical problems involved here are so complex that it is doubtful whether there will ever be so universal a panacea. Recent investigations of a more scientific nature, however, should convince many skeptics of the need for these agents in urologic therapy. These studies reemphasize the dangers of an indiscriminate use of a single drug for all types of infections in the urinary tract, clinical research directed toward determining the selectivity of certain chemicals, for special bacterial groups, opens a field of untold possibilities.

Most of the reports appearing in the literature dealing with internal urinary antiseptics make no differentiation between (a) uncomplicated conditions and (b) complicated ones. Certainly one would expect that in the two instances drugs would affect bacteria differently. By all the rules of physical and therapeutic reasoning, the uncomplicated conditions would obviously respond more favorably to treatment. It is not easy, to be sure, for the general practitioner, lacking the refined instrumental equipment for differentiating the one group from the other, to pass judgment on a series of observations. It should, however, be comparatively easy to predict that, in the complicated instances, he will not relieve the patient by internal medication alone.

OIL OF SANTAL

Historically, oil of santal has been held in high regard from remote times as a specific for gonorrheal urethritis. Especially was this true among the Chinese, who are said to have spread its use gradually to other parts of the Old World. In 1750 the Dutch physician Rumphius of Amsterdam reported that he had seen virulent gonorrheal discharges in both sexes clear up under its administration. Ducoudray¹ in 1900 asserted that the somewhat undependable results from its use are due to the inconstancy of its composition, since it not only has been produced from widely different varieties of santal but has also been subjected to extensive adul-

terations with cheaper and worthless oils, on account of its high price. Midy² drew attention to its superiority over the time-honored oil of cubeb and oil of copaiba, with their repulsive eructations, gastro-intestinal disturbances, vomiting and frequently diarrhea, pointing out that its taste is most agreeable and that it causes no disturbances in the digestive system, while bringing to the suffering mucosa of the urethra a relief so prompt and complete that the discharge often disappears by the end of the third day.

Jordan³ in 1913 found that after administration of oil of santal the urine is germicidal to staphylococci but that the colon bacilli continue to grow luxuriantly under the same medication. Perutz and Kofler⁴ in 1923 stated that from a clinical point of view four effects have been attributed to oil of santal: an inhibitory effect on the secretion, a relief of spasm, a sedative effect and a diuretic action. They proved experimentally that it exerts an action on the autonomic nervous system of the urogenital tract, bringing to rest the pendular movement in the smooth musculature, reduces secretion and promotes diuresis. Tait⁵ recommended capsules combining oil of santal with methylene blue as a useful sedative. Gilbert Thomas⁶ states that he has often found oil of santal beneficial to patients with strangury and a severe posterior urethritis.

Oil of santal is excreted in the urine partly unchanged and partly as a compound of glycuronic acid. It is thought to have a specific action on the staphylococcus, which may apply to cocci in general. Stockman⁷ thinks we must conclude that the action of these essential oils is a selective one for the gonococcus, an action not shared by any of the ordinarily used urinary antiseptics. Winternitz,⁸ however, had already proved as far back as 1901 that santalol promptly inhibits the formation of exudate in an artificially produced pleurisy and promotes its rapid absorption, thus showing its beneficial effect on mucous membrane in general.

The Council on Pharmacy and Chemistry of the American Medical Association in its 1936 edition of *Useful Drugs* recognizes oil of santal but recommends the restriction of its use in gonorrhea to the subacute and chronic stages, in which its irritant action may stimulate healing. Although less popular than formerly, oil of santal and the other related volatile oils still have a place in urinary antiseptics.

² Midy, L. *Essence of Santal. Its Origin, Preparation and Properties.* Paris, 1882.

³ Jordan, A. Report on Urinary Antiseptics. *Brit M J* 2: 648-654 (Sept 13) 1913.

⁴ Perutz, A. and Kofler, L. Beiträge zur experimentellen Pharmakologie des männlichen Genitales. V. Ueber die Wirkung des Oleum Santali Arch f Dermat u Syph 142: 23-28 1923.

⁵ Tait, J. T. Urinary Antiseptics. A Critical Survey. *Brit M J* 2: 1252-1253 (Dec 28) 1935.

⁶ Personal communication to the author.

⁷ Stockman, R. The Action of Urinary Antiseptics. *Edinburgh M J* 34: 396-418 (July) 1927.

⁸ Winternitz, R. Ueber die entzündungswidrige Wirkung etherischer Oele. Arch f exper Path u Pharmacol 16: 163-180 1901.

Owing to lack of space this article is abbreviated in *THE JOURNAL*. The complete article appears in the author's reprints.

Read before the Section on Urology at the Eighty-Eighth Annual Session of the American Medical Association, Atlantic City, N. J., June 10, 1937.

¹ Ducoudray, L. Le santalol dans le traitement de la hémorrhagie. Paris thesis. Paris, 1900.

METHENAMINE

Hinman¹⁵ pointed out that the factors influencing the excretion of methenamine are of two kinds those concerned with its excretion and those affecting its conversion. He showed that the larger the dose, the higher will be the percentage concentration on excretion, that large doses are safe and small doses useless. He also discovered that the character of the changes in an acid stomach continually affect the result the amount of methenamine broken up in the stomach means much less for subsequent conversion in the urine. The duration of exposure is also of moment, medium doses are of no use for the kidneys, since there is no time for formaldehyde to form before the drug is excreted. The dilution of the drug on its excretion is also a factor influencing the amount that is subsequently converted, since the higher the concentration, the more readily will the drug be broken down. Thus a polyuria would largely offset the advantage of large doses. Two years later Hinman,¹⁶ in evaluating the method, called it the most efficient urinary antiseptic in the greatest number of cases but drew attention to its very definite limitations. The alkalinity of urine due to the presence of bacteria which decompose the urea can as a rule not be changed by feeding acid-producing drugs. The value of methenamine for kidney antiseptics is largely destroyed by the necessity for concentration and for time to permit accumulation of formaldehyde in antiseptic amount. The same is true for cystitis unless retention is present. Hinman thinks the greatest usefulness of methenamine lies in its value as an agent for prophylaxis in the bladder in cases in which the foregoing conditions are not present. At the present time, twenty-two years later, he writes⁶ that he still makes use of methenamine and finds it quite effective.

Levy and Strauss¹⁷ showed that to kill the colon bacillus a concentration of 1:5,000 or more is necessary, and that with a dose of 7 grains (0.45 Gm.) of methenamine three times a day formaldehyde is never present in greater concentration, and the only bacteria that will be killed at that are the typhoid. An increase to an acidity sufficiently high to kill the colon bacilli would be liable, in combination with the formaldehyde, to produce injury to kidney tissue. Carroll¹⁸ pointed out that, although the method is the oldest and most reliable antiseptic, it is irritating to the glomeruli and mucous membranes if given too long and that it should accordingly never be given in acute gonorrhea or tuberculosis. Thomas and Wang¹⁹ found that 15 grains (1 Gm.) three times a day frequently causes indigestion and that excretion of bactericidal urine is a matter of great uncertainty, they were frequently disappointed to find a very low concentration of formaldehyde in a specimen of highly acid urine. Edwin Davis²⁰ in 1932 stated that methenamine is incomparably more efficient than either pyridium or hexylresorcinol in causing the normal person to secrete urine that is antiseptic against both the colon bacillus and the staphylococcus. In 1937

he had not changed his opinion. In answer to a recent questionnaire he states⁶ "With respect to methenamine, I am forced to the conclusion that this is a valuable remedy, the merits of which we have tended to overlook in our search for something newer and better." He writes that it has been demonstrated that the administration of methenamine, together with ammonium nitrate or chloride, imparts an antiseptic value to the urine with amazing consistency—an observation that he has been able to verify with subsequent checks. Gilbert Thomas⁶ also writes that at the present time he uses methenamine widely, but always in association with some drug that will thoroughly acidify it. He says that this combination has been exceedingly useful in the treatment of infections produced by bacilli.

Helmholz²¹ warned in 1932 that treatment with methenamine without constant control of the hydrogen ion concentration is likely to be unsuccessful. He found as the result of experiments that at a p_H of 6 urine with a 0.5 per cent concentration of methenamine rarely sterilizes itself at the end of twenty-four hours. At a p_H of 5 urine can be sterile after four hours at 37°C. This agrees with my own observations that the p_H should be below 5.6 if a sufficient amount of formaldehyde is to be generated in the urine. The old idea that methenamine and an acidifier should be given separately has proved fallacious, the custom of giving them together is now universal, without the gastric irritation that was supposed to result.

METHYLENE BLUE

Methylene blue is undoubtedly the best known of the group of the diphenylamine dyes, in which are found methylene blue, gentian violet, acriflavine and mercurochrome. It was first used as a urinary antiseptic by Einhorn²² in 1891, who found it efficient either by mouth or by rectum. Furthermore, the good results seemed to be permanent. He observed that urine from patients receiving 0.2 Gm. two or three times a day remained sterile in test tubes for three weeks, without further precautions, while control test tubes inoculated with ordinary 1 day old urine produced large colonies. Methylene blue became very popular during the last decade of the nineteenth century, being turned to good account in gonococcal infections. It also found a peculiar application in tuberculous conditions of the urinary tract. Hinman¹⁶ pointed out in 1915 that methylene blue is not an individual chemical substance and that it often undergoes decomposition in its passage from the blood to the urine, appearing in the form of leuko derivatives or chromogens, which are mostly non-bacteriostatic. This decomposition may also occur as the result of bacterial activity. Thus *Escherichia coli* was found to decolorize a 1:1,000 dilution, showing imperfect antiseptics, but the growth of the staphylococcus was still inhibited in a dilution of 1:100,000 or even 1:150,000. Absence of deep blue color denotes either incomplete antiseptics or deficient excretion by the kidneys as the result of renal disease, under the latter conditions the use of methylene blue may cause serious renal injury. According to Hinman,¹⁶ administration of methenamine with methylene blue will convert the leuko derivatives provided the urine is properly acidified. He considers it of some value in staphylococcal infections of the bladder and kidneys but worthless in urethritis. In a recent communication he states

15 Hinman Frank. An Experimental Study of the Antiseptic Value in the Urine of the Internal Use of Hexamethylenamine. J. A. M. A. 61: 1601 (Nov. 1) 1913.

16 Hinman Frank. Urinary Antiseptics. J. A. M. A. 65: 1769-1775 (Nov. 20) 1915.

17 Levy L. H. and Strauss Abraham. Clinical and Bacterial Study of Hexamethylenamine as a Urinary Antiseptic. Arch. Int. Med. 14: 730-742 (Nov.) 1914.

18 Carroll Grayson Lewis Bransford and Kappel Louis. Urinary Antiseptics. Weekly Bull. St. Louis Med. Soc. 26: 788-802 1933. Methylene Acid as a Urinary Antiseptic. J. A. M. A. 107: 1796-1799 (Nov. 28) 1936.

19 Thomas B. A. and Wang I. K. Studies on the Comparative Clinical Values of Various So-Called Urinary Antiseptics. J. Urol. 22: 22-39 (July) 1929.

20 Davis Edwin and Sharpe J. C. A Comparison of Methenamine, Caprokol, Pyridium and Acriflavine as to Clinical Efficiency. J. A. M. A. 99: 2097-2100 (Dec. 17) 1932.

21 Helmholz H. F. The Effectiveness of Methenamine as a Urinary Antiseptic at Various Hydrogen Ion Concentrations. Proc. Staff Meet. Mayo Clin. 7: 374-376 (June 22) 1932.

22 Einhorn Max. Ueber die Anwendung des Methylenblau bei Cystitis, Pyelitis und Carcinom. Deutsch. med. Wochenschr. 17: 620 1891.

on urination, he found its best results in the acute, fulminating posterior gonorrheal infections, in which it had a surprisingly prompt effect on the presence of pus and cocci. Rudnick²⁸ worked out a new azo compound, 104, which he called ambazin and which he regards as a step forward in that it has no undesirable staining qualities, is well tolerated by the gastro-intestinal tract and has a high bactericidal and bacteriostatic action, with a very low incidence of secondary complications. Only fourteen of 100 cases failed to respond favorably to this treatment.

From Germany come reports of gratifying results from pyridium in a form known as neotropin (niazo) as well as from the original pyridium product. Minder, Skrop and Babics³⁷ consider that these dye preparations surpass all other forms of antiseptic medication, since they act not only on the surface but within the depths of the tissues, thus greatly reducing inflammation and proving their claim to recognition. Kulitzky³⁸ reports from the Franz Josef University in Szeged (Hungary) that it acts admirably on the gonococcus, staphylococcus and streptococcus and less efficiently on the colon bacillus. He found it effective in forty cases of cystitis in women and considers its ability to allay irritation in the mucous membranes one of its best qualities.

Gillespie³⁹ of the Mayo Clinic sounds an unfavorable note. He found no bactericidal properties in any of the concentrations of pyridium that he used. There was no tendency to kill or even inhibit *Escherichia coli* in urine having a concentration of pyridium even of 1,600 to 1,800. It does not seem to him that the recommended dosage of 0.2 Gm of pyridium or 0.1 Gm of serenium, even with restricted water intake, would attain a concentration sufficient to inhibit even *Staphylococcus aureus*.

About 33 per cent of answers received to our questionnaire stated that pyridium and the rest of the azo dyes seemed to be of no material benefit, 46 per cent stated that they were definitely of value, 21 per cent had never tried them. All in all, however, it would appear that these substances constitute valuable stepping stones in the path of progressive urologic therapy.

HEXYLRESORCINOL

The chief sponsor for hexylresorcinol-Sharp & Dohme, a product of synthetic chemistry, was Veader Leonard,⁴⁰ who gave a minute description of its properties in 1924. He stated that it meets all the experimental qualities enumerated by Davis²⁴ as essential to the ideal urinary antiseptic in the following manner: It is chemically stable, nontoxic in therapeutic doses, nonirritating to the urinary tract, bactericidal in high dilution in urine of any reaction and is excreted by the kidneys unchanged in sufficient percentage to impart active bactericidal properties to the urine. In addition, it is susceptible of being administered by mouth, secreted in the urine at a rate which admits of continuous local action in the urinary tract, and finally the urine secreted possesses a bactericidal action against organisms exposed to it, and not a mere growth-inhibiting property. Leonard's⁴⁰ results up to the date of his writing seemed to justify the claim that in

chronic infections of the urinary tract in adults, due to *Staphylococcus albus* and *aureus* and in some strains of *Bacillus pyocyaneus*, oral administration of hexylresorcinol, without any other treatment, has resulted in prompt and complete disinfection of the urinary tract, accompanied by clearing up of the urine and disappearance of symptoms. After several months of treatment there were no recurrences. In colon bacillus infections more persistent treatment is usually necessary and, as a rule, local treatment will be found necessary, as well as intensive courses of the drug. Under this combined treatment, these too have been completely overcome. There was, according to Leonard, increasing evidence that, in cases in which this complete disinfection of the urinary tract did not occur, pyelonephritis was present.

My own experience²⁵ with this method was confined to use of the bulk olive oil solution and given to children, each drachm containing 0.1 Gm of the drug. Later I used the capsules, giving at first two after each meal and later four. In no case was the treatment continued longer than seven days if no beneficial results were seen within that time. We have, in fact, made it a rule in all our cases to discontinue any form of treatment that gave no evidence within seven days of producing useful results. Our results were not sufficiently encouraging to seem to warrant a continuance of this method at our clinic.

THE KETOGENIC DIET

Five and a half years ago Clark,⁴³ and also Helmholtz,²¹ working independently, tried for the first time the effect of acidification of the urine by feeding a special type of high fat, low carbohydrate diet designed to produce a state of ketosis. For its first application Clark chose a patient who had been under other forms of treatment for fourteen months for cystitis and pyelitis due to a colon bacillus infection. After twelve days of this ketogenic diet there was permanent disappearance of the bacilli. This encouraged Clark to make a wider application of the method. In the next 200 tryouts about two thirds were successful. He and Helmholtz both observed that results were better in children and suggested that this is perhaps because the adult liver has a greater glycogen storage.

The ketogenic diet in its original form was very elaborate and was so exacting in the precision of its minutest details that it was quite unsuited for practical use at home. It had, therefore, the disadvantage of requiring hospitalization of patients otherwise not in need of hospital care. A simplification was then tried which could be managed under normal home conditions. But the diet in its new simplified form, which called for 40 per cent cream and eggs, produced disgust that resulted in gastro-intestinal upsets. Patients were refusing absolutely to continue to take so unpalatable and repulsive a diet. Then Nesbit and McDonnell⁴⁴ suggested that a low calory or starvation diet would serve equally well to produce ketosis, by forcing patients to consume their own endogenous fat. It is well known that the body will call on this supply whenever energy of diet falls below the expenditure of energy. Production of ketosis then depends on inadequacy of available dextrose. These workers observed a rapid and profound degree of ketosis following their low calory ketogenic diet and reported good results from its bactericidal properties.

37 Minder G, Skrop F and Babics A. Unsere Erfahrungen über den Wert einiger neuerer Harnantiseptika bei entzündlichen Erkrankungen der Harnwege. *Ztschr f Urol* 26: 762-788, 1932.
38 Kulitzky G. Pyridiumtherapie bei entzündlichen Erkrankungen der Harnwege. *Zentralbl f Gynak* 57: 1777-1779 (July 29) 1933.
39 Gillespie J B. Experiments on the Antibacterial Properties of Pyridium and Serenium. *Proc. Staff Meet Mayo Clin* 7: 372-373 (June 22) 1932.
40 Leonard Veader. Secretion of Bacterial Urine and Disinfection of Urinary Tract Following Oral Administration of Certain Alkyl Derivatives of Resorcinol. *J A M A* 83: 2005-2012 (Dec 20) 1924.

43 Clark A L. Present Status of Dietary Regimens in Urinary Infections. *J A M A* 107: 1280-1284 (Dec 17) 1937.
44 Nesbit R M and McDonnell C H. Low Calory, Low Fat Ketogenic Diet for Treatment of Infections of the Urinary Tract. *J A M A* 105: 1183-1184 (Oct 12) 1935.

The idea of controlling bacilluria by a diet was enthusiastically taken up by urologists. Cook and Braasch⁴⁵ made a report two years ago on their use of the method in 600 adult cases of urinary infection. They found the diet most effective in cases of simple initial recurrent pyelonephritis and cystitis without any demonstrable complication. In a group of sixty-five such uncomplicated cases, the diet eradicated the microorganisms successfully in fifty-six, of course in association with other appropriate treatment. In forty-four of these the infection was due to *Escherichia coli*, in six to *Aerobacter aerogenes*. They found that in a certain percentage of cases in which the diet was used it was desirable to employ in addition some such acidifying drug as ammonium nitrate or ammonium chloride.

Crance⁴⁶ pointed out the same capacity of the ketogenic diet to overcome *Escherichia coli* infections. In his experience, however, it fails entirely with *Aerobacter*. Like others, he deplored the lack of cooperation on the part of patients but observed that it is quite feasible to apply the simplified form of the diet in short courses, with very satisfactory results, several short courses being better than one long one.

Poor renal function has been found to be a contraindication for use of the ketogenic diet, in view of the fact that the bacteriostatic agent has to pass through the kidneys.

Clark and Keltz⁴⁷ utter a warning that the mechanical and chemical irritation of the catheter and lavage may offset the relief afforded by the diet. They have found two types of cases in which they were at a loss to account for the unsatisfactory results, one being a group in which ketonuria will not develop in spite of the treatment, and the other one in which the hydrogen ion concentration remains high notwithstanding attempts at acidification.

In order to get the best results from the ketogenic diet, the hydrogen ion concentration must be kept at 5.3 or less. Shohl and Janney⁴⁸ showed long ago that *Escherichia coli* is not inhibited until a p_H of from 4.6 to 5 is reached and that the optimum p_H for its growth is from 6 to 7.

On account of the marked gastro-intestinal disturbances caused by the ketogenic diet, it became increasingly difficult to persuade patients to take it. In view of the larger percentage of elderly patients with urosepsis—the great percentage of our hospital patients being over the age of 50—and with established gastro-intestinal disorders, the problem was far from being solved by the ketogenic diet, which seemed at best a clumsy, roundabout way of producing a high degree of acidity that might be achieved in some other way. Attempts to find this better way, therefore, were continued.

MANDELIC ACID

Just two years ago Rosenheim⁵¹ announced his discovery that mandelic acid would do in a direct way what had been done in an indirect and complicated way with beta-hydroxybutyric acid and the ketogenic diet. After trying and rejecting several other similar agents, he chose mandelic acid because it is a hydroxy acid, it is nontoxic, and it is excreted unchanged in the urinary

tract, which it renders bacteriostatic. He recommends that it be given in the form of a salt, such as sodium or ammonium mandelate. At the present time he writes that he is using practically only the latter, in the form of a syrup containing 3 Gm of the acid to the dose of half an ounce, and he finds that except in puerperal cases it is rarely necessary to use additional ammonium chloride to increase the acidity.

This treatment has a tremendous advantage over the ketogenic diet in that the patient may eat whatever he likes. This new product is unpleasant to the taste and often causes the gastro-intestinal upsets so common to many of the urinary antiseptics now in use. Rosenheim showed that given orally, mandelic acid escapes metabolism or conjugation in the animal organism and is excreted by the kidneys in the urine in a concentration sufficient for bactericidal action, provided the hydrogen ion concentration is lowered at the same time.

This new form of treatment has achieved a very wide vogue, because of its incontestable bactericidal potency. Helmholz⁶ has just written that the most obstinate of all the cocci, *Streptococcus faecalis*, has yielded and that it, as well as *Staphylococcus aureus*, has been killed off by mandelic acid in concentrations that can be achieved in man as well as in the test tube, provided the kidneys are normal or approximately so. Clark⁶ writes that mandelic acid has practically replaced his use of the ketogenic diet in nearly all cases of bacillary infections of the urinary tract. He utters the warning, however, that the general practitioner should be cautious in his use of this product, since there is no "bedside test" for renal insufficiency. Unless a physician is equipped in his office to do a urinalysis, including microscopic examination of the centrifugated sediment, Clark feels that he should not take the responsibility of prescribing mandelic acid. "During the time that he is prescribing this drug, he should do a urinalysis preferably every second day and not less frequently than every third day. In the initial test of the urine, before prescribing the drug, if there are casts present or if there is no blood in the urine but the test for albumin is positive, the physician should feel sufficiently warned to proceed cautiously. If an elderly patient is drinking a normal amount of fluids during the day with no particular emphasis being placed on the amount of the intake late in the day, and at the same time comparatively little urine is excreted during the day while urinary output at night is larger than the output during the day, the physician should be likewise cautious in his use of mandelic acid. Also an increased blood pressure should warn against mandelic acid."

Young⁶ writes that, while the ketogenic diet has been very beneficial in a few cases of bacillary infections, he thinks that mandelic acid and its compounds are better, he would always combine this with an acid-ash diet and acid sodium phosphate to bring the urine down to a p_H of 5, or lower, if possible. Lowsley⁶ states that he has used mandelic acid in several cases with good results but that the expense of the drug is a great disadvantage. And Frank Hinman⁶ says that, of all the antiseptics, mandelic acid has proved to be the most effective.

In placing mandelic acid in the hands of the medical profession, Rosenheim postulated that its use was effective only in cases unassociated with urinary obstruction. Dolan,⁵² however, had occasion to note apparent cure in three cases presenting marked obstruction, which he thinks is explained by the fact that the drug is held

45. Cook E N and Braasch W F. Further Studies on the Use of the Ketogenic Diet for Bacilluria. *J Urol* 33: 583-588 (June) 1935.

46. Crance A M. The Necessity for the Standardization of the Treatment of Bacilluria. *J A M A* 104: 285-288 (Jan 26) 1935.

47. Clark A L and Keltz B L. A Simplified Treatment of Bacilluria. *J A M A* 104: 289-292 (Jan 26) 1935.

48. Shohl A T and Janney J H. The Growth of *Bacillus coli* in Urine at Various Hydrogen Ion Concentrations. *J Urol* 1: 211-221 (April) 1917.

51. Rosenheim M L. Mandelic Acid in the Treatment of Urinary Infections. *Lancet* 1: 1032-1036 (May 4) 1935.

52. Dolan L P. Experiences with Ammonium Mandelate in Urinary Infections. *J A M A* 107: 1801-1805 (Nov 28) 1936.

longer in situ, thus giving its bacteriostatic powers a longer time in which to function. The same is true in cases of bladder diverticula, in which he has seen good results. He warns that hematuria has been known to follow the use of mandelic acid in some cases.

Edwin Davis,⁶ who is not enthusiastic about mandelic acid, suggests that it is likely to follow the same sequence as all other new discoveries in medicine all such are followed "first by enthusiasm and then by commercial exploitation, after which come recognition of defects and danger, poor results, fear, decreased use, followed by overcorrection, until, finally, the drug reaches stability at its proper level of usefulness. This period of trial or evaluation may take months or years."

Our work with mandelic acid in our service at the Southern Baptist Hospital, extending from last summer up to the present time, has been only partially encouraging. Rosenheim⁶ reports that Schnohr^{52a} of Copenhagen is using calcium mandelate because it is almost tasteless and still equally acidifying, my own investigations with this new formula have not, as yet, advanced sufficiently to warrant a report. I do not feel that I am ready to acknowledge all the rosetate claims made for the mandelates, but I propose to continue my investigations in the strong hope that further studies and experience will accentuate its value. Although not a panacea for all infections of the urinary tract, it will find its own niche in the hall of urologic science and will take its place alongside the urinary antiseptics that are reviewed in this paper.

SULFANILAMIDE (PRONTYLIN)

Work on azo compounds in 1932 by Meitzsch and Klarer led to their synthesizing a hydrochloride of 4-sulfamido-2'-4'-diaminoazobenzene, a red crystalline powder soluble in cold water to 0.25 per cent. Domagk⁵³ demonstrated in 1935 that this azo dye, when given intravenously, exerted a selective action on streptococcal infections in mice. These results were confirmed by Colebrook and Kenny⁵⁴ both experimentally and clinically. Trefouel, Nitti and Bovet⁵⁵ proved that the diazo linkage in prontosil⁵⁶ was not essential for its therapeutic effectiveness and that the parent sulfanilamide (prontylin), a colorless compound, was equally effective. Colebrook and Kenny gave sulfanilamide orally with satisfactory results in thirty-eight severe cases of puerperal infection with only three deaths.

In Europe, Imhauser⁵⁷ first reported on the efficacy of prontosil album tablets (prontylin) in urinary infections. He observed favorable results in treating *B. coli* infections in the bladder and kidneys but does not record the number of cases that he observed.

In America, Helmholtz⁵⁸ recently made observations with sulfanilamide which demonstrate that urine of patients taking the drug develops definite bactericidal power for such organisms as are commonly found in infections of the urinary tract. Those urines contain-

ing *Escherichia coli* and *Aerobacter aerogenes* yielded the most striking results, however, with *Streptococcus aureus* and *Streptococcus faecalis*, five strains of organisms out of eleven were killed in from twenty-four to seventy-two hours after incubation. *Proteus vulgaris* and *Pseudomonas aeruginosa*, in eight strains studied, gave five positive cultures, demonstrating that the action of sulfanilamide was less effective here.

Dees and Colston⁵⁹ are the first to record their experiences with sulfanilamide in the treatment of gonococcal infections. In nineteen cases observed the smears and urines became negative for gonococci in two days in five cases, in three days in five cases, in five days in two cases, and in four, six and twenty three days respectively in single cases. In one case smears became negative on the ninth day, positive on the fourteenth day and again negative on the seventeenth day. In three cases gonococci were still present after eleven days. All patients received, in four divided doses a day, 4.8 Gm of sulfanilamide daily for two days, 3.6 Gm daily for three days, and then 2.4 Gm daily for from four to eight days. They warn against a continuance of the drug immediately on complaint by the patient of headache, fever, lassitude, cyanosis, general malaise or extreme weakness. Personally I would warn against so large an initial dose of this new drug as routine, disagreeable and at times serious reactions may follow such a plan, I consider it far safer to begin by giving 1.2 Gm daily for the first two days and if this is well tolerated, increase the dose to 2.4 Gm daily for two days. Beginning with the fourth day, provided sulfanilamide is still being taken without untoward effects, the drug then can be gradually increased daily until 4.8 Gm is reached.

Two hospital patients with severe urosepsis observed by us recently, one with *Staphylococcus aureus* alone and one with *Escherichia coli* and *Staphylococcus aureus* (one with positive blood culture and one without), responded promptly to a combined therapy of prontosil intramuscularly and sulfanilamide orally. In the one case the infection followed a prostatectomy while the other resulted from a cystotomy. Not only was the persistent fever controlled promptly—within three days in each instance—but the general condition of both patients improved proportionately. Each convalescence was uneventful thereafter. From my limited experience with sulfanilamide—which includes eight cases of gonorrhea—I am convinced that, provided adequate care is exercised, this drug will occupy an important niche in our armamentarium for combating the various strains of coccic invasion.

Finally, I believe that every one of these agents reviewed has a place in treating urogenital ailments. In office and hospital practice I employ them all. When one does not show itself adapted to a particular case, I seek to find another one better suited to its needs. I play no favorites. Every case is an individual problem, every patient may have his idiosyncrasy, his own capacity for reaction to one method of treatment and not to another. None of the present known urinary antiseptics can be called specifics. Every new agent announced should be given its day in court, it should have a fair trial, after which it will, as Davis has pertinently said, reach stability at its proper level of usefulness. Every clinician is an investigator, the final verdict is given not in the laboratory but in the knowledge gained from experience at the bedside.

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52a Schnohr E and Johansen C. Treatment of Infections of Urinary Tract with Mandelic Acid. *Hospitaltid* 80:453-468 (April 27) 1937.

53 Domagk G. Ein Beitrag zur Chemotherapie der bakteriellen Infektionen. *Deutsche med. Wchnschr.* 61:250-253 (Feb. 15) 1935.

54 Colebrook Leonard and Kenny Meave. Treatment of Human Puerperal Infections, and of Experimental Infections in Mice with Prontosil. *Lancet* 1:1279-1286 (June 6) 1936.

55 Trefouel J, Trefouel J (Mme), Nitti F and Bovet D. Activite du p-amino-phenylsulfamide sur les infections streptococciques experimentales de la souris et du lapin. *Compt. rend. Soc. de biol.* 120:756-758, 1935.

56 The term prontosil has been used for a number of related substances. The term prontosil in this paper refers to sulfanilamide (powder tablet).

57 Imhauser K. Ueber die Behandlung septischer Erkrankungen mit Prontosil. *Med. Klin.* 31:282-285 (March 1) 1935.

58 Helmholtz H F. Bacterial Power of the Urine After the Administration of Prontylin by Mouth. *Proc. Staff Meet. Mayo Clin.* 12:244-245 (April 21) 1937.

59 Dees, J. E. and Colston J. A. C. The Use of Sulfanilamide in Gonococcal Infections. *J. A. M. A.* 108:1855-1858 (May 29) 1937.

ABSTRACT OF DISCUSSION

DR ANSON L CLARK, Oklahoma City With the facilities for the distribution of knowledge through medical literature it is surprising how long it takes to evaluate the true effect of a drug or therapeutic regimen. Reports of medical discoveries often are heralded too enthusiastically by newspapers and magazines. Some of these false impressions are due to information emanating from investigators before thorough tests of the action of any type of therapy have been carefully studied, and some of these erroneous ideas are circulated by pharmaceutical houses in overselling a product they are distributing. As the result of a recent article in a national news magazine in which a large medical center was alleged to have announced a cure for gonorrhea in four days at a cost of 40 cents per patient, we are fast approaching the peak of the curve so aptly described by Edwin Davis for evaluating all new discoveries in medicine. Sulfanilamide is the drug of the moment in urinary antiseptics, but before the true effect of this product can be clearly defined, much more data will have to be gathered and many more carefully controlled clinical cases will have to be studied. In experimenting with sulfanilamide in mice the fatal effect of the pneumococcus can be delayed for a considerable period by the drug and, as Rosenthal reports, "The chemical apparently has the power of holding the infection in check for a while, but eventually the chemotherapeutic effect is lost and the mouse succumbs to pneumococcal infection." In the clinic with which I am affiliated we have observed that with both gonococcal and nonspecific infections involving the prostate gland remarkable results are apparently obtained immediately after the administration of sulfanilamide. However, when the drug is discontinued or when it has been administered over a sufficient period it seems to lose some of its initial effect, as evidence of the infection will again be found in the urine and prostatic secretion of the patient. I should like to warn against a too early verdict in favor of an announcement that the millennium has been reached in dislodging gonococcal infections easily and rapidly. From our experience this is a remarkable drug which will be a most valuable addition to the list of urinary antiseptics when it is carefully prescribed with a full knowledge of its possible toxic effects and a full realization that in some types of infection it may diminish but not entirely eradicate the organisms.

DR MONROE E GREENBERGER, New York Dr Walther's paper is certain to lead to useful reflection and sober realization of the truth of the warning against the dangers of an indiscriminate use of a single drug for all types of infections in the urinary tract. It is just about one month since I began observing the effects of sulfanilamide in twenty-three cases of gonorrheal urethritis. The improvement in some, though combined with the time-honored procedures, has been encouraging and almost phenomenal in one particular case that failed to respond to all other methods of treatment. I agree with Dr Walther's closing remarks, "None of the present known urinary antiseptics can be called a specific."

DR HENRY F HELMHOLZ, Rochester, Minn A certain amount of information is available that will help one in judging as to which is the most effective form of treatment in a particular case. In these careful bacteriologic studies it must be remembered that of the gram-negative bacilli in the urine the colon bacillus probably overgrows all the rest, and that one may get rid of the colon bacillus and find a *Pseudomonas* infection still remaining. Repeated cultures are necessary to find out exactly with what combination of organisms one is dealing. A certain amount of information has been obtained as to the choice of procedure. I do not know how much success has been obtained in treating adults with the organic acids, but I know that only when the kidney can excrete beta-oxybutyric acid and mandelic acid in concentrations above 0.5 per cent and with a urine which has a pH below 5.5 can one expect a bactericidal effect. Success in treatment with the organic acids is very unlikely in cases in which there is disturbed kidney function. Recently Buchtel and Cook have been able to show that with sulfanilamide they were able to clear up infection in the urinary tract of patients with a blood urea over 100. I should like to show a few slides to illustrate

the effect of sulfanilamide and mandelic acid on various organisms. In the first slide it will be noticed that sulfanilamide in a concentration of 51 mg per hundred cubic centimeters in the free form kills off eight different strains of *Proteus ammoniae* in a twenty-four hour period. With an acid urine of higher concentration these organisms were not completely killed off, but on alkalinization of the urine they were. So it can be said that if the patient has a *Proteus* infection one would not try mandelic acid or the ketogenic diet but would use sulfanilamide. The second slide shows the complete absence of bactericidal effect on five strains of *Streptococcus faecalis*. In the original publication we did seem to have one or two streptococci that were killed off by this drug. But we have checked our streptococcus cultures and we did not find a single urine that, although bactericidal for all the gram-negative bacilli and for *Staphylococcus aureus*, was bactericidal for *Streptococcus faecalis*. The next slide shows that mandelic acid at the same pH and in the same concentrations that kill off the gram-negative bacilli also kills off *Streptococcus faecalis*. In *Streptococcus faecalis* infection it would therefore be advisable to use mandelic acid treatment rather than sulfanilamide treatment. The last slide shows the effect of the reaction to sulfanilamide therapy. We were rather surprised to find a urine with a pH of 6.0, with 57 mg per hundred cubic centimeters of free sulfanilamide and 68 mg of the conjugated form that had very little bactericidal effect as compared with the same urine alkalinized to a pH of 7.5, which in turn had a very decided bactericidal effect on all the organisms. I think the time will come when, as the chairman has suggested, we shall know definitely, after careful bacteriologic examination of the urine, which one of these urinary antiseptics to use.

ACUTE HEMOLYTIC ANEMIA DURING
TREATMENT WITH SULFANILAMIDE

S E KOHN, M.D.

MILWAUKEE

That sulfanilamide is not entirely without toxic manifestations was recognized by Long and Bliss,¹ who stated that in their experiences patients given this dye often complained of dizziness, anorexia, nausea and vomiting. They also describe another toxic manifestation in the form of a cyanosis, which is sometimes associated with methemoglobinemia. This varied in intensity from a mild bluing of the lips to a rather intense slaty discoloration of the lips and nail beds. Rises in fever were also described. When this occurred, the drug was stopped for two or three days, during which time the temperature would fall to normal if the rise had been due to the drug.

Since sulfanilamide or its derivatives contain the benzene ring, it is possible that it may cause damage to the hematopoietic system. Long² stated that he has seen five cases of anemia following the use of this drug. Harvey and Janeway³ report three cases of acute hemolytic anemia following the use of sulfanilamide.

This paper reports another case of anemia with acute hemolysis and hemoglobinuria.

REPORT OF CASE

B H, a white girl, aged 1 year, was seen March 15, 1937, with a cold and a fever. She was again seen March 19 with croup and a fever. She was again seen March 21 with an acute

From the Department of Pediatrics, Marquette University School of Medicine.

¹ Long P H and Bliss Eleanor A. Use of Sulfanilamide or Derivatives in Treatment of Infections Due to Beta Hemolytic Streptococci, Pneumococci and Meningococci. *South M J* 30: 479-487 (May) 1937. read at the thirtieth annual meeting of the Southern Medical Association, Baltimore, Nov. 17-20, 1936.

² Long P H. Personal communication to the author, June 6, 1937.
³ Harvey A M and Janeway C A. Development of Acute Hemolytic Anemia During Administration of Sulfanilamide. *J A M A* 109: 12 (July 3) 1937.

bilateral otitis media. A bilateral paracentesis revealed a slight discharge of watery pus.

The infant was sent to the Milwaukee Children's Hospital March 22 for observation.

On examination at the hospital the child was acutely ill with a temperature of 102 F. Both canals were filled with a thin pus. There was a thick yellow nasal discharge and a coated tongue. The pharynx and the tonsils were acutely injected, and a bilateral cervical adenitis was present. The heart and lungs were grossly normal. The abdomen was soft with no distention. The extremities were essentially normal.

The blood count on entrance, March 22, showed leukocytes 20,400, neutrophils 67 per cent (segmented 56 per cent, nonsegmented 11 per cent), monocytes 5 per cent, small lymphocytes 22 per cent, large lymphocytes 4 per cent, plasma cells 2 per cent, erythrocytes 4,700,000, hemoglobin 12.5 Gm. Examination of the urine revealed acid reaction, albumin 1 plus, and negative reaction for sugar, acetone and diacetic acid. The microscopic examination revealed 5 white blood cells per high power field and some amorphous urates. Cultures of the ears and throat yielded hemolytic streptococci. The Kline test was negative. March 23, 175 cc of citrated blood from the father (typed and cross typed) was given intravenously. There was no untoward reaction. March 23, sulfanilamide, 5 grains (0.3 Gm) three times a day, was begun. This was continued for twelve doses to March 28, on which day a faint jaundice and a pinkish brown discoloration of the urine were noted. The sulfanilamide was stopped immediately. The fever, which had fluctuated between 99 and 101 F, dropped March 23 to 98 F only to rise again to 101 F on March 29. On this day the jaundice became very profound. The child became listless, appeared toxic and had labored respirations. There were several emeses of fluids and food. The urine became increasingly reddish brown. Examination of the urine at 6 a. m. showed an alkaline reaction, and a negative reaction for sugar, acetone and diacetic acid. The hemoglobin was strongly positive. The microscopic examination showed an occasional red blood cell and white blood cell and granular casts. At noon of the same day large quantities of albumin were found and the urine was acid in reaction. The reactions for sugar, acetone and diacetic acid were negative. The hemoglobin was very strongly positive. Urobilin was also present. An occasional red blood cell, 10 white blood cells per high power field and many granular casts were found on microscopic examination. The blood count at this time revealed leukocytes 20,100, neutrophils 40 per cent (segmented 35 per cent, nonsegmented 5 per cent), monocytes 1 per cent, small lymphocytes 52 per cent, large lymphocytes 7 per cent, erythrocytes 3,250,000, hemoglobin 8.5 Gm. Two normoblasts were found in 100 white cells counted. Anisocytosis, poikilocytosis and polychromatophilia were present in the red cells.

There was some question as to whether the transfusion of March 23 might have had any etiologic bearing on this acute hemolysis. Therefore grouping of the father's and baby's blood was carried out again and found to be correct. Cross matching showed no agglutination or hemolysis between the patient's serum and the donor's cells and vice versa. Incubation for eighteen hours showed no hemolysis.

March 30, two days after the sulfanilamide was stopped, the infant appeared slightly improved. The jaundice had faded somewhat. The mucous membranes were still very pale but she was less irritable and appeared brighter and less drowsy. Examination of the urine at 6 a. m. revealed an acid reaction, a brown coloration and negative reactions for albumin, sugar, acetone, diacetic acid and hemoglobin. The microscopic examination was also negative. At 10 o'clock the hemoglobinuria was still negative but the kidney irritation was also still manifest. Examination of the urine at this time was as follows: yellow, neutral reaction, and negative reactions for sugar, acetone, diacetic acid, hemoglobin and bile. The urobilin and albumin had a 1 plus reaction. The microscopic examination showed an occasional red blood cell, 10 white blood cells and many granular casts per high power field.

The blood picture at noon revealed a profound anemia. The erythrocyte count was 2,000,000, hemoglobin 6.0 Gm, 8 normo-

blasts and 2 megaloblasts per hundred white blood cells counted. Marked anisocytosis, slight poikilocytosis and marked polychromatophilia were present. The platelet count was 226,000. The coagulation time and bleeding time were two minutes and one-half minute respectively. The white blood cell count was 47,400 with 27 per cent neutrophils, (nonsegmented 6 per cent segmented 17 per cent, metamyelocytes 3 per cent, myelocytes 1 per cent), 37 per cent small lymphocytes, 32 per cent large lymphocytes and 4 per cent monocytes. Twenty cc of whole blood was given intramuscularly, followed in six hours with 160 cc of citrated blood given intravenously.

The blood count at 4:30 p. m. showed an apparent cessation of hemolysis, the erythrocytes being 2,500,000 and the hemoglobin 6.0 Gm.

From this point until the time of discharge the blood picture improved rapidly, showing on March 31 a leukocyte count of 30,800, neutrophils 40 per cent, (nonsegmented 9 per cent, segmented 25 per cent, metamyelocytes 4 per cent, myelocytes 2 per cent, monocytes 15 per cent, small lymphocytes 41 per cent, plasma cells 1 per cent, erythrocytes, 3,350,000, hemoglobin 11 Gm, and 12 normoblasts in 100 white blood cells counted. A slight anisocytosis, poikilocytosis, achromia and a marked polychromatophilia were present in the red cells. Urinalysis revealed an acid reaction, a yellow color, a trace of albumin and negative reactions for sugar, acetone and diacetic acid. Eight white blood cells per high power field and mucus were reported in the microscopic examination. A report on the blood picture April 2 was 3,900,000 erythrocytes and hemoglobin 12.5 Gm. The appearance of the red cells showed a slight anisocytosis and polychromatophilia. The leukocytes were 16,600, neutrophils 30 per cent (nonsegmented 2 per cent, segmented 26 per cent), metamyelocytes 1 per cent, myelocytes 1 per cent, small lymphocytes 68 per cent, large lymphocytes 2 per cent.

The following day the erythrocyte count increased to 5,100,000 and the hemoglobin increased to 14 Gm. A slight achromia was present. The leukocyte count was 15,700 with 22 per cent neutrophils, 4 per cent monocytes, 64 per cent small lymphocytes and 10 per cent large lymphocytes.

The child was discharged from the hospital April 4 in good condition. She had an uneventful course at home for five days.

In an effort to ascertain whether the child had really reacted unfavorably to the drug, sulfanilamide was again begun April 16. One 5 gram tablet was given three times a day for four doses. The child became very restless and irritable and the fever rose to 101 F. The drug was stopped immediately. The symptom complex subsided within twelve hours after cessation of the drug. The urine showed no evidences of hemoglobin at this time.

It would appear that certain individuals have some predisposition to react to this dye. Obviously with the great number of patients who have received the drug in the past year and with the few reports of toxic reactions, most persons are not unfavorably affected. If sulfanilamide is to be used, one must constantly keep in mind, however, that it is not entirely without some danger.

425 East Wisconsin Avenue

Between the Two Extremes—But, since education is a lifelong process, we are all conscious of persistently shoring up to atone for educational deficiencies which could not possibly have been anticipated. Between these two extremes, a happy medium must be found. And there is no better goal, I think, than to aim from the beginning to make of every student a capable practitioner. In this process, as well as in any other, the exceptional men will come to the top, those gifted with a scientific imagination will feel the appeal of a life devoted to investigation, the majority, meanwhile, will find themselves prepared for a professional career no less rich in opportunities both for service and for research.—Cushing, Harvey, *Consecratio Medici and Other Papers*, Boston, Little, Brown & Co., 1928.

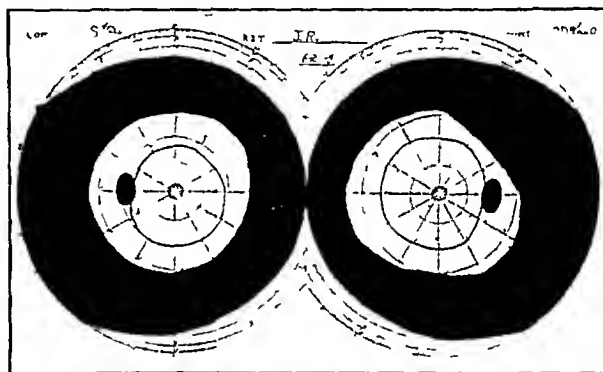
TOXIC OPTIC NEURITIS RESULTING
FROM SULFANILAMIDEPAUL C BUCY, M.D.
CHICAGO

A toxic optic neuritis or a toxic neuritis of any other nerve has not previously been reported as occurring as a result of the administration of sulfanilamide or of any of the related drugs in man. Likewise manifestations of involvement of the central nervous system have been limited to the observation of mental confusion by Paton and Eaton,¹ and to the unamplified statement by Whitby² that he is familiar with one human case in which symptoms of involvement of the nervous system, such as occur in mice developed. In mice, according to Long and Bliss,³ symptoms of vestibular dysfunction and spastic paralysis develop as a result of the administration of sulfanilamide. The majority of toxic manifestations that have resulted in human cases from the use of these drugs are concerned with the blood. They are cyanosis,⁴ sulfhemoglobinemia (especially when some sulfate has been administered simultaneously⁵), methemoglobinemia,⁶ severe hemolytic anemia^{4b} and anemia with the appearance of nucleated red blood cells, polychromasia and moderate anisocytosis.⁷ Dees and Colston⁸ recorded the development of leukopenia in patients being treated with these drugs but they did not feel that this development could be directly attributed to the drug. Borst,⁹ however, recorded the case of a woman with pyelocystitis and "thrombopenic purpura" who was treated with "prontosil flavum." Agranulocytosis developed and she died. He believed that agranulocytosis was the result of a toxic action of the drug. Southworth,⁹ Dees and Colston,⁸ and Harvey and Janeway⁴ have recorded the development of acidosis. Southworth stated that in fifty cases in which sulfanilamide was given clinical acidosis developed in two and fifteen others without clinical manifestations showed "a consistent though variable drop in the CO₂ combining power of their blood plasma." Harvey and Janeway⁴ also recorded a depression of hepatic function as determined by bromsulfalein excretion tests. Fever resulting from the administration of these drugs has also been recorded.¹⁰ Various symptoms such as urinary irritation,¹¹ lassitude and dizziness,⁶ nausea, headache and abdominal discomfort¹ have also been noted. In

the main, with the exception of Borst's⁹ case as noted, the toxic manifestations have been mild and have subsided when administration of the drug has been discontinued. However, some of the developments have been serious and severe,^{4b} if not fatal. It is obvious that sulfanilamide, though apparently a therapeutic agent of great value, has also toxic qualities of no little import which must be reckoned with. The present case in which a toxic optic neuritis apparently developed as a result of the administration of sulfanilamide is reported in order to point out another possible toxic action of the drug—the fact that some individuals seem to tolerate the drug poorly and that with the development of any of the more severe toxic manifestations the drug should be withdrawn at once. In view of the frequency with which the hematopoietic system is involved, it would appear advisable to make blood counts frequently, if not daily, on all patients receiving this drug.

REPORT OF CASE

J. R., a girl, aged 16 years, was first admitted to one of the general surgical services at the University of Chicago Clinics, May 27, 1936. In 1925 at the age of 6 years a bilateral mastoiditis developed. This illness was complicated by



Visual fields June 25. The peripheral fields for a 3 mm white target at 1 meter are generally constricted. The peripheral fields for a 3 mm blue target are indicated by the solid line and for a 3 mm red target by a broken line. The crosshatched area in the center of each field indicates the relative scotoma for the 3 mm white target and the absolute scotoma for the 3 mm colored targets. (Visual fields studied by Dr. McClelland Shellman.)

pain and tenderness in the left hip and both knees. The knees recovered spontaneously. The hip was immobilized in a cast for nine months. Six months after the cast was removed the left hip was again involved and a second cast was applied for three months and the hip became ankylosed. Subsequently she was well until June 1935, when she suffered from German measles, which was associated with a severe cervical lymphadenitis. Two weeks after recovery from this a swelling in the left groin developed, which was incised and drained a thick yellow pus. This abscess extended into the perineum and subsequently ruptured into the rectum. The sinuses continued to discharge purulent material thereafter. Physical and roentgenologic examinations led to a diagnosis of chronic osteomyelitis of the head and neck of the left femur and of the ilium, with an intrapelvic abscess. This was treated by incision and drainage of the pelvic abscess June 3, colostomy October 23, and incision and drainage of the pelvic abscess December 31. April 27, 1937, she was again admitted to the hospital because of fever and pain in the region of the left buttock. April 28, two sinuses, one in the buttock and one over the coccyx, were incised, curetted and packed. Cultures of the purulent discharge from the sinus revealed hemolytic *Staphylococcus aureus*, *Bacillus proteus*, *Staphylococcus albus*, *Streptococcus viridans* and *Alcaligenes fecalis*. May 17, *Streptococcus viridans* was recovered from a culture of the blood. June 7, the blood culture was negative. Throughout May the temperature showed a septic febrile course, rising to 100.6 F.

From the Division of Neurology and Neurosurgery, University of Chicago.

The sulfanilamide used in the case herein reported was a product of the Winthrop Chemical Company.

1. Paton J. P. J. and Eaton J. C. Sulfhemoglobinemia and Methemoglobinemia Following Administration of p-Aminobenzenesulfonamide. *Lancet* 1: 1159-1162 (May 15) 1937.

2. Whitby L. E. H. An Experimental Assessment of the Therapeutic Efficacy of Amino Compounds with Special Reference to p-Benzylaminobenzenesulfonamide. *Lancet* 1: 1517-1519 (June 26) 1937.

3. Long P. H. and Bliss Eleanor A. Para-Aminobenzenesulfonamide and Its Derivatives. *J. A. M. A.* 108: 32-37 (Jan. 2) 1937.

4. (a) Colebrook Leonard and Kenny Meave. Treatment of Human Puerperal Infections and of Experimental Infections in Mice with prontosil. *Lancet* 1: 1279-1286 (June 6) 1936. (b) Harvey A. M. and Janeway C. A. The Development of Acute Hemolytic Anemia During the Administration of Sulfanilamide. (Para-Aminobenzenesulfonamide). *J. A. M. A.* 109: 12-16 (July 3) 1937.

5. Colebrook Leonard and Kenny Meave. Treatment with Prontosil of Puerperal Infections Due to Hemolytic Streptococci. *Lancet* 2: 1319-1322 (Dec. 5) 1936. footnote 4a. Discombe G. Sulfhemoglobinemia Following Sulfanilamide Treatment. *Lancet* 1: 626-627 (March 13) 1937.

6. Dees J. E. and Colston J. A. C. The Use of Sulfanilamide in Gonococcal Infections. *J. A. M. A.* 105: 1855-1858 (May 29) 1937. Paton and Eaton¹.

7. Weinberg Max H., Mellon R. R. and Shinn L. E. Two Cases of Streptococcal Meningitis Treated Successfully with Sulfanilamide and Prontosil. *J. A. M. A.* 108: 1948 (June 5) 1937.

8. Borst J. G. G. Death from Agranulocytosis After Treatment with Prontosil Flavum. *Lancet* 1: 1519-1520 (June 26) 1937.

9. Southworth H. Acidosis Associated with the Administration of Para-Aminobenzenesulfonamide (Prontosil). *Proc. Soc. Exper. Biol. & Med.* 36: 58-61 (Feb.) 1937.

10. Harvey and Janeway⁴, Dees and Colston⁸.

11. Whitby, Colebrook and Kenny⁵.

or 101 F daily and occasionally to 102 F. Repeated blood transfusions were given without more than transitory effect. The patient's leukocyte count varied from 11,100 to 16,200, with 69 per cent polymorphonuclear leukocytes at the time of admission. Hemoglobin varied from 40 to 67 per cent (Sahli), the erythrocytes from 3,560,000 to 4,450,000.

Because of the failure of the patient to improve it was decided to administer sulfanilamide. June 14 she was given four tablets (12 Gm) at 8 a. m., 12 noon and 6 p. m. and five tablets (15 Gm) at 9 p. m., a total of 51 Gm or 0.1 Gm per kilogram of body weight. The following day the patient was given 12 Gm at 8 a. m. and at 12 noon. That afternoon about 2 p. m. she had a large liquid bowel movement and complained of headache. At 6 o'clock marked cyanosis was noted. All medication, including the sulfanilamide, was stopped. She had received acetylsalicylic acid, phenobarbital and ferrous sulfate (Feosol) daily for a long time. June 16 she felt much better and the cyanosis soon disappeared. June 18 she was again given sulfanilamide. She received 48 Gm (in doses of 12 Gm) that day. The following day she received 12 Gm at 8 a. m. and 0.6 Gm at noon. That afternoon she was again cyanotic and complained of a headache and a choking sensation. The medication was again stopped and the symptoms soon subsided. June 20 the blood count revealed 13,300 white blood cells, 4,970,000 red blood cells and 65 per cent hemoglobin. June 24 she was given one tablet (0.3 Gm) of sulfanilamide at 8 p. m. On awakening the following morning she complained that she could not see clearly. Cyanosis was not noted. All medication was discontinued. The impairment of vision continued throughout the day. She volunteered that it was most marked directly in front and that she could see more clearly to either side of the point of fixation. At 6 p. m. she was seen by the ophthalmologist who found the vision reduced to 6/200 in the right eye and to 4/200 in the left. There was an absolute central scotoma in each eye for 3 mm. red and blue targets and a relative central scotoma for a 3 mm. white target as shown in the accompanying illustration. Ophthalmoscopic examination revealed a marked tortuosity of the retinal vessels (which had previously been observed and was considered congenital) and some blurring of the margins of the optic disks. I first saw the patient June 25. During the next two days, June 26 and 27, the vision improved but was still blurred. Late on the afternoon of the 27th the visual acuity was 15 in the right eye and 1.2 in the left, and the central scotomas had disappeared. Ophthalmoscopic examination revealed that both disks were redder than normal and moderately elevated. Because of the marked congenital tortuosity of the retinal vessels, elevation of the optic disks was difficult to measure. During the month of July the optic disks have gradually resumed what is believed to be a normal appearance for them. There is still some blurring, particularly of the nasal margins, but the disks were probably flat by the first of August. By June 28 vision seemed normal to the patient and has remained so. There were no other complaints relative to the eyes or the nervous system, nor have there been any manifestations indicative of any other neurologic involvement.

The condition of the osteomyelitis and associated abscesses has continued much as before. July 21, a perineal abscess was incised and drained.

COMMENT

There can be little doubt that this patient had an intolerance or idiosyncrasy for sulfanilamide, as evidenced by the repeated occurrence of toxic symptoms after the brief administration of the drug. It is very likely that the administration of ferrous sulfate (Feosol) simultaneously with the giving of sulfanilamide contributed to the patient's intolerance for the latter drug, especially in view of Colebrook and Kenny's and Paton and Eaton's observations that sulfanilamide and related drugs give rise to toxic symptoms when given simultaneously with magnesium sulfate or other sulfates or even when wounds are dressed with sulfate solutions. There would also seem to be little doubt that the disturbance of vision due to a toxic optic neuritis resulted also from this drug. In view of Harvey and Jane-

way's⁴ failure to obtain positive reactions with skin tests on patients having toxic symptoms, we did not attempt similar tests in this case. The obvious test of again administering the drug did not seem justified. That the drug is toxic to the nervous system has been shown by its action in the mouse⁵ and in at least one instance in man.²

SUMMARY

A girl with osteomyelitis of the ilium was given sulfanilamide on three separate occasions. On each occasion toxic manifestations appeared: headache, cyanosis, diarrhea and a choking sensation on the first two occasions, a severe loss of vision due to a toxic optic neuritis after administration of a single tablet (0.3 Gm) of the drug on the last occasion. In each instance the symptoms rapidly subsided after withdrawal of the drug.

This case again emphasizes the importance of not administering sulfanilamide and any sulfate simultaneously. In all cases the blood picture should be followed by frequent examinations, and the drug should be withdrawn on the appearance of any toxic manifestations.

950 East Fifty-Ninth Street

SKIN ERUPTIONS IN PATIENTS RECEIVING SULFANILAMIDE

REPORT OF FOUR CASES

JOHN G. MENVILLE, M.D.

AND

JOHN J. ARCHINARD, M.D.

NEW ORLEANS

When new drugs rapidly gain widespread popularity, their beneficial action is quickly recognized but their by-effects often reveal themselves more slowly and are often overlooked. Few drugs have come to the front with more eclat than have the sulfanilamide derivatives, marketed under the names of prontosil and prontosil.

This report is presented not to detract from the value of these drugs but merely to mention the occurrence in a small series of cases of annoying but apparently not serious symptoms following their administration—namely, maculopapular eruptions with intense itching over areas of skin exposed to the sun in patients to whom large doses of sulfanilamide were administered. In one case chilliness, high fever and prostration were noted.

While this series of four cases is obviously too small to permit any definite conclusions regarding the ill effects of sulfanilamide, it may serve as a means of calling the attention of the users of this drug to the possible cutaneous manifestations which they may produce.

No explanation is offered for the phenomena observed. We have been unable to find any mention of them in the literature to date.

REPORT OF CASES

CASE 1.—A white man aged 26, weighing 145 pounds (66 Kg) and suffering from a chronic gonorrheal urethral discharge was given 53 Gm of sulfanilamide a day in four divided doses for ten days. On the ninth day the patient, clad in bathing trunks, was exposed to the hot sun on a bathing beach for approximately four and a half hours. On the afternoon of the tenth day he was again exposed to the sun for one hour. That evening a rash developed on his back, his hands and a portion of his face and neck. The rash was a maculopapular eruption which produced an intense itching associated with chills and fever. Prior to the fever, the patient experienced a slight cyanosis, hyperpnea and nausea. On the eleventh

day the drug was discontinued. At this time the patient had received 53.3 Gm of sulfanilamide. The rash, which first appeared on the hands, face and neck, now became generalized over these areas, including the legs and body, with the exception of that portion covered by the bathing trunks. In addition to the maculopapular eruption, very minute vesicles appeared.

The height of the fever was 104.8 F. The blood count was as follows: red blood cells, 5,100,000; white blood cells, 15,600; neutrophils, 89 per cent; small mononuclears, 8 per cent; and large mononuclears, 3 per cent. Physical examination was negative. The urine showed no abnormalities. On purely symptomatic treatment the fever gradually decreased and disappeared in four days. The rash and itching sensations lasted about one week.

There was nothing unusual in the patient's diet to explain the eruption. Many years before, he had an attack of urticaria. It may be of interest to mention that before he took the sulfanilamide he had been exposed to the sun on many occasions and the skin had become a deep tan. For this reason exposure to the sun would not explain the symptoms that he manifested after he took the drug.

CASE 2—A white man, aged 36, weighing 180 pounds (81 Kg), was suffering from a chronic gonorrheal urethritis and prostatitis. He was given 34.7 Gm of sulfanilamide over a period of eleven days. The first two days he received 5.3 Gm a day, then 2.7 Gm a day for the following nine days. The urethral discharge ceased on the seventh day after medication was started. On the eleventh day a maculopapular eruption associated with intense itching and swelling developed on the back of the hands, and to a slight extent on the forearms and also on the neck and face. The rash converged and formed minute vesicles, which did not erupt. The drug was then discontinued and the rash and swelling disappeared within three days. In this case the only parts of the body exposed to the sun were the hands, neck and face. A mild cyanosis and hyperpnea were also noted in this case.

CASE 3—A white man, aged 30, weighing 155 pounds (70 Kg) suffered from a chronic gonorrheal urethritis and was given 35.3 Gm of sulfanilamide over a period of eight days. For four consecutive days he received 5.3 Gm of sulfanilamide each day, divided into four doses. The next two days he was given 4 Gm a day in four divided doses, and the following day he received 3.3 Gm divided into two doses. On the eighth day the patient received 2.7 Gm divided into three doses. On this day a maculopapular rash associated with severe itching developed on the right side of the neck, right ear and dorsum of the hands. There was no swelling associated with the rash, as was observed in one of the cases already mentioned. However, some cyanosis and hyperpnea were noted. At this time the drug was discontinued, and the rash disappeared within two days. In this case only the face, neck and dorsum of the hands were exposed to the sun.

CASE 4—A white woman, aged 26, weighing 110 pounds (50 Kg), suffering from a colon bacillus infection of the urinary tract, was given 32 Gm of sulfanilamide over a period of ten and a half days. The daily dose was 3 Gm divided into three doses. On the eighth day no bacilli were found in the urine. Two subsequent examinations of the urine were negative. On the tenth day the patient was exposed to the sun while riding in an automobile. The same evening, a maculopapular rash developed on the hands, the forearms and the neck. The rash, as in the other cases, was associated with itching and contained some minute vesicles, which did not erupt. The rash on the right side of the neck and right forearm was more marked than on the left side. It is of interest to mention in this connection that the right side of the patient was more exposed to the sun. The rash disappeared two days after the drug was discontinued.

SUMMARY

Relatively large doses of sulfanilamide were given to four patients, in whom a maculopapular eruption developed associated with severe itching and the formation of minute unerupted vesicles. In one case the rash was associated with severe chills, fever and a leuko-

cytosis. In all the cases the rash and its associated symptoms disappeared within several days after the drug was discontinued.

It is interesting to note that in all four cases the rash appeared only on the parts of the body exposed to the sun.

No saline cathartic and no other form of medication other than sulfanilamide were given the patients while under treatment.

We have had other patients to whom we have given smaller doses of sulfanilamide whose hands, face and neck have been exposed to the sun without the development of an eruption of the skin. It would seem to indicate, therefore, that cutaneous eruptions are more likely to occur in patients receiving large doses of sulfanilamide when they are exposed to constant rays of the sun.

1226 A Maison Blanche Building

THE DEVELOPMENT OF A CUTANEOUS ERUPTION (TOXICODERMATOSIS)

DURING THE ADMINISTRATION OF SULFANIL-
AMIDE, REPORT OF TWO CASES

M. H. GOODMAN, M.D.

Instructor in Dermatology, Johns Hopkins Medical School
AND

CHARLES S. LEVY, M.D.

Associate in Urology, Sinai Hospital
BALTIMORE

In addition to its specific therapeutic potency in beta hemolytic streptococcus infections, sulfanilamide has been found to exercise a striking beneficial influence on the course of meningococcal, pneumococcal and also gonococcal infections. An agent of such wide scope of usefulness merits watching for its side effects, especially in view of its possibly indiscriminate use in a disease such as gonorrhea.

Long and Bliss¹ in their studies point out that sulfhemoglobinemia may develop in patients under sulfanilamide therapy and quite frequently an unexplained cyanosis which is sometimes associated with methemoglobinemia. A few hours after an initial ingestion of a large dose there may be dizziness, nausea, anorexia and a feeling resembling alcoholic intoxication. The patient may develop fever or exhibit a depression of liver function as determined by the bromsulfalein excretion test or a mild acidosis.²

Since sulfanilamide is essentially a substituted aniline it might also produce an anemia as an expression of the well known hemolytic properties of the benzene structure. Confirmatory of this is the reference by Long and Bliss to two cases in which an acute anemia developed and the recent report of Harvey and Janeway,³ who studied three patients in whom there developed an acute hemolytic anemia attributable to the sulfanilamide. Long and Bliss expressed uncertainty as to whether such effects spoke for toxicity of the drug or for idiosyncrasy in the recipient.

Harvey and Janeway's first patient received sulfanilamide orally, an initial dose of 4.8 Gm (74 grains) and

1 Long, P. H. and Bliss, Eleanor A. The Use of Para Amino Benzene Sulfonamide (Sulfanilamide) or Its Derivatives in the Treatment of Infections Due to Beta Hemolytic Streptococci, Pneumococci and Meningococci. *South M J* 30: 479-487 (May) 1937.

2 Southworth, Hamilton. Acidosis Associated with the Administration of Para Amino-Benzene Sulfonamide (Prontylin). *Proc Soc Exper Biol & Med* 36: 58 (Feb) 1937.

3 Harvey, A. M. and Janeway, C. A. The Development of Acute Hemolytic Anemia During the Administration of Sulfanilamide (Para Aminobenzenesulfonamide). *J. A. M. A.* 109: 12 (July 3) 1937.

for the next two days 0.9 Gm (14 grains) every four hours, and after this 0.6 Gm (9 grains) every four hours. On the fifth day of medication the first evidence of acute anemia became apparent. Since such doses had been given to many patients without effect on the blood picture and since two of their patients after complete cure failed to show a reappearance of the anemic blood picture after an additional small dose of the drug, the authors concluded that the anemia was not due to toxicity from overdosage or to the type of drug idiosyncrasy that occurs in some cases after aminopyrine. Rather, they saw a resemblance of these hemolytic anemias to the hemolytic crises produced by phenylhydrazine and therefore considered it possible that their patients represented a type of individual which produces from the sulfanilamide a small amount of a toxic product having an action like phenylhydrazine or produces such a substance much more rapidly than the average patient.

The method devised by Marshall and his associates⁴ for determining the sulfanilamide content of the body fluids enabled them to show that absorption from such a single oral dose of the chemical was complete within four hours. Applying this information to their clinical experience, Long and Bliss considered it advisable in severe infections in which it is desirable to reach a high blood level of the chemical rapidly to administer a large initial dose with the aim of attaining a blood level of 10 mg per hundred cubic centimeters within four hours. This concentration they found will usually be achieved in adult patients weighing 100 pounds (45 Kg) or more by administering an initial dose of from ten to sixteen 5 grain (0.3 Gm) tablets. Thereafter, to maintain this level they advised three 5 grain tablets every four hours.

In cases recorded here a cutaneous eruption developed in the course of treatment with sulfanilamide. The dosage administered was in accordance with a scheme which had been used in a number of other cases which exhibited no side effects. This scheme although adopted for convenience and ease of administration of the drug, parallels fairly well the range of dosage recommended by the authors cited.

REPORT OF CASES

CASE 1—J. O., a healthy white man, aged 20, of slender physique, weighing about 125 pounds (57 Kg), was first seen by one of us (C. S. L.) June 12, 1937, complaining of a urethral discharge, which showed numerous intracellular gram-negative diplococci. The urine in glass 1 was very cloudy and in glass 2, clear. The diagnosis was acute gonorrheal anterior urethritis, uncomplicated. The history revealed that the patient had been in good general health. Aside from the fact that his mother suffers with hay fever, there had never been any manifestation of allergic disease in the patient or in any other member of his family. He had not recently suffered with any disease that required medication, and close questioning revealed that he had taken no drugs for any reason for at least the past year.

Treatment with sulfanilamide was immediately instituted as follows. The patient took four 5 grain tablets every four hours, totaling 80 grains (5 Gm), on each of the first two days, on the third and fourth day, three 5 grain tablets every four hours totaling 60 grains (4 Gm) a day, and thereafter two 5 grain tablets every four hours, totaling 40 grains (2.6 Gm) a day. As has been stated, this scheme of treatment had been applied in a number of cases of acute gonorrheal anterior urethritis. The patient began this treatment June 13, and on June 22 he complained of an eruption on the skin which had appeared during the preceding night. On questioning it was discovered

that, owing to a misunderstanding, he had not reduced his daily dose to 40 grains after the fourth day of treatment but had continued with the total of 60 grains a day since the third day of treatment. He had taken no other medication during this period of sulfanilamide treatment. Examination showed that there was still present a marked urethral discharge.

The eruption was distributed over the face, occipital portion of the scalp, neck, shoulders and arms downward to the mid portion of the backs of the fingers. The characteristic features of the eruption could be best observed on the lower part of the arms and forearms, where the primary lesions consisted mostly of discrete, roundish and oval macular and papular elements varying in size from a pea to that of a quarter (24 mm), but on the average that of a dime (18 mm). Most of the lesions were a bright red but they varied in shade from a pinkish to a dusky red. These lesions were smooth and sharply circumscribed, and the papular elements presented a flattened, slightly dome shaped surface, being a trifle more elevated in the center than at the periphery, which sloped in a gentle curve into the surrounding skin. In other areas, aside from the regions just described, a few lesions were irregularly rounded and oval and occasionally not so circumscribed. The papular elements were slightly infiltrated and edematous, but the color of all the lesions could be blanched out completely on pressure except in the case of a number of the individual elements on the forearms, which presented an ineffaceable, centrally placed hemorrhagic spot, in the larger ones sometimes reaching the diameter of a pea.

The lesions were more numerous on the extensor aspects of the arms than on the flexor surfaces and extended over the back of the hands to the midportion of the fingers, whereas the palms of the hands were entirely free from lesions. About the shoulders and over the neck extending into the occipital portion of the scalp, although there were many discrete lesions of the type previously described, there was a tendency to coalescence with the formation of diffuse and patchy areas of redness and slight infiltration, which served to accentuate the picture so characteristic of a toxic erythematous type of eruption. On the face the outlines of individual lesions were only here and there faintly discernible because their borders had fused into one another to form a diffuse and patchy erythematous process. Because of variation in the size and color of the lesions, which ranged from a pinkish red to a dusky red, and in the amount of infiltration in different areas, the face presented a peculiar, irregular, superficially bloated, splotchy and glazed appearance. The eruption stopped at the hairline in front and on the sides but was continuous below with the lesions on the neck. It was interesting that there was no cyanosis of the lips, and in the mouth there was neither any change of color nor any lesions. The eruption was strictly limited to the areas described—a feature rather unusual for a toxicodermatosis, especially of the type due to a drug. Itching occurred only spasmodically and was not annoying, as was evidenced by the fact that there were no excoriations from scratching. The patient had a temperature of 100.5 F., and there was a trace of albumin in the urine, which was otherwise negative. As nearly as could be determined, the eruption began on the back of the arms and then appeared on the face. The process ran a fairly rapid course, fading out almost completely within four days from the time of its onset. During the greater portion of this period the patient felt sick and weak and was obliged to rest in bed. About ten days after the eruption had cleared up, skin tests were performed. The soluble, chemically pure powdered sulfanilamide (para-aminobenzenesulfonamide) was available. A freshly prepared 1 per cent aqueous solution was applied as a patch test, and 0.15 cc was injected intracutaneously into the left forearm. In a scratch on the arm a small amount of the pure powder was applied moistened with a 1 per cent solution. No reaction was noted in the scratch after half an hour. The intradermal and patch tests were also entirely negative after twenty-four hours.

About three weeks after the disappearance of the eruption, the patient was given a 5 grain tablet of sulfanilamide, followed four hours later by a second tablet. Shortly after the ingestion of the second dose, he noticed the appearance of a diffuse erythematous blush of the face and arms with burning and itching. He refused to take any further medication and this reaction cleared up after about twelve hours.

⁴ Marshall E. K. Jr., Emerson Kendall Jr. and Cutting W. C. Para-Aminobenzenesulfonamide Absorption and Excretion. Method of Determination in Urine and Blood. J. A. M. A. 105:953 (March 20) 1937.

CASE 2—E J, a white man, aged 28, in robust health, first consulted one of us (C S L.) June 16, 1937, with the complaint of a purulent discharge from the urethra. Examination of the pus revealed numerous gram-negative intracellular diplococci, the urine voided in glass 1 was very cloudy and in glass 2, clear. The diagnosis was acute gonorrheal anterior urethritis, uncomplicated.

The family and personal history of the patient disclosed nothing relevant to the present complaint. The patient had been in good general health all his life aside from a few minor ailments of no import. Neither he nor any member of his family as far as could be determined suffered with any disease of an allergic nature. Close questioning revealed that he had not taken medication for any reason whatever during the past year.

Treatment with sulfanilamide was outlined for the patient in accordance with the same scheme used in case 1, namely, 80 grains a day for the first two days, 60 grains a day for the second two days, and thereafter 40 grains a day until the patient would again be seen, about ten days after the first visit. The patient began this treatment June 17, and on June 25 returned with the complaint of an eruption which had appeared on his arms and face during the preceding twenty-four hours. He had very definitely taken no other medication aside from the sulfanilamide. He complained of feeling weak and "out of sorts," and also of marked itching of the face and arms. The urethral discharge had cleared up.

He presented an eruption which was distributed in a manner identical to that of the eruption in case 1. The eruption was of an exactly similar type, consisting of roundish, reddish macules and papules distributed over the face, neck, shoulders, occipital area of the scalp and arms, where the lesions were more numerous on the extensor aspects than on the flexors. The palms of the hands were uninvolved, there was no cyanosis of the lips and no lesions in the mouth. The face was diffusely red, and the surface presented an uneven blotchy appearance produced by numerous, varying sized irregular coalescent macules and papules resulting in a picture of a glazed, delicately ridged and patchy process so suggestive of the full blown florid exanthematic facies. In other areas the eruption simulated that in case 1 in all respects except for the fact that there were no hemorrhagic spots in any of the lesions. The patient had a slight fever and a trace of albumin in the urine. He felt "grippy" and was obliged to go to bed. Within four or five days the eruption subsided, there remained only some superficial scaling, which disappeared a short time afterward. About two weeks after the eruption had cleared up skin tests were performed on the patient with the sulfanilamide. A patch test with 1 per cent solution of the drug was applied and 0.15 cc was injected intracutaneously in the left forearm. To a scratch on this arm a small amount of the pure powder, moistened with a 1 per cent solution was applied, as in case 1. The intradermal test after half an hour showed no change, whereas in the site of the scratch there was an elevated flat-topped indurated wheal-like papule measuring 7 mm in diameter but unaccompanied by any surrounding erythematous flare. Twenty-four hours later there were no reactions in any of the test areas.

CASE 3—C W, a young white man in good general health suffering with an acute gonorrheal anterior urethritis, uncomplicated, and treated with sulfanilamide for at least one month by the standard scheme followed in the other two patients, served as a control for the skin tests. He manifested no reaction, cutaneous or otherwise, as a result of the treatment. The three skin tests were performed on this patient in the same manner as in the other two. All the tests were entirely negative.

COMMENT

The eruption provoked by sulfanilamide was identical in all respects in the two patients except for the hemorrhagic spots in a number of the lesions on the forearms in case 1. This purpuric factor points to an injury to the wall of the blood vessels, this injury was probably greater in case 1 because this patient, as was brought out, had taken (by error) after the fourth day of treatment 20 grains more daily than the second

patient. The two reacted about the same time after commencement of the treatment, that is, within eight days. A number of other patients suffering from urethritis, treated with sulfanilamide in similar dosage and for longer periods, as for example our control patient, suffered no reaction whatever. One might argue that the eruption with mild febrile reaction in the two patients is simply a pharmacotoxic effect of the chemical itself or a substance which these individuals produce from it and which attacks the walls of the superficial cutaneous blood vessels. Such a theory was entertained by Harvey and Janeway³ to account for the anemia in their cases. However, in view of the apparent rarity of the cutaneous reactions that our patients manifested, the suggestively positive scratch reaction in case 2 and the erythematous flare of the face and arms in case 1 when the patient ingested an additional small dose (10 grains) of the drug, it is quite possible that these were cases of induced hypersensitivity to sulfanilamide and that the eruption was allergic.

SUMMARY AND CONCLUSIONS

1 Two cases of toxic erythema (toxicodermatosis) of peculiarly limited distribution developed in the course of treatment with standard maximum doses of sulfanilamide.

2 In one case there were hemorrhagic lesions, indicating probably that sulfanilamide has vasculotoxic properties.

3 In view of the apparent rarity of cutaneous reactions from sulfanilamide, the elicitation of a suggestively positive scratch test in case 2 and an erythematous flare following ingestion of an additional small dose in case 1, it is possible that the eruptions represent an allergic cutaneous reaction to the drug.

4 Unless one is dealing with acute, serious infections, the dose of sulfanilamide should be kept within moderate bounds.

401 Medical Arts Building—112 Medical Arts Building

DERMATITIS FROM SULFANILAMIDE

LOUIS J. FRANK, M.D.
SIoux CITY, IOWA

The toxic effects of sulfanilamide are yet largely to be evaluated. In the American literature the only references to dermatologic manifestations that I have noted were mention that a morbilliform eruption and urticaria have been observed and sensitiveness of the skin of the lower extremities. Inquiry among practitioners who are using much sulfanilamide revealed that many eruptions are occurring and are at least being attributed to sulfanilamide. I believe that the following cases are worthy of a report.

REPORT OF CASES

CASE 1—J C, a white man, aged 38, referred to me July 22, 1937, because of a severe skin eruption, stated that about three weeks before, while taking sun baths, he noted a bluish color and sensitiveness of the skin of the legs, which did not itch. This condition disappeared after six days. A week before I saw him, after he was working in the garden in his undershirt, the back of the neck began to break out with hive-like lesions, which itched severely and spread rapidly to the face, ears, arms, legs and trunk. It was more severe on the parts exposed to the sun, although he stated that he was not severely sunburned.

When he was questioned directly as to ingestion of drugs, he stated that some time before he had been feeling tired and weak. A physician in another city had given him some tablets

(sulfanilamide) to take. He had had the prescription refilled at the drug store several times and from June 30, 1937, to the present time he had taken four tablets a day. He was feeling well up to the time that his skin broke out. He said there was no shortness of breath.

The general physical examination was essentially negative except for the skin. The sclerae showed no evidence of jaundice, but the lips were strikingly cyanotic. The temperature was 99.2 F. The face was diffusely erythematous and showed marked edematous swelling. The skin on the back of the neck was less edematous but was thickened, presenting a suggestion of lichenification. The arms from the shoulders down were swollen to half again their normal size. The lower halves of both forearms were covered with small confluent vesicles, which over the palms and fingers were discrete and deep seated. The trunk and lower extremities showed a patchy morbilliform eruption without much edema. Certain features, namely, the vesicles and the localization, suggested a contact dermatitis. However I could determine no contact factors and he had not been using any inappropriate local medication.

Examination of the blood revealed a hemoglobin of 93 per cent, 5,150,000 red blood cells and 10,800 white blood cells with 59 per cent polymorphonuclear leukocytes and 41 per cent lymphocytes. Examination of the urine was negative for sugar, albumin, casts and blood.

The intake of sulfanilamide was stopped, sodium thiosulfate was given intravenously and calamine lotion was applied locally for the itching. Within four days the edema had entirely disappeared. The skin of the face, neck and arms was subacutely inflamed and exfoliating. Two more days produced further improvement. I then gave the patient some 5 gram (0.3 Gm.) tablets of sulfanilamide with instructions to take one every six hours and return the next day. Two hours after he took the second tablet the back of the neck began to itch violently and break out with hive-like lesions, which rapidly spread to the face and arms. The acute itching subsided in twelve hours after he took the second tablet, and the dermatitis is rapidly improving at the time of this writing.

CASE 2—A white man, aged 48, seen through the courtesy of Dr. Walter F. Harriman, had been given sulfanilamide, twenty-two 5 gram (0.3 Gm.) tablets in two days and four tablets a day for the following seven days, for a prostatic infection, the symptoms of which disappeared completely in the first few days. Before discontinuing the tablets, the patient took an automobile trip, during which the left side of his face and the left arm were much exposed to the sun. These areas soon began to swell and itch. After twenty-four hours the redness and edema extended from the left side to involve the entire face; the eyes were swollen shut. The left arm continued to swell up to the shoulder. He said that there were no blisters. Two days after the onset, the right arm began to swell and break out, after this the eruption extended over the legs, chest and back.

On examination, one week after he discontinued the drug, the pitting edema had disappeared. There was a multiform erythema with urticarial tendencies scattered over the trunk and extremities.

COMMENT

The factor of sunlight in these cases was a rather striking clinical observation. In both cases the dermatitis appeared only after exposure to sunlight. After full development, the dermatitis was not confined to the exposed parts, but the more severe involvement and intense edema was localized in these areas. It is known that a mild erythema resulting from the sun or other sources can hasten the appearance and, for a time, localize many dermatologic conditions, including such infections as syphilis and smallpox. As an alternative, I offer the suggestion that heliosensitivity created by the drug or some of its chemical reactions with hemoglobin may play a part in this type of toxic reaction. This would help account for the infrequency of this type of toxic manifestation in the numerous cases reported in

the American literature in which sulfanilamide therapy is being employed, because the patients have been predominantly hospitalized. Whether or not this is just a chance observation will be borne out when more cases are reported and studied.

418 Davidson Building

CHRONIC CHOLECYSTITIS VERSUS IRRITABLE COLON

S. ALLEN WILKINSON, M.D.

BOSTON

A problem always confronting the internist and the surgeon is the diagnosis of cholecystitis without stones. The symptoms of noncalculous cholecystitis are by no means clearcut and definite. The classic description portrays a patient, usually female and obese, suffering from epigastric distress, gas, belching, nausea and pain in the upper part of the abdomen. Constipation is a prominent complaint and, if the symptoms enumerated are present, it is rarely absent. Acute pain or colic is a rare complaint and in the vast majority of cases indicates the presence of stones or an acute infection in the gallbladder. Cholecystography is admittedly a great help and in most cases should be the deciding factor, but there is marked variation in the interpretation of cholecystograms. Much significance has been placed on the finding of delayed emptying and poor visualization of the gallbladder. Visualization depends on many variables besides the function of the gallbladder mucosa: the absorption of the dye from the intestinal tract, the function of the liver itself in removing the dye from the blood stream, the entrance of the dye into the gallbladder, the presence of gas or fecal material in the colon and the x-ray technic. It is no wonder, then, that patients who have pronounced digestive complaints and constipation frequently show poor visualization or no visualization of the gallbladder.

The prevalence of chronic cholecystitis has been assumed largely from autopsy reports. Mentzer¹ has reported evidence of chronic cholecystitis in 66 per cent of necropsies. In 8 per cent of his cases the diagnosis was made clinically. This implies that 58 per cent of the people who died at the Mayo Clinic had some degree of gallbladder disease which was causing so little trouble that no such diagnosis was suspected. The question might well be raised as to whether a mild degree of lymphocytic or leukocytic infiltration into the wall of the gallbladder is an actual indication of disease or whether it is merely an expression of the general process of wear and tear incident to living and to the disease which actually causes the death of the patient. Stanton² tried to correlate the pathologic observations after cholecystectomy with the clinical observations and was unable to arrive at any satisfactory basis. He felt that there was a wide discrepancy between the symptoms and the degree of disease as shown by pathologic sections. It seems therefore that one is not logical in accepting a pathologic report of chronic cholecystitis as a satisfactory justification for

From the Gastro-Enterological Department of the Lahey Clinic. Read before the Section on Gastro-Enterology and Proctology at the Eighty-Eighth Annual Session of the American Medical Association, Atlantic City, N. J., June 10, 1937.
¹ Mentzer, S. H. A. Clinical and Pathologic Study of Cholecystitis and Cholelithiasis. *Surg. Gynec. & Obst.* 12: 782-793 (June) 1926.
² Stanton, E. M. The Stoneless Gallbladder. *Am. J. Surg.* 18: 244-250 (Nov.) 1932.

the operation. If this is true in the surgical cases, it is just as true in the nonsurgical cases in which the condition is diagnosed and treated as cholecystitis.

The symptoms of irritable or unstable colon are just as varied as those of cholecystitis. The most common symptoms are epigastric distress, gas, belching, distention, shifting abdominal pain which may be equally in the upper and in the lower part of the abdomen, and constipation or alternating constipation and diarrhea. If there is associated hyperchlorhydria, and often if there is an acidity, the patient complains of sour stomach, gnawing pain in the upper part of the abdomen, nausea and attacks of vomiting. Migraine-like attacks are a common symptom and are almost invariably described by the sufferer as bilious spells with headache, nausea and vomiting of bile.

The fundamental difference between the diagnosis of chronic cholecystitis and that of irritable colon would be of little moment but for the fact that one condition is organic and likely to be treated surgically while the other is a functional disorder amenable to dietary management. It is important to the patient and to the doctor to determine into which group the diagnosis falls. Since there is such a similarity in the two types of complaints, it does not seem proper immediately to classify chronic dyspepsia as gallbladder disease because of a dull ache in the right upper part of the abdomen and a poorly seen gallbladder. Lahey and Jordan³ have shown that 44 per cent of the patients with chronic dyspepsia whose gallbladder cannot be visualized will later show normal filling after an adequate period of bowel management. This 44 per cent can hardly be classified as having gallbladder disease, even though there was originally no visualization of the gallbladder. The patients who show delayed emptying or poor visualization will be even more likely to fall into the functional group.

Greene, Twiss and Carter⁴ described three types of distended gallbladder, which they called atonic, hypertonic and vagotonic gallbladder, in which there are delayed filling or delayed emptying and sometimes crystals in the bile sediment and which they associated with such varied conditions as hypo-acidity, ulcer, duodenitis, pregnancy, neurosis, spastic colon and appendicitis. They stated that failure to correct the stasis is responsible for many of the cases of recurrence of symptoms following cholecystectomy. It is difficult to see how there could be stasis after cholecystectomy, and it is permissible to assume that treatment of the underlying condition would obviate the necessity for a cholecystectomy.

Brown and Dolkart⁵ described the treatment in sixty-five cases of gallbladder disease with ketocholanic acids combined with a bland, high fat diet and antispasmodics. They noted subjective improvement in all but four cases. A bland, high fat diet, with antispasmodics, is a very effective form of treatment for functional disease of the gastro-intestinal tract particularly of the colon, and one wonders how much of the improvement noted was due to correcting faulty dietary habits and restoring normal function of the colon.

Many writers recommend the use of biliary drainage as a therapeutic measure in the treatment of cholecystic disease. I acknowledge with admiration the many

valuable contributions of numerous workers to the diagnosis of disease of the biliary tract by the use of biliary drainage, but I have found dietary care alone adequate to control the nonsurgical cases, while operation is recommended for the more severe cases.

Twiss and Greene,⁶ in describing the dietary and medical treatment of diseases of the gallbladder, pointed out that much of the epigastric fulness and distress, the flatulence and nausea of which the patients complain is due to disturbance of the activity of the stomach, duodenum and bowel. They emphasized the importance of treatment by adequate dietary methods, stressing the necessity of a normal daily movement, of large amounts of hot water and of avoiding fried food, roughage, nuts, spices, raw fruits and salads. Thus they very accurately described the type of dietary regimen which I have found effective in controlling functional digestive disturbances regardless of whether or not the gallbladder is involved. It is just this regimen which so effectively prevents the return of symptoms after operation for chronic cholecystitis.

Many surgeons have called attention to the disappointing results after cholecystectomy when stones were not found at operation. Cattell and Kiefer⁷ showed that in 51 per cent of the cases of noncalculous cholecystitis at the Lahey Clinic the postoperative results had to be classified as poor.

TABLE 1—1032 Consecutive Cholecystectomies

Year	With Stones	Without Stones
1929	117	18
1930	117	16
1931	99	15
1932	106	5
1933	104	7
1934	130	11
1935	118	14
1936	137	13
Totals	933	99

Deaver and Bortz⁸ cited 903 operations for gallbladder disease, of which 50 per cent revealed stones and 48.5 per cent disease of the noncalculous variety. Scott⁹ reported 550 gallbladder operations in which the incidence of stones was 47 per cent. Giles¹⁰ reported 6,953 cholecystograms, with 5.4 per cent showing stones and 2,822, or 41 per cent, showing noncalculous cholecystitis. A review of the cases of gallbladder disease treated in the last eight years by myself and my associates at the Lahey Clinic, as summarized in table 1, is illuminating in this connection.

There were 1,032 patients operated on for gallbladder disease. Of this group, 933, or 90.2 per cent, had stones, and 99, or 9.8 per cent, had no stones. A study of the symptoms and of the end results in the noncalculous group yields some interesting figures. Typical gallbladder colic, with pain radiating to the right scapular region, was present in 19 per cent and jaundice in 12 per cent. These two symptoms are most characteristic of the more severe grades of disease of the gallbladder or biliary ducts, and of the group exhibiting them five were found to have acute, gangrenous cholecystitis, and five had cancer of the gallbladder.

3 Lahey F H and Jordan S M Management of Biliary Tract Disease Am J Surg 11 15 (Jan) 1931
4 Greene C H Twiss J R and Carter R F Biliary Stasis Am J Digest Dis & Nutrition 3 622-624 (Nov) 1936
5 Brown C F G and Dolkart R E Ketocholanic Acids in the Medical Management of Low Grade Gallbladder Disease J A M A 108 458-461 (Feb 6) 1937

6 Twiss J R and Greene C H Dietary and Medical Management of Diseases of the Gallbladder J A M A 101 1841-1847 (Dec 9) 1933
7 Cattell R B and Kiefer E D Failures After Cholecystectomy J A M A 93 1270-1273 (Oct 26) 1929
8 Deaver J B and Bortz E L Gallbladder Disease J A M A 88 619-623 (Feb 26) 1927
9 Scott A C Modern Management of Gallbladder Disease Texas State J Med 30 435-437 (Nov) 1934
10 Giles R G Texas State J Med 30 431-434 (Nov) 1934

A total of 55 per cent of the patients complained of persistent pain in the epigastrium or right upper part of the abdomen without colic or jaundice. Twenty of thirty-one patients who had normal filling of the gallbladder (sometimes after one or more repetitions of the Graham test) had this complaint, and it is in this group that the largest percentage (55) showed a normal gallbladder at operation. In the same group the post-operative end results were poorest, 55 per cent being unimproved.

The symptoms of irritable colon were present in 63 per cent, whereas 31 per cent were found at operation to have some other organic, recognizable cause for the complaint. In many of these cases the correct diagnosis was made or was suspected preoperatively and the operation was chiefly a confirmatory one. In others the true condition was unknown until the abdomen was open. In some of the cases in which the preoperative diagnosis was irritable colon, operation was done only at the urgent insistence of the patient and with adequate warning by the surgeon and internist that no organic disease would be found. In one such case, to our chagrin, we found general carcinomatosis of the abdomen, but the other patients proved to be quite normal.

Cattell and Kiefer⁷ reported in an earlier paper that 90 per cent of the patients with stones showed a good postoperative result. The results in 31 per cent of this group of noncalculous cases must be classified as poor or unimproved, but this percentage includes the cases of organic disease other than chronic cholecystitis. It is of more interest that only 15 per cent of the patients were sufficiently well after operation not to want or require any dietary regimen, while 42 per cent considered the result good provided they followed proper bowel regulations.

TABLE 2—Cholecystectomies in Cases Without Stones, from 1929 to 1936, Inclusive

	Normal Filling	Poor Filling	No Filling	No Cholecystography	Totals
Intravenous dye	28	22	24	16	90
Oral dye	3	1	5		9
	31	23	29	16	99
Colic	5	3	4	7	19
Jaundice	1	3	3	5	12
Persistent pain without colic	20	14	16	5	55
Gas distention, nausea and constipation	22	18	17	6	63
Operative observations	17	10	7	8	42
1 Gallbladder normal	9	5	7	0	21
2 Gallbladder adhesions	5	8	15	8	36
3 Diseased gallbladder					
Results of operation	2	1	5	7	15
1 Good without bowel management	10	14	14	4	42
2 Good with bowel management	17	5	7	2	31
3 Poor or unimproved	1	0	2	1	4
4 Deaths (postoperative)	1	3	1	2	7
5 No follow up					
Duodenal drainages	4	0	1	0	5
1 Normal gallbladder	2	2	0	0	4
2 Infected gallbladder					

If statistics generally report from 30 to 50 per cent of all gallbladder operations as indicating noncalculous cholecystitis, and if necropsy reports show that up to 66 per cent of the population over 40 have noncalculous cholecystitis, what has become of this large group in our cases? Simply this: Careful preoperative study has convinced us that there is no recognizable diagnostic criterion by which these cases can be labeled gallbladder

disease. The symptoms do not justify it, the laboratory data do not confirm it and proper consideration of the roentgenologic evidence indicates a functional rather than an organic process. We recognize that these abnormalities of function are not all strictly attributable to the colon, but so many of the symptoms are referred

TABLE 3—Cholecystectomies in Cases Without Stones, from 1929 to 1936, Inclusive

	Normal Filling	Poor Filling	No Filling	No Cholecystography	Totals
	31	23	29	16	99
Complications other than chronic cholecystitis found at operation					
Acute gangrenous cholecystitis			3	2	5
Carcinoma of gallbladder			5		5
Polyp of gallbladder	1				1
Biliary cirrhosis			2	1	3
Tumor of cystic duct				1	1
Stricture of common duct				1	1
Carcinoma of pancreas	1				1
Chronic pancreatitis	1				1
Carcinoma of jejunum	1				1
Carcinoma of rectosigmoid	1				1
General carcinomatosis		1			1
Splenomegaly		1			1
Acute appendicitis		1		1	2
Diaphragmatic hernia				1	1
Duodenal ulcer			4*		4
Acute pericarditis	1				1
Delirium tremens			1		1
Total					91

* One perforation.

to the colon that we use the diagnosis of irritable colon as a convenient peg on which to hang most of the functional gastro-intestinal disturbances.

SUMMARY

The diagnosis of chronic, noncalculous cholecystitis is indefinite, difficult to make and difficult to justify in the light of poor operative end results.

Of more than 1,000 consecutive gallbladder operations at the Lahey Clinic, 90 per cent were for gallbladder disease with stones and 10 per cent for such disease without stones.

In the noncalculous group, 30 per cent of the patients had some other organic process to account for the symptoms, 42 per cent had normal gallbladders, 42 per cent required dietary care to be comfortable after operation and 31 per cent were unimproved.

In nonsurgical cases we feel that proper study and dietary care will rule out the gallbladder as a cause of symptoms, and instead of chronic cholecystitis, we prefer the simpler term of functional digestive disease or irritable colon.

605 Commonwealth Avenue

ABSTRACT OF DISCUSSION

DR. CARL H. GREENE, New York: Improved diagnostic methods permit the physician to make the diagnosis of cholecystitis early, before the development of advanced pathologic changes. The results of operation in these early cases without stone or acute infection are often disappointing. Dr. Wilkinson has described the clinical manifestation of the dyspepsia that characterizes these patients. Moynihan referred to this symptom group originally as the "inaugural symptoms of gallstones," but it is now accepted that they are indicative neither of the presence of stones nor of infection. Dr. Wilkinson points out that many of these symptoms are functional in origin. My associates and I agree that they are functional in origin, but we believe that the mechanism of their production in many

cases can be explained on the hypothesis of biliary stasis Dr Wilkinson objects to the use of this term Biliary stasis not only serves to explain the mechanism by which many gastro intestinal symptoms are produced but also is applicable to a far wider field than indicated because it explains these functional disorders and also accounts for many of the cases in which postoperative symptoms occur, showing failure of relief by operation I agree that stasis in the gallbladder is hard to conceive after cholecystectomy, but biliary stasis includes not only the gallbladder but also the biliary tract as a whole Once the gallbladder is removed the common duct is more likely to endure the effects of stasis, and in consequence many of the patients complained of an exacerbation and intensification of symptoms after operation because of such stasis in the common duct In many cases the biliary stasis is primarily functional and both it and the irritable colon, which Dr Wilkinson emphasizes, may be manifestations of different phases of the same functional disorder A true colitis may reflexly cause sufficient spasm of the sphincter of Oddi to produce biliary stasis Appendicitis and many other lesions may produce similar reflex disturbances In such cases treatment or removal of the primary lesion, whether in the colon or elsewhere, will break the reflex arc and relieve both the biliary stasis and the patient's symptoms Functional disturbances of the biliary tract are common, for they occur either alone or in association with true organic disease They may be recognized and the causal factors determined by study not only of the biliary tract but also of the patient as an individual Once recognized, they are amenable to appropriate treatment If this is done, the question of nomenclature is perhaps of secondary importance

DR CLARENCE F G BROWN, Chicago I am in agreement with Dr Wilkinson's presentation The widespread use of surgical treatment is largely due to hasty roentgen interpretations and inability to diagnose irritable bowel Lack of progress in medical management makes his dissertation most timely A critical study of the medical and surgical aspects of gallbladder disease does much to clarify some of the controversial points between surgeons and internists as to the choice of treatment for the patient Attempts to differentiate between gallbladder disease and bowel distress are not essential to the decision as to whether the patient should be managed medically or surgically On the basis of our studies, I feel that in instances in which the symptom picture is confusing, i e, patients who have only slight distress resembling gallbladder disease, with no or very rare acute attacks, surgical intervention is contraindicated The patient should first receive the benefit of a management planned to help the colon and stomach outlet as well as the gallbladder The three nearly always are in trouble together Dr Wilkinson as well as Stanton, Howard, T E Brown and others, have shown that such patients do poorly when subjected to operations on the biliary tract Regardless of the presence of stones, a large number of patients can be satisfactorily managed by adequate medical treatment The difficulty appears to lie in the fact that the general conception of the medical management of gallbladder disease, using low fat, low cholesterol diets and magnesium sulfate, is not physiologically sound In 850 consecutive cases seen in the gastro-intestinal clinic of the St Luke's Hospital Outpatient Department, with complaints of upper abdominal distress, the final diagnoses were 28 per cent gallbladder disease, 22 per cent functional nervousness, 19 per cent gastroduodenal ulceration 6 per cent distress from systemic causes, 4 per cent neoplasms and 20 per cent miscellaneous, including reflex intestinal disturbance, such as bowel distress or amebiasis, ulcerative colitis, and so on All these patients were put on routine bowel management before any therapy was started We make no attempt to evaluate any pathologic changes until reflex bowel disturbances can be minimized I agree with Dr Wilkinson that a certain amount of improvement in patients occurs from this alone The remaining clinical picture consequently becomes more obvious for differential diagnosis

DR RUSSELL S BOLES, Philadelphia The noncalculous gallbladder is perplexing enough without having to deal with the equally vexatious problem of the irritable colon When one has to discuss the two at the same time, it is sort of further

confounding confusion, but it seems to me that the crux of this whole matter is the question of differential diagnosis I feel that the diagnosis must be based on an intelligent and experienced interpretation of the symptoms I cannot agree with Dr Wilkinson that cholecystography "should be the deciding factor" in most cases There is no question that cholecystography, if properly interpreted by experienced observers, is accurate from a diagnostic standpoint, but it must be remembered that x-ray cholecystitis is not necessarily clinical cholecystitis I am afraid that many unsatisfactory operations on the gallbladder have been performed throughout the country as the result of a diagnosis based particularly on the cholecystographic examination The x-ray appearances must be consistent with the history and clinical signs Operation should not be considered in view of a positive roentgenologic diagnosis unless it is accompanied with very definite clinical indications that one is dealing with a case of cholecystitis, preferably with stones What are the indications for operation? Certainly not indigestion The more vague the symptoms, the more uncertain one is that the entire symptomatology is due to the gallbladder, the more certain is the failure from operation No one will question that definite, well defined biliary colic, especially if repeated, is an absolute indication for operation, this and jaundice, especially following an attack of well defined colic, jaundice proved to be due to obstruction by stones, regardless of colic, are the safest indications for operation The presence of stones, relatively without symptoms, does not necessarily indicate to me the necessity of operation In many cases I look on such stones as sleeping dogs I believe in letting them lie I have never seen a great deal of grief come from letting a sleeping dog lie, whether it be a gallstone or anything else In view of the ill defined picture of chronic cholecystitis and the equally uncertain problems presented by the irritable colon, I strongly endorse Dr Wilkinson's management of these cases Unnecessary operation will be prevented and a distressing post-operative morbidity should thereby be reduced

DR RUDOLF SCHINDLER, Chicago I should like to ask Dr Wilkinson whether he was able to carry out gastroscopy in some of his patients I realize, of course, that psychic factors play a tremendous role in gallbladder disease I contended, myself, as long as ten years ago, that often cholecystitis starts with psychogenic spasms of the muscle sphincter of Oddi, however, chronic gastritis may be primary or secondary to chronic cholangitis It may or may not heal by cholecystectomy The gastric symptoms usually are due to the condition of the stomach They may be due also to organic changes of the intestine, and, finally, they may be due to psychoneurosis alone The diagnostic position of the intestine is much worse than that of the esophagus, gallbladder, rectum and now also the stomach, but it should not be forgotten to what extent the diagnosis of gastric neurosis has had to be given up in favor of some organic disease, especially chronic gastritis, in the last few years, therefore an expression such as "irritable colon" should be used very cautiously, and it should be based only on the direct evidence of the psychogenic origin of the distress in the respective case

DR SIDNEY A PORTIS, Chicago Since the advent of cholecystography there has been much more gallbladder surgery than previously Dr Wilkinson has said that many a patient with a so-called nonvisualization of the gallbladder has at operation a relatively normal gallbladder That is probably true However, has one the right to subject patients to surgical operation just because nonvisualization exists? May this phenomenon not accrue from faulty technic? One of the most important reasons for nonvisualization, other, of course, than an unsuitable dye preparation, is that many patients are told to eat any type of food previous to the ingestion of dye It is to be remembered that the sphincter of Oddi may remain patent for at least six to eight hours after the ingestion of fats Therefore this dye may run right through and cause a nonvisualization of the gallbladder Secondly, I cannot agree with what Dr Boles has said regarding the question of gallstones I can see no reason to treat patients with gallstones medically except when a contraindication for surgery exists If we are to believe that 95

per cent of all carcinomas of the gallbladder are associated with stones and that 5 per cent of all gallbladders with stones become carcinomatous, we may be putting an approximately 5 per cent mortality on every patient with gallstones, for once a carcinoma has developed in the gallbladder, it is more or less a hopeless picture. In the hands of a good surgeon the mortality for operative intervention for all types of gallbladder disease is usually less than 1 per cent. Therefore it is probably better to let the patient with gallstones have surgery at the outset, provided no contraindication exists. Furthermore, patients with gallstones may have a superimposed suppurative cholecystitis on a quiescent gallbladder and one is adding to that a mortality and a morbidity which should not exist. I have seen too many patients get into trouble with gallstones because their physician procrastinated too long, and I wish to emphasize again that I prefer surgery if not contraindicated in all cases of gallbladder disease with gallstones.

DR B B VINCENT LYON, Philadelphia. I am glad that Dr Wilkinson reopened this timely topic. I am glad to see that the Lahey Clinic has presented its figures. Of the ninety-nine noncalculous cases on cholecystography there were fifty-four in the group that showed nonvisualization or poor visualization. At the operating table 42 per cent of that group were found to be normal gallbladders. This brings back the question as to diagnosis. Diagnosis depends first on history, second on physical examination, third on cholecystography. Biliary drainage and laboratory maneuvers each have their place. I dare say that, of these 42 per cent normal gallbladders that were nonvisualized or poorly visualized, a considerable majority had cystic duct catarrhal obstruction, which is readily diagnosable by duodenal tube drainage. Let us agree that the calculous patient should be operated on and that the chronic gallbladder bound down in adhesions or with other definite pathologic considerations should be removed. Beyond that there is a large borderline group which today can be considered medical gallbladders and can be adequately treated. In the treatment of those cases there are three things—I approve of the Lahey Clinic attitude with regard to dietetics, but dietetics alone is not adequate if one is going to reduce that 31 per cent of postoperative morbidities. In addition to that there must be drugs: antispasmodics, sedatives and cholagogues, there must also be drainage to keep control of the adverse results of biliary microscopy, thus frequently checking on the progress of the case: repeated cholecystography, eventually coming back to a normal gallbladder. Now then hooked up with the chronic irritable colon why shouldn't one expect to have postoperative morbidity when one disturbs the physiologic function of Oddi's sphincter, permitting bile to be constantly discharged into the duodenum, nature's laxative bile. One has to expect this as many of us who have been cholecystectomized have found out. In the nonsurgical group one has to use a fat-full diet and exercise the gallbladder to contract. It may hurt in the early days, possibly for ten days but as a result the gallbladder exercises and begins to drain. Thus the only hope of saving that gallbladder is to establish free drainage by diet drugs and the duodenal tube.

DR MANFRED KRAEMER, Newark, N. J. I hesitate to speak of my small number of cases in the light of the many cases presented by Dr Wilkinson. However, in studies made at the gastro intestinal clinic at the Presbyterian Hospital and in private practice in Newark it has been concluded that there is something radically wrong with the medical treatment of cholecystitis because this treatment causes an irritable colon. I have made careful laxative studies on all my patients and am surprised to find that in the treatment of cholecystitis 90 per cent of the patients are receiving laxatives of one kind or another. If irritable colons in patients with cholecystitis are to be prevented the medical method of treatment must be changed. I think the first axiom in the treatment of gallbladder disease is to withdraw all laxatives: bran liquid petrolatum and other bowel irritants.

DR ANTHONY BASSLER, New York. The gallbladder question seems to be swinging from surgery into medicine the reverse of what happened with ulcer not long ago. Many

diverse points have been expressed here. They answer the question that not enough is known, and I rather hesitatingly rise to give the most diverse idea so far advanced. I believe, predicated on a study of a hundred cases of chronic cholecystitis without stones, and carefully checked, that while relief of symptoms is easy by a number of methods and patients are perfectly satisfied, I agree with the statements of Green, Carter and Twiss. With careful checking and metabolic studies, one would be surprised to see what a small percentage of those patients are really well. On the other hand, on the basis of a hundred cases of chronic gallbladder disease handled as an intestinal condition which has a catabolic effect on the hepatobiliary apparatus and generally throughout the body, it has been possible to raise the percentage of sustained benefits, as checked by blood chemistry and in other ways, from about 8 to 61 per cent. I now feel (and it would take an hour to tell the story) that it is worth while to begin to think that gallbladder disturbance is not an entity of itself alone, that it is essentially due to a toxic condition in the upper levels of the small intestine from an anaerobic infection in the region of the ileocecal valve, and a parasitizing of the bacteria in upper levels of the small intestine. Handling it entirely as an intestinal question, apart from the gallbladder, one can accomplish far better and sustained results from medical treatment. I can say definitely that this intestinal condition may present a hepatobiliary syndrome and what is called gallbladder disturbance, it may, however, also present an almost totally neurologic syndrome or an enteric syndrome, and in those who have presented these nonbiliary syndromes the condition of the gallbladder has been checked and it is most interesting to find that the incidence of gallbladder disease was 35 per cent. Gallbladder disturbance is intestinal in origin with catabolic results, which catabolic results further act unfavorably on the hepatobiliary system and should be treated as such.

DR SAMUEL FRIEDMAN, New York. The question of the diagnosis of the borderline cases of chronic cholecystitis and chronic colitis is one of the most puzzling of all the chronic ailments that come to the attention of the internist. They require most careful deliberation in arriving at a diagnosis and in determining whether the case is to be treated conservatively or surgically. I should like to stress one point in this connection. Often the internist is confronted with a patient, after middle age, particularly the stout female, who has a coronary sclerosis as well as a chronic cholecystitis. It must be particularly kept in mind that such a patient will often refer her pains of angina pectoris from a coronary spasm or not very rarely from a mild or even severe coronary thrombosis to her epigastrium or gallbladder area, so that even the best clinicians may be misled and overlook the true condition of angina and advise operation. A gallbladder attack may precipitate an attack of angina in which case one becomes even more puzzled. Here, the most delicate weighing of symptoms and clinical signs is most essential. I have seen such cases of angina mistaken for cholelithiasis and operation urged often enough so as not to forget them. Therefore, in dealing with a stout patient, particularly a woman past 50, unless the diagnosis of purely a cholecystitis or calculus is definite, one must think of the possibility of dealing with angina pectoris or coronary thrombosis alone or in conjunction with a gallbladder condition, one having been precipitated by the other.

DR SAMUEL ALLEN WILKINSON, Boston. Since it is impossible to answer adequately all the questions raised, I shall only stress one or two things, in order to clarify them. Unless we are fully convinced that we are dealing with a definitely diseased gallbladder my associates and I make every effort to keep that gallbladder away from the surgeon and treat the case medically. In cases in which gallbladder disease is sufficiently severe to warrant surgical intervention, medical treatment after the operation is of paramount importance. If this postoperative medical treatment is neglected many of these patients will do poorly. Cases in which adequate postoperative dietary treatment is given with due regard to antispasmodics and to regulation of bowel activity, will be the cases that give the best results, whether or not gallstones were found at operation.

PERICARDITIS

ARTHUR M. SHIPLEY, M.D.
BALTIMORE

It seems best to limit this discussion to the various types of pericarditis, especially as there is little agreement in belief and practice and it is apparent that many cases of this condition, in its different phases, are still overlooked.

It is striking that operations for pericarditis are reported from only a relatively small number of clinics. Cooperation between the different services is urgently needed. Much has been accomplished in other clinical fields, such as disturbances of the thyroid gland, diabetes, tuberculosis, peripheral vascular disease, tumor of the lung and many other disease conditions in which the internist and the surgeon are equally interested. The patients with cardiac disease that may come within the scope of surgery should be studied by the internist, roentgenologist and surgeon working in unison. In the clinics from which progress is reported this cooperation is evident.

In coronary thrombosis, pericarditis with effusion is sometimes present. It may be confined to the area of infarction, and the amount of effusion is usually small. Occasionally, however, the quantity of fluid present is considerable and may cause uncertainty as to diagnosis, especially if thrombosis and infarction with effusion occur during the course of some infectious process, such as pneumonia, furunculosis, osteomyelitis or peripheral infections seen during the course of uncontrolled diabetes.

A 39 year old white man was admitted Aug. 31, 1936, to the Baltimore City Hospitals, in the service of Dr. Thomas R. Boggs. He had entered another hospital in June because of intense anterior pain in the chest, bloody sputum, dyspnea and orthopnea. The onset was sudden, and after three weeks he was discharged. In the interval before admission to the Baltimore City Hospitals his symptoms gradually returned, with anasarca, enlargement of the liver and ascites. On admission there were engorgement of veins in the neck and dusky cyanosis. Respirations were hurried, and there was generalized subcutaneous anasarca. No pulsations were visible in the precordium, the heart sounds were distant, there was no murmur, there was a constant protodiastolic gallop rhythm, and the pulse was small in volume and definitely paradoxical. The liver was felt 3 fingerbreadths below the costal margin and a fluid wave was demonstrated.

The vital capacity was 2,100 cc. A roentgenogram of the chest showed that the heart was enlarged to the right and the left and the aorta normal. The lungs were clear. Pulsations of the heart were not clearly defined. The venous pressure in the right arm was 290 mm. of water. The impression was of either myocardial infarction or limitation of myocardial activity due to pericardial effusion or constricting myocarditis. The patient became more edematous in spite of intensive cardiac therapy. The blood pressure dropped from 140 systolic and 120 diastolic on admission to 110 and 90. The venous pressure remained around 300 mm. of water.

This patient was seen in consultation by the surgical service and exploration of the pericardium decided on which was done with tribromethanol anesthesia aided by local infiltration with procaine hydrochloride. The pericardium contained 300 cc. of serosanguineous fluid. The postoperative course was steadily downhill, and death occurred in profound cardiac failure.

At autopsy, complete occlusion of the anterior descending coronary and extreme narrowing and almost complete occlusion

of the right coronary were observed. There was a large infarct in the left ventricle involving the entire anterior wall and a portion of the interventricular septum.

Suppurative pericarditis has been well covered in the literature in recent years. Bigger¹ has reported eight cases and I² have reported thirteen, which indicates that the disease is not rare. The latter statement is supported by autopsy records, which show a considerable number of overlooked cases. There are two chief avenues of approach for drainage, the anterior and the posterolateral. In early cases some one of a number of anterior operations may be done: transsternal, right or left parasternal, chondrophoid or a combination of transsternal and left parasternal. These anterior approaches should be as low as possible. In late cases with a large effusion, anterior drainage may not be effective, and Truesdale,³ Heuer,⁴ Loucks,⁵ Moore⁶ and Cottam⁷ have reported a posterolateral approach, as far as the pericardium is concerned, by resection of the seventh rib near the midaxillary line. In all the cases reported the pericardium was adherent to the pleura and pericardiectomy was possible without producing pyopneumothorax. Ballance,⁸ in his Bradshaw lecture, discussed this problem.

Tamponade of the heart is associated with pericarditis with effusion, whether purulent or serous, and with constricting pericarditis, and because other conditions produce tamponade, all possible causes of compression are of interest. Tumor of the heart and pericardium, while rare, may cause serious compression of the heart, either because of the presence of the tumor itself or because of the effusion.

After compression of the chest, with injury to the heart, there may be early or late hemorrhage into the pericardial sac, especially if there is laceration of the heart muscle or later rupture of a surgical aneurysm of the cardiac wall.

Tamponade is frequently overlooked in spite of the increased reference to it in the literature. It may be acute or chronic and is a symptom of a wide variety of cardiac conditions and shows its presence in a number of ways. It is most dramatic and acute in hemo-pericardium, especially if there is a penetrating wound into one of the cavities of the heart, and, because the left ventricle has the highest pressure, a wound of this chamber produces rapid tamponade. In suppurative pericarditis the symptoms of tamponade may be secondary in importance to those of infection and in slowly

1 Bigger I A. Suppurative Pericarditis. Report of Eight Cases Treated Surgically. *South M J* 30: 164-171 (Feb.) 1937.

2 Shipley Arthur M. Surgery of the Heart and Pericardium. In *Cyclopedia of Medicine*. Philadelphia: F. A. Davis Company, 1934. 1935. pp. 498-512. Shipley Arthur M. and Horne Cyrus F. in *Oxford Loose Leaf Surgery* 1: 1239, part 3. Shipley Arthur M. Chronic Adhesive Pericarditis. *Surg. Gynec. & Obst.* 56: 961-962 (May) 1933. Shipley Arthur M. and Horne Cyrus F. Experimental Pericarditis. *Arch. Surg.* 18: 386-402 (Jan.) 1929. Shipley Arthur M. and Winslow Nathan. Purulent Pericarditis. Report of Five Cases in Which Treatment Was by Pericardiectomy and Review of the Literature from April 30, 1927, to Jan. 1, 1934. *ibid.* 31: 375-394 (Sept.) 1935. Shipley Arthur M. The Operative Approach to the Heart and Pericardium. *Surg. Gynec. & Obst.* 50: 280-289 (Feb. 15) 1932. Suppurative Pericarditis. Late Results and Methods of Drainage. *Ann. Surg.* 103: 698-705 (May) 1936.

3 Truesdale P. E. Low Pericardiectomy for Acute Suppurative Pericarditis. *New England J. Med.* 208: 671 (March 30) 1933. Two cases.

4 Heuer G. J. cited by Loucks H. H. Suppurative Pericarditis. *p. 859*. Heyl James Harry. Acute Suppurative Pericarditis. *Ann. Surg.* 104: 365-372 (Sept.) 1936.

5 Loucks H. H. Suppurative Pericarditis. *Arch. Surg.* 18: 852 (March) 1929.

6 Moore Richmond L. Posterior Drainage in Suppurative Pericarditis. *Arch. Surg.* 102: 980 (Dec.) 1935.

7 Cottam Gilbert. Suppurative Pericarditis. Description of a Case in Which Drainage Was Made Through New Approach. *West. J. Surg.* 41: 87 (Feb.) 1933.

8 Ballance C. A. The Bradshaw Lecture on the Surgery of the Heart. New York: Macmillan Company, 1920.

forming serous effusion large quantities of fluid may be present in the pericardium with no outstanding symptoms of compression of the heart

The time during which the effusion is accumulating determines the amount of fluid present before symptoms of tamponade show themselves. In rapid bleeding the heart is seriously embarrassed when from 200 to 250 cc of blood is present, while in slowly forming serous effusion from 1 to 2 liters of fluid or more has been reported.

The amount of pus present has not been the most important consideration in a number of my cases. The rapidity of the accumulation and the kind of infection, plus associated infectious processes, have been more important than the actual amount of pus found in the pericardium at operation.

Dinsmore reported a case of tamponade due to bleeding into the superior part of the mediastinum after removal of a large substernal adenoma of the thyroid and a mediastinal hematoma following trauma. Post-operative exudate following intrathoracic operations may seriously compress the heart. Pneumopericardium may cause compression. Mediastinal tumor and aneurysm are extrapericardial causes of tamponade. In one instance I did a wide resection of the anterior wall of the chest in a patient with a large aneurysm of the innominate artery, with dramatic relief of the symptoms caused by cardiac crowding.

In the rare instances of rapidly developing mediastinal emphysema it is sometimes difficult to say whether tamponade of the heart or asphyxia causes death. Constricting pericarditis as a cause of tamponade will be discussed under that heading.

The symptoms of tamponade vary somewhat, depending on whether the condition is acute or chronic. In cases of acute tamponade the diagnosis must be made quickly, while with chronic tamponade every diagnostic aid may be used. The outstanding symptoms of tamponade are high venous and low arterial pressure with a paradoxical pulse and heart sounds that are suppressed. If the tamponade is acute and developing rapidly, there will be also anoxemia of the central nervous system, going on to unconsciousness, if chronic, there will be congestion and enlargement of the liver with ascites and anasarca.

There will be the physical signs of an enlarged cardiac-pericardial shadow, with the base of the triangle caudate, and x-ray examination will show this enlargement and alteration in shadow, as well as a relative absence of pulsations along the margins of the shadow. Griswold,⁹ in reporting a case of constricting pericarditis with operation and recovery, referred to the use of the roentgenkymograph as described by Johnson¹⁰ and reported that it gave "gratifying and irrefutable evidence of the reduced amplitude of cardiac pulsation and the throttling effect of the disease on the heart." The angle made by the shadow of the heart and the right diaphragm is often absent. If the fluid is free, most of it is found dorsal and lateral to the heart, and the apex is usually close up against the anterior layer of pericardium.

The heart sounds are muffled and appear distant, not because the heart is pushed away from the listening ear but because compression is interfering with their quality. In acute tamponade the sounds may almost

disappear as compression interferes more and more with diastole and systole, while in chronic tamponade the heart is aptly spoken of as being "small and quiet."

The heart is both free and attached. The two layers of the pericardium give it a range of motion, within definite limits, that allows a remarkable freedom from consciousness of its movements, especially when one considers the force with which the heart works and its nearness to the surface of the body. On the other hand, the heart is closely attached to a number of structures. It is fixed to the diaphragm at the quadrate opening, where the two layers of the pericardium are fused to the diaphragm in order to allow the inferior vena cava an unimpeded access to the right auricle. It is attached to both lungs by means of the pulmonary artery and veins. It must be remembered that the lungs, and diaphragm are movable structures. Fortunately for the heart, they move in unison. The heart is firmly fixed to another structure, with which it is continuous—the aorta—and the aorta moves very little. The two layers of the pericardium are continuous on the walls of the great vessels at about 7 cm cephalad to the base of the heart, and therefore the outer layer of the pericardium has little part in fixing the heart in health. However, adhesions between the two layers of the pericardium inject a real anatomic and functional problem into the picture, and around this fact a great deal of controversy has developed, while constriction of the heart by the merged epicardium and pericardium causes *concretio cordis*.

Perhaps physicians and surgeons have been paying too much attention to the anatomic departures from the normal and assuming that such departures must of necessity interfere with the function of the heart. This is especially true in two instances, in cardiac displacement and in chronic adhesions between the layers of the pericardium without constriction and without mediastinopericarditis. In both of these conditions there may be little disturbance of cardiac function.

Anatomically, chronic adhesive pericarditis may be divided into four types.

There may be adhesions between the two layers of the pericardium, without constriction and without fixation of the outer layer. Usually such adhesions are not productive of cardiac disability and may be of value to the heart in establishing a new vascular bed in cases of coronary occlusion. This type of adhesion may follow drainage of the pericardial sac for pyopericardium, and there is ample clinical evidence that the heart may have its function very little disturbed.

Another type of pericardial adhesion without serious cardiac disturbance is seen in pulmonary tuberculosis with adhesive pleuritis, the adhesions fastening the pleura or diaphragm to the outer layer of the pericardium. Such adhesions explain many of the displacements of the heart seen in fibroid phthisis. The heart may be smaller than normal, because of long periods of rest in bed.

Chronic constrictive pericarditis has become established as a separate and distinct entity and is slowly becoming recognized as a disease calling for surgical treatment. There is considerable confusion as to etiology, especially as to its possible relationship to rheumatic fever and tuberculosis. Because the condition is a chronic one, cultures have given little information. Even examinations of tissue have not been very helpful. There are a number of reports of tubercles being present in acute and subacute cases, but in the chronic

⁹ Griswold R. A. Chronic Cardiac Compression Due to Constricting Pericarditis. *J. M. A.* 106 1034-1037 (March 28) 1936.
¹⁰ Johnson S. E. The Roentgenkymograph as a New Aid in the Diagnosis of Adhesive Pericarditis. *Surg. Gynec. & Obst.* 61 169 (Aug.) 1935.

cases, although fibrosis is constant and calcareous deposition in the pericardium often present, tubercles are rarely seen

Cushing and Feil¹¹ reported that "microscopic examination of the resected pericardium in all instances showed the parietal and visceral layers to be fused and indistinguishable, with densely fibrous and hyalinized tissue, which was poorly vascularized. Occasional small collections of lymphocytes were observed. Some of the cases showed focal areas of calcification. There were no changes that could be construed as characteristic of rheumatic or tuberculous infection."

It is striking that in many cases of constricting pericarditis there are no previous history of rheumatic fever, little evidence of tuberculous pleuritis at the time of operation and no history of previous attacks of chronic pyogenic infection elsewhere in the body. In one case in Churchill's¹² series tuberculosis of the abdominal cavity resulted from the injection of pieces of pericardium, removed at operation, into the pericardial cavity of a monkey.

Blalock¹³ said that tuberculosis has an important role in the etiology of constricting pericarditis. In eleven of twenty-one cases of this condition tuberculosis was proved to be present, and it was strongly suspected in five. He performed pericardiectomy on six patients with tuberculous constricting pericarditis, with three recoveries and three deaths.

The incidence of tuberculous pericarditis is interesting. In different reports from autopsy records it varies from 0.7 to 1.1 per cent. In Bellet's exhibit at this annual session one is struck by the high percentage of enlarged cardiac-pericardial shadows in the roentgenograms.

Perhaps tuberculous pericarditis will come to be classified in three groups: first, acute, in which effusion predominates; second, subacute, in which adhesions and thickening are outstanding; and, third, chronic, in which fibrosis and constriction are present.

There is little evidence that previous drainage of the pericardial sac causes constrictive pericarditis. However, Darrach¹⁴ reported one such case, and a number of late deaths have been reported in the literature, with adhesive pericarditis given as the cause. Whether the cause of death is mediastinopericarditis, with cardiac hypertrophy and dilatation, or constrictive pericarditis is, in most instances, not clearly stated. I have follow-up records of six of seven patients who recovered after pericardiectomy for pyopericardium, and in all six there is no evidence of cardiac disability.

Beck and his associates¹⁵ have done a great deal of experimental work, and their experience has convinced them that adhesions between the layers of the pericardium are not disabling unless constriction is present. Churchill¹² has written two excellent papers on this subject. In the first he reported thirty-seven cases collected from the literature and in the second ten cases in which he operated, with seven cures, two improvements and one death.

Heuer¹⁶ stated that he has operated on six patients by the left parasternal approach. In five cases the operation was completed and the improvement in the condition of the patient dramatic. In one case the operation was not completed. There was no death.

Beck¹⁷ has emphasized a triad of symptoms present in constrictive pericarditis: (1) high venous pressure and low arterial pressure, (2) enlarged liver with ascites and (3) a small, quiet heart.

Churchill¹² advised strongly against operating on patients with acute tuberculous pericarditis, even when the symptoms of compression are present. He stated that repeated aspiration may offer some hope of survival until the chronic stage is reached, when pericardiectomy may be done. Graham,¹⁸ Bigger,¹ Blalock¹³ and Piersol and his associates¹⁹ have reported on this condition, while Schmeiden²⁰ and others in Europe have contributed valuable papers. Trout,²¹ in reporting a case, gave an excellent review of the literature, and Bigger¹ has reported two cases. Beck and Cushing²² and Cushing and Feil¹¹ reported eleven cases in which Beck operated for this condition.

The variation in the method of approach has been wide. Schmeiden²⁰ practiced an intercostal incision in order to reach the left side of the heart, while others have done some variation of the Duval-Barast²³ procedure (median sternotomy). A third approach has been used by recent operators: a long curved incision through the soft parts extending from the second to the sixth rib and running roughly parallel with the left margin of the sternum. After the flap of soft tissue is turned out, the ribs, cartilages, periosteum and left margin of the sternum are removed. This procedure exposes a large area of the anterior layer of the pericardium and gives sufficient exposure for performing a wide decortication of the heart.

There is considerable difference of opinion as to the effect of atmospheric pressure on the exposed heart and great vessels. Most operators disregard this factor, but all take care to have at hand the means of differential pressure anesthesia in order to control collapse of the lung, if the pleura is opened, which usually happens. Churchill reported opening four serous cavities in the same patient, the pericardium, both pleurae and the peritoneum.

By removing the anterior wall of the chest over the heart the advantages aimed at in cardiomyolysis are obtained, and for this reason wide resection of the left side of the sternum and the left cartilages and ribs is gradually replacing the bony flap operations, the Spangaro approach, the long intercostal incision and median sternotomy. The wound should be closed snugly, layer by layer and made air tight and every precaution taken against infection. Drainage should be avoided if possible.

Some operators believe that mishaps are apt to be caused by increased atmospheric pressure with decreased cardiac output, while others think the weakened cardiac walls are overdilated by the increased

11 Cushing E H and Feil H S. Chronic Constrictive Pericarditis. Electrocardiographic and Clinical Studies. *Am J M Sc* 102: 327 (Sept.) 1936.

12 Churchill Edward D. Decortication of the Heart for Adhesive Pericarditis. *Arch Surg* 19: 1457 (Dec) 1929. Pericardial Resection in Chronic Constrictive Pericarditis. *Ann Surg* 104: 516-529 (Oct) 1936.

13 Blalock Alfred. Exposure of the Heart to Atmospheric Pressure. *Arch Surg* 26: 516-521 (March) 1933. personal communication to the author.

14 Darrach William. In discussion on Poole E H. *Ann Surg* 73: 393 (April) 1921.

15 Beck Claude S and Griswold R A. Pericardiectomy in the Treatment of the Pick Syndrome. *Arch Surg* 21: 1064-1111 (Dec) 1930.

16 Heuer G J. Personal communication to the author.

17 Beck Claude S. Two Cardiac Compression Triads. *J A M A* 104: 714-716 (March 2) 1935.

18 Graham Evarts A. Decompression of the Heart. *Ann Surg* 90: 817 (Nov) 1929.

19 Piersol Morris H, Griffith George C, O'Hara Floyd J and Lee Walter Estell. The Operation of Cardiomyolysis in Adhesive Pericarditis with Pick's Syndrome. *Ann Surg* 99: 152-166 (Jan) 1934.

20 Schmeiden V. The Technic of Cardiomyolysis. *Surg Gynec & Obst* 45: 89 (July) 1926.

21 Trout Hugh H. The Release of Pericardial Adhesions. *Arch Surg* 23: 966-995 (Dec) 1931.

22 Beck Claude S and Cushing E H. Circulatory Stasis of Intra pericardial Origin. *J A M A* 102: 1543 (May 12) 1934.

23 Duval P, Barast H and Barast P. De la pericardiectomie thoraco-abdominale. *Presse med* 26: 437-1918.

amount of venous blood reaching the heart when constriction is removed Churchill operates with the patient in a sitting posture and may leave a pleural cavity open if the patient is breathing well. On the other hand, too rapid a fall of venous pressure because of hemorrhage, shock or anesthesia is to be avoided.

Another type of adhesive pericarditis is mediastinopericarditis and is associated with the name of Brauer.²⁴ There is a tendency to disregard this condition or to confuse it with constricting pericarditis. The two conditions may exist in the same patient, and when they do constriction is more important, but there is a considerable number of well authenticated cases of adhesive pericarditis without constriction, in which the heart is seriously handicapped and sooner or later suffers damage. In such cases the two layers of the pericardium are adherent but without constriction, and the outer layer of the pericardium is likewise adherent to the diaphragm and the wall of the chest. This condition does not often follow pericardiotomy for pyopericardium, although one would expect it to because, in the operation for drainage of pus from the pericardium, little attempt is usually made to marsupialize the pericardium and pus is bound to bathe the entire free portion of the pericardium. In mediastinopericarditis, heart, pericardium, wall of the chest and diaphragm are all bound together, and during systole the heart contracts against a pull that is unyielding as far as the wall of the chest is concerned, and both the heart and the diaphragm are hampered in their movements. Graham²⁵ quoted Wenckebach²⁶ as follows:

The crura of the diaphragm will try to pull the diaphragm downward, the diaphragm is fixed to the heart, the heart is fastened to the chest wall in front and to the surrounding mediastinal parts behind. The heart is, therefore, unable to follow the diaphragm and the diaphragm is hampered in its descent. As a result it is noted that (1) the descent of the diaphragm is insignificant, (2) during inspiration the crura pull at the heart and via the heart at the chest wall, at the roots of the lung and the posterior mediastinum, (3) the heart and large vessels being fixed to their surroundings inspiration produces a worse condition than expiration, and (4) respiration becomes very defective in all its factors.

The symptoms will vary, depending on the extent and denseness of the adhesions and on the time factor. If the function of the heart is disturbed, myocardial changes gradually take place and the heart may become enlarged and finally undergo degeneration.

The adhesive nature of the malady may be evident in retraction of intercostal spaces during systole. In 1928 Smith and Liggett²⁷ reported 107 operations for this condition, collected from the literature. The operative treatment is the cardiomyolysis of Brauer, which consists of removing enough of the bony wall of the chest over the heart to liberate the heart and lessen the tug on the diaphragm, the mediastinal tissues and the lungs. The operation in itself is not difficult. The patient may be a bad risk and the choice of anesthetic difficult. Postoperative complications are dangerous, and great care should be taken in the diagnosis, preparation of the patient and after-care. The condition should not be confused with constricting pericarditis. The operation is undertaken to free the adherent pericardium from the overlying cartilaginous and bony wall of the chest. It

may be necessary to remove a portion of the sternum, but the sternum should not be cut across. It is an extra pericardial operation throughout. In most instances the operation is confined to resection of the cartilage and anterior ends of the left fourth, fifth and sixth ribs, together with a portion of the sternum.

In a number of recent reports emphasis is laid on myocardial changes with hypertrophy in patients with this condition who had a history of rheumatic fever. Many of these patients at autopsy showed chronic endocarditis, valvular disease or disease of the cardiac wall. It is therefore possible that the enlargement and impairment of the heart are caused by rheumatic fever, valvular disease or hypertension, rather than by mediastinopericarditis. It is most important to keep the whole range of possibilities in mind and not to undertake operation unless the indications are clear, especially as the causative agents and pathologic changes are not, as yet, definitely outlined.

CONCLUSIONS

- 1 Pericarditis in all its phases is more common than is generally supposed.
- 2 In many instances the disease is a combined medical and surgical problem.
- 3 Tamponade of the heart is its most important symptom, but tamponade is caused by many extrapericardial conditions.
- 4 Constrictive pericarditis merits more thought and action than are now given to it.
- 5 The etiology of the condition needs more study.
- 6 The operative results of pericardiectomy for constricting pericarditis warrant a much wider use of this therapeutic agent.
- 7 The operative approach in pericardiectomy is being standardized and simplified.
- 8 In removing the constricting and often adherent pericardium, many surgeons no longer attempt to uncover the atria.
- 9 The relationship between mediastinopericarditis and impairment of cardiac function needs to be more clearly defined.

ABSTRACT OF DISCUSSION

DR CLAUDE S. BECK, Cleveland. Dr Shipley's paper contains a great deal of information that is important in the way of diagnosis. It will bring patients to receive proper surgical treatment. He described the compression syndromes of the heart. Many different anatomic lesions produce chronic compression of the heart, and one should bear in mind the clinical picture that is always found. The clinical picture of chronic compression of the heart consists of a high venous pressure taken at the elbow, ascites and, again, a small, quiet heart. This triad of signs is diagnostic of the chronically compressed heart. I do not believe that either of these triads can be wrong. I think that these clinical pictures produced by compression of the heart ought to be recognized, and after they are recognized the next step is to make an anatomic diagnosis of the lesion producing the compression, whether the lesion is pus or blood, scar tissue or neoplasm. It is only by approaching the subject in this way that proper, logical treatment to the patient's condition can be given. I am against the use of terms like "constrictive pericarditis" or "adhesive pericarditis," or "Pick's disease," or "Concato's disease." All these terms are misleading and should not be used. I should also like to emphasize that adhesions play no part in the production of compression of the heart. I have had the experience of operating on twenty-seven patients with compression of the heart. Twenty of these had chronic compression of the heart due to pericardial scar. One had a low grade chronic compression of the heart due to a localized collection of tuberculous pus lying over the right auricle. Six of them had acute compression of the heart due to the rapid formation of pus in the pericardial cavity.

²⁴ Brauer, Ludolf. Ueber Chronische Adhäsive Mediastino-Perikarditis und deren Behandlung. München med. Wchnschr. 44: 1072, 1902.
²⁵ Graham, Evaris A., Singer, J. J. and Ballon, Harry C. Surgical Diseases of the Chest. Philadelphia: Lea & Febiger, 1933.
²⁶ Wenckebach, K. F. Some Points in the Pathology and Treatment of Adherent Pericardium. Brit. M. J. 1: 63 (Jan. 12), 1907.
²⁷ Smith, E. S. and Liggett, H. S. Cardiomyolysis for Chronic Mediastinal Pericarditis. Proc. Internat. Assemb. Inter-State Post Grad. M. A. North America (1923) pp. 489-502, 1929.

DR ISAAC ALEXANDER BIGGER, Richmond, Va Cardiac compression characterizes those conditions involving the heart and the pericardium which are most amenable to surgical treatment. Acute compression of the heart is shown most dramatically in cases of hemorrhage into the pericardial cavity as a result of cardiac injury. The signs and symptoms develop rapidly and are quite characteristic, especially the signs. Compression of the heart sometimes develops rapidly in acute suppurative pericarditis, occasionally producing marked signs and symptoms within twenty-four hours, but the increase in pressure is rarely sufficient to produce a clinical picture simulating shock, as in intrapericardial hemorrhage. However, at times there is a considerable fall in the systolic blood pressure and a rise in the venous pressure. Chronic cardiac compression is usually caused by the constricting type of adhesive pericarditis, which, developing insidiously, gives a clinical picture in which the blood pressure changes are less prominent and liver enlargement and ascites more prominent. I wish especially to emphasize the importance of cardiac compression in acute suppurative pericarditis. The diagnosis is not made in a large percentage because the characteristic signs are not recognized. The symptoms are not especially characteristic and are frequently overshadowed by the symptoms of the antecedent disease, so it is essential that physicians and surgeons who are treating patients with sepsis, especially those with severe infections within the thorax, make frequent examinations of the cardiac area in an attempt to discover the signs of pericarditis. It is probable that a pericardial friction rub occurs at some time in all cases of suppurative pericarditis and that it is not found in a large percentage of them because the heart is not listened to at the proper time. Following the friction rub, which may disappear rapidly, there will almost certainly occur the signs of gradual compression of the heart with enlargement of the area of cardiac dullness and distant heart sounds. When these changes are noted, radiographic and fluoroscopic examinations should be made, I think the latter are much more important than the former.

THE NEW YORK CITY PLAN FOR COMBATING SYPHILIS

CHARLES WALTER CLARKE, M.D.

Director Bureau of Social Hygiene Department of Health
NEW YORK

In its last analysis, any plan for combating syphilis which falls short of practical application in towns and cities is sure to be a failure. Paper plans, state-wide and nation-wide plans are futile unless they come eventually to grips with the medical and social problems of individuals in homes and shops, hospitals, clinics and doctors' offices. The solution of the problem of syphilis really begins only when the doctor, nurse or instructor makes helpful contact with Tom, Dick and Harry, and Mary, Mollie and Maggie who are infected or who stand in danger of becoming infected. That is why, since cities are by definition areas of concentrated population, the fight against syphilis in cities is most important. It is in cities that people can be reached most easily and economically by popular instruction, by diagnostic and case finding measures, and by treatments. One should beware of generalities which fail to get spirochetes under microscopes, which put no arsphenamine into veins, which restore no lapsed infectious sufferers to treatment and which fail to guide individuals in the prevention of syphilis and gonorrhea. While New York City is not, perhaps, a typical American community, the principles and procedures which have been developed there are believed to be sound and practical and, with appropriate modifications, can be applied in any city.

Read before the Section on Preventive and Industrial Medicine and Public Health at the Eighty-Eighth Annual Session of the American Medical Association Atlantic City N. J. June 11 1937

Nearly a thousand newly diagnosed cases of syphilis are reported each week to the New York City Department of Health. This means over 50,000 a year, but this is believed to be only a small part of the vast number in our population. If the prevalence rate of syphilis in New York City is as high as that of the United States as a whole, we must assume that there are in New York City about 378,000 cases—in other words about 5 per cent of the entire population. When the dangers of syphilis to the individual and the community are considered in relation to its widespread distribution, we have some conception of its urgency as a public health problem.

At present our best hope of eventual conquest of syphilis and of relief from the burden of its care appears to lie in the fact that syphilis can be rendered noninfectious by treatment. This is the foundation on which has been built the success that has thus far been attained—success that is brilliant, though limited to but a few small countries. In Denmark, a country having about half the population of New York City, syphilis has been reduced from about 700 per hundred thousand in 1885 to 35 in 1935. Syphilis is now about as uncommon in Copenhagen as typhoid is in New York City. In Sweden the highest prevalence rate recorded was in 1919, when an explosive epidemic carried the rate to about 600 per hundred thousand. In 1934 it had fallen to 43. Great Britain has apparently reduced the number of cases of syphilis by one half since 1920, the highest point. In each of these countries the essential factor in achieving success appears to have been the treatment of infectious cases to render them noninfectious.

There are in New York City almost 14,000 licensed practitioners of medicine. I maintain that these physicians constitute the shock troops in our battle against syphilis, more valuable than all the many clinics and hospitals, voluntary and official, in the city. Private practitioners collectively see or have the opportunity to see more persons with syphilis than all the institutions combined, for many of these persons, unaware of syphilitic infection, are visiting general practitioners and specialists for every malady to which the flesh is heir. More general use of modern diagnostic procedures and a "lower threshold of suspicion" of syphilis would lead to the discovery of many thousand more cases of syphilis and the treatment of these cases, to the enormous benefit of the public health and the profit of the profession.

THE IMMEDIATE OBJECTIVE

Therefore the immediate objective of the New York City Department of Health is to aid private physicians in discovering, treating and controlling syphilis among patients who go or could go to private practitioners. The practical aids which the Department of Health offers may be briefly described, as follows:

1 *Diagnostic Services*—The Department of Health laboratory performs serologic tests for syphilis without charge (345,000 specimens were tested during 1936). At every one of the seventeen diagnostic centers, blood specimens are taken for private physicians on request. Expert darkfield examinations and diagnostic consultations are offered in these centers, the reports being sent directly to the physicians. These diagnostic aids are available for all types of syphilis and gonorrhea, and physicians are invited to use this service freely without fear of losing their patients.

2 *Treatment Services*—To enable private physicians to care for a larger number of patients having syphilis, especially that large body of individuals who cannot pay the full regular fee, the Department of Health, using Social Security funds, provides neoarsphenamine and preparations of bismuth or mercury in amounts sufficient for one year of the treatment in accordance with modern therapeutic methods. These drugs are supplied free on request without distinction as to the patient's ability to pay the physician a full fee or any fee for his service. This enables private physicians to give medical care to many patients who can pay only a small fee—fees comparable with those charged by many so-called pay clinics. Judging from the numerous requests received by the Department of Health there are many physicians who are happy to treat certain patients free of charge if the necessary drugs are supplied. Because the funds for this purpose are limited, drugs are provided to private practitioners only for the treatment of early syphilis, syphilis in pregnancy and congenital syphilis. Later it is hoped that the same assistance may be extended for all cases of syphilis found under private medical care. Physicians willing to cooperate with the Department of Health in the diagnosis and treatment of syphilis are asked to report their cases at the time of requesting drugs, if they have not already done so, and supplies are furnished in four allotments, each sufficient for three months of continuous modern treatment. Every effort is made to supply the drugs of the physician's preference and by a system convenient for the practitioner. It should be understood that the Department of Health does not require the physician to state that his syphilitic patient is indigent or unable to pay a fee for medical service, nor does the department suggest any schedule of fees which the physician should charge if he uses drugs furnished by the department. It is anticipated however that, when a patient is able to pay the full specialist fee for medical care, few physicians will wish to administer drugs obtained at public expense.

On request, the services of especially selected and trained nurses are available to follow up lapsed cases of syphilis or gonorrhea reported by physicians, the nurse for the time being working under the direction of the physician reporting the lapsed case. This is an important feature of the plan, since by sufficiently sustained treatment syphilis may be rendered permanently noninfectious and in many cases a clinical cure may be achieved.

3 *Epidemiologic Service*—After a case of syphilis has been brought under treatment, the next most important duty is to answer the question "from whom did the patient acquire the disease and to whom may he or she have transmitted it?" This in substance is the epidemiology of syphilis. Early syphilis, syphilis in pregnancy and congenital syphilis offer the best opportunity for epidemiologic work and many physicians in their daily practice are doing excellent case-finding work with patients of these types. The Department of Health offers its services to aid the physician in finding the source of infection of the patient having early syphilis, syphilis complicating pregnancy or congenital syphilis. For this service a group of specially trained physicians are employed. The department makes their services available to physicians requesting drugs and to any other physician who wishes the cooperation of the epidemiologist in finding sources of infection and in bringing them under treatment. But in no cases will action be taken except at

the request of the physician with whom we are cooperating. Where this plan has been in operation, about 25 per cent of the sources of infection have been brought under medical care.

4 *Educational Activities*—The New York City Sanitary Code requires that every person found by a physician to have syphilis or gonorrhea shall be given a pamphlet of instruction with regard to his infection and the protection of contacts. The Department of Health furnishes this pamphlet to physicians and clinics. New editions in appropriate foreign languages have been prepared. The department also cooperates in making postgraduate instruction available to physicians, bringing to their attention the most accepted modern ideas and methods of diagnosis and treatment of syphilis and gonorrhea in all their stages and manifestations.

5 *The Reporting of Syphilis*—In reporting a case of syphilis or gonorrhea or other communicable disease to the Department of Health, a physician renders a valuable public service. It would be appropriate in New York City to compensate the physician for this report and, if funds were available, I should be glad to see this done. The least that the Department of Health can do, it seems to me, is to make reporting convenient and free even of the cost of postage. A plan to that effect is in operation in New York City. The physicians fill in the facts, slip the form into an envelop provided by the Department of Health and deposit it in the post box. Reporting by initials and address is permissible, and I wish to emphasize that all reports are strictly confidential and are kept under lock at the Department of Health. Direct reporting by a physician is of great service to the department and will be of greater service as our plans get under way, for this source of information will be taken into account in judging the progress of our fight against syphilis.

These plans are subject to modifications as the need and recommendation of physicians may indicate. These measures should enable private physicians to participate more fully in the attack on syphilis and bring them to the front as auxiliary health officers.

VOLUNTARY HOSPITAL CLINICS

The fifty clinics of voluntary hospitals in New York City should play a more important part in the fight against syphilis. Many of these clinics are willing and able to provide treatment without charge for a larger number of poverty stricken patients if drugs are supplied by the Department of Health. To clinics which charge only low fees—fees that cannot possibly compete with those of private physicians—the Department of Health now provides drugs to enable them to care for indigent syphilitic patients. In this manner, facilities are increased and brought closer to those who need them.

The sanitary code regulates the conduct of these clinics and requires the maintenance of certain standards, including adequate personnel for the follow up of cases. After clinics have exhausted their resources in endeavoring to return lapsed infectious cases to treatment or to bring sources of infection under control, the Department of Health employs its legal authority to seek out such uncooperative individuals and bring them under medical care.

THE CITY HOSPITALS

The provision of treatment for syphilis in indigents and others who cannot pay, whether this treatment is ambulatory or inpatient, is primarily the function of the

various tax supported hospitals of the city. In spite of the best efforts of the Department of Hospitals and although progress has been made in 1936, the facilities are still very far short of the needs of the city, especially in respect of bed accommodations. The greatest single need in New York City, it is believed, is more bed accommodations for infectious cases of syphilis and gonorrhea, whether they are voluntary admissions or legally removed by the order of the health department. In the New York City fight against syphilis, scarcely any more important development has occurred than the provision of funds for the payment of physicians rendering medical services in the syphilis and gonorrhea clinics of the city's hospitals. This will result, it is believed, in much more and much better service for the infected poor.

The relation of the health authority to the city hospital clinics is defined by the provision of the state law and of the sanitary code. They provide for the follow up by the Department of Health of lapsed infectious cases and sources of infection and give the department power to require examination and treatment if indicated. Certain city hospitals receive and give medical care to persons with infectious syphilis and gonorrhea removed to them by the authority of the health department. Neither the private physician nor the hospital, whether voluntary or official, has the authority to detain forcibly a person with infectious syphilis or gonorrhea. But when such a case is brought to the attention of the Department of Health, appropriate action can be and is promptly taken for the full protection of the public health, and such cases are received by a city hospital designated by the board of health. More use should be made of this authority vested in the Department of Health, but more bed accommodations are needed before the laws can be used to the fullest extent for these quarantine procedures.

THE DEPARTMENT OF HEALTH

The Department of Health has primarily the duty of promoting, directing and aiding the attack on syphilis as a communicable disease. As a matter of sound policy it may work through other agencies both official and voluntary to gain its ends. It must supply deficiencies. Thus for the present it is obliged to supply a part of the treatment facilities for the very poor and it now maintains ten treatment centers, all of which are crowded to capacity with the unemployed and other very poor infected persons. Still more treatment facilities are badly needed, though it is hoped that the larger participation of private physicians and voluntary hospitals and the increased services of the Department of Hospitals will partly meet this need. When the Department of Health can properly close its treatment clinics it will do so, believing that treatment can eventually best be carried out by private physicians and in hospitals, both public and voluntary. With from 60 to 90 per cent of our clinic patients on some form of relief, we seem far removed from that desirable solution at present.

No permanent service of the Department of Health is more important than that of instruction of the public with regard to syphilis. An encouraging start has been made especially in cooperation with the liberal press of New York City, the radio and numerous voluntary societies. Diagnostic services and consultations are believed to be permanent case-finding functions, so long as syphilis remains a major health problem. The

epidemiology of syphilis is a permanent obligation and the epidemiologic service should be rapidly developed, for, through the finding and treating of infectious cases, syphilis can be brought under control.

The Bureau of Social Hygiene in the Department of Health was created by Health Commissioner John L. Rice, Oct. 1, 1935. The progress report indicates (a) the increase in the city budgetary funds for control of syphilis and gonorrhea by the Department of Health, (b) the increase in clinic services and (c) the increase in the number of treatments given from 1933 to 1936 inclusive.

Progress Report

Year	Budget	Clinics		Treatments
		diagnostic and treatment	diagnostic	
1933	\$118 810	5	2	122,651
1934	131 000	5	2	153 507
1935	180 000	6	2	186 291
1936	254 680	*10	7	†327 918

* Includes three new WPA clinics

† Estimates on basis of six months experience

In addition to budgetary funds, the Department of Health cooperates with the WPA in a project for the diagnosis and treatment of syphilis and gonorrhea. The expenditure of WPA funds amounts to about \$17,000 a month, or \$204,000 a year. Through the Security Act funds, amounting to \$50,000 a year, drugs are being supplied to private physicians and voluntary hospital clinics for the treatment of syphilis, and personnel for epidemiologic work are employed.

The figures given in the tabulation of bureau personnel and services denote progress.

Bureau Personnel and Services

	Oct 1, 1935	Dec 31, 1936
Civil Service	66	144
WPA	20	145
Number of clinics	8	16
Number of sessions	49	96

During the year 1935, 13,711 individual patients were given treatments in our clinics. During the year 1936 the number was 19,808, an increase of 44 per cent. During the same period there was an increase of 41 per cent in the number of cases of syphilis and of 25 per cent in the number of cases of gonorrhea under treatment by all sources in New York City.

The number of reported cases of syphilis has increased 50 per cent from 42,315 in 1932 to 67,010 in 1936. Five years ago the health department was responsible for only a comparatively small percentage of the total number of cases discovered, in the period 1932-1936, department clinics have increased their case finding by 260 per cent. It is significant to note in this connection that the total number of individuals under treatment for syphilis in department clinics has increased by only 82 per cent within approximately the same period. Two simultaneous successes in department procedure have thus been scored: first, great increase in case finding; second, disposal of the majority of these cases to private physicians and nondepartment clinics.

Without expecting miracles, but anticipating that the changes will be indicated as we progress, we believe

that a start in the right direction has been made and that with the cooperation of our colleagues in private practice and in hospitals we shall, if we persevere, see a radical reduction in the prevalence of syphilis and in the disasters which it causes

50 West Fiftieth Street

ABSTRACT OF DISCUSSION

DR CHARLES C DENNIE, Kansas City, Mo. Most of us are syphilis minded and therefore we do not stress enough the control of gonorrhea, a disease that is not as severe as syphilis but is more widespread. Our main aim is to make it unnecessary to treat those diseases by preventing them in the first place. It was my privilege to be the chief medical officer at one of the great camps in France, Camp Jenicart at Bordeaux, where we examined between 200,000 and 300,000 men on their return from France to the United States. We had efficient medical officers and were equipped completely with laboratories. We found 0.46 per cent of venereal diseases, in which 0.24 per cent was syphilis. This was entirely due to the thorough prophylactic methods carried out under the direction of General John J. Pershing. Dr William L. McBride classified the 400,000 prophylactic records in Fort Reilly and found that if prophylaxis was used within six hours, less than 1 per cent of the soldiers contracted venereal disease. Prophylactic methods protect not only against syphilis but also against gonorrhea, and these procedures are simple. How are we to carry out these procedures? If you accept the camel of contraceptive measures, please accept the little needle's eye of prophylactic measures and allow yourself to become more socially minded on this subject. Even doctors do not know these prophylactic measures, but the public must know them. They do not come to the doctor's office for prophylaxis but city health officers can carry out this program. If there is a clinic for contraceptive measures, why can't there be a station for prophylactic measures in which the public can apply for the valuable deterrent to venereal diseases? That idea as it goes along becomes less of a factor of prudery and more of a factor of common sense.

DR CARL A. WILZBACH, Cincinnati. The control of syphilis is in the hands of organized medicine, from the U. S. Public Health Service down to local boards of health, with organized medicine and the public official agencies as the chief persons concerned. There is, of course, a lay possibility for public education which might be done by a third organization, such as the American Social Hygiene Association and some of its component bodies. In a discussion of the public education aspects of this problem by Drs. Parran, Vonderlehr and W. W. Bauer, whole-page newspaper publicity, magazine articles and a great campaign for industry on educational lines were considered. The public is greatly interested and the problem which I think we have is to guard against this campaign's failing and dying out. It is interesting to know that in many localities there are lay groups of people much interested in the problem. I know of three separate groups in the country now attempting to start national organizations to combat syphilis. All these agencies, unless definitely tied up with organized medicine and with the official health agencies, are going to make for a great deal of confusion. It would seem wise, therefore, to see that these groups be given guidance through the medical profession. We have had efforts to control syphilis in the past and they have died out. We don't want that to happen again, and we do want the control of it kept where it belongs, largely in the hands of the people who know how to deal with it and they are, of course, the health officer, the private physician and organized medicine.

DR HOWARD MORROW, San Francisco. There are a number of important points in programs for the eradication of syphilis, and I have labeled them: 1. Early diagnosis. 2. Follow up of contacts. 3. The reporting of all cases by initials, age and sex, particularly early infections. The cooperation of physicians is most important. 4. Continuous treatment from one and a half to three years. 5. Treatment of pregnant women who have had syphilis, even with negative blood and spinal fluid reactions. 6. Continuation of professional secrecy between physician and patient in compliance with the rules of the state board of health.

DR STANLEY H. OSBORN, Hartford, Conn. I felt that I should report to this section the results of the requirement in Connecticut that all persons applying for a marriage license must have a Wassermann test. The results of this test have shown that approximately 1 per cent of the persons who apply for marriage give a positive reaction and that most of these did not realize that they had syphilis. The state of Connecticut was interested because of the fact that institution costs were going up to a certain degree because of syphilitic children and adults, and innocent progeny were being born with this disease. As a result of that, and because Connecticut is deeply interested in the prevention of syphilis, the marriage test program went through the legislature of the state two years ago. Since that time there have been no administrative difficulties in carrying it out. We have had no brickbats thrown at us, no collective opposition, and there was no attempt to eliminate the bill at the recent session of the general assembly.

DR WALTER CLARKE, New York. As Dr. Dennie states, there is no doubt that prophylaxis ought to have a place in the program against syphilis and gonorrhea, as a matter of fact it is very important because enormous quantities of prophylactics are sold and used. In New York City about a year ago a meeting of all the medical men and women interested in syphilis and gonorrhea was called. The commissioner of health presented to them the problem of prophylaxis, but there was no agreement whatever as to what the department of health should do except that the department should encourage practitioners to advise patients about prophylaxis and be prepared to give prophylactic treatments. That is as far as we could get, but we are not without hope that we may find some method hereafter. I appreciate Dr. Wilzbach's comments. Our educational work aims to do two quite simple things: (1) to prevent syphilis and gonorrhea and (2) to bring the infected persons under medical supervision. And I agree with him that medical guidance for this whole program, whether it is official or voluntary in its backing, is absolutely vital and essential. Dr. Marrow clearly summarized the most important elements in a syphilis program.

A NEW METHOD OF DIAGNOSIS IN BACILLARY DYSENTERY

DANIEL N. SILVERMAN, M.D.

Assistant Professor of Clinical Medicine Tulane University
of Louisiana School of Medicine
NEW ORLEANS

The method described in this paper has its greatest value in the diagnosis of bacillary dysentery, since it greatly enhances the chance of recovering the specific bacillus in culture. Repeated culturing of the dejecta in certain cases of bacillary dysentery prior to the use of this method has resulted negatively so far as growth from the stool of dysentery bacilli is concerned. These cases undoubtedly fall in a group that are chronic, and the causal agents are apparently down deep in the lesions, so that very few escape to the contents of the intestine, too few to be detected by the casual examination of the stool.

According to my experience, the application of the method concerns especially the strain of dysentery bacilli known as the lactose fermenter. This strain was discovered and first described by Duval¹ in 1904.

The bacillus of Duval, which is the lactose fermenter, was isolated and was first identified by me² in 1931 as a cause of endemic and sporadic bacillary dysentery.

From the Departments of Medicine and Bacteriology Tulane University of Louisiana School of Medicine.

Read before the Section on Gastro-Enterology and Proctology at the Eighty-Eighth Annual Session of the American Medical Association Atlantic City, N. J., June 10, 1937.

¹ Duval, C. W. and Schorer, E. H. Bacteriological and Clinical Studies from Rockefeller Institute for Medical Research 1901. Duval, C. W. Another Member of the Dysentery Group. J. A. M. A. 43: 351 (Aug. 6) 1904.

² Silverman, D. N. and Harris, W. H. Unusual and Common Forms of Bacillary Dysentery Observed in the South. T. Am. Gastro-Enterol. A. May 1, 1931.

in the United States. At that time I pointed out that this type of the dysentery bacillus is more prevalent than any other member of the dysentery group. It is encountered far more frequently than the Flexner strain in sporadic cases of bacillary dysentery. Unfortunately, some writers have erroneously referred to Duval's strain as the Sonne bacillus. Sonne³ himself, publishing years after Duval's original discovery, gave the latter credit for the discovery.

Craig⁴ stated, in his review of Topley and Wilson's textbook:

It is also noted that in the discussion of bacillary dysentery no mention is made of the fact that the so called "Sonne's bacillus" was first described by Duval, nor is there mention made of the latter's papers upon this organism. As a matter of fact, the name of this particular dysentery bacillus should be "Duval's bacillus," as Sonne described it after Duval and in his paper credits Duval with its discovery. It is unfortunate that the name "Sonne's bacillus" appears to have become so fixed in the literature that credit cannot be given where it is due, and the name changed to "Duval's bacillus."

METHOD

The stool of the infant commonly shows some one of the acidophilus group as a predominant member of the flora. Apparently, shortly after the regular ingestion of food other than mother's milk, the intestinal flora changes, and in consequence members of the colon group predominate. The stool of children and of adults as well may contain one or more of the strains of the acidophilus bacillus. With special methods and mediums it is then relatively easy to culture the acidophilus from the normal dejecta. In this connection it is to be borne in mind that members of the acidophilus group are not observed ordinarily in the stool of either children or adults in sufficient numbers to alter for any length of time the reaction of the content of the large bowel. It may also be mentioned here that when one definitely alters the reaction by the administration of acidophilus culture the changed reaction persists only as long as the administration. A permanent change in the reaction following even the long administration of acidophilus culture is never obtained.

The main point of the new method of diagnosis is to change the flora from one in which the colon bacillus predominates to one in which the acidophilus is more numerous and at the same time there is a change in the reaction of the content of the large bowel. Both factors, but probably more the change in reaction, make possible the detection in stool cultures of *Bacillus dysenteriae*. Certainly in my cases it was seldom possible, even with repeated plating of the stools, to detect the dysentery bacillus, while after the ingestion of acidophilus culture dysentery bacilli appeared in culture from the stool in large numbers.

The acidophilus culture used in this work is one of milk previously inoculated with a pure culture of *Bacillus acidophilus*. The stock culture is maintained in sterilized cow's skimmed milk and kept active by transferring 15 cc to fresh sterilized milk. The acidophilus milk for administration contains the culture that represents an eighteen hour growth. The amount given to the patient was approximately one quart (liter) every twenty-four hours.

The stool of the patient who received acidophilus milk was examined for the presence of the dysentery bacillus at frequent intervals during the period that acidophilus culture was administered. The dysentery

bacillus usually appeared in the stool about the third week after the institution of the preliminary treatment. How long it persisted after administration of the acidophilus milk culture was discontinued was not determined. It is to be noted here that the patients were clinically regarded as having chronic bacillary dysentery largely on the basis of a positive, or suggestive positive, agglutination reaction and certain clinical symptoms, although repeated examinations of the stools failed to reveal the presence of the dysentery bacillus. Therefore, since administration of the acidophilus milk was followed by positive culture of dysentery bacilli from the stool, one is convinced of the great value that this method has in the positive diagnosis of chronic bacillary dysentery.

TYPE OF CASE

The type of case in which treatment with *Bacillus acidophilus* milk gave positive results for the bacillus of dysentery on culture of the stool was one of chronic, long standing diarrhea. Most of the patients had a history of acute dysentery many years before the examination of this new method. In addition to the diarrhea, certain of the patients presented other conditions known to complicate bacillary dysentery. Among these complications were arthritis, toxic myocarditis and intestinal bleeding. I⁵ have shown these conditions to be expressive of a specific hypersensitiveness to bacterial protein. The patients were allergic to the group of dysentery bacilli. It should be mentioned in this connection that some of these specifically hypersensitive patients gave in addition to a positive agglutination reaction for some strain of the dysentery bacillus a positive intradermal reaction with the dysentery bacterial protein. In desensitizing them I obtained the best results when the desensitizing substance was prepared from the homologous dysentery bacillus isolated from the stool by the method herein reported.

COMMENT

Duval's lactose fermenter seems to give rise to the most chronic form of bacillary dysentery. In many of my cases of years' standing the reaction of the blood is positive and the acidophilus method ultimately yields positive evidence of Duval bacilli in the stool. There are cases in which the reaction of the blood is positive, without true dysenteric symptoms, in which the acidophilus method has given negative stool cultures for any strain of *B. dysenteriae*. Again, according to my experience, in the type of case in which the Duval lactose fermenter is isolated by this method, no other strain of dysentery bacilli is present. This observation is significant in relation to the specific therapy and subsequent cure of the patients. In this connection I should like to point out the importance of isolating the bacilli in culture and preparing an autogenous vaccine for the specific purpose of desensitizing patients that are allergic.

A certain number of patients with bacillary dysentery were for the first time shown to present symptoms attributable to specific hypersensitiveness to bacterial protein. Only the isolation of the offending organism makes possible the preparation of a vaccine for the proper treatment of these patients by desensitization.

The preponderance of dysentery colonies over all others in the dejecta from the patients treated by the acidophilus method is not only interesting but significant. Before the acidophilus treatment, repeated examinations of the stools for dysentery bacilli resulted

³ Sonne, Carl. *Zentralbl. f. Bakt.* 75: 408-76: 65, 1915.
⁴ Craig, C. F. *Am. J. Trop. Med.* 17: 311 (March) 1937.

⁵ Silverman, D. N. and Efron, B. G. *Proc. Soc. Exper. Biol. & Med.* 32: 1067 (April) 1935.

negatively, while examination of the stools by the same technic after completion of the acidophilus procedure yielded a high percentage of dysentery colonies and in some instances almost a pure culture.

Until recently, many authorities have held that the Flexner strain of *B. dysenteriae* is the prevailing etiologic factor in sporadic bacillary dysentery.

This theory is undoubtedly explained on the ground that the bacilli isolated from the stools were not examined further than the differentiation from the true Shiga strain, which is done by the fermentation of mannitol. All mannitol fermenters are generally regarded as the Flexner type of bacillus. The agglutination reaction of the patient's blood, even when the Flexner strain is not responsible, is positive, though of course in low dilution. This is because of the biologic relation of all members of the dysentery group. Undoubtedly, in suspected cases of bacillary dysentery in which the agglutination test is made only with the Shiga and Flexner strains and the result is a low positive reaction, not high enough to rule out the ordinary common agglutinations for biologically related species, like the colon bacilli, the infecting bacillus is not one of these strains but some other. In using the agglutination test for diagnosis it is far better to employ a recently isolated culture of dysentery bacilli, preferably that from the suspected case. While it has heretofore been difficult in cases of chronic bacillary dysentery to recover the specific organism from the stool, the acidophilus method greatly facilitates the recovery of the specific causal excitant. With the offending micro-organism freshly isolated, the homologous agglutination is of diagnostic value. This is important because so often there is a poor agglutination reaction with the homologous stock culture. Long cultivation under artificial conditions causes, for some reason not understood, a loss in agglutinating properties. Even with typhoid this is often observed, and it is necessary to pass the bacillus through an animal in order that it may regain its agglutinating properties. A sharp-cut agglutination reaction occurs with the patient's blood when the bacillus used is freshly isolated and is the particular excitant of the disease. In many of the chronic cases of bacillary dysentery there was no reaction to any of the stock cultures or at best a low reaction to one, presumably the specific cause. In these cases, when the fresh isolation could be obtained and used as the agglutinating substance, the reaction was positive in a dilution that left no room for doubt concerning specificity.

I was the first to point out, in 1930, that the lactose-fermenting strain of *B. dysenteriae* causing sporadic dysentery both acute and chronic in the United States is identical with the strain discovered by Duval in 1904, both culturally and serologically.

SUMMARY AND CONCLUSIONS

Sporadic bacillary dysentery in the United States is caused by the lactose fermenter of Duval more often than by any other member of the dysentery group.

The diagnosis of this type of infection is made possible in many instances, especially in the chronic type of case, by the use of the acidophilus method herein reported.

By this new method the specific causal excitant is made possible of detection and isolation from the stool in cases in which the stools previously failed repeatedly to yield a positive culture.

Furthermore, in cases of chronic bacillary dysentery in which the agglutination reaction was only suggestive or was absent with any stock culture of dysentery

bacilli, the agglutination reaction was definitely positive with the dysentery bacillus freshly isolated from the stool in the homologous case.

With the isolation of the specific strain of *B. dysenteriae*, one is in a position to attempt the cure of the case. When there is an allergic state, such as I have shown exists in a certain percentage of the chronic cases of bacillary dysentery, it is necessary first to desensitize with varying dilutions of vaccine made from the homologous isolation. According to my experience it is difficult to treat satisfactorily the allergic patient with chronic bacillary dysentery, either with vaccine or with antidysenteric serum, before desensitization. In fact, the patients were made worse by the ordinary vaccine treatment. Because of the reaction in these refractory cases, I suspected that a state of allergy existed. This state was proved by subsequent investigation.

The recovery of the specific dysentery strain by the acidophilus method has made possible not only the specific diagnosis but, in cases of allergy, the desensitization and the subsequent treatment by immunization.

3503 Prytanja Street

ABSTRACT OF DISCUSSION

DR. JOHN H. MUSSER, New Orleans. This being a new method, I cannot speak from personal experience. I am happy that credit is given to Dr. Duval for the discovery of an organism which is generally known as the Sonne bacillus, for which discovery Dr. Duval has been almost completely forgotten. There are circumstances which make such a thing possible. A man who discovers an organism but whose interest in it slackens or disappears entirely does not deserve as much credit as a man who works vigorously with the method and makes it known to the medical world. Dr. Silverman's method undoubtedly is of considerable value both from a diagnostic and from a therapeutic point of view. Diagnostically it should help in a large group of indefinite diarrheas that are seen in the South, in which the symptoms are highly suggestive of a chronic dysentery and in which it is quite common to have an agglutination reaction which is not diagnostically of significance. There is no doubt whatever that the management of these cases depends on having what might be spoken of as the autogenous organism at hand. The value of this method of desensitization, the value of vaccines in the treatment of dysentery, is enhanced by having an autogenous preparation, and if this method makes this preparation possible, it will be a big step forward in the management and handling of these patients.

DR. JOSEPH FELSEN, New York. Dr. Silverman has made a contribution to the diagnosis of bacillary dysentery. I fully agree with him that Dr. Duval has received too little credit for his work on the late lactose fermenter which he described in 1904. I endeavored to correct this oversight, in a measure, by referring to the so-called Sonne bacillus as the Sonne-Duval organism. During the past five years I have noted a steady increase in the incidence of this type of dysentery in New York City, one outbreak having persisted in a children's hospital for many months. While many of the cases are quite mild, one is occasionally surprised by the severe, fulminating character of the disease even in adults. The disease appears to be adapting itself to a virgin soil. This corresponds, I believe, to Dr. Silverman's experience in New Orleans. It has been my privilege to describe seven new clinical forms of acute bacillary dysentery: asymptomatic, afebrile, constipated, neurotropic, appendicular form with acute distal ileitis, agranulocytoid and pneumonic. From the public health standpoint their recognition is important. From the clinical point of view their diagnosis is essential if we are to understand the pathogenesis of the chronic dysenteries (chronic ulcerative colitis, chronic distal ileitis), for the atypical acute forms are frequently overlooked. It is in the chronic type of dysentery, which follows about 10 per cent of the acute cases, that Dr. Silverman's method may prove most useful. In the chronic phase the recovery of the specific initial infecting organism is often very difficult. My routine procedure has been to examine at least six sigmoidoscopic crypt

aspirations with direct seeding of the material on culture mediums I believe that the old concepts of "colitis" will be radically revised in the light of the recent advances in the study of chronic bacillary dysentery. Repeated and careful bacteriologic studies of crypt material will reveal the true pathogenesis to be bacillary dysentery in a surprising number of cases. I again call attention to "sick carriers," for skilful use of the sigmoidoscope will reveal the presence of organic lesions. Double infections with *Bacillus dysenteriae* and *Endamoeba histolytica* and *Bacillus typhosus* or *paratyphosus* are relatively frequent. The ideal approach to the treatment of chronic ulcerative colitis and chronic distal ileitis is the prevention of bacillary dysentery.

DR. DANIEL NATHAN SILVERMAN, New Orleans. I agree with Dr. Felsen that if the acute cases were recognized there would be less chronic ones to diagnose, but, unfortunately though some of us do see the onset of bacillary dysentery within the first few hours or a day or two, we are unable to stem the tide, and they become chronic in spite of early diagnosis. I am not oblivious of the fact that Dr. Felsen has done an extensive piece of work in dysentery in this part of the world. In answer to his inquiry with reference to the discovery of the lactose fermenter, Duval isolated the organism in culture in epidemic form in children in Philadelphia in 1904, and in a subsequent article in *THE JOURNAL*, in 1904, reported finding the same organism in the adult.

EFFECTIVE CLINICAL DOSAGES OF THEELIN IN OIL

BASED ON A STUDY OF SIXTEEN
CASTRATE WOMEN

AUGUST A. WERNER, M.D., GREY JONES, M.D.
JOHN ROBERTS, M.D., G. O. BROUN, M.D.
CHARLES H. NEILSON, M.D.
AND
NORMAN O. ROTHERMICH, M.D.
ST. LOUIS

Diversity of opinion exists regarding the amount of estrogen necessary to produce the interval phase of the endometrium in castrate women. Some clinical investigators¹ believe that the administration of from 30,000 to 50,000 rat units is needed to obtain this result.

The experiments of Werner and Collier² in which thirteen castrate women were given intramuscular injections of theelin in aqueous solution showed that the growth phase could be produced by much smaller dosages than those just indicated and that approximately 2,800 rat units would initiate endometrial growth.

We believed that it would be of value to repeat this work, especially since theelin in oil was available. An investigation was decided on which included a series of separate experiments to run concurrently.

Among the points of interest to be determined were (1) the dosages of theelin in oil that will relieve symptoms resulting from castration, and the relation of such

relief to certain organic changes, (2) the dosages that will relieve symptoms and not cause uterine bleeding, (3) the differences between effective dosages of theelin in oil and in aqueous solution, and (4) the effects of definite dosages of theelin in oil on the breasts, the visible parts of the genitalia, the endometrium, the vaginal mucosa and the vaginal secretions.

Sixteen castrate women having their uteri intact were assembled, all of whom were castrates of more than six months' duration. Their ages varied from 17 years to 36 years. None of them had had theelin for

TABLE 1—Theelin Dosage in Five Groups of Castrate Women

Group	Number in Group	Theelin Single Dose in International Units	Total Theelin Received During 30 Days in International Units
A	3	500	5 000
B	3	1 000	10 000
C	4	1 500	15 000
D	3	2 000	20 000
E	3	2 500	25 000

at least two years, although five of them had been previously subjected to a course of theelin. Four of them would not permit curettement, and we were of the opinion that the youngest patient in the group should not be curetted.

It was the consensus that the dosages of theelin should be so regulated that the minimum dose should not, or should scarcely, produce endometrial growth, the medium dose should be such as to produce endometrial growth, and the maximum dose should be sufficient to produce bleeding or pseudomenstruation.

As a check on the dosages, intermediate dosages were given to a group of women between A and C and to another group between C and E (table 1).

Accordingly, they were arranged into five groups as shown in table 1.

METHODS

1 An individual study of the subjective symptoms of each subject by three members of the group.

2 Physical examination of the sex-related structures and curettement. On this occasion a specimen of vaginal tissue was secured for biopsy.

3 A rest period of fully three weeks for each curetted patient, during which time the patients received intramuscular injections of physiologic solution of sodium chloride every third day. Vaginal smears were taken at the time of each injection.

4 A second check on the subjective symptoms at the end of the three weeks rest period.

5 Theelin administration. Each patient received intramuscular injections of dosages as indicated in table 1 every third day until ten injections were given. Vaginal smears were taken at the time of each treatment.

6 Making of final curettement and obtaining of a chip of vaginal tissue four days after the last administration. At this time a vaginal smear also was taken.

7 A final study of symptoms. At no time during the experiment did any physician know what information the others had obtained.

RESULTS

Effect of Theelin on Subjective Symptoms—The evaluation of drugs and chemical substances used for therapeutic or experimental purposes on the human subject is always difficult. This evaluation must consist first of the change in the subjective symptoms of the patient. There are so many factors entering into sub-

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From the departments of medicine of gynecology and of pathology of the St. Louis University School of Medicine.

1 Kaufmann C. Umwandlung der Uterusschleimhaut einer kastrierten Frau aus dem atrophischen Stadium in der sekretorischen Funktion durch Ovarialhormone. *Zentralbl. f. Gynäk.* 34: 2058 (Aug. 20) 1932. Clauberg Carl. The Action of the Luteal Hormone. *The Specific Hormone of the Corpus Luteum on Human Uterus* ibid 56: 2460 (Oct. 8) 1932. Kurzrok Raphael, Wilson Leo and Cassidy, M. A. The Treatment of Amenorrhea with Large Doses of Estrogenic Hormone. *Am. J. Obst. & Gynec.* 29: 771 (June) 1935. Elden C. A. The Effects of the Two Ovarian Hormones on Castrated Human Females. *Endocrinology* 20: 1 (Jan.) 1936.

2 Werner A. A. and Collier W. D. The Effect of Theelin Injections on the Castrated Woman. *Proc. Soc. Exper. Biol. & Med.* 29: 1142 (June) 1932. *J. A. M. A.* 100: 663 (March 4) 1933. Production of Endometrial Growth in Castrated Women. ibid 101: 1466 (Nov. 4) 1933.

jective symptoms and their determination that the value of these symptoms may not be safe for scientific conclusion

In this set of experiments the symptoms of the patients before the use of theelin and the subsequent effect of theelin are modified by (1) the fact that these patients knew they were the subjects of an experiment, (2) their evident desire for relief of their symptoms, (3) the fact that some of the patients had had injections before with relief of their symptoms, and (4) outside influences which aggravate the symptoms because of absence of estrogen

In taking the history of these sixteen women every effort was made to make the history as impersonal as possible. The women told their stories in their own way without leading questions. The history of these patients before any medication was given showed that all had practically the same symptoms, such as subjective nervousness, hot flashes, melancholia, irritability, excitability, basal headaches, numbness and tingling, dizziness, lassitude and fatigability, insomnia, loss of sexual desire, and dryness of the vagina

The history taken at the end of the control period showed the following facts

Subject 1 felt better but was still nervous

Subject 7 felt considerably better but still had depression

The other thirteen girls felt no change in their symptoms. Some of them reported that they felt worse

At the end of the theelin experiment all the patients were greatly improved. Many were entirely relieved of their symptoms. The changes produced were as follows

1 Nervousness, hot flashes, headaches, insomnia, numbness and tingling were practically gone

2 Depression and crying spells had all disappeared

3 In the main, energy, ambition and sexual desire had returned

4 A striking change in their symptoms consisted of a decreased dryness in the vagina with a normal mucous discharge

5 The married patients stated that the sexual life became quite normal and natural

All were aware of an increase in the size of the breasts and most of them noticed tingling and drawing sensations in the breasts and an increased sensitiveness of the nipples. All the women had a sensation of pelvic fullness, bearing down, needling pains and uterine cramps, accompanied by a feeling that they might menstruate. However, none of them had uterine bleeding during the injection period

The effect of theelin as used in these tests was pronounced. The effect of the size of the dose was not definitely and clearly worked out by this history, the smaller doses seemed as effective as the larger doses. The patients all stated that the disappearance of the symptoms came on gradually

Effect of Theelin on Gynecologic Features—Before Injections. All patients examined before treatment exhibited practically the same gross physical manifestations. The breasts were atrophic and flaccid and the nipples were small and nonerectile when mechanically stimulated. The external genitalia were considerably smaller than normal, the labia majora showed a loss of subcutaneous fat, the mucosae of the vestibula were dry and thin and a whitish yellow. The internal genitalia were considerably decreased in size, the vaginas were small and smooth and slightly sensitive to touch, the cervixes were small and hard, the uteri were

small, hard and retroverted, and their average dimensions were about $1\frac{1}{2}$ by 1 by 1 inches (37 by 25 by 25 cm). Speculum examination in each case revealed a small cervix with a pinpoint external os, the vaginal secretion was scanty in amount and the vaginal walls were thin and smooth and a light yellow

After the examination a piece of endometrium was removed by a small curet without anesthesia, and a piece of vaginal mucosa was removed from the posterior wall at a point 1 inch above the introitus. This was done after an infiltration of the part with procaine hydrochloride solution

After Theelin Treatment. The gross changes on examination were essentially the same in every patient. The breasts were definitely enlarged and the nipples erectile, the external genitalia were enlarged and appeared normal, the vulvar mucosa was moist and pink. The internal genitalia were all enlarged. In each patient the vagina seemed larger, the walls were soft and slightly irregular, the cervix was enlarged and soft in consistency, the corpus uteri was considerably larger than on previous examination. Some of the uteri were as large as 3 by 2 by $1\frac{1}{2}$ inches (76 by 51 by 37 cm) and were soft

Speculum examination showed a great increase in the vaginal secretion, the cervix was enlarged and the external os was patulous. The vaginal mucosa seemed thicker and it exhibited the usual pink coloration that one finds in noncastrated women who are examined before the menopause

After the examination another piece of uterine and vaginal mucosa was removed for biopsy. During the completion of this procedure, it was noticed that the cervical canal was larger and that the vaginal and uterine mucosae were thicker and more vascular than they had been before the injections of theelin

HISTOLOGIC REPORT

Gross Appearance of Tissues—Gross material was obtained for study from subjects 1, 2, 4, 5, 6, 9, 10, 11, 12, 14 and 16. Subjects 3, 7, 8, 13 and 15 employed in the experiment were not operated on for reasons given elsewhere. The biopsy material was in the form of uterine curettings and small bits of vaginal wall. Tissues from each of the women were obtained both before and after the administration of the drug. The uterine curettings were exceedingly scanty and small at the close of the experiment. The snips of vaginal wall showed no macroscopic changes that could be observed

All tissues were subjected to 10 per cent solution of formaldehyde for a period of twenty-four hours. An autotechnician was then employed for all solutions previous to embedding in order to eliminate, so far as possible, time factor variables. All were cut on the same rotary microtome at 5 microns and all were stained with hematoxylin and eosin, the pretheelin at one sitting and the post-theelin at another

Uterine Scrapings—Before Treatment. The microscopic examination of the scrapings removed before therapy revealed the picture of atrophy such as is seen in the castrate. For the most part the tissues consisted of short lengths of columnar or cuboid epithelium. Attached to these was little or no endometrial stroma. The cells of the superficial part of the mucosa were small, both nuclei and cytoplasm. The nuclei contained less chromatin than usual and the cytoplasm was clear. In most cases the nuclei were at about the midpoint in the cells. Generally this part of the mucosa had the appearance of an atrophic and inactive type of secretory epithelium

Case 9 presented changes not in accord with the others. This case gave the appearance of an abundance of endometrial stroma. However, the looseness due to edema and leukocytic infiltration spoke for an inflammatory reaction, probably due to infection.

In no case was there any hyperplasia of the administration of theelin in previous experiments.

After Treatment The microscopic preparations of curettings after theelin therapy were much larger and were composed of both surface epithelium and stroma. Generally the surface epithelium, instead of being arranged in rather straight lines as in the castrate atrophy, showed many invaginations as if forming glands. The glands were rather simple and their lumens contained no papillary projections. The epithelial cells were tall, being approximately three times the height of those in the untreated castrate. There was a proportional increase in both nuclei and cytoplasm. The nuclei were dark and practically always in a basal position. This with a granularity of cytoplasm spoke for secretory activity. The endometrial stroma was abundant and compact in most cases. Definite glands were present in most endometria. The formation of mucus was marked in the cases in which larger dosages were given (cases 9, 10, 11, 14 and 16). Case 12 had to be eliminated, since only cervical material was obtained on the final curettement. In case 9 all evidence of previous inflammation disappeared. The changes in the endometria in this experiment, both of castrate atrophy and of hyperplasia, following theelin administration, were in accord with the observations of Werner and Collier in previous experiments. Larger dosages however, were employed in their work.

Vaginal Wall—Before Treatment The pieces of vaginal wall removed at the start of the experiment, like the endometria, presented stratified squamous epithelium which suggested atrophy. The germinal cells of the basal zone were scanty and very small and their nuclei were quite pale. The remainder of the cells of this zone were widely spaced, and noticeably vacuolated and a large number contained no nuclei. The intra-epithelial zone of cornification was either entirely wanting (cases 5, 6, 11) or was almost negligible (cases 1, 2, 4, 9, 10, 12, 14, 16). When present, it lacked compactness and was frayed and its fine strands were widely separated. The superficial zone, being particularly subject to loss (probably mechanical) was wanting in a few cases, both before and after the administration of theelin. When present, its cells were reduced in number, were often nonnucleated and contained few cytoplasmic structures.

After Treatment The sections of vaginal wall after treatment with theelin revealed a very striking increase in total thickness of the stratified squamous epithelium. This appeared to be due to an active growth. Not only was the basal layer more cellular but the cells were actually larger. The cells of the germinal layer showed a proportional increase in both cytoplasm and nuclei. The nuclei were particularly deep staining owing to an increased chromatin content. The upper cells of the basal zone were much less vacuolated. This basal cell zone growth corresponds to that seen in the premenstrual phase as recently described by Traut, Bloch and Kuder.³ The intra-epithelial zone of cornification was present in practically all cases. Its width was probably not increased but its substance

was much more compact and more deeply staining. None of the frayed and separated appearance of the untreated castrate was found. The superficial zone of the stratified squamous epithelium was variable in thickness probably because of mechanical defects. The sections suggested some slight increase in width. The cells were broader and contained more cytoplasmic substance, and a much greater number were nonnucleated.

The subepithelial connective tissues were very vascular and leukocytic laden and penetrated deeply as papillae into the squamous epithelium.

VAGINAL SMEAR EXAMINATION

The study of the changes induced in the vaginal smears of castrate rats and mice as introduced by Allen and Doisy has been of fundamental importance in the biologic standardization of estrogens. Recently, largely through the work of Papanicolaou,⁴ the study of human vaginal smears has been suggested as a method of studying the cyclic changes associated with menstruation and the effects of treatment with estrogenic mate-



Fig. 1.—Uterine scraping of human female castrate 2 before beginning of the experiment.

rials. It therefore seemed advisable to make use of vaginal smears to determine the presence or absence of changes in the vaginal secretions following the dosages of estrogen that were employed in the present study. It should be stressed at the outset that we were seeking doses which would be effective in relieving symptoms and desired, if possible, to avoid excessive stimulation of growth in the structures of the genital tract. At the same time we were interested in the presence and extent of such changes as would occur in the various doses given.

Two of us have familiarized ourselves with the vaginal smear technique of Papanicolaou and have employed it throughout this study. We have studied a number of normal females and are able to confirm in general the cyclic changes that Papanicolaou observed in the human vaginal smear during the menstrual cycle.

3 Traut H F, Bloch P W and Kuder Alberta. Clinical Changes in the Human Vaginal Mucosa. *Surg, Gynec & Obst* 63: 7 (July) 1936.

4 Papanicolaou G N. The Sexual Cycle in the Human Female as Revealed by Vaginal Smears. *Am J Anat (supp)* 52: 519 (May) 1933. The Existence of a Postmenopausal Sexual Rhythm in Women as Indicated by the Study of Vaginal Smears. New York: Department of Anatomy, Cornell University Medical College. Papanicolaou G N and Shorr Ephraim. Action of Ovarian Follicular Hormone in Ovarian Insufficiency in Women as Indicated by Vaginal Smears. *Proc Soc Exper Biol & Med* 32: 585 (Jan) 1935. *Am J Obst & Gynec* 31: 806 (May) 1936.

The general plan of the study has already been described. The vaginal smears were collected daily in cases 1, 8 and 14. In all other cases smears were taken every third day. During the periods of theelin administration the smears were taken on the day on which theelin was administered. Since injections were given to each patient every third day in these sixteen cases, the smears represent the condition of the vaginal secretions three days after the previous administration of theelin. Material from the three weeks control period was available in each case for comparison with the smears of the treatment period. Usually at least one smear was available after the cessation of treatment.

The appearance of the vaginal smear of menopausal and untreated castrate patients according to Papanicolaou, while somewhat variable, is characterized in general by leukocytosis, prevalence of epithelial cells with large nuclei ordinarily found in the deeper layers of the vaginal epithelium, considerable mucus and a rich

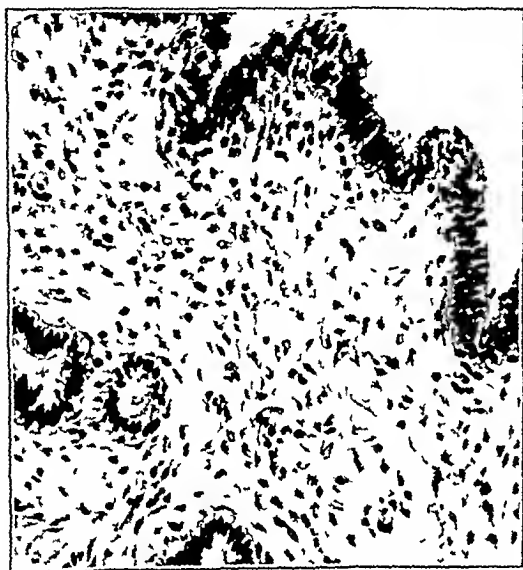


Fig. 2.—Uterine scraping of castrate 2 at close of experiment after injection of 5,000 international units of theelin in oil.

bacterial flora. Some smears of castrate cases, however, show leukopenia, but the picture otherwise remains the same.

The changes observed in the castrate smear during treatment are as follows:

- (a) The number of leukocytes is decreased.
- (b) The number of epithelial cells characteristic of the deeper layers of the normal vaginal epithelium is decreased. These cells are rather small in size and have relatively large nuclei. Conversely, there is an increase in the number of large flat cornified epithelial cells with pyknotic nuclei.
- (c) The number of clumps or masses of epithelial cells is decreased, i. e., in the fully treated cases the cornified epithelial cells appear separate and discrete from one another. It is important to note, however, that during the earlier stages of treatment—a stage which Papanicolaou considers “inadequate treatment”—there may be a temporary increase in the masses and clumps of desquamated epithelium.
- (d) During the “early and inadequate” stages of treatment, Papanicolaou describes the mucus as increased and thick and viscid. When the full follicular phase is attained, the mucus is thin and clear.

(e) Bacterial flora, which is rich as a rule in the castrate smear, continues to be abundant during the “early and inadequate” stages of treatment but becomes scanty as the typical follicular phase is reached.

By the use of large doses of estrogenic material Papanicolaou produced a picture similar to that seen in the follicular phase of the menstrual cycle. Its characteristics are leukopenia and the presence of large flat, discrete, epithelial cells, largely cornified, with small pyknotic nuclei. Mucus, if present, is usually thin and does not enmesh the cells in huge masses. The bacterial flora becomes scanty so that the smear has a “clean” appearance in contrast to the “dirty” appearance of the castrate smear.

A full report of our studies of vaginal smears will appear elsewhere. The results may be summarized as follows. The subjects who received 5,000 international units during the treatment period showed no definite effect in the vaginal smears. The subjects receiving 10,000 international units showed a possible slight effect in two cases and no effect in one case. Of the four subjects receiving 15,000 international units, no effect was seen in one, a slight effect was seen in one and rather definite effects were seen in two. In the group receiving 20,000 international units some effect was seen in all three subjects, but it was well marked in only one. The group who received the highest dosage, namely, 25,000 international units, showed a rather definite effect in two cases and a slight effect in the third.

Our observations are confirmatory of those of Papanicolaou as regards the appearance of the untreated castrate smear. The types of changes noted as a result of theelin treatment are in general similar to those he described, namely, production of leukopenia in cases presenting an originally purulent smear, increased number of cells with pyknotic nuclei and increased secretion of mucus with a tendency to formation of clumps and masses of epithelial cells. The last he finds in women given doses of estrogen of somewhat similar magnitude to those we have used. We did not in any case produce what Papanicolaou has described as the full follicular stage in the vaginal smear. In order to produce this type of vaginal smear in castrates and women in the menopause, Papanicolaou made use of much larger dosages of estrogenic material than were given in any cases in this series. He stated that the daily dose required to produce this type of smear varied from 250 to 3,000 rat units. Our largest dosage was 2,500 international units every third day.

It is quite evident from the present study that changes in the vaginal secretion are a much less delicate index of the effectiveness of estrogenic material than is an examination of the uterine mucosa secured by curettage. In the smallest dosages employed the changes in the uterine mucosa were definite and striking. It is also quite obvious that symptomatic relief can be secured in dosages that are too small to produce definite changes in the vaginal secretion, since the group of subjects receiving the smallest dosage apparently secured as much relief of symptoms as those who received larger doses.

In view of these facts we feel that the question may legitimately be raised whether the objective of theelin medication in castrate and menopausal cases should be directed toward relief of symptoms or should be pushed to the point of restoration of the vaginal smear to the full follicular phase of the menstrual cycle as suggested by Papanicolaou. The possibility that over-

stimulation of the lining membrane of the genital tract by estrogen may possibly lead to the production of neoplasms has never been entirely eliminated. Papanicolaou himself states that large doses of estrogenic material continued over a long period of time are likely to give rise to profuse and debilitating bleeding when treatment is discontinued.

COMMENT

In this discussion the points of interest, as stated before, will be considered in order, the first being the dosage of theelin in oil that will relieve symptoms resulting from castration and the relation of such relief to certain organic changes.

Relief from the subjective symptoms of castration was had by all patients. However, it must not be supposed by any one that the authors of this paper consider that ten injections of theelin in the strengths used is adequate treatment. Castrates and many menopausal women will need repeated intervals of injections until they finally attain the endocrine adjustment characteristic of the postmenopausal period.

This experiment was conceived with the idea that the large dosages of estrogen advocated for treatment of various disturbances related to the sex life in women are unnecessary to attain the desired result. Its completion indicates that, in castrates, comparatively small dosages of theelin will relieve the symptoms that accompany absence of the ovaries. The factor of time or duration of treatment must always be considered.

The second point of interest was the dosages of theelin that will relieve symptoms and not cause uterine bleeding.

Proposition 2 and the last part of proposition 1 are interrelated and will be discussed together. It was our hope that we could find a dosage of theelin that would

were not curetted had uterine bleeding. Patient 13 began to bleed six days after cessation of the injections and bled for three days, and patient 15 began to bleed four days after and bled for one day. This is definite evidence that 20,000 and 25,000 international units of theelin in oil will cause uterine bleeding in the castrate woman, while dosages as low as 5,000 international units produce bleeding in castrate women who have been curetted. It is very doubtful that the curettements in the other patients influenced the uterine bleeding, for it did not begin until the fifth day in case 2, the sixth day in cases 1 and 4, the seventh day in cases 5, 6 and 11, the eighth day in cases 12 and 14, and the tenth day in case 16.

The third point of interest was the differences in effective dosages of theelin in oil as compared with those of theelin in aqueous solution, based on the previous experiments by Werner and Collier, in which they found that appreciable endometrial growth (not



Fig 3—Vaginal wall of castrate 2 before experiment

TABLE 2—Observations on Sixteen Castrate Patients During Experiment

Patient	Total Theelin Dosage in International Units	Uterine Bleeding
1	5 000	6 days after for 7 days
2	5 000	5 days after for 3 days
3	5 000	No
4	10 000	6 days after for 3 days
5	10 000	7 days after for 3 days
6	10 000	7 days after for 4 days
7	15 000	No
8	15 000	No
9	15 000	No
10	15 000	No
11	20 000	7 days after for 5 days
12	20 000	8 days after for 2 days
13	20 000	6 days after for 3 days
14	20 000	8 days after for 3 days
15	20 000	4 days after for 1 day
16	25 000	10 days after for 3 days

* 1 cc of physiologic solution of sodium chloride was injected intramuscularly every third day for three weeks followed by injection of theelin in oil every third day for ten injections. Patients thought that they were receiving theelin throughout the experiment. No patient had uterine bleeding, until after cessation of the injections of theelin and this bleeding was accompanied by the subjective symptoms that they experienced during normal menstruation before castration. Patients 13 and 15 who had uterine bleeding were not curetted. The five who did not have uterine bleeding felt that they might bleed for a period of about five to eight days after cessation of injections. No one experienced irritation or induration from theelin.

relieve the subjective symptoms of these patients and yet be sufficiently small not to cause endometrial growth and uterine bleeding. Reference to table 2 shows that eleven of the castrates had visible uterine bleeding after cessation of the injections of theelin. It was a bit surprising that none of the four women in the third or middle group bled while those above (except patient 3) and below did. A point of special interest is the fact that two women (patients 13 and 15) who

the complete growth phase) could be produced by approximately 2,800 rat units (about 14,000 international units) of theelin in aqueous solution, when administered over periods of from two to eight weeks.

In this experiment approximately the midinterval phase of the endometrium was produced by even the smallest dosage given, i e, 5,000 international units of theelin in oil.

When endometrial growth is used as the criterion to differentiate the effectiveness between theelin in aqueous solution and theelin in oil, it is seen that theelin in oil is much more effective, producing more rapid and greater growth when given in smaller amounts. The reason for the increased effectiveness of theelin in oil is perhaps the prolonged absorption rate of the oil solution as compared to that of the aqueous solution, with a more constant stimulative effect. Again, because of the rapid absorption of the aqueous solution, more of the theelin may be lost by excretion.

It will be recognized that the production of endometrial growth in castrate women and in women having primary amenorrhea are two separate and distinct problems. In castrate women the ovaries are absent but the endometrium is receptive to estrogenic stimulation. In primary amenorrhea, two biologic problems are conceivable: first, that in which the ovaries fail

to secrete a sufficient amount of estrogen to produce genital development and endometrial growth, and, second, that in which the ovaries, based on blood estrogen determinations, are apparently functioning normally, but owing to some inherent defect in the müllerian duct system normal estrogenic stimulation does not produce uterine growth and bleeding. It is in the last condition that large dosages of estrogen are necessary



Fig. 4—Vaginal wall of castrate 2 after injection of 5,000 international units of theelin in oil

The fourth question to be answered was the effect of different dosages of theelin in oil on the breasts, on the visible parts of the genitalia, on the endometrium, on the vaginal mucosa and on the vaginal secretions.

This question has been answered under the gynecologic report. The effect of theelin in oil on the endometrium and vaginal mucosa is shown in the accompanying illustrations and is described in the report on the histologic and vaginal smear examinations.

CONCLUSIONS

1 Theelin in oil stimulates development of the sex-related structures of the human female, producing changes in the breasts, gross appearance of the vagina, with increased mucous secretion, and growth of the endometrium and vaginal mucosa in dosages as low as 5,000 international units.

2 Definite changes in the vaginal smears were noted with dosages of theelin in oil as low as 10,000 international units. Vaginal smears would appear to be a less delicate index of theelin administration than uterine mucosal specimens. Relief of symptoms of castration was obtained with dosages as low as 5,000 international units, which is insufficient to produce the full follicular phase in the vaginal smears.

3 This experiment proves that dosages of 5,000 international units of theelin in oil when the element of time is considered, will mitigate or relieve the symptoms of castration but at the same time will stimulate development of the endometrium sufficiently to cause uterine bleeding when discontinued.

4 Theelin in oil is much more effective than theelin in aqueous solution. When administered intramuscularly in the human being smaller dosages and less frequent intervals of injection produce more rapid and more marked effect on the endometrium and vaginal mucosa.

5 The evidence seems conclusive that the large dosages of theelin advocated by some (from 30,000 to 50,000 rat units) as necessary to produce the interval phase of the endometrium are grossly excessive.

404 Humboldt Building

A TREATMENT FOR SUBLUXATION OF THE TEMPOROMANDIBULAR JOINT

LOUIS W. SCHULTZ, D.D.S., M.D.

CHICAGO

Subluxation of the temporomandibular joint is fairly frequent. Its causes include congenital weakness of the capsule or malformation of the condyles or both. The joint may be strained or injured during general anesthesia, yawning, attempts by children to insert large objects into the mouth, and positional pressures during sleep.

Heretofore the usual treatment has been merely rest. To safeguard a subluxating joint from undue motion for one whole year by bandaging is obviously impos-



Fig. 1—Section of subcutaneous tissue of dog three days after the injection of sodium psyllate showing the subacute reaction with infiltration of lymphocytes.

sible. Surgical treatment has been attempted with some success by the use of mattress sutures inserted laterally through the capsular ligament or by the removal of the

From the Department of Surgery, University of Illinois College of Medicine, the Illinois Research and Educational Hospital and the Department of Public Welfare.

Read before the Surgical Conference Research and Educational Hospital, University of Illinois College of Medicine, Chicago, Nov. 11, 1936, and before the Illinois State Medical Society, Eye, Nose and Throat Division, Peoria, May 18, 1937.

Prof. Otto F. Kampmeier, head of the department of anatomy in the University of Illinois College of Medicine, placed the facilities of his laboratory at the author's disposal, and Walter Shriner, M.S., M.D., and a medical student abstracted the bibliography and helped in the animal experiments.

meniscus Physical therapy has been employed Orthodontic appliances and prosthetic devices, pressure pads in front of the ears held in place for several months by a steel spring passing over the calvarium, wiring the jaws in occlusion and bandaging the jaws for months at a time—all these have been tried and found only partially successful Changing the bite has been and is practiced with some success when that is the cause

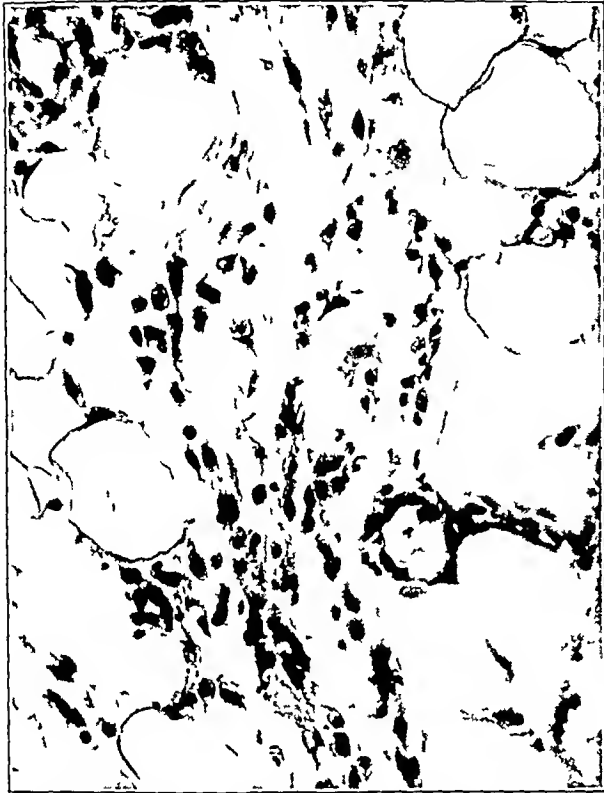


Fig 2—More highly magnified section of subcutaneous tissue of dog three days after the injection of sodium psylliate showing the transition of lymphocytes (?) into fibroblasts

I have developed a simple method of shortening and strengthening the capsule of the joint by injection Fibrogenesis in the capsule of the joint is the result to be attained

Pendse and Dutt¹ of India carried out extensive investigations with regard to the chemistry of the seed of psyllium or *Plantago ovata* They found that the seed has a large content of mucilage but does not contain any alkaloids or glucosides

ANIMAL EXPERIMENTATION

In view of Rice's² results with various sclerosing solutions, I decided to test some of the reagents, among them sodium psylliate,³ on the temporomandibular joint Sodium morrhuate, thuja solution and Mayer's solution were some of the other substances tried I shall present only the results obtained with sodium psylliate and the technique of employing it

The agent used must not be injurious to the joint or surrounding tissues, the therapeutic response should be painless, the solution should not be injurious if by

chance it enters the veins, the degree of fibrogenesis should be controllable and no untoward systemic reaction should follow

Considerable experimentation was necessary to find the most effective fibrogenic agent Figure 1 shows the subacute reaction in normal subcutaneous tissue three days after the injection of sodium psylliate Figure 2 portrays a more highly magnified section of such tissue illustrating more particularly the transformation of lymphocytes into fibroblasts

A series of from eight to ten injections per dog made every two weeks showed all joints in perfect functional and anatomic condition at autopsies made at biweekly intervals on this series of dogs Cartilage surfaces were smooth and glistening, as was the synovial membrane (fig 3)

In all injected joints the capsules averaged from 5 to 7 mm more in thickness than in the control specimens

Twelve dogs were given injections of from 1 to 2 cc of sodium psylliate into the temporomandibular joints at biweekly intervals for three months Under deep anesthesia the opening between the incisor teeth was measured on each occasion A loss of from 3 to 5 per cent of the original opening was noted Autopsy revealed normal joint cavities with a firm, fibrous capsule in all dogs

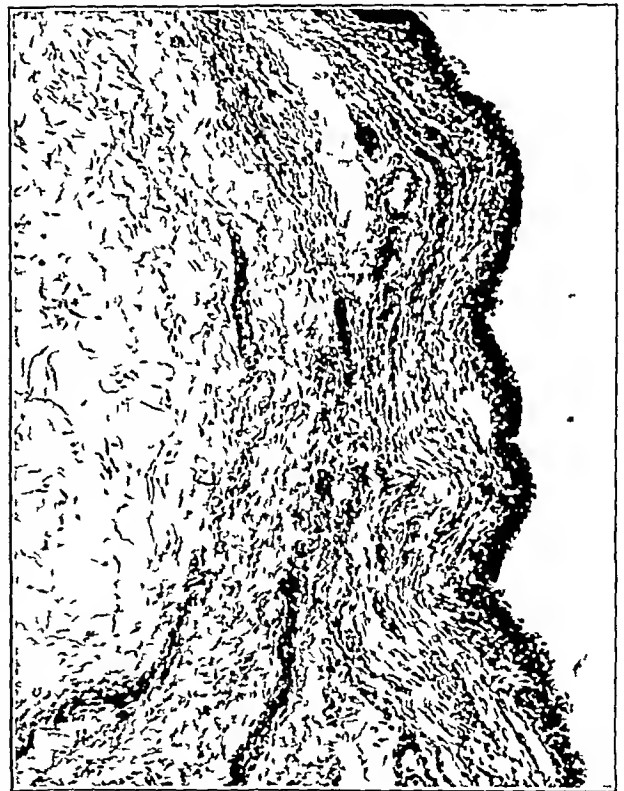


Fig 3—Section of synovial membrane of dog fourteen days after the last of eight injections of 1 cc of sodium psylliate at biweekly intervals it shows no evidence of a destructive process

Results of other experiments are as follows

1 Subcutaneous injections (from 5 to 20 cc) were made In from two to three weeks large areas of firm fibrosis resulted, with no discomfort and with no sloughing

2 From 1 to 2 cc of sodium psylliate injected into firmly healed, abdominal scars caused a small area of necrosis

¹ Pendse and Dutt Proceedings of the Academy of Science (United Provinces Agra Oudh India) 4 133 1934 Chem Abstr 29 7577 1935

² Rice C O Injection Treatment of Hernia Philadelphia F A Davis Company 1937

³ Furnished by the courtesy of G D Searle & Co

3 Injections of from 1 to 2 cc of sodium psyllate into the mental and infra-orbital foramina produced no effect. Motor nerves were tested with a similar absence of effect.

4 Injections of from 60 to 120 cc into the peritoneal cavity produced no effect either immediately or subsequently, as proved at autopsy from one-half to three months later.



Fig 4—Technic of injection of temporomandibular joint

5 Introduction of this agent into normal pleural cavities showed no gross effect on the pleura or lung at autopsy.

6 Five cc put into the gallbladder produced a firm generalized fibrous sheet over the immediately adjacent liver and over the biliary apparatus but had no other effect. The amount of fibrous tissue varied considerably in these dogs.

7 From 30 to 60 cc injected directly into the left ventricle of the heart on three successive days and at weekly intervals revealed no effect either immediately or at autopsy.

8 Scarifying and coating with sodium psyllate of stomach, intestine and liver and introduction of about 30 cc of the solution into the peritoneal cavity produced no adhesions in from two weeks to two months, as shown at autopsy.

Many hundred celloidin sections of the tissues subjected to the action of sodium psyllate were made and examined, all of which showed fibrogenesis, as indicated in the foregoing narrative.

In brief, the animal experiments demonstrated that

- 1 There was no alteration of the joint cavity, the fibrosis occurring in the ligaments.

- 2 There were no gross changes in the ligaments other than their thickening, and hence the strengthening of the chief factors that hold the joint within its cavity.

- 3 Subacute reaction followed thirty minutes after the injection of sodium psyllate.

- 4 There was infiltration of leukocytes at this time.

- 5 Two or three hours later a lymphocytic infiltration starts.

- 6 Fibrosis of this tissue starts in from four to six days.

- 7 Injections into the joint cavity caused some discomfort.

- 8 Large doses injected directly into the blood stream were followed by no symptoms.

- 9 Injections into the heart produced no recognizable effects.

- 10 No infection followed the treatment.

CLINICAL APPLICATION

The harmlessness of treatment with sodium psyllate and the quick results obtained convinced me that it was the agent of choice for my purpose.

Injection is made only after a complete history is obtained, including examination of the joint, the external auditory meatus, the drum head and the occlusion of the teeth. If indicated, the procedure is as follows: The ball of the index finger is placed in front of the tragus, and the patient opens the mouth wide enough to cause the head of the condyle to sublaxate, "click," or produce abnormal movement of the fibrocartilaginous disk. The needle is inserted into the joint cavity (fig 4) and from 0.25 to 0.5 cc of the solution is deposited inside the joint cavity. The injections are repeated weekly or biweekly on both joints until a sufficient



Fig 5—Above patient before injection. Note great protrusion of condyles. Below one week after the first injection of sodium psyllate. Both condyles are in position.

fibrosis is obtained. This occurs usually in from three to five weeks. The injections, therefore, number from three to four at the intervals stated.

The technic of injection should not produce more disturbance than the prick of the needle and a slight feeling of fullness at the time of the injection. Pain usually follows twenty or thirty minutes later, at which

time the patient may be given a sedative, or an anodyne may be applied to the parts involved

Since the area to be treated contains many important structures, such as the internal maxillary and internal carotid arteries, the middle and internal ear, the brain, the parotid gland and the facial nerve, the course of injection should proceed with due caution

During the past year I have treated more than thirty patients afflicted with temporomandibular subluxation by the method described, with results that approach entire satisfaction. Figure 5 illustrates the condition presented in one of these patients and the results attained

It appears logical to assume that the principle herein described, namely, thickening and shortening of the joint capsule by injection of a fibrosing agent, might be applied therapeutically to other joints. It is probable that the lesions of other joints most apt to be amenable to this form of treatment would likewise be subluxation or partial dislocation although it is barely possible that even recurring complete dislocations might respond favorably, particularly if numerous injections were performed

CONCLUSIONS

- 1 Stabilization of joints by injection therapy is successful
 - 2 Sodium psyllate is a dependable fibrosing agent
 - 3 Sodium psyllate is noninjurious to tissues generally
 - 4 In experienced hands it is relatively harmless, and office therapy is possible
 - 5 It produces no apparent systemic disturbances even when injected intravenously into animals
 - 6 The fibrosis obtained by the injection of the temporomandibular joint for subluxation persists long enough to restore the joint to normal function
 - 7 The method of treatment comes within the scope of the general practitioner
- 25 East Washington Street

Clinical Notes, Suggestions and New Instruments

PURPURIC AND SCARLATINIFORM ERUPTION FOLLOWING SULFANILAMIDE

IRVING L. SCHONBERG, M.D., CLEVELAND

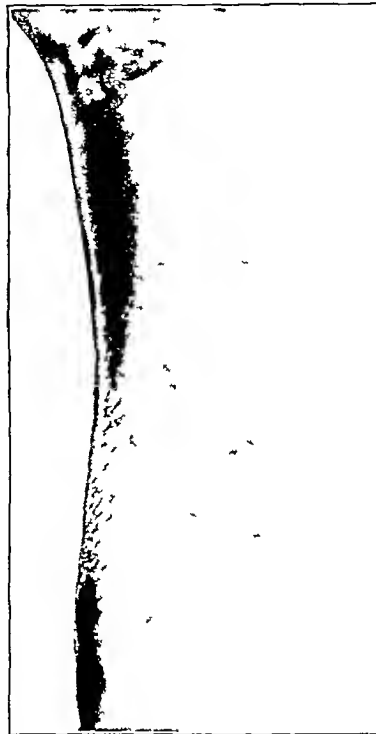
Since the advent of sulfanilamide as a therapeutic agent there will no doubt be many reports concerning reactions. The following is of clinical interest because of the fact that a toxic purpura first developed, which appeared following the use of sulfanilamide and recurred one month later as a scarlatiniform eruption as a result of a smaller dose of the same medication

REPORT OF CASE

A G, a Jewish woman aged 21, presented an erysipeloid dermatitis involving the vulva and extending to the adjacent surface of the thighs and also into the left inguinal area. The vulva presented a marked edema, considerable erythema and some vesiculation. The skin was infiltrated and tender and there was increased local temperature. The edema was non-pitting. The areas were sharply demarcated and slightly raised above the adjacent skin. The temperature was slightly elevated (100 F). An acute adenitis developed and it was necessary to incise the inguinal gland. Cultures were made from a thin serosanguineous fluid which exuded from the sinus and streptococci of the hemolytic type were found. The local treatment consisted of wet dressings of 1 per cent zinc sulfate-copper

sulfate solution. The inguinal sinus was douched with 1 per cent gentian violet solution. Drainage persisted for some time and the sinus failed to heal. There were recurrent attacks of edema and erythema of the vulva.

In view of the fact that streptococci were found on culture, it was deemed advisable to administer sulfanilamide. The usual dose of four 5 grain (0.3 Gm.) tablets every six hours was administered the first day and two tablets every six hours on subsequent days. On the fourth day an eruption developed over the entire body which was at first composed of erythematous wheals and macules. The temperature rose to 104 F. The drug was discontinued but the eruption progressed. Finally the urticaria disappeared and the patient presented a generalized purpuric rash composed of purplish macules that did not fade on pressure. Supportive treatment eliminated the purpuric eruption within a few weeks. The sinus healed and the edema and erythema of the vulva subsided completely.



Purpuric eruption on right forearm after administration of sulfanilamide

One month later an edema of the vulva again developed, which, although not as marked as the original condition, was similar in appearance. At this time there was a right inguinal adenitis. One 5 grain tablet of sulfanilamide was administered and four hours later a generalized scarlatiniform eruption developed. No distinct lesions of any type were present. The patient in addition suffered an acute edema of the eyelids, the lips, the larynx and the forehead, considerable difficulty in breathing, pain in the chest and a temperature again elevated to 104 F. Pruritus over the entire body was intense. Twenty-four hours later the temperature had subsided, the eruption was faint, and breathing was normal.

SUMMARY

This case illustrates that sulfanilamide is another drug which exhibits allergic manifestations. This patient, in whom a purpuric rash first developed following its use, presumably developed a hypersensitivity of her entire organism, so that one 5 grain tablet precipitated marked allergic symptoms. Extreme caution is advisable in resuming the use of the drug following any type of skin eruption. Fortunately the patient did not take more than one 5 grain tablet. A larger dose would probably have provoked a condition of extreme gravity.

524 Keith Building

Interest in the History of Medicine—Dr. Garrison's position in American medicine is unique. No one prior to his time had stimulated so widespread an interest in the history of medicine or reached into the consulting room and library of every serious student and practitioner in the United States. In the minds of American physicians from 1913 on, Garrison and medical history became synonymous. Garrison's 'Introduction to the History of Medicine' became their chief sourcebook.—Viets H. R. Fielding H. Garrison and His Influence on American Medicine, *Bull. Inst. Hist. Med.* 5:347 (April) 1937.

SULFANILAMIDE A PHOTSENSITIZING AGENT
OF THE SKINBEN A. NEWMAN, M.D. AND HERMAN SHARLIT, M.D.
NEW YORK

In spite of the intensive use of sulfanilamide in the last year as a chemotherapeutic agent in beta-hemolytic streptococcus infections, clinical reports have noted a relatively low incidence of untoward reactions. Our observations of more than 300 patients in the erysipelas wards of Bellevue Hospital (service of Dr. John Nelson), treated with sulfanilamide, are in substantial agreement with this. The occurrence of dizziness, mental confusion, lassitude and mild cyanosis was not uncommon with patients receiving large doses of the drug, but this in no way interfered with the therapy or its effects. Of this entire group, dermal reactions in the form of toxic erythema appeared in only one patient. This was a banal type of toxic erythema, evanescent and of nondescript character, and might well have been a consequence of the infection itself.

The more recent use of sulfanilamide in ambulatory cases of nonstreptococcal infection appears to supply the circumstances for a distinct and special type of dermal response to the presence of this drug in the skin. We herein report four such cases.

REPORT OF CASES

CASE 1—J. R., a white man, aged 26, attended the genitourinary clinic May 25, 1937, because of a gonorrheal urethritis of five days' duration. He was given 10 cc of prontosil¹ intramuscularly and sulfanilamide 20 grains (1.3 Gm) three times a day. May 30, the fourth day of medication, he took a "sun



Fig. 1 (case 1)—Early appearance of eruption twelve hours after exposure to sunlight. Note delimitation at waist line.

bath" for five hours, exposing all of his body above the waist line. The following morning the patient showed a dermal eruption and felt ill. He promptly reappeared at the clinic acutely ill and with a temperature of 103 F. The urethral discharge

From the Department of Dermatology and Syphilology, New York University Medical College and Bellevue Hospital, service of Dr. Howard Fox.

¹ The term prontosil has been used for a number of related substances. To avoid confusion the term prontosil used in this paper refers to the solution of the disodium salt of 4-sulfamido-phenyl-2-azo-7-acetyl amino-1-hydroxynaphthalene-3,6-disulfonic acid.

had disappeared the second day of therapy. The eruption was confined to the upper half of the body and ended abruptly at the waist in a sharp, distinct line. It consisted of scattered macular plaques, which on the chest and back had become one confluent sheet. On the sides of the chest, the neck, face and upper extremities the lesions varied from the size of a pea to that of the palm of the hand, and the majority of these lesions were macular, though some were slightly raised papules, a mixture as it were, of a scarlatiniform and morbilliform eruption. They were deep red with a dusky violaceous tinge.



Fig. 2 (case 1)—Eruption becoming more confluent. Note sharp delimitation at waist line.

The patient was immediately hospitalized and on the following day the eruption had become completely confluent, involving the entire upper half of the body. On the second day of hospitalization the temperature had become normal, the eruption began to fade and completely disappeared on the sixth day after his admission to the hospital.

The routine urine examination showed no abnormalities, and the blood count was normal. The Wassermann and Kahn tests of the blood were negative.

We continued to confine this patient to his bed with definite instructions to avoid direct sunlight. On disappearance of the eruption, sulfanilamide was again prescribed, 20 grains (1.3 Gm) at 8 a.m. and a similar dose four hours later. One hour after the administration of the second dose of the drug the patient experienced a tingling sensation in the skin and noted the appearance of a faint erythema. The following morning the eruption was at its maximum intensity and involved the complete and identical areas originally exposed to the sun and the site of the initial eruption. The character of the eruption differed in no wise from the initial one. It was accompanied by fever (to 104 F) and general malaise. In addition, however, an irregular mild erythema developed over the lower half of the left leg, an area not initially involved by exposure to sunlight or later exposed to it. All of this induced eruption disappeared in six days as did the constitutional symptoms.

The patient remained confined to his bed and strict prohibition of exposure to sun was continued. Now with an apparently normal skin the patient was exposed to an erythema dose of ultraviolet radiation on two skin sites, each 10 cm square: one site a previously involved one of the upper part of the back and the other a previously unaffected one on the thigh.

eruption was induced at either of these sites. Two days later sulfanilamide 20 grains (13 Gm) was administered to the patient at 8 a m and another like dose at 12 noon. At 10 a m, two hours before the second administration and before any eruption appeared, an erythema dose of ultraviolet radiation was given to a previously unaffected area over the right hamstrings. The following course of events ensued. At 1 p m the original site of eruption began to take on a scarlatiniform hue. The experimentally irradiated area showed no change at that time. By evening the original site was the seat of a diffuse scarlatiniform eruption, with the experimental area beginning to show signs of bluish erythema. The following morning the original site had faded to almost normality, with the experimental area going on toward the blue-red previously described as characteristic of this eruption.

CASE 2—C R, a white man, aged 30, a street pedler, appeared at the genito urinary clinic June 1, 1937, because of a urethritis of five weeks' duration. He was given 10 cc of protosil intramuscularly and sulfanilamide 20 grains (13 Gm) three times a day. Two days later, on his return to the clinic he had an eruption on the face and neck, extending down to a V over the sternum, in a line with his open shirt collar. The eruption on the face consisted of scattered, erythematous macules and papules, varying in size from a pea to a twenty-five cent piece (24 mm). On the neck the eruption consisted of a deep red plaque. That evening pinhead sized erythematous papules appeared in the antecubital fossae. He complained of intense itching. The eruption completely disappeared eight days after withdrawal of the medication.

CASE 3—J S, a white man, aged 25, unemployed, had a severe syphilis vulgaris of the entire bearded area of three years' duration. Previous treatment consisted of roentgen therapy, ointments of ammoniated mercury and chlorhydroxyquinoline and applications of aqueous solution of brilliant green. Experimental therapy with sulfanilamide was started June 3, 1937. He was advised to take 20 grains (13 Gm) three times a day for three days and then 15 grains (1 Gm) three times a day for two days. The patient reappeared at our office on the fifth day of medication complaining of a rash of twelve hours' duration. The eruption consisted of deep red, pea to dime (18 mm) sized scattered macules on the face and on the dorsa of the hands. He stated that he had been exposed to the sun for the entire previous afternoon but had been fully clothed. Itching was very mild. The syphilis vulgaris was unaffected.

CASE 4—O L, a white man, aged 22, unemployed, had a severe syphilis vulgaris of one and a half years' duration. His past treatment had included applications of various types of wet dressings, ointments of ammoniated mercury and chlorhydroxyquinoline and roentgen therapy. Experimental therapy with sulfanilamide was started June 3, 1937. He was advised to take 20 grains (13 Gm) three times a day for two days and 15 grains (1 Gm) three times a day for two days. Four days later the patient returned to our office, with an eruption said to be of twenty-four hours' duration. The eruption consisted of deep red macules and papules scattered over the face and neck, a diffuse maroon erythema with slight edema of both hands and a scattered pink erythema on the inner surface of the left thigh. The latter area, however, had not been exposed to sunlight. All the skin of both hands up to and including the wrist was involved, and the eruption was sharply demarcated at the cuff line. The patient complained of lassitude and a severe pruritus. He had been exposed to the sun the entire previous day but had been fully clothed. The eruption completely disappeared one week after the withdrawal of the drug. The syphilis vulgaris was unaffected.

SUMMARY OF CLINICAL APPEARANCE AND COURSE

These four patients receiving moderate doses of sulfanilamide had identical features in their histories and a similar development of a characteristic eruption. None were acutely ill at the time the drug was prescribed; they were ambulatory and they were all exposed to direct sunlight for five hours or more while taking the medication. In each case within twelve hours after exposure to the sun an eruption of the skin developed almost wholly confined to the parts exposed. The eruptions were similar and characteristic. They consisted of numerous scattered, irregularly grouped macular plaques, varying in size

from that of a pea to that of the palm of the hand. Some of the lesions were slightly raised above the skin. As the eruption progressed the lesions became more confluent, until the entire exposed portion was uniformly involved. The color of the fully developed eruption in each instance was striking. It was deep red with a violaceous tinge, the exact hue aptly described as maroon. No scaling accompanied either the evolution or the involution of the lesions. Moderate to severe itching was present in three of the four patients. Clinically the eruption was a toxic erythema which, on withdrawal of the sulfanilamide vanished completely in one week. Constitutional symptoms such as malaise, lassitude and elevation of temperature accompanied the development of the eruption, its degree, apparently, was measurable by the extent of the cutaneous surface involved.

COMMENT

Obviously sulfanilamide can photosensitize skin. We have as yet had no opportunity to study in detail the mechanism of this sensitization. The few experimental conditions set up about the study of case 1 would indicate (1) that threshold doses of the drug are necessary at the time of exposure to sunlight to effect an eruption, (2) that on withdrawal of both drug and sunlight the eruption will completely disappear before the sensitizing influence of the irradiation has been dissipated. Thus was evidenced by the fact that reactions can again be elicited in previously involved skin by further exhibition of the drug in the absence of added irradiation. The appearance in scattered, unexposed sites of nondescript erythemas simultaneously with the more spectacular eruptions in the exposed areas would suggest that, in addition to the manifest cellular background to the sensitizing mechanism involved, there may in some measure be a concomitant humoral disturbance able to induce cutaneous changes at a distance.¹

SUMMARY

1 A peculiar eruption induced by sulfanilamide and sunlight was reproduced experimentally in one patient, giving conclusive evidence that sulfanilamide was the photosensitizing agent.

2 We believe it incumbent on physicians when prescribing sulfanilamide to instruct their patients to avoid direct sunlight.²

32 East Sixty-Fourth Street

SULFANILAMIDE AND THERMOTHERAPY IN GONOCOCCIC INFECTIONS

A PRELIMINARY REPORT

EDGAR G. BALLENGER, M.D., OMAR F. ELDER, M.D.
AND HAROLD P. McDONALD, M.D., ATLANTA, GA.

By thermochemothrapy is meant the use of artificial fever to supplement the use of chemical agents in the treatment of infections.

Our experience with a group of patients who received artificial fever in combination with sulfanilamide has convinced us of the value of such a plan of treatment. Patients chosen for thermochemothrapy at first were those who had failed to respond to artificial fever or those in whom the treatment with sulfanilamide had failed. When these agencies were administered simultaneously, however, it was soon seen that the combination of these remedies was more efficacious than when either was used alone. Urethral discharge and cloudy urine, due to the gonococcal infection, which had not responded to large doses of sulfanilamide, were seen to disappear in one or two days after thermochemothapeusis.

In these treatments 80 grains (5 Gm) of sulfanilamide was given daily for two days, then artificial fever was administered. The fever was carried as high as 103 or 104 F and maintained in this range for three or four hours. As has already been found, this amount of hyperpyrexia is not sufficient to cure a gonococcal infection. Since sulfanilamide had failed and since this moderate amount of artificial fever is not sufficient to cure such infections, the conclusion seems justified that the hyperpyrexia activated the sulfanilamide or increased the defensive body reactions in a manner not attained by these agencies administered separately.

1 Dr. Howard Fox gave his permission for us to present the cases from his service.

2 Since submission of this report six additional cases of similar photosensitization by sulfanilamide have been observed by the authors.

At first thermochemotherapy was administered every other day until three treatments were given. After the first artificial fever treatment the daily amount of sulfanilamide was reduced from 80 to 60 grams (4 Gm). Early in our work this was gradually reduced still further after the fever was discontinued. The well being of patients so treated soon led us to discontinue the sulfanilamide after the third treatment with fever.

Tests were made at once to determine whether or not gonococci could be found. After five patients were shown to be well after this short course of sulfanilamide and with three treatments with artificial fever, we were under the impression that at least some of these patients were well after the first treatment with fever. We then decided to give but one treatment with fever supplemented with sulfanilamide and see whether or not this was sufficient. In two out of three patients so treated the usual tests for gonorrhea gave negative results. The third patient appeared to be well for five days, the urethral discharge with gonococci then reappeared.

Since the plan of treatment with the combination of artificial fever with sulfanilamide was found to be efficacious in patients with resistant infection, we decided to employ it in patients who for domestic or business reasons had urgent need for immediate cure. So far we have had no failures in ten consecutive patients when three fever treatments were administered simultaneously with sulfanilamide in the doses previously mentioned. There was one failure, in a patient who had three treatments with hyperpyrexia. On investigation it was found, however, that on account of a disturbed gastro-intestinal tract he had not taken the sulfanilamide as directed. After his stomach disorder had disappeared he was given adequate doses of sulfanilamide and then was cured by one additional treatment with fever. This result clearly showed us the necessity of giving sulfanilamide in an adequate amount before inducing the fever.

Never in many years of urologic work have we seen resistant infections disappear with the regularity and the promptness that have followed our attacks with this plan of treatment with fever and sulfanilamide combined.

Elderly patients with cardiac involvement or those with impaired renal or hepatic function do not tolerate well either artificial fever or sulfanilamide.

In a later report we shall discuss infections with other organisms that ordinarily do not respond either to sulfanilamide or to artificial fever therapy, yet which have been cured by their combined use.

804 Healey Building

THIRD GENERATION SYPHILIS

JOHN C. CLARK, M.D., ASBURY PARK, N. J.

Third generation syphilis is extremely rare. "The rub comes in the establishing of the prenatal as distinguished from the possibly acquired syphilis of the second generation mother." I believe that this case establishes prenatal syphilis in the mother.

REPORT OF A CASE

Mrs. S. D., a Negress, aged 18, a primipara, presented herself to the antepartum clinic of the Monmouth Memorial Hospital, Long Branch, N. J., Aug. 19, 1936, with a three months pregnancy.

The history revealed that the patient was the first living child in her family, her mother having previously had fourteen pregnancies, terminating either in miscarriages or in stillbirths. The patient was followed by two infants who lived only a few months, and then by a sister who lived and at the present time is 15 years of age. Two more living children were born alternating with stillbirths, making a total of twenty-two pregnancies and four living children. The sister presents Hutchinson's teeth and a positive Wassermann reaction of the blood. The other two children are not available for examination at this time. The patient's husband presents no clinical evidence of syphilis, and the Wassermann reaction of the blood is negative.

The patient showed above the average intelligence. Her height was 5 feet (152 cm) and her weight 117 pounds (53 Kg).

Her teeth presented unmistakable evidence of prenatal syphilis in both Hutchinson's incisors and mulberry sixth year molars. There was also the classic facies of heredosyphilis, including the depression of the nasal bridge. A routine Wassermann test of the blood was reported positive.

Treatment was instituted and consisted of sixteen weekly injections of nearsphenamine, a total of 8 Gm.

March 15, 1937, the patient was delivered of a 6 pound (2,720 Gm) male child, apparently normal but in whom hemorrhages from the nose, mouth and anus occurred on the second day of life. The hemorrhages lasted three days but responded satisfactorily to a transfusion of 60 cc of the father's whole blood. The Wassermann reaction of the cord blood was reported positive, as was the blood obtained by jugular puncture on the tenth day.

Treatment of the child has consisted of acetarsone by mouth. He has made a satisfactory gain in weight and has been free from any other clinical manifestations of prenatal syphilis.

I feel that this is prenatal syphilis in the second and third generations, in the third generation the case was modified perhaps by antepartum treatment of the mother.

404 Asbury Avenue

HYPERSENSITIVITY TO SULFANILAMIDE

MONTÉ SALVIN, M.D., LOS ANGELES

The case I am reporting here seems to be an anaphylaxis like reaction of a patient to the new drug sulfanilamide. Because of the miraculous benefits reported by the use of this new discovery in streptococcal and gonococcal infections, physicians are using it in these and other types of infections, and no doubt any complication, untoward reaction or unusual effect produced by this drug is of interest to the medical profession.

REPORT OF CASE

History.—A man, aged 22, presented himself at my office with an acute urethral discharge, which was accompanied by burning on urination and frequency. The discharge was of two days' duration, and there was a history of exposure to gonorrhea six days previously. The patient stated that he had not had any previous trouble of this sort. The past history was essentially negative. He had always enjoyed good health, he was not subject to colds, and the family history was negative with regard to tuberculosis.

Examination revealed a thick yellowish discharge at the urethral orifice, and a smear of this stained by the Gram method showed many gram-negative intracellular and extracellular diplococci. The two glass test showed many shreds in the first but none in the second glass. A diagnosis of acute anterior urethritis was made.

Treatment consisted of directions regarding diet and general hygiene, and tablets of sulfanilamide were prescribed, the directions being to take two tablets (10 grains, or 0.65 Gm) after each meal and two at bedtime. The patient was advised not to take any saline cathartics and was told to report back in three days. No other treatment was given at this time.

The next evening the patient's mother telephoned me saying that her son was very ill and wanted me to visit him. Arriving at the house soon afterward, I found the boy lying in bed complaining of intense itching all over the body, accompanied by sneezing, shortness of breath and lacrimation.

Examination.—Physical examination at that time revealed a temperature of 101 F, a pulse rate of 96, and a blood pressure of 110 systolic, 55 diastolic. The patient was extremely uncomfortable. There was much swelling of the eyelids, lips and scrotum, with urticaria-like lesions of the face, the back of the ears, the inner margins of the elbows and knees and the abdomen. Urinalysis was negative except for 1 plus albumin and pus. The white blood cell count was within normal limits.

Careful questioning of the family revealed no allergic diseases and none of the relatives had ever suffered from hives, eczema, hay fever or asthma.

Treatment.—The patient was told to discontinue the sulfanilamide. A large dose of magnesium magma was given, and an injection of three drops of epinephrine was administered.

cutaneously The next day all the symptoms had disappeared except the urethral discharge Patch tests with sulfanilamide were positive Tests with many other sulfur and related compounds were all negative A small dose of 1 grain (0.065 Gm) brought on a subsequent attack with itching and sneezing The drug was then discontinued

The patient still has urethritis However, treatment is now being given by the old standard methods, namely, irrigations and the like

COMMENTS AND CONCLUSIONS

Hypersensitivity to a new drug occurred in a patient who had never had any history of hypersensitivity to any substance and whose family, both immediate and more distant, had had no allergic diseases Small doses produced subsequent attacks, and patch tests of the drug were positive while tests of related compounds were negative

3998 South Vermont Avenue

Special Clinical Article

A COMPARISON OF MANDELIC ACID
AND SULFANILAMIDE AS URI-
NARY ANTISEPTICS

CLINICAL LECTURE AT ATLANTIC CITY SESSION

HENRY F. HELMHOLZ, M.D.

ROCHESTER, MINN.

Within the past two years two drugs, mandelic acid and sulfanilamide, have been added to our armamentarium for the treatment of urinary infections Both represent advances over the therapeutic measures in use before their introduction The ketogenic diet was a definite therapeutic advance, and it made it possible to clear up infections in patients with urinary stasis that had previously remained immune to treatment The difficulties of taking the ketogenic diet were such, however, that Rosenheim¹ introduced another organic acid, mandelic acid, in place of beta-oxybutyric acid This was another step forward in the treatment of urinary infections Mandelic acid can be taken by mouth, and it is excreted unchanged in the urine

Beta-oxybutyric acid and mandelic acid act bactericidally in about the same concentration and in the same range of p_H Both require organic acid concentrations

TABLE 1—The Bactericidal Effect of 1 per Cent Mandelic Acid at p_H 5

Time of Taking Culture	Colonies Escherichia Coli per 0.5 Cc	Colonies Aerobacter Aerogenes per 0.5 Cc	Colonies Staphylo- coccus Aureus per 0.5 Cc	Colonies Strepto- coccus Faecalis per 0.5 Cc
Before incubation	3 600	1 680	4 000	12 800
1 hour after incubation	3 600	880	2 400	9 600
2 hours after incubation	1 280	30	1 200	3 000
4 hours after incubation	800	1	1 000	35
8 hours after incubation	0	0	0	0
24 hours after incubation	0	0	0	0

of from 0.5 to 1.0 and a p_H of the urine between 5.0 and 5.5, anything that prevents achieving these conditions vitiates the value of the treatment Reduced renal function, for example, prevents the secretion of a urine of a p_H as low as 5.5 and a urinary concentration

of the organic acids in the bactericidal range In infections with urea-splitting organisms, such as those of the Proteus group, the alkalinity of the urine is usually such that, in spite of the use of acid salts, the urinary p_H rarely approaches 5.5

Osterberg and I² have shown that mandelic acid acts bactericidally on all the common gram-negative bacilli found in urinary infection More recently I³ have studied the effect of this drug on Staphylococcus aureus and Streptococcus faecalis and, as shown in table 1, the bactericidal effect on these organisms is practically the same as on the gram-negative bacilli Because of the resistance of Streptococcus faecalis to sulfanilamide therapy, a series of five strains of this organism was tested out with concentrations of mandelic acid of 0.25, 0.5 and 1 per cent, acting at a range of p_H from 5.0 to 5.5 (table 2) The bactericidal effect was very closely comparable to that on Escherichia coli Clinical experience has borne out the efficacy of mandelic acid therapy in Streptococcus faecalis infections as indicated by our experiments in vitro

Given originally as sodium mandelate in combination with ammonium nitrate or ammonium chloride to acidify the urine, mandelic acid is now generally given in the form of the ammonium salt If the urine does not reach the necessary p_H of 5.5, ammonium nitrate can be given in addition The mandelate is almost quantitatively excreted in the urine, so that by knowing the amount given in twenty-four hours and the total daily output of urine, the concentration of mandelic acid in the urine can be kept at approximately 1 per cent The usual adult dosage is 12 Gm a day,

TABLE 2—The Bactericidal Effect of Mandelic Acid on Streptococcus Faecalis at Various Concentrations and p_H 's

Concentration of Acid per Cent	p_H of Urine	Strains				
		1	2	3	4	5
0.25	5.0	—	+	+	+	+
0.5	5.3	S	+	+	+	+
1.0	5.5	+	+	+	+	+

— organisms not killed + organisms killed S bacterostasis

that is, 3 Gm four times a day, taken after each meal and at bedtime The twenty-four hour quantity of urine should be kept at about 1,000 cc (1 quart) For children the dosage is proportionately smaller One gram of ammonium mandelate is prescribed for each hundred cubic centimeters of urine in the daily output, accordingly, for an output of 500 cc (1 pint), 5 Gm of the drug should be given

In addition to the proper urinary concentration of mandelic acid, it is necessary to have the proper acidity, and this should be determined daily This can be done by the patient with the use of chlorphenol red or nitrozone paper The former indicates proper acidity by a yellow color and insufficient acidity by a red color, the latter indicates the proper acidity by a yellow color and insufficient acidity by a green color If the necessary acidity is not reached by means of the administration of ammonium mandelate alone, ammonium chloride or ammonium nitrate in doses of from 0.5 to 2 Gm four times a day is given The rapidly successful treatment by mandelic acid of a patient with chronic infection of the urinary passages is seen in table 3 Of special

From the Section on Pediatrics, the Mayo Clinic
Read in the General Scientific Meetings at the Eighty Eighth Annual
Session of the American Medical Association Atlantic City N. J. June
7 1937

1 Rosenheim M. L. Mandelic Acid in the Treatment of Urinary
Infection Lancet i 1032 1037 (May 4) 1935

2 Helmholtz H. F. and Osterberg A. E. Rate of Excretion and
Bactericidal Power of Sulfanilamide (Prontylin) in the Urine Proc
Staff Meet. Mayo Clin 12 377 381 (June 16) 1937

3 Helmholtz H. F. The Bactericidal Power of the Urine after the
Administration of Prontylin by Mouth Proc Staff Meet. Mayo Clin
12 244 245 (April 21) 1937

interest is the rapid clearing up of an infection with *Streptococcus faecalis* after a failure with intense sulfanilamide therapy (table 4)

Recently I have studied the bactericidal effect of the urine after the administration of sulfanilamide by mouth. I have been able to show that, with sulfanilamide in concentrations that are easily obtainable by oral administration of the drug, the urine is bactericidal for *Staphylococcus aureus*, *Escherichia coli*, *Aerobacter*

TABLE 3—Treatment of a Girl, Aged 3 Years, with Pyelitis of Four Weeks Duration
(Ammonium mandelate [15 Gm] four times a day)

Days	pH of Urine	<i>Escherichia coli</i>
16	—	Innumerable
17	5.0	0
18	5.2	0
20	—	0
21	Medication discontinued	0
28	—	0

aerogenes and organisms of the *Proteus* and *Pseudomonas* groups. In sharp contrast is the luxuriant growth of *Streptococcus faecalis* in urine that is strongly bactericidal for the other organisms. It was further noted⁴ that the same concentration of sulfanilamide was more effective in alkaline than in acid urine. After the administration of sulfanilamide the urine is usually alkaline, but it is important to determine that such is actually the case. Table 5 shows the increased bactericidal power of a specimen of urine of pH 6.0 when alkalinized to pH 7.5.

This action of sulfanilamide in alkaline urine is of great significance in the treatment of *Proteus* infections. In the presence of a very strongly alkaline urine, its marked bactericidal action on eight strains of the *Proteus* group of organisms gives hope for successful treatment of a group resistant to mandelic acid as well as to all other forms of therapy dependent on an acid urine. The uniform growth of five strains of *Streptococcus faecalis* in urine bactericidal for the other bacteria, however, sets the latter infection quite apart and represents a loophole in the therapeutic efficacy of sulfanilamide. Clinically we have found in a number of mixed infections that, on sulfanilamide

TABLE 4—*Streptococcus faecalis* Infection Cured with Mandelic Acid

Day	Treatment	Dose		Sulfanilamide, Mg. per 100 Cc. in Urine		Organisms per 0.5 Cc. of Urine
		Grams	Times per Day	Pus, Grade	Conjugated	
1	Sulfanilamide	0.33	6	3	—	Innumerable
2	Sulfanilamide	0.33	6	1	—	900
3	Sulfanilamide	0.33	6	1	52	Innumerable
5	Sulfanilamide	0.33	6	1	98	Innumerable
6	Ammonium mandelate	1.0	4	1	—	Innumerable
9	Ammonium mandelate	1.0	4	0	—	0
11	Medication discontinued			0	—	0
14	Medication discontinued			0	—	0
20	Medication discontinued			0	—	0

therapy, the gram-negative bacilli disappear from the urine, leaving behind a pure culture of *Streptococcus faecalis*. In the case cited previously (table 4), we increased the dosage of sulfanilamide above the average in an attempt to influence the *Streptococcus faecalis* infection, but without any effect. Using mandelic acid, the infection cleared up in three days. Whether there are other organisms causing urinary infections which are specifically resistant, like *Streptococcus faecalis*, is still to be determined.

"Prontosil," a proprietary product related to Prontosil, or sulfanilamide, was first given by rectum, and later by intravenous injection as well as by mouth, in the treatment of urinary infections. Unshelm⁴ and Klein⁵ both reported excellent results in the treatment of the pyelitis of childhood. Unshelm stated that prontosil had no effect on the *Escherichia coli* in vitro. Our results at the clinic in the treatment of simple urinary infections of the bacillary type have been equally successful with sulfanilamide. I wish to call special attention to two cases of *Escherichia coli* and *Aerobacter aerogenes* infection which yielded rapidly to sulfanilamide therapy after a long and unsuccessful treatment with mandelic acid.

REPORT OF CASES

CASE 1—A girl, aged 4 years, had suffered from an infection with *Escherichia coli* for a period of two years, with stasis due to megalo-ureter. The blood urea was normal. Pus, grade 1, and innumerable *Escherichia coli* organisms were constantly found in the urine on culture. In a period of about two months this patient was given six courses of ammonium mandelate therapy. Because of difficulty in keeping the urine at a pH below 5.5, ammonium chloride or calcium chloride was given in doses of 1 Gm four times a day. During one period of nine days the ketogenic diet also was used. On several occasions a single sterile culture was obtained, otherwise, the cultures uniformly showed innumerable organisms per 0.5

TABLE 5—Effect of Reaction on Bactericidal Power of Sulfanilamide in Urine
(Free 57 conjugated 68 mg. per hundred cubic centimeters)

Organism	pH 6 Colonies per 0.5 Cc.		pH 7.5 Colonies per 0.5 Cc.	
	Before	After 24 Hours	Before	After 24 Hours
<i>Staphylococcus aureus</i>	370	4	250	0
<i>Escherichia coli</i>	4,200	4,360	600	0
<i>Aerobacter aerogenes</i>	720	59	Innumerable	26
<i>Proteus ammoniae</i>	820	200	700	0
<i>Pseudomonas</i>	3,420	5,400	3,500	1,760

cc of urine. Following this trial with mandelic acid therapy the child was given 0.33 Gm of sulfanilamide five times a day. At the end of four days her urine was sterile. Medication was continued for three days longer, during which time cultures of the urine remained sterile. Cultures taken two days after discontinuance of the medication were still sterile. Five days after treatment was stopped, however, innumerable organisms were again present. Sulfanilamide was again administered and the urine was sterile for a period of nineteen days.

CASE 2—A boy, aged 3½ years, had an acute attack of urinary infection in August 1935. His temperature rose to 105 F. He was treated with various drugs until October 1936, but without success. At that time ammonium mandelate was administered for a period of two months, but the infection persisted. The same treatment was tried again for three weeks, beginning in January 1937.

On his admission to the clinic his urine contained pus grade 4, and cultures revealed *Escherichia coli* and *Aerobacter aerogenes*. An intravenous urogram, retrograde urogram and cystoscopic examination showed ureterectasis and pyelctasis and cystitis cystica. The patient was given 1 Gm of ammonium mandelate four times a day, and later five times a day (table 6). The urine was found to be sterile on culture at the end of eight days of treatment. At the end of eleven days administration the drug was discontinued and after twenty-four hours, cultures of the urine again contained innumerable gram-negative bacilli. Ammonium mandelate was again given, the dose being increased to 6 Gm a day. In spite of this increased dose and a range of pH from 5.0 to 5.5 the urine remained unchanged.

4 Unshelm E. Zur Behandlung der kindlichen Pyuria. Arch. f. Kinderh. 109: 65-84, 1936.
5 Klein E. Prontosil in der Kinderpraxis. Med. Klin. 2: 9-0941 (July 10) 1936.

after thirty days of treatment. Following this failure, sulfanilamide, in the dose of 0.33 Gm four times a day for the first four days and five times a day on the fifth day was given. On the second day the bacteria had been reduced in number to fifty per 0.5 cc of urine on culture and, on the fifth day, to only two per 0.5 cc of urine. On the sixth day the urine was sterile. After ten days of treatment the administration of sulfanilamide was discontinued and cultures of urine taken three and five days later were sterile.

The ketogenic diet and mandelic acid can be given only in the subacute and chronic stage of pyelitis, whereas sulfanilamide can be administered in the acute febrile stage. Sulfanilamide is also easier to administer than is mandelic acid. Acting best in an alkaline medium, sulfanilamide can be given along with sodium bicarbonate and sodium citrate, which, together with the forcing of fluids, we at the clinic have relied on for treatment of the disease in its acute stage. The dosage in infancy is from 5 to 10 grains (0.3 to 0.65 Gm) a day, for children from 2 to 4 years of age, 10 to 15 grains (0.65 to 1 Gm), for children from 4 to 8 years, 15 to 25 grains (1 to 1.6 Gm), and for children from 8 to 12 years, 20 to 30 grains (1.3 to 2 Gm) a day. The adult dosage, as given by Cook and Buchtel,⁶ is 30 grains (2 Gm) the first day, 40 grains (2.6 Gm) the second day, and 60 grains (4 Gm) the third day, then decreasing the dose to 40 grains again on the fourth day. They were successful in treating two patients with pyelonephritis whose blood urea was above 100 mg per hundred cubic centimeters of serum, during the course of treatment the blood urea came down close to normal figures.

TABLE 6—Treatment of a Boy with Bilateral Pyelectasis, Ureterectasis and Cystitis Cystica
(*Aerobacter aerogenes* and *Escherichia coli* infection)

Days	Treatment	Dose		Pus Grade	pH	Number of Bacteria in 0.5 Cc of Urine
		Grams	Times per Day			
1	Ammonium mandelate	10	4	4		Innumerable
4	Ammonium mandelate	10	5	2	5.3	Innumerable
8	Ammonium mandelate	10	5	1		None
11	Discontinued			1		None
12	Ammonium mandelate	10	5	1		Innumerable
17	Ammonium mandelate	10	6	1	5.2	Innumerable
19	Ammonium mandelate	10	6	1	5.5	Innumerable
22	Ammonium mandelate	10	6	1	5.0	Innumerable
28	Ammonium mandelate and ketogenic diet	10	6	2		Innumerable
36	Diet and ammonium mandelate discontinued					
38	Ammonium mandelate	10	5	3		Innumerable
43	Discontinued			3		Innumerable
Treatment with Sulfanilamide						
1	Sulfanilamide	0.33	4	3		Innumerable
2	Sulfanilamide	0.33	4	1		50
5	Sulfanilamide	0.33	5	1		2
6	Sulfanilamide	0.33	5	1		0
12	Sulfanilamide	0.33	5	1		0
14	Sulfanilamide	0.10	5	0		0
16	Sulfanilamide	0		0		0
19	Sulfanilamide	0		0		0
21	Sulfanilamide	0		0		0

SUMMARY AND CONCLUSIONS

The introduction of mandelic acid and sulfanilamide has greatly improved the chances of curing urinary infections. Mandelic acid is dependent for its action on a concentration greater than 0.5 per cent and a pH of the urine less than 5.5, so that it is not likely to be successful unless the function of the kidney

is normal or nearly so. The inability to reduce the pH of the urine of patients with *Proteus* infections makes mandelic acid therapy almost useless in the treatment of such infection. Its action on *Streptococcus faecalis*, however, makes it the antiseptic of choice for this type of infection. Sulfanilamide, because of its ease of administration and tolerance by the stomach, is the drug of choice, however, in the average case, and it has the added advantage that it can be used during the acute stage of the disease. Acting best in an alkaline urine, sulfanilamide should be extremely useful in treating infections of the *Proteus* group. Its striking ineffectiveness in the treatment of *Streptococcus faecalis* infections, however, is a definite handicap.

These two drugs, one acting only in an acid and the other best in an alkaline medium, supplement each other, and they should be used in the treatment of urinary infections according to the type or types of organisms causing them.

Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORTS
HOWARD A. CARTER, Secretary

EVIDENCE REQUIRED BY THE COUNCIL ON PHYSICAL THERAPY FOR CONSIDERATION OF APPARATUS USED IN FEVER THERAPY

The Council on Physical Therapy will give consideration to apparatus designed, advertised and sold for the purpose of administering fever treatments. Manufacturers of such apparatus and appliances are asked to comply with the general requirements as stated in the booklet "Official Rules of the Council on Physical Therapy" and are requested to present the following additional information:

1 A full description of the construction and method of operation of the unit, including specifications, working plans, photographs, blue prints and also the patent number.

2 Temperature charts showing the time required to raise the rectal temperature of twelve patients from normal to at least 106° F.

3 Statement of the constancy with which any degree of rectal temperature may be maintained for five hours and evidence to support these claims.

4 Inclusion, in the data furnished, of the temperature and the relative humidity of the air within the chamber throughout the periods of treatment, if the apparatus comprises a chamber in which the body of the patient lies during treatment.

5 A report on any undesirable effects on patients with reference to:

- (a) Skin (danger of burns)
- (b) Heart (blood pressure and pulse)
- (c) Respiration
- (d) Relative comfort or discomfort
- (e) Incidence of delirium

6 Energy input required to operate the unit.

The Council on Physical Therapy will give careful consideration to:

- (a) The facility with which the condition of the patient's skin can be observed during treatment
- (b) The facility with which the patient's physical needs can be attended to during treatment
- (c) The facility and rapidity with which, in case of emergency, the patient can be withdrawn and restorative treatment administered

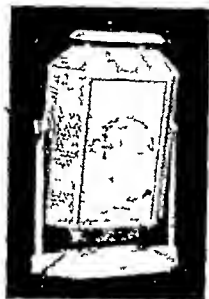
⁶ Cook, E. N. and Buchtel, H. A. The Use of Sulfanilamide (Prontylin) in Urinary Infections. Proc. Staff Meet. Mayo Clin. 12: 381-383 (June 16) 1937.

EVEREADY TABLE MODEL CARBON ARC LAMP, TYPE M-4, ACCEPTABLE

Manufacturer National Carbon Company, Inc., Cleveland

This table model carbon arc lamp, producing ultraviolet radiation, is designed to be used under the direction of a physician at the bedside, in the hospital or in the home. In outward appearance this lamp is similar to the Home Model Type M-1, which was accepted by the Council, Nov. 5, 1932. The difference lies in the omission of the single thickness Corex-D window.

Description—The lamp examined (Type M-4) is provided with a wire mesh, which intercepts nonselectively about 40 per cent of the radiation of all wavelengths. Accompanying the lamp were Eveready Therapeutic C carbon electrodes, which are "designed especially for erythema production." The sizes used are No. 68 for the lower and No. 610 for the upper electrode.



Eveready Table Model Carbon Arc Lamp Type M-4

On 115 volts alternating current the arc begins to operate quietly on about 128 amperes and in the course of about ten minutes burns out on 105 to 11 amperes. Using an ammeter in the circuit, and depressing the starting lever when the current decreased below 115 amperes, the radiometric and biologic (erythemogenic) tests were made with the arc operating on 118 to 125 amperes, or about 600 watts in the arc. If the lamp had been permitted to operate until it burned out, the integrated intensity would be about 20 per cent lower than the average used in the biologic tests. Other pertinent details regarding the lamp are given in THE JOURNAL, Nov. 5, 1932, page 1604, where a similar and Council accepted lamp is described.

Radiometric Tests—The ultraviolet radiation of wavelengths shorter than and including 3,132 angstroms were evaluated by means of a differential thermopile and filter radiometer, as recommended by the International Congress on Light. The measurements were made at a distance of 24 inches from the front of the wire mesh screen, or about 28 inches from the center of the arc.

The wire mesh transmits nonselectively about 60 per cent of the radiation of all wavelengths. The ultraviolet intensity of wavelengths 3,132 angstroms and shorter (to 2,400 angstroms) of the arc shining through the wire mesh was $412 \mu\text{W}/\text{cm}^2$. This is about eight times the requirement for acceptance as a therapeutic lamp (fifteen minutes' exposure) under the direction of a physician.

When the lamp is used with a Corex-D window, the intensity is about ten times that required by the Council for a sunlamp (one hour exposure) for home use without the direction of a physician.

Erythema Tests—In view of reports of severe burns received by users of various kinds of so-called Sun Lamps, tests were made of the time required to produce a minimum perceptible erythema (M. P. E.), which is a measure of skin tolerance and a necessary precautionary test to avoid burns over a large area. The skin of the person used in making the test is of average pigmentation and has been subjected to previous tests, hence, of known erythema reaction.

Exposures to the Therapeutic C carbon arc were made on the untanned inside upper arm, at the minimum acceptable distance—24 inches—from the wire mesh window, for one, two, three, four, five and seven minutes respectively. After three hours all exposures were visible, the one minute exposure being only faintly red.

After twenty-four hours the one minute exposure had disappeared and the five and seven minute exposures were painful burns. The two minute exposure was still visible (after two days) showing that the minimum perceptible erythema exposure

is a trifle less than two minutes. The calculated time of exposure for a skin of average pigmentation is 19 minutes.

At a distance of 3 feet the intensity would be reduced to one half, requiring an exposure of four minutes for a minimum perceptible erythema. The instructions state that in using these therapeutic C carbons the first exposures should be for three minutes at a distance of 3 feet. From the foregoing tests it appears that burns may ensue on a sensitive untanned skin, if the exposure is not accurately timed.

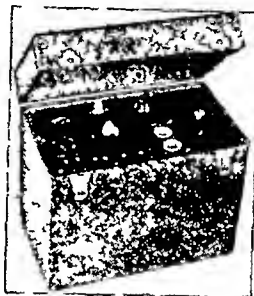
The conclusion to be drawn from these tests is that the ultraviolet intensity of the Type M-4 carbon arc provided with Therapeutic C carbon electrodes is ample, when used under the direction of a physician.

In view of the foregoing report on the performance of the Eveready Table Model Carbon Arc Lamp, Type M-4, the Council on Physical Therapy voted to include it in the list of accepted devices because it meets the specifications for acceptable professional lamps.

MAJESTIC PORTABLE SURGICAL UNIT ACCEPTABLE

Manufacturer Majestic Surgical Instrument Company, Chicago

The Majestic Electro-Surgical Unit is intended for use in the physician's office and in the hospital. Coagulating, desiccating and cutting currents are available as well as a ground free current for illuminating diagnostic instruments requiring from $1\frac{1}{2}$ to $2\frac{1}{2}$ volts. The unit is foot-switch operated. It comes in a leatherette carrying case and weighs about 27 pounds.



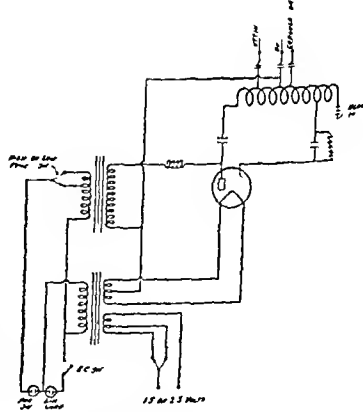
Majestic Portable Surgical Unit

A single tube Hartlev circuit is employed. The wavelength is 399 meters. The coagulating and cutting currents are protected by two condensers against feed-back. Two transformers are employed, one filament and one plate. The filament transformer supplies the current for the diagnostic light (as used in cystoscope or resectoscope examinations). This winding is static shielded as well as ground free, so that it may be employed in bladder diagnostic work. A high and low switch is provided for current adjustment. The machine may be used with or without the body plate electrode.

At full cutting capacity, the unit draws approximately 4 amperes from a 110 volt alternating current line. The transformer temperature rise and the rise within the cabinet taken at various levels are within the limits of safety prescribed by the Council. The parts used in the alternating current circuit are of standard manufacture.

The unit was tried out in a clinic acceptable to the Council for a period of several months. The cutting current generated by the outfit was reported better than the coagulating current, although both were satisfactory.

In view of the foregoing favorable report, the Council on Physical Therapy voted to include the Majestic Portable Surgical Unit in its list of accepted devices.



Majestic Portable Surgical Unit
Schematic diagram of circuit

Council on Foods

ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COUNCIL ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION AND WILL BE LISTED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED

FRANKLIN C BING Secretary

DIETENE

Manufacturer—The Dietene Company, Minneapolis

Description—A powdered mixture of skimmed milk powder, sugar, soluble calcium caseinate, cocoa wheat embryo, dried whole egg, dried brewers' yeast, salt, Karaya gum, concentrate of vitamins A and D from cod liver oil, seasoning and artificial flavoring (dried toffee extract, vanillin and coumarin)

Manufacture—The ingredients in formula proportions are mechanically mixed, screened and automatically filled into containers

Analysis (submitted by manufacturer)—Moisture 4.6%, total solids 95.4%, ash 5.2%, fat (ether extract) 4.0%, protein (N \times 6.38) 36.1%, crude fiber 0.6%, Karaya gum 1.2%, carbohydrates other than crude fiber and gum 48.3%, sodium chloride as NaCl 1.6%, calcium as Ca 0.86%, phosphorus as P 0.86%, iron as Fe 0.0045%

Calories—374 per gram, 106 per ounce

Vitamins—Assays show that the finished product supplies the following vitamins in units per hundred grams: vitamin A, 3,500 U S P units, vitamin B₁, at least 230 International units, vitamin G, 424 Bourquin-Sherman units, and vitamin D, 160 U S P units

Allowable Claims—Dietene is accepted as a food product intended primarily for use in connection with procedures for reducing weight. The dietary requirements for low calorie diets and the Council requirements for special purpose foods intended for incorporation in menus for reducing weight have been published (THE JOURNAL, Aug 8, 1936, p 431). Dietene in itself has no reducing properties, but it is a preparation which is rich in protein, calcium, phosphorus and vitamins A, B₁, G and D, all of which must be given particular attention in the selection of low calorie menus. Acceptance of this product does not mean that reducing without medical advice is approved. On the contrary, the Council emphasizes that reducing without the advice and supervision of a physician may be dangerous

PURITAN BRAND LARD

Manufacturer—The Cudahy Packing Company, Chicago

Description—Leaf lard which complies with government standards for that product

Manufacture—Kidney fat from government inspected hogs is hashed into a steam jacketed open kettle, which is equipped with a mechanical stirrer, the temperature is increased until the cracklings are well dried and settle out from the rendered fat. The melted fat is strained through clean muslin to remove fine cracklings, automatically filled into clean tin pails and solidified, or solidified and packed in paper cartons

Analysis (submitted by manufacturer)—Moisture 0.10%, total solids 99.9%, free fatty acids as oleic acid 0.25%, iodine value 58, melting point (closed capillary) 46-48 C, solidifying point of fatty acids (titer test) 40-41 C, saponification value 194-196, color (Lovibond 5¼" col max.) 20Y-2R, smoke point (open cup) 365-375 F, rancidity (Kreis reaction) negative, keeping quality (hours at 208 F) six-eight

Calories—9 per gram, 255 per ounce

CLIX SHORTENING

Manufacturer—The Cudahy Packing Company, Chicago

Description—Hydrogenated lard

Manufacture—Dry, rendered lard from government inspected hogs is refined with sodium bicarbonate to remove fatty acids and treated with hydrogen gas in the presence of reduced nickel catalyst at elevated temperature and pressure. After the iodine number has been lowered sufficiently, the catalyst is completely

removed by double filtration. The filtered fat is treated with steam at high temperature and under vacuum as a deodorizing process. The product is then solidified, homogenized and filled into containers

Analysis (submitted by manufacturer)—Moisture, not over 0.05%, total solids 99.95%, free fatty acids as oleic acid, not over 0.03%, iodine value (Wijs method) 59.60, rancidity (Kreis reaction) negative, melting point (closed capillary) 47-49 C, solidifying point of fatty acids (titer test) 38-39 C, saponification value 194-196, color (Lovibond 5¼" col) not over 5Y0, 2R, smoke cup (open cup) min 435 F, inert gas incorporated 4-8%, keeping quality (hours at 208 F) ten-fifteen

Calories—9 per gram, 255 per ounce

LIBBY'S HAWAIIAN PINEAPPLE JUICE

Libby, McNeill & Libby, Chicago, manufacturers of Libby's Hawaiian Pineapple Juice, has agreed to maintain its advertising within the claims recognized by the Council on Foods and the product is therefore reaccepted. The method of manufacture has been described in THE JOURNAL (Dec 8, 1934, p 1779)

Analysis (submitted by manufacturer)—Moisture 87.1%, total solids 12.9 Gm per hundred cubic centimeters, ash 0.5 Gm per hundred cubic centimeters, protein (N \times 6.25) 0.5 Gm per hundred cubic centimeters, reducing sugars before inversion, as invert sugar, 9.6 Gm per hundred cubic centimeters, reducing sugars after inversion, as invert sugar, 11.1 Gm per hundred cubic centimeters, crude fiber 0.05 Gm per hundred cubic centimeters, carbohydrates other than crude fiber (by difference) 11.1 Gm per hundred cubic centimeters, titratable acidity, as citric acid, 0.7 Gm per hundred cubic centimeters

Calories—0.46 per cubic centimeter, 13.1 per ounce (avoirdupois)

Vitamins—Contains vitamin A and is a good source of vitamins B₁ and C. Chemical titration indicates a vitamin C content of 0.12 mg of ascorbic acid per gram, 3.3 per ounce. Equivalent to 2.4 International units per cubic centimeter, 66 per ounce

Claims of Manufacturer—The canned pineapple juice retains in high degree the nutritional values of the fresh fruit juice

STOKELY'S UNSTRAINED VEGETABLE SOUP WITH CEREAL AND BEEF BROTH

Manufacturer—Stokely Brothers & Company, Inc., Indianapolis

Description—A canned combination of tomato juice, beef broth, unstrained finely cut potatoes, carrots, water, unpolished rice, whole grain barley, celery, barley and rice flour, cabbage and spinach, slightly seasoned with salt

Manufacture—Selected carrots and potatoes are washed, peeled and diced. Fresh spinach, cabbage and celery stalks are inspected, trimmed, washed and finely cut. Unpolished rice and whole grain barley are cooked. Juice is extracted from fresh tomatoes. Canned juice is used when fresh tomatoes are not available. Each juice is heated without exposure to air to conserve the vitamins. The beef broth contains per pint the meat extractives from approximately one pound of lean beef and a portion of bone. Formula proportions of the ingredients are mixed, heated to 98 C without exposure to air, and filled into enamel-lined cans which are sealed and processed for sixty-five minutes at 116 C

Analysis (submitted by manufacturer)—Moisture 86.4%, total solids 13.6%, ash 2.2%, sodium chloride (NaCl) 1.8%, fat (ether extract) 0.1%, protein (N \times 6.25) 1.6%, crude fiber 0.8%, carbohydrates other than crude fiber (by difference) 8.9%, reducing sugar as dextrose 1.5%, sucrose 0.5%, pH 5.0

Calories—0.43 per gram, 12 per ounce

Vitamins—The natural vitamin content is retained in large measure in the manufacturing process by the use of equipment and procedure which exclude incorporation of air, the vegetable material is exposed only to steam

Claims of Manufacturer—A supplementary unsieved food for infants, retaining in high degree the natural flavor, mineral and vitamin values of the raw products. Requires only warming for serving

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, SEPTEMBER 25, 1937

FEVER THERAPY

During the past two years, interest in the production of fever by physical means has greatly increased. Since the gravity of the procedure cannot be overestimated, the administration of fever therapy should be in the hands of a competent, well trained organization. The personnel should include at least one qualified physician who remains in attendance throughout the treatment and a skilled nurse-technician who has had special training in the field to administer the treatments.

Physicians intending to use this therapeutic measure should select patients with as much discrimination as they use in determining those who are to undergo major surgical operations. Raising of the body temperature to 105 and 106 F and maintaining it at that temperature for several hours is a most serious procedure, requiring the utmost vigilance on the part of the attendants for the safety of the patient. Naturally these treatments cannot be considered simple office procedures.

Several methods have been used for administering fever treatments by physical means. Among those in most general use are radiant heat cabinets, luminous heat cabinets and short wave diathermy cabinets. Electric blankets, sleeping bags, hydrotherapy, hot water baths and blankets have been used successfully by many specialists.

In view of the activity at the present time on the part of the manufacturers to supply the profession with equipment for producing fever by physical means, the Council on Physical Therapy has adopted the report "Evidence Required by the Council on Physical Therapy for Consideration of Apparatus Used in Fever Therapy," printed elsewhere in this issue of THE JOURNAL.¹ The most acceptable device would seem to be of the cabinet type, so arranged that the patient may be observed during the treatment and his physical needs attended to readily and conveniently. The only accurate

way of keeping close check on the temperature of the patient is by using the rectal thermometer. Hence, means should be provided to read the temperature conveniently. The unit must be so constructed that the patient may be withdrawn with facility, in case of emergency, and restorative treatment administered. The Council emphasizes the convenience and safeguards attached to apparatus as fully as it does the physical claims made for such apparatus. The paramount question is not so much one of the most suitable method of raising the body temperature as of the safety to the patient with any particular method.

EXPERIMENTAL TRACHOMA IN MONKEYS

Conjunctival scrapings from trachoma patients are noninfectious for dogs, rabbits, guinea-pigs, rats or other laboratory animals. Four years ago, however, Julianelle¹ discovered that such conjunctival material causes a folliculosis if instilled into the eyes of monkeys. This experimental folliculosis usually lasts less than a year, though a few cases are on record in which the infection persisted for from two to three years in monkeys. Julianelle found that only about half of the cases of human trachoma are thus transferable and that approximately half of the monkeys are resistant to this experimental infection. On recovery from the experimental disease there is no demonstrable acquired anti-trachoma immunity in the monkeys.

Hetler and James² subsequently found that monkeys maintained on diets deficient in vitamin A, on inadequate proteins or on other food deficiencies are not more susceptible than normal monkeys to this experimental eye infection. In fact, their data suggest that monkeys in a state of malnutrition are more resistant to experimental trachoma than are monkeys maintained on adequate diets.

All attempts to isolate and identify the trachoma-producing agent in human conjunctival scrapings have thus far failed.³ Numerous bacterial species have been isolated. Inoculation of the bacteria thus cultivated, either individually, pooled or in conjunction with Berkefeld filtrates of conjunctival material, is invariably without pathogenic effects on monkeys.

These failures suggest that the agent causing trachoma is not bacterial. Methods, therefore, have been sought to free infectious conjunctival material from all bacterial contaminants. The most successful method to date is intratesticular inoculation into rabbits. Pooled conjunctival material from trachoma patients is collected in infusion broth and injected in 0.5 cc doses into the testicles of normal rabbits. From one to two weeks later the inoculated testicle is removed.

- ¹ Julianelle L. A. and Harrison R. W. *Am. J. Ophth.* **16**: 857 (Oct.) 1933; **17**: 1035 (Nov.) 1934.
- ² Hetler R. A. and James W. M. *Am. J. Ophth.* **18**: 10 (Jan.) 1935.
- ³ Julianelle L. A., Harrison R. W. and Morris M. C. *J. Exper. Med.* **65**: 735 (May) 1937.

¹ Evidence Required by the Council on Physical Therapy for Consideration of Apparatus Used in Fever Therapy, this issue, p. 1041.

aseptically and emulsified in a sterile mortar. The resulting emulsion is almost invariably free from demonstrable bacteria but is still highly infective if introduced into the conjunctival sac of monkeys. Bacteria-free infectious material produces no demonstrable inflammatory reaction in rabbit testicles. The presumably specific trachoma-producing agent usually remained active in the rabbit testicle for from one to two months.

Attempts to cultivate the infectious agent have thus far proved unsuccessful. Minced rabbit kidney, minced chick embryo, the developing chick egg, and various tissue fragments in homologous plasma have been repeatedly tried. More than a thousand such trials have failed to show evidence of multiplication. Numerous characteristics of the presumptive virus, however, have been determined. Exposure to from 45 to 50 C for fifteen minutes regularly inactivates infectious material. Monkey infectivity is usually lost as a result of three or four days' storage at room temperature. Glycerin is not an effective preservative for this agent. Two per cent cocaine, 2 per cent silver nitrate, 0.25 per cent phenol, 1:1,000 antimony and potassium tartrate or 1:100,000 gentian violet each kills or otherwise inactivates the virus in from three to four hours. Blood from patients with trachoma contains no demonstrable neutralizing or inactivating antibodies.

There is no apparent correlation between the presence or absence of epithelial inclusions with rhesus infectivity. Conjunctival scrapings containing numerous inclusion bodies are not necessarily infectious. Material lacking all demonstrable inclusions is at times highly infectious. Epithelial inclusions have never been found in monkeys successfully inoculated with trachoma material or in infected rabbit testicles.

UTILIZATION OF VITAMIN A AND CAROTENE

The intimate relationship between the plant pigment carotene and the indispensable accessory food factor known as vitamin A is well founded. Carotene is absorbed from the intestinal tract and is changed into vitamin A in the body. The vitamin A potency of plant material is largely due to carotene, whereas that of animal products is to a greater or less extent accounted for by vitamin A itself. Chemically it is reasonably well established that the molecule of the hydrocarbon beta-carotene gives rise to two molecules of the primary alcohol vitamin A. The two compounds exhibit definite differences in chemical and physical properties, yet their effect in the organism is so similar that the accepted international standard for vitamin A is 0.6 microgram of beta-carotene.

Although both these compounds are soluble in fats and in the so-called fat solvents, an increasing mass of evidence indicates that the extent of absorption is rather

widely different. One of the early demonstrations¹ of the difference between carotene and vitamin A in the organism rests on the effect of liquid petrolatum on the absorption of these compounds, apparently vitamin A itself is satisfactorily utilized in the presence of liquid petrolatum, whereas carotene is not absorbed from the intestine when liquid petrolatum is present and can be recovered in the feces. Somewhat later Greaves and Schmidt² showed experimentally that, when the bile was shunted from the small intestine to the colon, symptoms of vitamin A deficiency were not alleviated by orally administered carotene, whereas under the same conditions vitamin A itself was effective. Similar results obtained with jaundiced animals support the view that, whereas vitamin A can be absorbed from the intestine in the absence of bile, the presence of this body fluid is essential to the utilization of carotene given by mouth. Another study³ with normal animals fed large doses has shown that vitamin A is better absorbed than carotene. In a study of some Indian foods containing vitamin A and carotene, De⁴ compared the amount ingested with that excreted in the feces to secure the extent of absorption. Vitamin A itself was almost completely absorbed, whereas only 45 to 65 per cent of the carotene ingested disappeared from the intestine. Whether or not all the carotene which disappears from the intestine and is not recovered in the feces is absorbed remains more or less uncertain, yet the calculations of De on the basis of his investigation would indicate that this assumption is correct. Thus the fate of vitamin A and of carotene in the mammalian gastrointestinal tract is not entirely the same.

The most recent evidence bearing on the point under discussion is of further interest because the observations were made on several species. Guilbert, Miller and Hughes⁵ used cattle, sheep and swine in their studies of the minimum vitamin A requirement to prevent night blindness. Carotene was provided by alfalfa and by crystalline carotene, vitamin A was administered as cod liver oil. After careful evaluation of the potencies, these adjuvants were fed on the weight basis. The results show that hemeralopia is prevented in these species by from 6 to 8 micrograms of vitamin A as such or by from 25 to 30 micrograms of carotene per kilogram of body weight, indicating again the superiority of vitamin A per unit of weight when given by mouth. With the advent of more highly purified vitamin concentrates in some cases and of synthetic vitamin crystals in others, therapeutic use of these food factors may now approach quantitative dosage more closely than ever. Not only should the requirement be known within practical limits, but attention should be

1 Dutcher R A, Harris P L, Hartzler E R and Guerrant A B. *J Nutrition* 8: 269 (Sept.) 1934.

2 Greaves J D and Schmidt C L A. *Am J Physiol* 111: 492 (April) 1935.

3 Davies A W and Moore Thomas. *Biochem J* 28: 228 (No 1) 1934.

4 De N K. *Indian J Med Res* 24: 751 (Jan.) 1937.

5 Guilbert H R, Miller R F and Hughes E H. *J Nutrition* 13: 543 (May) 1937.

given to the peculiar behavior of the various factors in the gastro-intestinal tract as well as after absorption. It would seem that the biologic assay still has practical value in pointing out the virtues and drawbacks of some of the food factors in relation to the mode of administration.

Current Comment

SAFE PROCESSES FOR INSTITUTIONAL CANNERS

Two years ago THE JOURNAL called attention to the problem of safety in the home canning of foods.¹ Complete eradication of *Clostridium botulinum* from home canned products is largely a matter of education of the housewife to the necessity of pressure cooking for the "nonacid" products. These are all products in which the hydrogen ion concentration is more alkaline than p_H 4.5. The "acid" products include chiefly tomatoes and citrus fruits. The revised Farmers' Bulletin 1762, issued by the Department of Agriculture,² provides an inexpensive and reliable guide for the proper processing of home canned foods. Recommendations for the canning of foods on an institutional scale are provided in a newly revised publication³ from the Research Laboratory of the National Canners Association. A perusal of this bulletin emphasizes once more the highly technical nature of present day adequate canning procedures. Suitable precautions should be observed by institutional canners who pack seasonal products for consumption by inmates of hospitals, asylums and prisons. Successful canning of acid foods such as tomatoes can be easily attained. Destruction of pathogenic organisms in such products may be accomplished by processing in boiling water long enough to attain a temperature at the center of the container of about 200 F. The nonacid foods, however, are more subject to spoilage by heat-resistant organisms which develop anaerobically in the can unless the food has been subjected to a heat treatment adequate to insure their destruction. Probably the most dangerous pathogenic anaerobe known is *Clostridium botulinum*, and commercial heating processes are calculated to be severe enough to destroy the spores of this organism. Sometimes it is necessary to subject a food product to a more prolonged heat treatment in order to prevent spoilage by other organisms which are even more resistant to destruction by heat than the pathogenic bacteria. Typical commercial processing times for the large size (No 10) cans at 240 F are forty-five minutes for beets and carrots, fifty-five minutes for peas and 180 minutes for cream style corn. These wide variations in the time required for heat processing are due to the differences in the rates at which heat penetrates into these various products. Other factors which determine the time of heat processing and which are adequately discussed in this brief guide book are the

temperature in the center of the container at the start of the process and the weight of the product in the can. It is interesting to note that with some products the position in which the can is heat processed in the retort is important. Spinach and similar greens that tend to stratify must be processed with the can in a horizontal rather than in a vertical position. Cans of asparagus must be heated with the spears in a vertical position. Other factors stressed in the bulletin and worthy of mention are strict observance to sanitation in the plant and prompt and rapid cooling of the cans to prevent later spoilage by thermophilic organisms. Bulletins of this type which provide full information about proper canning procedures are valuable safeguards to public health, and the canning industry is to be commended for its support of such publications. Directors of institutions which make a practice of preserving foods in metal containers would do well to give careful attention to the technical details provided in this bulletin.

SPIROCHETES IN THE PLACENTA

Since placental blood is often seronegative, even in known syphilis, any test that will lead to the positive detection of the disease in doubtful cases is of great importance. Recently Dorman and Sahyun¹ of the American University of Beirut, in Syria, examined 145 placentas by means of a modified Levaditi silver impregnation technic and demonstrated spirochetes that corresponded morphologically to *Spirochaeta pallida*. The placentas examined were chosen because of a suggestive history, a positive serum reaction, stillbirth, prematurity, placenta praevia, abortion, cesarean section or any other suggestive lesion. By using twin block sections, one for paraffin inclusion and the other for silver impregnation, these investigators were able to select from the paraffin sections stained with eosin and hematoxylin the areas most likely to contain the spirochetes. Their method was to find blood vessels showing mild periarteritis and endarteritis, which is known as Warthin's criterion. In the corresponding block treated with the silver method, foci were observed which took a pale yellow stain and were surrounded by a dark, powdery deposit. The organisms were found in and around these foci, usually near the amniotic surface of the placenta. In nineteen of the 105 "positive" placentas the spirochetes were "numerous," in fifty-one "moderate" and in thirty-five "few." Yet in 53 per cent of the mothers no external stigmas of syphilis could be found. Sixty-one per cent of the mothers had been delivered of full-term living children in previous pregnancies, the others had histories of abortions, stillbirths, neonatal deaths, premature labors or fetal abnormalities. Thirty of the mothers had had varying amounts of antisyphilitic treatment during this pregnancy. Even in some of these the spirochetes could be demonstrated in the placenta. This method should be confirmed and the spirochetes positively identified as *Spirochaeta pallida*.

¹ Safe Processes for Home Canners editorial J. A. M. A. 105 205 (July 20) 1935.

² U. S. Department of Agriculture. Home Canning of Fruits, Vegetables and Meats. Farmers' Bull. 1762. September 1936.

³ National Canners Association Research Laboratory. Processes for Nonacid Canned Foods in Metal Containers. Bull. 26-L. ed. 3. June 1937.

¹ Dorman H. G. and Sahyun P. F. Identification and Significance of Spirochetes in the Placenta. Am. J. Obst. & Gynec. 33 924 (June) 1937.

CARE OF THE INDIGENT SICK

Changes in the administration of medical service are usually urged for the benefit of the indigent, in modern governmental plans these are the last persons considered. Sickness insurance, "medical cooperatives," group hospitalization and all the prepayment schemes offer nothing to the unemployed or indigent. They have no funds to contribute, no wages from which deductions can be made for the support of organizers, administrators, solicitors or propagandists. The indigent have until recently been left to the care of salaried physicians, most of whom were political appointees. The quality of the services was long a public scandal. Organized medicine, almost alone, demanded decent medical service for the poor. When millions became indigent, abuses were so multiplied that they could no longer be overlooked and some of the professional proposals were adopted. Wherever organized medicine was consulted, the poor chose their physicians and service was supervised to insure good standards. The gratuitous services of practicing physicians have always been the main source of supply for medical service to the indigent. Physicians seldom complained of this burden. More recently they have welcomed aid from public funds or private philanthropy when this was not accompanied by the kind of lay control which depreciates the value of medical service. Most proposals for new schemes of medical service to the indigent would begin by depreciating the quality of the service. Fortunately, most of these schemes have never materialized. Just about 90 per cent of the plans that have actually gone into operation and have supplied any additional service to the poor have been proposed, directed and operated by organized medicine.

SALT, DIARRHEA AND INTESTINAL FLORA

Numerous observers have reported intestinal disturbances in animals deprived of inorganic salts. According to Eppright and her co-workers,¹ diarrhea produced in rats by salt deprivation is associated with a replacement of the normal intestinal flora by irritating or potentially toxic bacterial species. With normally fed rats or with rats on a synthetic ration plus adequate salt (i.e., the Mendel salt mixture) *Bacillus acidophilus* is the dominant intestinal micro-organism. About 300,000,000 viable acidophilus bacteria per gram are found in the feces under those conditions. Micro-organisms of the coli-proteus or streptococcus groups are usually absent or are present in only small numbers. On changing to a low salt diet, however, acidophilus bacilli gradually disappear and are replaced by micro-organisms of the coli-proteus and streptococcus groups. Within fourteen days this new intestinal floral balance is usually established. Calcium and phosphorus added to the low salt ration causes a suppression of the abnormal coli-proteus flora and a reappearance of the normal acidophilus counts. Neither calcium nor phosphorus alone, however, is sufficient. *Bacillus acidophilus* given by mouth to rats is not retained on a low salt diet, this fact suggests that success in implanting *Bacillus acidophilus* in man is due to the large amounts

of calcium and phosphorus contained in acidophilus milk. Eppright found that sodium and potassium chlorides are not effective as correctives of low salt diets. Nor will withdrawal of sodium or potassium ions from the Mendel salt mixture lead to an appreciable change in the normal intestinal flora.

GIANT CELLS IN MEASLES

The frequent finding of characteristic giant cells in the lymphatic tissues during the prodromal stages of measles has stimulated renewed interest in the etiology of this disease. The pathologic anatomy of measles has been confined in great measure to a study of the skin exanthem, Koplik's spots and lung complications. But in 1911 Alagna¹ reported the presence of peculiar collections of nuclei, resembling those in the megakaryocyte, without distinct protoplasm found in the enlarged faucial tonsils of children dying at the height of the exanthem. These observations were unheeded until 1931, when Warthin² and Finkeldey³ simultaneously and independently rediscovered the giant cells in the tonsils, and 1932, when Finkeldey⁴ saw them in the vermiform appendix. These observations have been substantiated by Davidsohn and Mora,⁵ Herzberg,⁶ Fischer,⁷ Schultze,⁸ Hathaway,⁹ and more recently Wegelin.¹⁰ The giant cells, irregular in shape, are about 100 microns in diameter and may contain as many as seventy to a hundred chromatin rich nuclei, which are often pyknotic and fragmented and which occur as grapelike masses in the center of the cell. The cytoplasm is basophilic, in places finely granular or foamy. Phagocytosis of lymphocytes and nuclear remains is occasional. The cells are found in the germinal centers, in the lymphoid tissue between them, or subepithelially and occur in the adenoids, the spleen and the peribronchial, retroperitoneal, peripancreatic and mesenteric lymph nodes in addition to the tonsil and appendix. Davidsohn and Mora state that they are rarely seen in lymphoid tissue draining regions of severe inflammation. They are found most abundantly during the prodromal stage and less during the active disease, a fact that harmonizes, interestingly enough, with the studies by Tunnichiff, Duval, Hibbard and others of a green-producing diplococcus, which is isolated from measles patients most easily in the prodromal stages. Warthin thought that the giant cells arose by amitotic division from hyperchromatic cells resembling lymphocytes in the germinal centers. Their presence is thought to be a specific reaction against invasion to the measles virus.

1 Alagna G. Histopathologische Veränderungen der Tonsille und der Schleimhaut der Luftwege bei Masern. Arch f Laryng u Rhin 25: 527 1911

2 Warthin A S. Occurrence of Numerous Large Giant Cells in the Tonsils and Pharyngeal Mucosa in the Prodromal Stage of Measles. Arch Path 11: 864 (June) 1931

3 Finkeldey W. Ueber Riesenzellbefunde in den Gaumenmandeln zugleich ein Beitrag zur Histopathologie der Mandelveränderungen im Maserninkubationsstadium. Virchows Arch f path Anat 281: 323 1931

4 Finkeldey W. Riesenzellbefunde bei akuter Wurmfortsatzentzündung. Virchows Arch f path Anat 284: 518 1932

5 Davidsohn Israel and Mora J M. Appendicitis in Measles. Arch Path 14: 757 (Dec) 1932

6 Herzberg Mortimer. Giant Cells in the Lymphoid Tissue of the Appendix in the Prodromal Stage of Measles. J A M A 98: 139 (Jan) 1932

7 Fischer Walther. Ueber die Diagnose der Masern in Prodromalstadium. Beitr z path Anat u z allg Path 91: 474 (No 3) 1933

8 Schultze W H. Der Wurmfortsatz in Prodromalstadium der Masern. München med Wchnschr 80: 576 (April 14) 1933

9 Hathaway B M. Generalized Dissemination of Giant Cells in Lymphoid Tissue in Prodromal Stage of Measles. Arch Path 10: 819 (June) 1935

10 Wegelin C. The Histologic Diagnosis of Measles. Schweiz med Wchnschr 67: 1 (Jan 2) 1937

1 Eppright Ercel S, Valley George and Smith Arthur H. J. Baet 34: 81 (July) 1937

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES NEW HOSPITALS EDUCATION AND PUBLIC HEALTH)

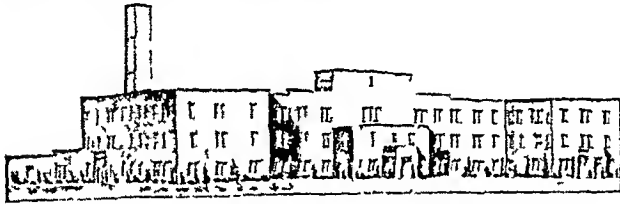
ARIZONA

Personal—Dr. Ruiland W. Hussong, health officer of Phoenix, has resigned, effective September 1, to enter private practice, according to *Southwestern Medicine*.—Dr. Stanley L. Moleski, Grand Rapids, Mich., has been appointed health officer of Yuma County on a full time basis. He succeeds Dr. Calvin A. Eaton, Yuma, who held a temporary part time appointment.

Harlow Brooks Clinical Conference—The second Harlow Brooks Memorial Navajo Clinical Conference was held at Sage Memorial Hospital, Ganado, September 3-4. Speakers included:

Dr. Fred H. Albee, New York: Importance of the Liver at the Top of the Femur and Its Surgical Reconstruction.
Dr. E. Payne Palmer, Phoenix: Cancer Among the American Indians.
Dr. Thomas G. Orr, Kansas City, Mo.: Treatment of Appendicitis and Its Complications.
Dr. Richard H. Pousma, Rehoboth, N. M.: Observations on the Work Being Done in European Clinics.
Dr. Edwin Forrest Boyd, Los Angeles: Mistaken Diagnosis.
Dr. Victor S. Randolph, Phoenix: Collapse Therapy in Tuberculosis.
Dr. Joseph M. Greer, Phoenix: Some Phases of the Work for Crippled Children in Arizona.
Dr. Clarence E. Yount, Prescott: Emergency Treatment of Fractures.
Dr. Arthur C. Carlson, Jerome: Open Reduction of Fractures.

New General Hospital for Care of Indians—A new \$450,000 base hospital for Navajo and Hopi Indians is scheduled for completion November 5 at Fort Defiance. There will be private rooms, wards, isolation wards, a maternity unit, and a nursery with facilities for fourteen patients. According to Dr. William W. Peter, Window Rock, medical director of the Navajo-Hopi areas, the hospital will provide for 130 patients.



The new general hospital for Indians

without overcrowding. The Navajo-Hopi reservation of 25,000 square miles is the largest of 199 Indian reservations in twenty-two states. It has a total population of about 45,000 Navajos and 3,000 Hopis. In this area there are ten hospitals with 344 beds and three sanatoriums with 129 beds. For these thirteen institutions and attending field work there are twenty-one physicians, seventy-three nurses and 195 other employees. Of these 289 medical employees, 148 are Indian and 141 are white. The supporting appropriations from federal funds this year amount to \$530,408. Formerly, when administratively there were five Navajo agencies, each with a superintendent, the medical personnel and programs were organized separately. With the consolidation in 1933 into one Navajo agency, the medical work was also unified. There is now only one medical service embracing all hospitals, sanatoriums and funds under the administrative supervision of a medical director. Through having a larger medical and nursing personnel and more extensive laboratory, medical and surgical equipment than are available in the smaller hospitals, the new base hospital at Fort Defiance is to serve the entire Navajo-Hopi area through receiving difficult cases maintaining a central laboratory service, training new appointees and by occasional area clinics and refresher courses. According to *Southwestern Medicine* the old hospital will be converted into a tuberculosis sanatorium.

CALIFORNIA

Society News—Dr. Howard F. West, Los Angeles, addressed the San Diego County Medical Society, September 14, in San Diego, on "Deficiency States Arising in the Course of Chronic Disease".—Dr. Irvin Abell, Louisville, Ky., President-Elect, American Medical Association, will discuss "The Responsibilities of the Profession" before the Los Angeles County Medical Association, September 30.

Regulate Use of Sulfanilamide—An executive order issued August 26 by Dr. Jacob C. Geiger, director, San Francisco Department of Health, emphasizes the criteria to be followed by clinicians in the department and its institutions in the use of sulfanilamide in certain infections, especially in children. Concerning the drug, the order states:

There must not be any indiscriminate use.
There must be a clear indication for its use.
The ordinary care and routine treatment must have been used and found inefficient.
Patients must be carefully watched for evidence of (1) liver injuries (2) blood cell injuries and (3) cyanosis.

It was stated that the drug may be rapidly excreted and that recovery from such injuries are prompt. In other words this drug must be administered with care as to dosage in relation to body weight, and only by physicians who have all the laboratory facilities for careful observation of the patient.

DISTRICT OF COLUMBIA

Hospital News—Dr. Vincent J. Dardinski, professor of anatomy and director of the department of anatomy, Georgetown University School of Medicine, has been appointed full time pathologist and director of the laboratories of the University Hospital. Dr. John R. Cavanagh, associate clinical professor of medicine at the university, will become director of the outpatient department of the hospital, and Dr. Frank S. Horvath, associate professor of clinical medicine, will be assistant director and supervisor of student instruction in the outpatient department.

Personal—Dr. John B. Nichols, president of the Medical Society of the District of Columbia in 1912, was honored recently on his completion of thirty-five years of service as medical director of the Acacia Mutual Life Insurance Company.—Dr. William DeKleine, medical director of the American National Red Cross, recently received the honorary degree of doctor of science from Hope College, Holland, Mich., from which he was graduated in 1902.—Dr. Carl C. Dauer, formerly assistant professor of preventive medicine, Tulane University Graduate School of Medicine, New Orleans, has been appointed assistant epidemiologist of the District health department.

ILLINOIS

Bacillary Dysentery at Dixon State Hospital—Thirty deaths and 225 cases of bacillary dysentery have occurred at the Dixon State hospital for mental defectives since the first of the year, the newspapers reported September 10. At that time eighty-one persons were under quarantine and all the 3,200 patients in the hospital were being examined for symptoms and signs of the disease.

INDIANA

Personal—Dr. Henry G. Steinmetz, assistant superintendent of the Logansport State Hospital for the last three years, has been appointed supervisor of health in the sixth district, composed of Monroe, Lawrence, Brown, Morgan and Johnson counties, with headquarters at Indiana University, Bloomington.

Fifty Years of Practice—The Fourth District Medical Society and the Tri-County Medical Society (Jackson, Jennings and Bartholomew counties) gave a dinner, August 4, at the Muscatatuck State Park Inn, in honor of Dr. William H. Stemm, North Vernon, who has completed fifty years in the practice of medicine. A watch was presented to Dr. Stemm and also to Mrs. Stemm. The speakers included Drs. Charles E. Gillespie, Seymour, Herman M. Baker, Evansville, president-elect of the state medical association; George E. Denny, Madison, James K. Hawes, Columbus; Evan C. Totten, Madison, and Edmund D. Clark, Indianapolis, president of the state association, and Senator Thomas A. Hendricks, Indianapolis, executive secretary of the state medical association. A graduate of the Medical College of Ohio, Cincinnati, Dr. Stemm once served as mayor of North Vernon and, in 1914, as president of the Jennings County Medical Society. He was president of the state medical society in 1918-1919 and has also served as counselor of the fourth district.

IOWA

Activities of Speakers' Bureau—Four graduate courses are being given this fall by the speakers' bureau of the Iowa State Medical Society, one on cancer at Cedar Rapids, one on general therapeutics at Algona, and one on endocrinology and metabolism at Waterloo and Shelton. The bureau will also present a series of lectures on medicine and health to the students of Luther College at Decorah and Wartburg College at Waverly. The course at Luther College will carry through the year, with one talk every three or four weeks, while the talks at Wartburg College will be given twice a week during October.

KENTUCKY

Personal—Dr Derric C Parmenter, formerly of Greenup and recently in charge of public health work in Greenup County, has been appointed health officer of Breathitt County, with headquarters at Jackson. Dr Randolph Compton, Louisville, has been appointed in Greenup County—Dr Raymond E Wehr, Bedford, has been transferred from Johnson County to Trimble County as health officer.

Society News—Dr Douglas E Scott, Lexington, addressed the Harrison County Medical Society, Cynthiana, recently, on "Treatment of Specific Urethritis"—Dr R Hayes Davis, Louisville, addressed the Grant County Medical Society, Wilhamstown, recently, on "Functional Diseases"—Dr Irvin Abell Jr, Louisville, addressed the society recently on "Pitfalls in the Diagnosis of Acute Appendicitis"—Drs Walter E Vest and Frank C Hodges, Huntington, W Va, addressed the Pike County Medical Society in Pikeville recently on "Dyspepsia in Diagnosis" and "Pathologic Forms of Appendicitis" respectively—Dr Richard R Elmore, Louisville, among others, addressed the Jefferson County Medical Society, Louisville, September 20, on "The Value of Blood Sedimentation Tests"—Dr Chapman S Moorman addressed the Louisville Urological Society, September 21, on "Care of the Prostatic Patient."

LOUISIANA

Personal—Dr James T Nix, director since 1936 of the Louisiana State University Graduate School of Medicine New Orleans has been appointed dean, according to the New Orleans *Times-Picayune*, August 21. He graduated from Tulane University of Louisiana School of Medicine, New Orleans, in 1910—Dr Walter W Pombouéuf, Bastrop, has been appointed health officer of Claiborne Parish, succeeding Dr Harry R Marlatt, Homer, resigned. The change was effective August 1, it was reported.

MICHIGAN

Examination of Applicants for Marriage—The new law in Michigan requiring examination of persons applying for licenses to marry will become effective October 29. It is announced. Under the law, applicants will be required to submit to medical examination including blood tests, not more than fifteen days before applying for a license. A health certificate will be required before county clerks may accept license applications, it was stated.

Status of State Psychopathic Hospital Changed—By a recent enactment of the state legislature, the status and name of the state psychopathic hospital, Ann Arbor, have been changed. The unit will henceforth be known as the Neuropsychiatric Institute of the University Hospital and will function as an integral part of the University Hospital. According to the University Hospital *Bulletin* there is to be a change in the type of patients to be admitted to the institute in that it will no longer be a hospital for committed patients but in the future all admissions are to be voluntary and, in the main non-psychotic persons.

MISSOURI

Annual Fall Clinical Conference at Kansas City—The fifteenth annual fall clinical conference of the Kansas City Southwest Clinical Society will be held at the Municipal Auditorium, Kansas City, October 4-7. Guest speakers will include:

- Dr Fred M Smith Iowa City Concerning the Problem of Gallbladder Disease
- Dr Richard H Jaffe Chicago Pathology of Jaundice
- Dr Owen H Wangenstein Minneapolis Significance of Mechanical Factors in the Genesis of Acute Appendicitis
- Dr Paul B Magnuson Chicago Backache
- Dr Alfred E Barclay Oxford England Practical Importance of Mechanics in Digestion
- Sir George Lenthal Cheatle London England Cystic Diseases of the Breast
- Dr Robert A Strong New Orleans Significance of Vomiting in Infancy
- Dr Otto H Schwarz St Louis Prevention and Treatment of Eclampsia
- Dr Herman L Kretschmer Chicago Present Status of Transurethral Prostatic Resection in the Treatment of Bladder Neck Obstruction
- Dr Bernard L Wyatt Tucson Ariz Role of the General Practitioner in the Field of Arthritis
- Dr Frederick A Collier Ann Arbor Mich Surgery in Diabetes
- Dr Richard B Cattell Boston Diagnosis and Management of Surgical Diseases of the Biliary Tract
- Dr Arnold S Jackson Madison Wis The Injection Treatment of Hernia
- Dr William D Gill San Antonio Texas Paranasal Sinuses and Their Relation to Ocular Diseases
- Dr Max Cutler Chicago Tumors of the Breast—Diagnosis and Treatment

There will be a public health meeting Monday evening with the following speakers: Rev Burriss Jenkins Kansas City, on "The Layman's View of the Medical Profession," Dr Strong,

"Preventive Pediatrics" and Father Alphonse M Schwitalla, S J, St Louis, "The Patient and His Doctor." In addition to the general sessions there will be symposiums on industrial surgery, the heart circulation, lungs, urology and syphilis, obstetrics, gynecology and pediatrics, surgery, medicine, and proctology. The round table luncheons will be addressed Tuesday by Dr Barclay, the theme of his discussion to be "It is very, very wrong to doubt. What nobody is sure about." Wednesday, Dr George B Norberg, Kansas City, Mo., "Some of the Old and Some of the New" and Dr Kretschmer, "Tumors of the Kidney" and Thursday, Dr Ferris Smith, Grand Rapids, Mich., "Evolution of Plastic Surgery," and Dr Collier, "The Administration of Fluid." At the meeting of the Kansas City Society of Ophthalmology and Otolaryngology Thursday, Dr Smith will conduct a round table on "Management of Chronic Sinus Disease with Direct and Differential Diagnosis and Therapeutic and Surgical Treatment" and Dr Gill, a diagnostic clinic, in the evening they will speak on "Nasal Fractures" and "Fractures About the Orbit" respectively.

NEBRASKA

New Health Unit—A new health unit was to be established in Lincoln County, August 1, with headquarters at North Platte and with Dr Donald M Harris, Omaha, as director. The unit is to be financed with federal funds.

Society News—At a meeting of the Madison Six County Medical Society, Norfolk, July 20, the speakers were Drs Edgar V Allen and Lawrence M Randall, Rochester, Minn., on "Diseases of the Peripheral Blood Vessels" and "Irregularities of Menstruation and Menopause" respectively—At a meeting of the Cedar, Dakota, Dixon, Thurston and Wayne Counties Medical Society at Wayne August 3, Drs Archibald F O'Donoghue and Walter Scott, Sioux City, Iowa, spoke on backache and Dr Thomas R Gittins, Sioux City, on headache.

NEW YORK

Society News—Dr Otto Alois Faust, Albany, addressed the Medical Society of the County of Albany, September 22, on "High Calcium Values in Tetany of the New-Born"—The midyear meeting of the New York State Association of Public Health Laboratories will be held at the state laboratory in Albany, October 29.

One-Day Pneumonia Institutes—As a part of the pneumonia control program sponsored by the New York State Department of Health, the Medical Society of the State of New York is collaborating with the department and with the medical schools of the state in offering a series of one-day institutes for physicians on diagnosis and treatment, with special emphasis on serum therapy. Fifty physicians can be accommodated at each institute from the counties surrounding the cities in which they are given. The dates are as follows: Syracuse, October 12, Rochester, October 19, Buffalo, October 25, Albany, November 9, and New York, November 23. No fee will be charged, and the health department will reimburse expenses of those attending up to \$20 each. The institutes will consist of the following features: addresses by authorities on the disease; demonstrations of administration of serum, the taking of blood cultures and sensitivity tests; demonstration of the use of oxygen; informal discussions of individual problems; ward rounds on clinical material if available at the time; sound motion pictures illustrating serum treatment and nursing care. Dr Thomas P Farner, Syracuse, chairman of the state society's committee on medical education, is in charge of arrangements for the institutes.

New York City

Professor Sourdille to Lecture—Prof Maurice Sourdille of the faculty of the school of medicine at Nantes, France, will deliver an illustrated lecture on "New Technics in the Surgical Treatment of Severe and Progressive Deafness from Otosclerosis. Indications, Choice of Method and Results, A Report of More Than 300 Operations," before the section of otolaryngology of the New York Academy of Medicine at a special meeting October 6. The lecture will be in English.

Society News—Dr Russell M Wilder, Rochester, Minn., will address a clinical session of the New York Diabetes Association of the New York Tuberculosis and Health Association, October 15, on "Pathogenesis and Etiology of Diabetes"—Dr Jay Arthur Myers Minneapolis addressed a joint meeting of the Medical Society of the County of Queens and the Queensboro Tuberculosis and Health Association, September 22, on "Tuberculosis in Childhood"—A symposium on "Inflammatory Diseases of the Bronchi" will be presented at the eleventh clinical session of the Tuberculosis Sanatorium

Conference of Metropolitan New York, October 13, by Drs John Alexander, Ann Arbor, Mich., John D. Kernan and Oscar Auerbach.

Dinner to Dr. Snow—Friends of Dr. William F. Snow, general director of the American Social Hygiene Association are sponsoring a testimonial dinner for him at the Waldorf Astoria, October 1. The dinner will mark the fortieth anniversary of Dr. Snow's entrance into Cooper Medical College, now Stanford University School of Medicine, San Francisco. He was a member of the faculty of Stanford for many years and was epidemiologist and later executive officer of the California State Board of Health. He was appointed head of the social hygiene association in 1914. Dr. Snow was instrumental in the organization of the National Health Council and was its president from 1927 to 1934. He has also served as president of the Conference of State and Provincial Health Authorities of North America. During the World War Dr. Snow saw active service as a lieutenant-colonel in the Army Medical Corps and served as secretary of the General Medical Board of the Council for National Defense. Among other activities he was from 1924 to 1928 chairman of a committee of the League of Nations to study traffic in women and children.

NORTH CAROLINA

University News—Dr. Walter Reece Berryhill, formerly associate professor of pathology, physiology and physical diagnosis at the University of North Carolina School of Medicine, Chapel Hill, has been appointed assistant dean, associate professor of medicine and physician-in-chief to the university infirmary. James C. Andrews, Ph.D., formerly assistant professor of physiologic chemistry at the University of Pennsylvania School of Medicine, Philadelphia, has been made professor and head of the department of biological chemistry. Other appointments include those of Dr. Harold W. Brown of the U. S. Public Health Service, recently stationed at the malaria research laboratory, Savannah, Ga., as professor of public health and Dr. Russell L. Holman, New York, as assistant professor of pathology. Dr. Holman has been instructor in pathology at Columbia University College of Physicians and Surgeons. The appointment of Dr. William deB. MacNider as dean was announced in THE JOURNAL, August 21, page 594. Plans for a new building for the medical school and the division of public health, financed by a legislative appropriation and a PWA grant amounting to \$400,000, were announced.

NORTH DAKOTA

A Case of Anthrax—Newspapers recently reported a case of anthrax in a hospital at Mandan, said to be the first ever reported to the state department of health. It was said that four cows belonging to the patient had died of the disease.

OHIO

State Association Sponsors Graduate Lectures—The Ohio State Medical Association will begin a new project of regional graduate lectures October 21 in Findlay, with lectures on heart disease by Drs. Roy W. Scott, Cleveland, and William H. Bunn, Youngstown. The course for the first region will consist of eight sessions of two lectures each given at intervals of two weeks alternately in Findlay and Defiance. Lecturers for the later sessions have not been announced. All members of the association may attend and there will be no registration fee. The lecture project, which was arranged by a committee on education created by a revision of the constitution and by-laws of the association in 1936, will extend over five years. Identical courses will be given at different times each year in six regions of the state. The time will be divided among the various fields of medicine and surgery, and a natural sequence from one session to another and one year to another will be provided. Certificates of attendance will be issued at the end of the five-year course to members who have attended a certain percentage of lectures. Members of the committee on education are Drs. Clyde L. Cummer, Cleveland, chairman; Carl A. Wilzbach, Cincinnati; William Kelley, Hale, Wilmington; Harry S. Noble, St. Mary's; and Russel G. Means, Columbus. The subcommittee on regional postgraduate lectures is composed of Drs. Cummer, Noble, James M. Pierce and Cecil Striker, Cincinnati; Sterling H. Ashmun, Dayton; Louis N. Jentgen, Columbus; and Robert T. Allison Jr., Akron.

OKLAHOMA

Society News—The Four Counties Medical Society (Pottawatomie, Seminole, Hughes and Pontotoc counties) convened in Shawnee recently with the following speakers: all of Ada, A. Linscheid, Ph.D., president of the Central State Teachers' College on "General Education as Related to the Practice of

Medicine," Dr. William F. Dean, "Heart Disease in the Aged" and Dr. Robert E. Cowling, "Right Unilateral Pain in the Abdomen." Dr. Samuel A. McKeel, Ada, president of the Oklahoma State Medical Association, also spoke.

Faculty Appointments at Oklahoma University—The following appointments to the faculty of the University of Oklahoma School of Medicine, Oklahoma City, have been announced:

Berry Campbell, Ph.D., National Research Council fellow in comparative anatomy, Western Reserve University School of Medicine, Cleveland, to be assistant professor of anatomy.

Albert J. Sheldon, A.M., Johns Hopkins University School of Hygiene and Public Health, Baltimore, assistant professor of bacteriology and interim.

Francis C. Lawler, Emory Laboratory of Cancer Research, St. Luke's and Children's Hospital, Philadelphia, assistant professor of bacteriology.

Irvin S. Danielson, Ph.D., teaching fellow in biologic chemistry, Harvard University Medical School, Boston, assistant professor of biochemistry.

Dr. Arnold J. Lehman, instructor in pharmacology, Stanford University School of Medicine, San Francisco, assistant professor of pharmacology.

Dr. Ome Owen Williams, instructor in pathology, University of California Medical School, San Francisco, assistant professor of pathology.

PENNSYLVANIA

Personal—Dr. Elmer Highberger Jr., recently of Saranac Lake, N. Y., has been appointed medical director of the Grand View Sanatorium at Oil City. —Dr. William W. Bolton, Lansdowne, has been named director of the division of syphilis and genito-infectious diseases in the state department of health, succeeding Dr. Edgar S. Everhart. —Dr. Edward B. Shellenberger, who recently retired from the staff of the Danville State Hospital, was honored with a testimonial dinner given by the hospital staff in August.

State Medical Meeting in Philadelphia—The eighty-seventh annual session of the Medical Society of the State of Pennsylvania will be held in Philadelphia, October 4-7, at the Bellevue-Stratford. Guest speakers for general and section meetings include:

Dr. Thomas B. Turner, Baltimore, "The Biology of Syphilitic Infection."

Dr. Frank H. Lahey, Boston, "Duodenal Ulcer—Its Nonsurgical and Surgical Management."

Dr. Foster Kennedy, New York, "The Nervous Relationship of the Gastro-Intestinal Tract."

Dr. Russell L. Cecil, New York, "General Treatment of Pneumonia."

Dr. John Staige Davis, Baltimore, "The Use of Relaxation Incisions When Dealing with Scars."

Dr. Leroy A. Schall, Boston, "Laryngectomy—Its Place in the Treatment of Cancer of the Larynx."

Dr. Lewis Webb Hill, Boston, "Atopic Dermatitis in Infancy and Childhood."

Dr. Louis W. Sauer, Evanston, Ill., "Prevention and Treatment of Whooping Cough."

Dr. Joseph G. Hopkins, New York, "Common Fungus Infections of the Skin."

Dr. Oswald S. Lowsley, New York, "Further Experience with a New Principle in Kidney Surgery."

Dr. Jonas S. Friedenwald, Baltimore, "Clinical Studies in Slit Lamp Ophthalmoscopy."

There will be symposiums on behavior problems in childhood and on the common cold and round table conferences on allergy of the respiratory tract, anemia in infants and childhood bronchiectasis, nephritis in children, acid-base imbalance and care and feeding of the new-born.

WISCONSIN

The Hall of Health—The State Medical Society of Wisconsin at its annual meeting in Milwaukee sponsored an exhibit on medicine and public health for the public, called the "Hall of Health," September 11-17. The exhibit was arranged by the society's council on scientific work of which Dr. William S. Middleton, Madison, is chairman and Dr. Eben J. Carey, Milwaukee, is director of exhibits. Thirty-seven displays were included, employing many mediums and sponsored by numerous organizations. Marquette University School of Medicine had exhibits on embryology, blood vessels and cancer. The Wisconsin Anti-Tuberculosis Association, prevention of tuberculosis, the state board of health, state laboratory and the University of Wisconsin Medical School, laboratory diagnosis of disease. Wisconsin Crippled Children Division, prevention of deformities. Wisconsin Pharmaceutical Association, a modern pharmacy. The Camp Transparent Woman and the sculptural reproduction of Sir Luke Fildes' painting "The Doctor" were on view. The state dental society and the Marquette University Dental School emphasized care of the teeth. The state board of health illustrated its activities and the Medical Society of Milwaukee County explained its work. Exhibits prepared by the American Medical Association provided information on syphilis, cosmetics, posture, mechanical nostrums and "patent" medicines. Cancer was the subject of exhibits by the Wisconsin division of the Women's Field Army of the American

Society for the Control of Cancer, the American College of Surgeons and the department of pathology at Marquette University School of Medicine. The annual exhibit of physicians' hobbies arranged by the woman's auxiliary of the Medical Society of Milwaukee County was a part of the "Hall of Health." Other subjects treated included tooth ring analysis, mental hygiene, foods, occupational therapy, medical education, medical examinations, sight saving, nursing, Bright's disease, burns, anesthesia and rays.

GENERAL

Infantile Paralysis Funds from the President's Birthday Celebrations—The treasurer of the national committee for the birthday bills held January 29 in honor of President Roosevelt for aid in fighting infantile paralysis recently reported that about \$340,000 will be presented to the Georgia Warm Springs Foundation as its share in the funds raised this year from the parties. As of July 28 the treasurer, Mr. Keith Morgan, New York, said that 3,591 local committees had sent their remittances, most of which represented the 30 per cent of the proceeds of the balls, though some committees sent all their funds. Mr. Morgan resigned as treasurer of the committee to become vice president of the Warm Springs Foundation.

Silver Jubilee of Clinical Orthopaedic Society—The twenty-fifth annual meeting of the Clinical Orthopaedic Society will be held in Chicago, October 14-16, with headquarters at the Palmer House. Clinical sessions will be held at Cook County, Billings, Illinois Research, St. Luke's hospitals, and Thorne Hall at Northwestern University. An informal dinner will be held Thursday evening at the Palmer House and the annual banquet Friday evening. The meeting is in honor of Dr. John Lincoln Porter, Evanston, Ill., who founded the society twenty-five years ago when it was known as the Central States Orthopedic Club. In his honor, the John Lincoln Porter Lectureship in Orthopedic Surgery has been established, the first lecture to be given this year by Dr. Willis C. Campbell, professor of orthopedic surgery, University of Tennessee School of Medicine, Memphis, on "Malunited Fractures." Guests of the society during the meeting will include Drs. George E. Bennett, associate professor of orthopedic surgery, Johns Hopkins University School of Medicine, Baltimore; Arthur Bruce Gill, professor of orthopedic surgery, University of Pennsylvania School of Medicine, Philadelphia; and Philip D. Wilson, clinical professor of orthopedic surgery, Columbia University College of Physicians and Surgeons, New York.

American Public Health Association—Health Education Institute—The sixty-sixth annual meeting of the American Public Health Association will be held in New York, with headquarters at the Hotels Pennsylvania, New Yorker and McAlpin, October 5-8. The preliminary program includes the following speakers:

- Dr. Halbert L. Dunn, Washington, D. C., The Adaptation of the International List of Causes of Death to the Changing Needs of the Medical Profession and Public Health Groups
- Dr. Henry B. Elkind, Boston, Is There an Epidemiology of Mental Disease?
- Dr. Wade H. Frost, Baltimore, Familial Aggregation of Infectious Disease
- Dr. Royd R. Sayers, U. S. Public Health Service, Syphilis Control in Industry
- Dr. Thomas M. Rivers, New York, Lymphocytic Choriomeningitis
- Dr. Frank G. Boudreau, New York, International Cooperation in Hygiene
- Dr. Gaylord W. Anderson, Minneapolis, Present Status of Scarlet Fever Prevention

A public meeting will be held Friday afternoon, the speakers to include Mr. Homer Folks, New York, on "The Social Significance of the Health Center," and Dr. Iago Galdston, New York, Individual Preventive Medicine." At a session on public health education Thursday, Mr. Myron Weiss, New York, associate editor of *Time*, will speak on "The Box-Office Appeal of Health Movies." The winner of the Sedgwick Memorial Medal Award will be announced Tuesday when an address will be delivered by Dr. Livingston Farrand, former president of Cornell University, Ithaca, N. Y. Other organizations meeting at this time include the American Association of School Physicians, Association of Women in Public Health, American Association of State Registration Executives, biometric section of the American Statistical Association, Conference of State Sanitary Engineers, Public Health Association of New York City and National Society for the Prevention of Blindness.

The fifth Health Education Institute to be conducted by a committee of the public health education section of the association, will be held October 3-5. The program aims to give the

major objectives and principles of community health education and to provide information about techniques involved and the application of these methods in specific public health activities.

Academy of Ophthalmology and Otolaryngology—The forty-second annual convention of the American Academy of Ophthalmology and Otolaryngology will be held in Chicago at the Palmer House, October 10-15, under the presidency of Dr. Lee Wallace Dean, St. Louis. The meeting will begin with a joint session Monday morning, October 11, at which Dr. Harris P. Mosher, Boston, will be the guest of honor and will make an address. There will also be a symposium on physical therapy presented by Drs. Arthur U. Desjardins, Rochester, Minn.; John S. Coulter and Sanford R. Gifford, Chicago; and John L. Myers, Kansas City, Mo. Mornings thereafter will be devoted to instructional courses. In addition to individual courses with a large number of instructors there will be three special courses on histopathology of the eye, histopathology of the ear, nose and throat, and anatomy of the eye and orbit. The scientific sections, ophthalmology and otolaryngology, will meet separately on alternate afternoons, with the following speakers, among others:

- Dr. Louis Bothman, Chicago, Refractive Errors in the Same Eyes While Under the Influence of Homatropine, Scopolamine and Atropine
- Olof Larssell, Ph.D., and Dr. Ralph A. Fenton, Portland, Ore., Lymphatic Transmission of Bacteria to the Lung
- Drs. Frank R. Spencer, Boulder, Colo., and William C. Black, Denver, Malignant Diseases of the Nasal Accessory Sinuses with Review of Nine Cases
- Dr. Austin A. Hayden, Chicago, Audiometers and Hearing Aids—Minimum Standards
- Dr. Julius Friedenwald and Miss Clara M. McKee, Baltimore, Uveitis Due to a Filtrable Virus
- Dr. Albert N. B. Lemoine, Kansas City, Mo., Eye Manifestations of Endocrine Disturbances
- Dr. Varaztad H. Kazanjian, Boston, Plastic Repair of Deformities About the Lower Part of the Nose Resulting from Loss of Tissue

The Thursday afternoon session will be a panel discussion of "Septic Thrombophlebitis of the Sigmoid Sinus," with Dr. Lee Wallace Dean, St. Louis, president of the academy, as chairman. Tuesday evening there will be a joint session with the American Speech Correction Association. Dr. and Mrs. Dean will hold the annual president's reception Sunday afternoon, October 10, in the Red Lacquer Room of the Palmer House in honor of Dr. and Mrs. Mosher, members of the academy and their guests. The annual banquet and dinner dance will be Wednesday evening and "an evening of diversion" will be presented Thursday evening. Alumni dinners will be held Tuesday evening. Friday will be devoted to a golf tournament at Olympia Fields.

FOREIGN

International Trachoma Meeting—During the meeting of the International Council on Ophthalmology in Cairo, Egypt, December 8-14, there will be a meeting of the International Organization Against Trachoma. Subjects to be discussed include microbiologic etiology, pathology and treatment of trachoma and special reports on the disease in various countries. The French Line, Compagnie Generale Transatlantique, 610 Fifth Avenue, New York, recently announced several trips in connection with these congresses to Alexandria and upper Egypt, Palestine and Syria. Information will be sent on request to physicians interested in the trips.

Society News—The International Hospital Association at its meeting in Paris July 11 voted to hold its 1939 congress in Toronto, Ont., the time and place to be decided later. The French League Against Rheumatism has arranged an "International Day on Rheumatism" to be held in Paris in connection with the exposition, October 9. The subject of discussion will be radioactive medication in the therapy of rheumatism and gout. A meeting will be held in the morning at L'Hopital Antoine and in the afternoon at the Faculty of Medicine. Information may be obtained at the Secretariat of the League, 23 Rue du Cherche-Midi, Paris VI.

Cholera in China War Zone—It is reported that cholera is epidemic in the war zone in China, 1,018 cases having been reported in Shanghai up to September 17. *Science* reported September 10 that Dr. Howard F. Smith, chief quarantine officer of the U. S. Public Health Service quarantine station at Manila, had gone to Hong Kong to take charge of the situation as it concerns the United States and to assist local health authorities in control measures. Dr. Smith cabled that there had been 802 cases, with 427 deaths, in the Hong Kong area up to August 24. Ships bound for the United States from the Orient are ordered to stop at Honolulu for inspection if there is any unusual illness aboard and west coast quarantine stations have been notified to be on the alert to detect cases or carriers promptly.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Aug. 28, 1937

The Risks of Explosion in Anesthesia

In recent years, cases of explosion during the use of anesthetics have been recorded from time to time in this country and in America. The *British Medical Journal* has published a useful review of the subject. In the *British Journal of Anaesthesia*, Coste and Chaplin have published some investigations made to discover under what conditions anesthetic vapors become explosive. They found that a mixture of ethyl chloride and air is inflammable when the proportion of the former lies between 5 and 20 per cent and that in the case of ether vapor and air a concentration of from 2 to 8 per cent can be ignited. If ether vapor is mixed with nitrous oxide the risk of explosion is doubled, as any concentration of ether between 15 and 16 per cent is inflammable, much the same is true of oxygen and ether. Vapor produced by bubbling oxygen, with or without nitrous oxide, through ether in Boyle's machine or Shipway's apparatus produced a very inflammable mixture, even if the gases were passed through the chloroform bottle as well, it was still possible to explode the mixed vapors. On the other hand the risks of explosion in open ether anesthesia were found to be very slight. Samples of air taken at a distance of 2 inches from the patient's mouth contained too small a percentage of ether to ignite. Both ethylene and acetylene proved explosive when mixed with oxygen for purposes of anesthesia and cyclopropane too was a source of danger.

Of more importance to the anesthetist is the spark which may explode the anesthetic mixture. A red hot cautery or a diathermy electrode is an obvious danger. Less obvious dangers are electric light bulbs on esophagoscopes or bronchoscopes. If the insulation is faulty, a spark may arise. A hot dental needle has produced an explosion though its temperature was below that required to produce red heat. Static electricity is another source of danger and has attracted attention in this country and America. The mere movement of blankets over metal operating tables may produce considerable static voltages. The rubber wheels of trolleys provide sufficient insulation to allow dangerous charges to accumulate. It has been recommended to prevent this by earthing the metallic equipment by a light chain trailing to the floor of the operating room. Another method, which is being investigated by the National Physical Laboratory, is the use of electrically conducting rubber for tires, tubing and breathing bags.

A Study of the Mode of Action of Radiation

The Medical Research Council has published a report entitled "Some Quantitative Aspects of the Biological Action of X and Gamma Rays," by Dr. C. M. Scott, who has reviewed the literature of the subject and made experiments on the action of γ -rays on the isolated frog's heart and on the eggs of *Calliphora erythrocephala* (the common bluebottle fly). The rapidity of advances in the radiotherapy of malignant disease has outstripped scientific knowledge, so that this method is largely empirical. The measurement of the doses of radiation is of great practical importance but is much more difficult than measurement of the dosage of drugs. One of the chief points brought out by this report is the extraordinary variations which living cells display as regards their susceptibility to radiation. Thus the radiation required to kill the adult fruit-fly (*Drosophila*) is several thousand times greater than that needed to kill its eggs. The general argument running through the report is that any explanation of the mode of action of radiation on cells must take into account this variation in sensi-

tivity, and many attractive theories regarding the action of radiations break down in face of this difficulty. The evidence marshaled by Dr. Scott supports the view that the fundamental action of radiations is on the nucleus of the cell and thereby on the processes of growth.

The destructive effect on the cell produced in radiotherapy differs entirely from that produced by other agents, such as cold and chemical substances. These destroy all living tissues indiscriminately. So do α and gamma rays in doses of the order of 100,000 roentgens. But doses of the order of 1,000 roentgens, i. e., of the therapeutic order, have a selective action on the nuclei of dividing cells. No physicochemical explanation of this action can be given, it is a biologic action that stands alone. It is a graded action, depending on dose and ranges from completely reversible inhibition of growth to an inhibition which results in the death of the cell.

APPARENT STIMULATION AFTER IRRADIATION

The question whether irradiation has another type of biologic action, namely, an accelerating one on cellular activities, particularly on cellular division, has been often debated. Many surgeons hold that a tumor which has been given an insufficient dose of radiation may grow much more rapidly and that metastases may form more readily. This has been called "the stimulant action of radiations." After reviewing the evidence, Packard concluded that "radiations do not directly stimulate normal activities of the cell, their primary effect is always an injury from which the cell may recover perfectly." According to this view, any acceleration of normal cell processes is temporary and is followed by retardation. But long continued exposure is a different matter. It is well known that malignant tumors arise in the skin of radiologists who have been exposed to small doses of radiation over periods of years. In 1932 Ross described a case in which a radium needle accidentally became embedded in the interventricular septum of a woman's heart. Three years afterward a malignant tumor developed in the liver near the site of the needle. Malignant tumors have also been experimentally produced in animals by prolonged irradiation. In the human skin such tumors are always preceded by obvious injuries, chronic inflammation and atrophy, for example. It may therefore be questioned whether the tumor is due to a direct action of the rays on the cells or is a result of the chronic inflammation and therefore only an indirect result.

THE TIME FACTOR

Clinical evidence shows that cells can tolerate a larger amount of radiation administered in small doses over a long period than they can tolerate in one big dose or in a few big doses administered over a short period. For any given dose of radiation the longer the time over which its administration is spread, whether by reducing its intensity or by administering in fractions, the less its effects. But in the treatment of deep seated tumors the tolerance of the skin has to be considered and this limits the intensity that can be used. Hence in all the methods the radiation is spread over a long time. The destruction of a tumor by a very short exposure to an intense radiation, say 500 roentgens per minute would probably also destroy the skin. On the other hand with a long exposure of feeble intensity, say 0.5 roentgens per minute a dose of 2,500 roentgens would destroy the tumor without injuring the skin. The capacity of normal tissues to recover from the effects of radiation fortunately is greater than that of neoplasms.

The Distribution of Gas Masks

Experiments in the distribution of gas masks are about to be made at the government factory in Blackburn, where masks of the officially approved type are being made at the rate of 500,000 a week. Sites have been selected for twelve of the thirteen gas mask storage depots to be established throughout

the country. There are three depots for storage in the London district, each with room for 3,000,000 masks. Others are to be established at Nottingham, Liverpool, Manchester, Coventry, Bristol, Reading, Cambridge, Gatshead and Galashiels. The principal task now facing the Air Raid Precautions Department is arranging for the transfer of the masks from the main storage depots to regional centers, whence they will be sent in batches of about 30,000 to the buildings from which distribution to individuals will be carried out in the event of emergency. The final distribution will be made under the supervision of air raid wardens, of whom it is hoped there will eventually be 300,000. Metal containers for the masks are being made at the government factory and mouthpieces by the various rubber firms. When completed they are stored in nitrogen to protect the rubber. They are made in three sizes, the smallest for young children. Babies present a special difficulty, which is causing some concern. Devices have been designed to protect without frightening them.

PARIS

(From Our Regular Correspondent)

Aug 28, 1937

Is It Necessary to Modify Hypertonic Saline Solution?

Drs Wilmoth and Le Pelletier, at the June 30 meeting of the Académie de chirurgie, read a paper entitled *Is It Necessary to Modify the Hypertonic Saline Solution as Now Employed in Surgery?* At a previous meeting (April 28) Dr Okinczyk had reported two cases in which the subcutaneous injection of 500 cc of physiologic solution of sodium chloride by the drop method was followed by a high temperature and pulse rate, dry tongue, marked pallor and oliguria. A similar case had been observed by Dr Jean Quenu.

Wilmoth and Le Pelletier's patient, a man of 28, had been treated for a gastric ulcer during the three years preceding his admission to their service. Based on the x-ray examination, a diagnosis of duodenal ulcer was made by the authors and confirmed at operation (subtotal gastric resection). An eventration occurred on the fifth postoperative day, following several attacks of hiccup. The abdominal incision was resutured and on the evening of the same day 20 cc of a 10 per cent saline solution was given intravenously, and 40 cc of a 20 per cent solution by rectum. This was repeated on the following day. The abdominal distention, which had been quite marked, was greatly improved, but a severe diarrhea lasting three days followed, accompanied by evidence of intense dehydration. Death took place on the fifth day after operation. A total of 4 Gm of sodium chloride had been given intravenously and 16 Gm by rectum. The examination at the time the diarrhea and dehydration first appeared revealed a hyperchloremia and a moderate acidosis.

It is well known that following extensive operative procedures the most frequently humoral modifications which have been noted are (a) a hypochloremia due to fixation of chlorine in the traumatized tissues, (b) an increase of polypeptides in the blood and (c) the appearance of an acid which corresponds to the decrease of the alkali reserve and an increase of the globulin and plasma chlorine ratio. These changes are the chief indication for giving a hypertonic saline solution after operation.

The authors warned, however, against the use of a saline solution of greater than 10 per cent concentration, because even at that strength there is a marked purgative action. As Gosset, Binet and Petit-Dutaillis have shown, the use of a 10 per cent solution is very efficacious in cases of postoperative abdominal distention due to a paresis of the intestinal musculature. The use of a 20 per cent saline solution, however, is followed by too much purgation and dehydration.

Splenectomy for Hypertrophic Cirrhosis of Liver

The value of splenectomy in hypertrophic cirrhosis of the liver was the subject of two papers read at the July 2 meeting of the Société médicale des hôpitaux. In the first paper, Noel Fiessinger and M Gaultier reported a case of hypertrophic hypersplenomegalic hepatic cirrhosis in a man aged 41, without apparent etiology and presenting clinically a hemorrhagic ascitic syndrome. A study of the hepatic functions having shown a marked improvement following treatment, splenectomy was deemed indicated to prevent recurrence of gastrorrhagias. These have not recurred during a period of two years after the operation and the hepatic functions have practically become normal. Only a very hard large liver persists accompanied by a slight increase of rose bengal retention, which is, however, less than before the operation. Even though a neoplasm (seminoma) of the testis with pulmonary metastases exists at present, there has been no change in the functional equilibrium of the liver. Bergeret, Caroli and Audeot in 1934 were quoted as having studied twenty-two cases. Their conclusions were that splenectomy was indicated only in cases of cirrhosis which developed slowly, accompanied by moderately or very large spleens, in patients relatively young and in the absence of a history of alcoholism and syphilis. Carnot, Harvier and Caroli reported a case in which splenectomy had been performed in 1931 by Bergeret for hypertrophic cirrhosis with marked splenomegaly, ascites and recurrent gastric hemorrhages. The operation was followed by striking recession of symptoms. Cases reported by other French authors were cited to show the great value of splenectomy, which, according to Fiessinger and Gaultier, is indicated only in cases in which the splenomegaly is evident, provided functional liver tests show that such a procedure is safe.

In the second paper, Bergeret and Caroli first reported the end results in the case cited by Fiessinger and Gaultier, in which splenectomy had been done in 1931. The patient was a young man who had been under observation since 1927 for a hepatosplenic cirrhosis of unknown etiology. There were marked enlargement of the liver, poor general condition, repeated intestinal hemorrhages, and ascites. Operation was deemed indicated as a last resort, after blood transfusions had been given. There had been such a decided improvement after the operation that the patient had been able to resume work. Although the ascites had not recurred, an intestinal hemorrhage appeared three years after operation. Since the latter, only occasional transitory attacks of pruritus and pain had been noted. Although during the first two years there had been an apparent decrease in the size of the liver, it is still large, with its lower border at the level of the umbilicus. The authors consider the splenectomy as only a palliative measure in this case.

Although splenectomy is generally held to be indicated only in the hypertrophic or cryptogenic forms of hepatic cirrhosis, a case of splenectomy was reported in which there was a distinct history of alcoholism with a small "hob-nailed" liver. The spleen was very large and the intestinal hemorrhages so frequent that a gastro-enterostomy had been performed on the basis of a diagnosis of gastric or duodenal ulcer. The splenectomy was done in May 1935. Thirteen months later the patient had a slight intestinal hemorrhage but is now (July 1937) apparently in good condition.

Biliary Peritonitis

Two cases of biliary peritonitis without demonstrable perforation of the bile passages were reported by Dr Brugcas of Shanghai, China, at the June 30 meeting of the Académie de chirurgie. The first patient was a man, aged 25, who had been taken suddenly ill with severe epigastric pain accompanied by vomiting, headache and profuse perspiration. The upper part of the abdomen was rigid and tender on palpation. A diag-

nosis was made of perforated gastric or duodenal ulcer, although there was no preceding history of such a lesion. When the abdomen was opened, a greenish bile-stained liquid escaped. Examination failed to reveal any perforation of the stomach, duodenum or bile passages. The gallbladder contained about 80 cc of a turbid greenish fluid, but no calculi were found in this organ or in the bile ducts. Cholecystectomy was performed, followed by uneventful recovery.

In the second case the onset was similar but more protracted. A marked icteric tinge of the sclerae and urine was noted on admission. In the absence of previous symptoms indicative of a gastric or duodenal ulcer, a preoperative diagnosis of biliary peritonitis following cholecystitis was made. When the abdomen was opened a large quantity of greenish fluid was found, which on culture mediums showed the presence of many colon bacilli. The same was true of the contents of the greatly distended gallbladder. No calculi or perforation of any portion of the bile ducts or gallbladder was found. Uneventful recovery followed a cholecystostomy. Dr. Brugas did not believe that removal of the gallbladder was indicated unless there was evidence of a gangrenous area in its wall. In both of the patients an acute cholecystitis without calculi had existed. No cultures of the peritoneal or gallbladder fluid was made in the first case.

Congress of French Alienists and Neurologists

The forty-first Congress of French Alienists and Neurologists was held at Nancy, June 30-July 5. The first paper was a biologic study of alcoholic delirium by Dr. Barques of Agen. Laboratory studies show that the acute mental manifestations in chronic alcoholism are usually not accompanied by albuminocytologic changes in the cerebrospinal fluid. In an occasional case hyperalbuminosis and less often a slight leukocytosis may be found. The effects of alcohol are more marked on the cerebral tissue than on the meninges. As regards the urine there is a slight inconstant albuminuria, frequently a glycosuria and urobilinuria, as well as an increase in the uric acid content. These urinary changes are only transitory. The blood changes are the most important, there being a hyperglycemia and an increase in blood urea which parallels the severity of the clinical symptoms.

All these indicate a syndrome of hepatic insufficiency involving all the hepatic functions in a more or less serious manner. The delirium is in direct relation to it, being the effect of the chronic intoxication.

A second paper was on primary cerebellar atrophy, by Dr. Noël Peron of Paris. He regarded such cases as slowly progressive disorders due to a "fragility" which was not of fetal origin (like the familial atrophies), but appeared at a later period and were anatomically systematized, as first described by Andre Thomas and then by Dejerine. Clinically, he placed in the first group the olivopontocerebellar atrophy of Thomas and Dejerine. The onset is slow and progressive in persons over 50. The cerebellar syndrome first affects the functions of locomotion, especially of the lower extremities, so that the patient is unable to stand or walk. The upper extremities are involved a little later. There are also marked disturbances in writing and speech, accompanied by a condition of mental asthenia, followed by dementia.

In a second group the author placed the late cerebellar atrophies, with predominant cortical involvement. They appear late in life and develop slowly. Static and equilibrium disturbances are prominent features. Walking becomes impossible without aid and retropulsion is frequent. The lower extremities are almost exclusively involved, kinetic disturbances of the hand being very slight.

A negative sign of great value is the absence of other neurologic symptoms. Whereas in the first group the evolution of the disease is usually from two to three years, in the second one it is much slower, from ten to twenty years.

In general, the diagnosis of cerebellar atrophy is difficult. It must be differentiated from (a) cerebellar syndrome due to vascular lesions, (b) tumors of the cerebellum and posterior fossa, (c) infectious lesions of the cerebellum and its meninges, (d) sclerosis in plaques, and (e) cerebellar atrophy of the familial type.

New Dean of Medical School

The pathologist Prof. Lucien Cornil, who is head of the department of pathology in the medical school at Marseilles, has just been elected dean of the faculty as successor to Professor Imbert.

Gas-Proof Shelters in Public Hospitals

During the past few years, efforts have been made in the public hospitals of the department of the Seine in which Paris is situated, not only to take care of gassed individuals but also to provide shelter for patients who cannot be transported during gas attacks in times of hostilities. In Paris itself the director of the Assistance publique, Dr. Mourier, and Professor Tanon, head of the department of hygiene in the medical school, have completed the installation of gas-proof shelters for nontransportable patients, as well as the organization of facilities for the treatment of those suffering from the effects of inhalation of poison gas in war.

BERLIN

(From Our Regular Correspondent)

Aug. 23, 1937

Studies of the Rupturability of the Capillaries

Dr. Sack, senior physician of the Medical Clinic, recently pointed out in the Freiburg Medical Society that the tests heretofore in use for the rupturability of the cutaneous capillaries are extremely inaccurate. He has devised an improved apparatus by means of which negative pressure of from 0 to 700 mm of mercury, regulated at will, can be applied to the skin. The procedure is this: After negative pressure of given strength has been applied to a cutaneous area for a certain time, from two to five blood dots will appear, the rapidity with which this phenomenon takes place corresponds to the force of the negative pressure; the slighter the pressure the greater will be the time that elapses prior to the appearance of the blood dots, and the greater the pressure the shorter the time. In scurvy, for example, a diminished negative pressure is sufficient to effect a rapid production of typical cutaneous hemorrhage, if vitamin C is then administered the resistance of the vessels will be considerably heightened at the end of some five weeks, namely, under a pressure of the same strength the time intervals in which the characteristic hemorrhages are produced will be considerably longer. Vitamin C thus exerts a specific influence on the resistance of the capillary vessels of the skin. Conversely, if histamine, for example, is administered the rupturability of the capillaries is observed to be greater only ten minutes after subcutaneous injection of 1 mg of the substance. Studies of the action of calcium (in different doses and variously administered) established no deviations from the norm. A therapeutic effect of calcium in hemorrhagic diathesis is therefore not demonstrable by this means. Furthermore, it is interesting to note that capillary resistance is influenced, that is, increased, by the application of cupping glasses. What underlies this effect is not yet understood.

The Vitamin Content of Flour and Bread

The Leipzig nutrition-physiologist Professor Scheunert has investigated the vitamin content of flour and bread from both wheat and rye. The customary German milling scale served as a basis for these experiments. Rye was observed to contain less vitamin B₁ but more vitamin B than wheat, 100 Gm. of wheat contained 130 international units of vitamin B₁ and 100 Gm. of rye contained 100 international units. Each hun-

dred grams of wheat contains 50 growth units of vitamin B₁, and each hundred grams of rye 571 such units. The vitamin B₁ and vitamin B values depreciate with the production of bran in the milling process, in this respect there are notable differences between wheat and rye. In wheat the vitamin B₁ content is lowered some 30 per cent by an 82 per cent milling, and more thorough milling causes even greater depreciation. In white wheat flour of 60 per cent milling only 24 international units of vitamin B₁ is to be observed. With rye the decline proceeds more slowly, after the minimal milling (94 per cent) the flour still contains the same vitamin B₁ value as the whole grain. This value is reduced some 15 per cent by an 82 per cent milling and 25 per cent by a 75 per cent milling. After even slighter millings, rye exhibits a considerable depreciation of the vitamin B₁ value. Rye flour of 65 per cent milling contains only 48 international units per hundred grams and flour of 40 per cent milling only 24. The vitamin B₁ content of flour is not impaired by the baking process. The only breads that present high vitamin B₁ values are the whole grain bread with germinal factor and breads of, respectively, 94 per cent and 82 per cent millings. Some of the B₁ values per hundred grams in various breads: breads of 82 per cent milling, wheat breads 67 international units, rye breads 59, breads of 75 per cent milling, wheat breads 24 international units, rye breads 50, the white breads show a yet smaller content, 16 international units. With respect to vitamin B values, the wheat is somewhat more deficient than the rye and here too, on account of the extraction of bran, the B content in wheat flour is more readily depleted than that of rye flour. The B content of whole wheat is 50 growth units, that of rye 57, wheat flour of 82 per cent milling contains 33 units, and similar rye flour still contains 50 units. The same value is found in rye flour of 75 per cent milling, whereas in wheat flour of similar milling no appreciable amount of vitamin B can be observed. The lighter rye flour on the contrary still contains demonstrable B values. The same applies to breads both rye and white. Accordingly, whole grain flour and breads as well as flour and breads in which larger proportions are utilized (namely, those which will contain the greatest proportion of bran) are an important factor in the nation's supply of vitamins B₁ and B.

Germany's First Encephalitis Clinic

According to the National Health Bureau's statistics there were 274 fatalities from lethargic encephalitis in Germany during 1934, 515 from epidemic encephalitis and 267 from acute anterior poliomyelitis. In the same year 1,414 patients received hospital care for epidemic encephalitis, 592 of these patients were newly admitted during the year. The morbidity from the foregoing diseases seems to have increased in recent years.

Five years ago a Bulgarian botanist suggested the use of the root of *Atropa belladonna* and an extract of an aromatic bitter (*Calamus*—sweetflag) to improve encephalitis. The queen of Italy heard of this discovery, through her daughter, the queen of Bulgaria, and set about introducing the therapy into Italy, in which country the herbs are abundant. Professor Ferrarini of Rome developed a therapeutic procedure. A first encephalitis clinic was opened at Rome for the purpose of pushing these investigations further. Similar clinics were next established in Turin and Milan. According to the official reports, several thousand patients were treated at these institutions, 18 per cent of these cases, it was stated, were brought to clinical cure, 41 per cent ameliorated, 38 per cent ameliorated to a less extent and only 3 per cent remained uninfluenced. The outcome depends on the severity of the disease. The therapy includes a stay of some two months in the hospital and an after-treatment period of equal length.

Early in August a clinic patterned on the Italian institutions was opened in Cassel (central Germany). High government

officials participated in the dedication of this hospital, which was styled "Queen Elena Clinic." The president of the National Health Bureau took this occasion to relate how a representative of the bureau, commissioned to study the Italian clinics, had been so impressed with the successes achieved that he subsequently recommended the establishment of a similar institution in Germany. The queen of Italy subsequently consigned to Germany supplies of the medicine. The queen also appointed an eminent physician to collaborate with the Germans in the use of the drug.

AUSTRALIA

(From Our Regular Correspondent)

Aug 11, 1937

Beginnings of State Medical Service in Australia

With the aim of providing all people, irrespective of the locality in which they are situated or their financial position, with the best medical attention and hospital accommodation when necessary with adequate supervision from a public health point of view, the government of Tasmania is appointing ten physicians who will be attached to the staff of the department of health. The department of health in Tasmania is now making a survey of the medical services available in the country districts, and when this work is completed the location of each medical officer will be decided on. The most important duty of the medical officers will be to attend the sick and injured in their respective districts. The facilities of the existing "bush nursing" centers will be used by them and extended as opportunity offers. Preventive medicine will also receive attention, and the duties of medical officers of health will devolve on the new appointees. They will enforce the public health regulations regarding sanitation, dairying milk supplies, the isolation and treatment of infectious diseases and the control of quarantine. Lectures on preventive medicine will be given to appropriate organizations, such as parents and countrywomen's associations. Provision for study leave is included in the terms of appointment. The policy of the government in Tasmania is to concentrate the major curative resources at the base hospitals already established. Smaller hospitals would render valuable services as clearing and casualty stations and for accommodation of minor cases. A more highly developed ambulance service will make transport from the smaller hospitals in outlying districts to the larger hospitals. Two bacteriologic and pathologic laboratories are already established, and smaller ones will be established in other centers. Medicines will be supplied from a central dispensary with depots in each district.

Record Low Infant Mortality Rate in Adelaide

What is believed to be a world's record for a low infant mortality rate has been established in Adelaide, South Australia, over the past twelve months. Whereas the lowest infant death rate for the past nine years had been 55 for every thousand births, for the year ended March 31, 1937, the mortality rate for Adelaide has been 23. It is possible that this is a freak rate, but it is a happy indication of the trend. In South Australia last year the infant mortality was 311. Queensland's rate for the same year was 362. South Australia for the past year, with a figure of 311, has now beaten New Zealand, which occupies second place with 3215. New Zealand was the previous holder of the world's record. A factor that is considered to be important in this low mortality rate is the emphasis on, and the provision of, extra milk for expectant mothers in necessitous circumstances. The South Australian government issues to mothers an additional daily pint and a half of milk. There is a very efficient Mothers' and Baby's Health Association in South Australia, which carries out an educational campaign and provides the means for adequate supervision of expectant mothers. Serious epidemics of sum-

mer diarrhea are becoming less frequent. A factor in this is considered to be the bituminization of the highways. The decrease in the number of horses and stables in recent years has minimized the fly nuisance. Other activities contributing to this happy result are the close supervision of the milk supply by the Metropolitan County Board under the Food and Drugs Act, the efficient work of the many maternity homes, and the activities of the local boards of health. In view of the rapidly falling birth rate in Australia, such a reduction in the infant mortality rate provides a measure of comfort to those who justifiably are apprehensive for the future of the race.

Plans for an Institute of Medical Research

Parliamentary approval has been given to the establishment in the near future of an institute of medical research in Adelaide, South Australia. The institute will be under the control of a committee representative of the management of the Adelaide hospital, and the university. The director will be Dr. Weston Hurst, who arrived from England last year to take up the position. Half the annual salary of £1,500 will be paid by the government and half by the university. In the new institute will be housed a laboratory of clinical science and the university departments of bacteriology and pathology. It will group together the pathologic and bacteriologic activities of the medical school. The site chosen for the new institute will be convenient to the wards of the Adelaide hospital on the one hand, and the university departments of anatomy, physiology, biochemistry and chemistry on the other. The institute will also be near the nutrition laboratory of the Council for Scientific and Industrial Research. It is expected that the institute will be the clearing house for medical science in South Australia. Another function of the institute will be the collection and compilation of medical records over a sufficient time to give the history of the more important human disorders as they occur in Australia, having special regard to race, occupation, nutrition and climate.

The Mystery of Growth

Given a normal pituitary and thyroid function, with a proper supply of vitamin B, amino acids, ample food supply and physical exercise during the years between 5 and 20, the stature of a race may be increased to the optimum of Greek perfection. This statement was the keynote of the Sir Charles Clubbe memorial oration delivered at the University of Sydney by Prof. J. C. Meakins, professor of medicine at McGill University. Professor Meakins had been invited to Australia by the New South Wales postgraduate committee and his lecturing services were also utilized in other states. It was obvious that Professor Meakins in his oration had attempted an impossible task, but in confining his attention to the alterations of the stature of mankind he considered that the factor of environment seemed to be much more important than that of heredity in the determination of stature. In the environment, the most important factors were physical activity, the character and quality of the food supply, and the effects of parasitic and other diseases. Tall races are not necessarily superior to shorter, either in physical endurance or in mental capacity. Exercise and physical training up to the twentieth year have a direct influence on stature. Comparison of various races of differing stature shows striking differences in the consumption of milk, milk products and meat to a degree that is considered to be significant. Improvement in the dietary is responsible for the increased growth of Chinese children who have migrated to Hawaii.

Graduate Education in New Zealand

In an editorial published in the *New Zealand Medical Journal* for June the absence of any permanent arrangements for graduate education in New Zealand was deplored. Graduate work was defined not only as study preparatory to the taking of

higher degrees but as that which is necessary to keep the practitioner in touch with the trends of medical practice. Reading alone is not considered adequate for these purposes. It is the established custom in New Zealand for medical men to do their graduate study abroad. New Zealand is an isolated country, and it was considered that machinery should be created whereby advantage could be taken of the infrequent visits of distinguished teachers, such as the recent visit to Australia of Dr. J. C. Meakins, professor of medicine at McGill University. A suggestion is made that a large hospital outside the already existing medical school at the University of Otago at Dunedin should be developed as a graduate hospital. It is considered that the claims of pregraduate education are already paramount in institutions already devoted to that work. The *New Zealand Medical Journal* is at present published only every two months. Exception may be taken to the editorial in the *New Zealand Medical Journal* as regards the separation of undergraduate and postgraduate medical education, especially in the beginning stages of the latter type of education. Australian experience has shown that the association of postgraduate education with existing medical schools has been of benefit to both. For instance, in Queensland the founding of the new medical school of the University of Queensland, and the association of postgraduate education with the university this year has enabled an extension of the course to a fortnight. Previously it had occupied only a week. Full use, moreover, was made of the services of the professors and teaching resources of the medical school. In New South Wales the university medical school is the pivotal point of graduate education.

Medical Board Overruled by Court

An interesting legal decision was given in Melbourne in July whereby a ruling of the medical board of Victoria, which refused to register a German doctor, was reversed by a state court. Dr. Moritz Meyer, a physician and surgeon practicing in Germany, was obliged to leave that country because of restrictions imposed by the German government on the practice of medicine by persons of non-Aryan descent. He had left Germany in October 1935. At that time he was a doctor of medicine of the University of Leipzig, and from April 1920 to October 1935 he had practiced medicine and surgery in hospitals in Berlin and Dresden, and also privately in Dresden. On leaving Germany he had gone to England and Scotland, where he became, by examination, a licentiate of the Royal College of Surgeons of Edinburgh, of the Royal College of Physicians of Edinburgh, and of the Royal Faculty of Physicians and Surgeons of Glasgow. He had decided to practice his profession in Victoria and had been led to believe that his qualifications entitled him to registration there. The medical board of Victoria had refused his application for registration on the grounds that there was not sufficient evidence of the required courses of study and that the board, moreover, was expressly forbidden to recognize a course in a foreign university, school of medicine or college. Dr. Meyer appealed to the court, and Mr. Justice Lowe in a judgment held that the applicant was entitled to registration and to receive from the medical board a qualification. The medical board of Victoria expressed doubt as to whether a court was entitled to overrule a decision of the board's and proposes to contest the decision.

The Campaign Against Company Pharmacy

The pharmacists of New Zealand and the different Australian states have put up a valiant fight against the threatened "trustification" of pharmacy. This opposition was occasioned by the contemplated introduction of a branch of an organization known in Great Britain as "Boots the Chemists." In New Zealand, although two of the "Boots" shops are already operating, the government has held up any further extension for twelve months in order that the existing practice of pharmacy may reorganize itself to provide a service comparable to

that of "company" pharmacy. In Queensland the labor government altered the pharmacy act so as to prevent any further extension of company pharmacy in that state, and any existing company is now prohibited from changing its name or opening new branches. A commission of inquiry is sitting in New South Wales, and at the moment any extension of company pharmacy will be at the risk of those concerned. Existing legislation in Victoria prohibits company pharmacy, and any attempt to evade the present act will be met by amending legislation. The Tasmanian pharmacy act prevents companies from operating, and no amendment would be countenanced. The premier of South Australia states that he is opposed to the "chain store" system of trading in pharmacy. In Western Australia the government has promised to introduce amending legislation next session to close the door against any extension of company pharmacy. It is evident that the weight of parliamentary opinion in Australia and New Zealand is definitely against the exploitation of the pharmaceutical profession by commercial concerns. In the meantime, pharmacists are endeavoring to improve still further the service which they are rendering to the public.

NETHERLANDS

(From Our Regular Correspondent)

July 31, 1937

Sudden Loss of Consciousness as Cause of Automobile Accidents

Dr F Van Loon lectured on "Sudden Inhibition of Consciousness as a Cause of Automobile Accidents" before the Societe juridique de psychiatrie. The inhibition of consciousness to which the author refers may occur in normal persons. E Bramesfeld and H Jung investigated this problem and found that the phenomenon is usually conditioned by one of the following factors: (1) monotony of the road, (2) regularity of the rows of trees along the roadside, (3) too great familiarity with the route, (4) idle conversation, (5) enervating heat, (6) fatigue or somnolence of the driver and (7) intoxication due to alcohol or hypnotics. Each of these factors involves either a deficiency of stimuli or the repetition of identical stimuli. Mention should also be made of the depressive influence of night and the monotonous sound of the motor, both likewise etiologic factors. These transitory depressions are not to be confused with genuine sleep, such as overtakes exhausted drivers.

An accident case recently disposed of in a Rotterdam court illustrates the great need for this differentiation. According to the record, both court and witnesses appeared quite unfamiliar with momentary loss of consciousness as a cause of accidents. A driver traveling a good straight highway on an afternoon in June suddenly for no apparent reason swerved to the left and struck three children who were riding bicycles. One of these children received fatal injuries. Charged with criminal responsibility for the accident, the defendant was unable to account for his erratic driving and asserted that his first intimation that anything was amiss came with the shock of the collision. Medical and neurologic examination failed to disclose any physical basis for the loss of control. Sole pathologic determinations were hypertension and a history of adolescent chorea. The road was straight, unencumbered by any obstacle and well known to the defendant, who declared that he always attempted to drive carefully and disclaimed any tendency to become somnolent at the wheel. Van Loon, as expert witness, testified that in his opinion the accident was not imputable to any technical deficiency on the part of the defendant but to a momentary inhibition of consciousness. The court was not altogether in accord with the doctor's opinion, although in view of the relatively light sentence imposed the impression was conveyed that the expert's interpretation had to a certain extent influenced the decision. This problem is one of great interest and a sound knowledge of its implications can be

obtained only by a systematic study of every accident for which momentary inhibition of consciousness could conceivably be responsible.

The Destruction of Rats in Amsterdam

According to the director of the city health department, destruction of rats in Amsterdam has been successfully carried on. The director's report first takes up the advantages and disadvantages of the use of various bacterial preparations in the fight against rats. In the first and second campaigns, squillitic preparations were generally used. Subsequently tests were made with a number of utilizable substances in order to determine which were the more effective, one preparation would be distributed in a certain quarter of the city, another preparation in a different quarter and so on. The results were largely confusing. Squill bulbs are difficult to handle in packets. The results obtained were most diverse, in general it was established that the poison made the rats so ill that they could be easily caught and destroyed. In the second campaign a squillitic paste was tried in place of the bulb packets. The cost of these campaigns exceeded 24,000 florins, the greater part went for the pay roll. There were 402,522 packets distributed.

The director's conclusions may be summarized as follows:

- 1 Deratization of a large city is possible.
- 2 Squill preparations, if distributed in large quantities, are an excellent rat poison.
- 3 For large scale destruction, liquids or pastes are superior to other types of preparation.
- 4 Although squill preparations are more costly than squill bulbs, they give quite unequal results. Moreover, handling of the bulb packets for purposes of deratization is more difficult than that of paste or liquid preparations.
- 5 The successes achieved with all or any of these preparations are only temporary.
- 6 Deratization should be a regular and unrelenting procedure. If the advances are to be preserved, a plan for a continued active campaign must be adopted.
- 7 Conditions that serve to create breeding places for rats must be systematically reduced.
- 8 The cooperation of the public in a campaign is of the utmost importance.

The Psychiatric Element in Criminal Jurisprudence

Dr J S M Van Geuns, in a lecture before the juridical society of psychiatry, said that the expert opinion of the psychiatrist exerts a great influence on the court's decision. He not only aids the examining magistrate by his knowledge and experience but gives his opinion as to what sentence ought to be passed on a defendant who presents psychic abnormalities. The psychiatrists draw the particular attention of the courts to defendants of unsound mentality. The expert medical report in a criminal case should fulfil certain special conditions: it should contribute to the record a clear picture of the defendant's mental condition and of the relation of this condition to the offense with which he is charged. The psychiatrist should state whether or not the offender is to be punished and what penalty, if any, ought to be imposed. There are times when a judge, in order to solve certain specific problems, will require information on various psychologic points of order. The judge may, for example, stand in need of expert opinion to clarify the testimony of questionable witnesses. If a judge accepts as competent the testimony of a person less than 16 years old, an article of the criminal code stipulates that the reasons for believing such testimony should be set forth in the court's decision. Other cases that involve psychologic questions will often require the services of an expert, for example, the question of what bearing reflexes and automatisms may have on the premeditation of a crime. The speaker cited several instances in which the judge, despite the legalistic soundness of his reasoning, has erred. Moreover, direct and cross examination of defendants and witnesses should be freed from all elements of coercion or leading. Van Geuns's address is a convincing argument for the desirability of collaboration between psychiatrist and jurist.

Marriages

WILLIAM PRITCHARD JORDAN, Powellsville, N C, to Miss Mary Margaret Schlanser in San Francisco, June 15

CHARLES M. BOWMAN, Albion, Ind., to Miss Mary Isabel Cook of New Harmony, in Fort Wayne, June 19

RALPH HOWARD EDSON, New York, to Miss Leona Virginia Pierce of Upper Montclair, N J, June 19

WILFRED J. NOWLIN, Farmer City, Ill., to Mrs. Neva Whitford Jones of Champaign, in Chicago, June 15

BALLARD NORWOOD JR., Virginia, Va., to Miss Gwendolyn Beatrice Wheeler of Oxford, N C, June 25

HENRY WALKER JERNIGAN, Atlanta, Ga., to Miss Ruth Adelaide Carr of Malden, Mass., April 24

ALGERNON R. FIKE, Spartanburg, S C, to Mrs. Josephine F. De Pue of Tampa, Fla., May 22

ALBERT HAZEL ZEALY JR., to Miss Susan Moore Collier, both of Goldsboro, N C, June 19

SHERMAN F. GILPIN JR., to Miss Kathryn Hannah Lawser, both of Philadelphia, June 19

ROBERT DE VANE CROOM JR., Maxton, N C, to Miss Rosa Currie of Clio, S C, June 8

LELAND S. HARRIS to Miss Alma Bloch, both of Yakima, Wash., June 11

PHARES YATES GREENE to Miss Melba Hunt, both of Apex, N C, June 19

RALPH O. PETERSON to Miss Viola Gellin, both of Chicago, June 24

Deaths

Daniel Fiske Jones © Boston, Harvard University Medical School, Boston, 1896, member of the House of Delegates of the American Medical Association in 1921, member and past president of the American Surgical Association, member of the Southern Surgical Association, Society of Clinical Surgery and the New England Surgical Society, served during the World War, fellow and formerly regent of the American College of Surgeons, consulting surgeon to the New England Hospital for Women and Children, Beth Israel, and Massachusetts General hospitals, Boston, Union Hospital, Fall River, Brockton Hospital, Brockton, Addison Gilbert Hospital, Gloucester, Sturdy Memorial Hospital, Attleboro, Leominster Hospital, Leominster, and the Elliot Hospital, Keene, N H, honorary consulting surgeon to the New England Deaconess Hospital, member of of board of overseers of Harvard University, aged 69, died, September 11, of hypertensive heart disease

Pope Webb Oden, Shreveport, La. University of Nashville (Tenn.) Medical Department, 1910, member of the Louisiana State Medical Society, fellow of the American College of Surgeons, served during the World War, otologist, rhinologist and laryngologist to the T. E. Schumpert Memorial Sanitarium and on the staff of the Shriners' Crippled Children's Hospital, aged 50, died, June 27, in the John Sealy Hospital, Galveston, Texas, of hypertensive heart disease and myocardial fibrosis

Onslow Allen Gordon, Brooklyn, Dartmouth Medical School, Hanover, N H, 1885, member of the Medical Society of the State of New York, past president and formerly assistant treasurer, treasurer and vice president of the Medical Society of the County of Kings, fellow of the American College of Surgeons, past president of the Brooklyn Surgical Society, senior surgeon to St. Mary's Hospital, aged 85, died, July 4, at his summer home in Lake Keoka, Maine

Clarence Julius Manly © Colonel U S Army, retired, San Francisco, Louisville (Ky.) Medical College, 1897, veteran of the Spanish-American War, entered the medical corps of the U S Army as a captain in 1903, served during the World War as a colonel, was awarded the distinguished service medal, retired in 1935 by operation of law, fellow of the American College of Surgeons, aged 65, died June 27, in the Letterman General Hospital of coronary occlusion

Frederick Martin Albers © Brooklyn Long Island College Hospital, Brooklyn, 1905, fellow of the American College of Surgeons, attending surgeon, Victory Memorial Hospital, member of the attending staff of the Bay Ridge Sanitarium, member of the courtesy staff of the Flower Hospital New York Prospect Heights and Brooklyn Maternity hospitals, Brooklyn, aged 55, died July 11, of hypertension

George Stephen Skiff, Gainesville, N Y, University of Buffalo School of Medicine, 1887, member of the Medical Society of the State of New York, health officer of Gainesville, past president of the Medical Society of the County of Wyoming, on the staff of the Wyoming County Community Hospital, Warsaw, aged 72, died, June 27, of carcinoma of the kidney and gastric ulcer

Edgar Franklin McClendon © Plainview, Texas, St. Louis College of Physicians and Surgeons, 1890, past president and secretary of the Hale-Floyd-Briscoe-Swisher Counties Medical Society, on the staff of the Plainview Sanitarium and Clinic, aged 70, was shot and killed, June 25, by a prisoner, whom he had been called to treat in the county jail

George Lincoln King Sr. © Alliance, Ohio, Cleveland Medical College, 1895, past president of the Stark County Medical Society, member of the American Academy of Ophthalmology and Oto-Laryngology, for six years a member of the board of education, on the staff of the City Hospital, aged 72, died, July 8, of heart disease

Henry Wieder Salus, Johnstown, Pa., Medico-Chirurgical College of Philadelphia, 1905, member of the Medical Society of the State of Pennsylvania, owner and director of the Salus Private Hospital and medical director of the Municipal Hospital, was president of the Civil Service Commission of Johnstown, aged 58, died, July 17, of pneumonia

M. David Haspel, New Orleans, Tulane University of Louisiana Medical Department, New Orleans, 1905, member of the Louisiana State Medical Society and the American Academy of Ophthalmology and Oto-Laryngology, aged 55, on the staffs of the Baptist Hospital and the Charity Hospital, where he died June 26, of heart disease

Roderick Byington, Summit, N J, Columbia University College of Physicians and Surgeons, New York, 1900, member of the Medical Society of New Jersey, member of the board of education and public school physician, on the staff of the Overlook Hospital, aged 64, died, June 2, of cerebral thrombosis and arteriosclerosis

Henry J. Sommer © Hollidaysburg, Pa., Jefferson Medical College of Philadelphia, 1893, member of the American Psychiatric Association, past president of the Blair County Medical Society, medical superintendent of the Blair County Hospital, aged 65, died, July 11, at Altoona, of uremia and bronchopneumonia

Charles Seward Jadis MacNeil, Malden, Mass., Baltimore Medical College, 1909, member of the Massachusetts Medical Society, on the staffs of the Malden (Mass.) Hospital, Melrose (Mass.) Hospital and the New England Sanitarium and Hospital, Melrose, aged 57, died, June 29, of pneumonia

Daniel Stephen Rice, Stevens Point, Wis., College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1897, member of the State Medical Society of Wisconsin, on the staff of St. Michael's Hospital, aged 73, died, May 26, of cerebral hemorrhage

Andrew Bogert Vanderbeek Jr., Paterson, N J, Columbia University College of Physicians and Surgeons, New York, 1933, member of the Medical Society of New Jersey, aged 32, died, June 22, in the Fort Sanders Hospital, Knoxville, Tenn., following an operation for ruptured appendix

Coite Long Sherrill © Statesville, N C, North Carolina Medical College, Charlotte, 1914, fellow of the American College of Physicians, served during the World War, chief of the medical service of the H. F. Long Hospital, aged 49, died suddenly June 24, of coronary occlusion

John William Lindner, New Orleans, Tulane University of Louisiana Medical Department, New Orleans 1903, at one time instructor of surgery at the Loyola Post-Graduate School of Medicine, formerly visiting surgeon to the Charity Hospital, aged 55, died July 17, of coronary thrombosis

Woolam Ira M. Smith, Nacogdoches, Texas, Atlanta (Ga.) Medical College, 1886, member of the State Medical Association of Texas, past president of the Nacogdoches County Medical Society, on the staff of the City Memorial Hospital, aged 77, died June 21

Stephen Benjamin Malone, Sandersville, Ga., Atlanta College of Physicians and Surgeons 1904, member of the Medical Association of Georgia, served as a member of the city council and city health officer, aged 59, died, June 25, of cerebral hemorrhage

Louis William Atlee, Philadelphia, Jefferson Medical College of Philadelphia, 1882, member of the Medical Society of the State of Pennsylvania, veteran of the Spanish-American War for many years on the staff of St. Agnes Hospital, aged 77, died, July 7

Edward Lee Wedemeyer, Waco, Texas, University of Texas School of Medicine, Galveston, 1897, member of the State Medical Association of Texas, past president of the McLennan County Medical Society, aged 67, died, June 2, of heart disease

Thomas Edward Cavanaugh, Wauwatosa, Wis., Rush Medical College, Chicago, 1904, aged 62, on the staffs of the Misericordia Hospital and St Joseph's Hospital, Milwaukee, where he died, June 17, of arteriosclerosis, gangrene and hypertension

Judson M Griffin, Detroit, Pulte Medical College Cincinnati, 1877, at one time registrar and professor of dermatology at the Detroit Homeopathic College, for many years on the staff of the Grace Hospital, aged 81, died, July 3

Isadore L Green, Watertown, N Y, Hahnemann Medical College and Hospital, Chicago, 1886, Harvey Medical College, Chicago, 1895, aged 91, died, July 14, in the House of the Good Samaritan, of chronic nephritis and arteriosclerosis

Wladimir Nikolas Lankovsky, Los Angeles, University of Tomsk Faculty of Medicine, Russia, 1901, at one time instructor in the College of Medicine and Surgery of the University of the Philippines, aged 84, died, June 12

Alvin Ernest Walters, Zanesville, Ohio, Starling Medical College, Columbus, 1896, served during the World War, aged 63, on the staff of the Good Samaritan Hospital, where he died, June 28, of carcinoma of the prostate

Charles Marion Womack, Lawrenceburg, Tenn., University of Nashville Medical Department, 1902, member of the Tennessee State Medical Association health officer, aged 64, died, June 28, in a hospital at Nashville

S Powell Sebastian, Greensboro, N C, Leonard Medical School Raleigh, 1912, aged 60, on the staff of the L Richardson Memorial Hospital, where he died, June 24, of injuries received in an automobile accident

John Adam Roberts, Oklahoma City, Rush Medical College, Chicago, 1890, also a druggist, aged 77, died, June 25, in the Holy Family Hospital, Manitowoc, Wis., of a skull fracture due to an automobile accident

Paul James Mahone, Seattle College of Physicians and Surgeons, Baltimore, 1907, member of the Washington State Medical Association, served during the World War, aged 55, died, June 30, of heart disease

Jacob S Kjelland, East Ellsworth, Wis., Medical Department of Hamline University, Minneapolis, 1898, served during the World War, aged 67, died, June 14, of chronic myocarditis and chronic nephritis

Edwin Lewis Bradbury, Neillsville, Wis., Rush Medical College, Chicago, 1899, member of the State Medical Society of Wisconsin, county physician, aged 75, died, May 13, of carcinoma of the prostate

Irving Camp Miner, Cleveland, Western Reserve University Medical Department, Cleveland, 1894, member of the Ohio State Medical Association, aged 77, died, June 25, of cerebral hemorrhage

Frank Jerome Hall, Takoma Park, Md., College of Physicians and Surgeons, Baltimore, 1897, past president of the board of education of Dallas, Texas, aged 64, died, June 23, in Washington, D C

Austin Charles Wright, Los Angeles, University of Michigan Department of Medicine and Surgery, Ann Arbor, 1881, at one time a member of the state legislature of Arizona, aged 76, died, June 20

George Ashton Babbitt, Medina, Ohio, Long Island College Hospital, Brooklyn, 1875, aged 85, died, July 1, in the Community Hospital, Berea, of injuries received in an automobile accident

James Samuel Sanders, Chester, Mass (licensed in Massachusetts in 1898), school physician, aged 82, died, June 28, in St Luke's Hospital, Pittsfield, of diabetes mellitus and gangrene of the right leg

Charles Schomberg Elliot, Halifax, N S Canada, Bellevue Hospital Medical College, New York, 1891, served with the Canadian Army during the World War, aged 72, died, June 1

Jacob Marion Stooksbury, Shawnee, Okla. Chattanooga (Tenn.) Medical College, 1893, member of the Oklahoma State Medical Association, aged 68, died, June 24, of cerebral hemorrhage

Emma Theresa Fryer, Philadelphia, Western Pennsylvania Medical College, Pittsburgh, 1905, aged 56, died, June 24, in the Philadelphia General Hospital, of carcinoma of the sigmoid

Eleanor A Harthill, Tuscaloosa, Ala., Wisconsin College of Physicians and Surgeons, Milwaukee, 1902, aged 75, died, June 19, following an operation for removal of a substernal thyroid

Andrew Warwick Duke, Center, Texas, Barnes Medical College, St Louis, 1900, past president of the Shelby County Medical Society, aged 65, died, June 3, of bronchopneumonia

Charles Hicks Howell, Meeker, Okla., College of Physicians and Surgeons, Dallas, Texas, 1905, served during the World War, aged 68, died, June 26, of chronic myocarditis

Alfred Ernest Bovell, Gloucester, Va., Howard University College of Medicine, Washington, D C, 1909, aged 65, died, June 26, of pneumonia, at Trinidad, British West Indies

Welby L Sullivan, Memphis, Tenn., Georgetown University School of Medicine, Washington, D C, 1894, aged 74, died, June 27, of coronary occlusion and myocarditis

George Edgar Stovall, Columbia, La., Memphis (Tenn.) Hospital Medical College, 1909, aged 53, died, June 23, in a hospital at Shreveport of hypertensive heart disease

Joseph Ernest Auger, St Chrysostome, Que., Canada, M B, Laval University Medical Faculty, Montreal, 1906, and M D, in 1907, aged 56, died, June 28, of peritonitis

James Lawrence McAleney, Portland, Maine, Medical School of Maine, Portland, 1895, aged 68, died, in June, of sarcoma of the thigh and coronary thrombosis

Fred M Wilbur, Galesburg, Ill., Barnes Medical College, St Louis, 1903, aged 60, died suddenly, June 23, of carcinoma of the esophagus and paralysis agitans

Hazleton Spencer, Mexico, N Y New York Homeopathic Medical College and Hospital, New York, 1898, aged 68, died, June 25, of coronary sclerosis

Joseph Morse Caley, Philadelphia, Hahnemann Medical College and Hospital of Philadelphia, 1889, aged 77, died, July 5, at the Hahnemann Hospital

William Lee Hill, Lexington, N C, College of Physicians and Surgeons, Baltimore, 1893, aged 73, died, June 10, of senile dementia and malnutrition

Reuben Jay Atwood, Chicago Chicago Medical College, 1890, served during the World War, aged 72, died, July 2, of carcinoma of the lip

Katherine Iris Howard Degan, San Francisco, University of California Medical Department, San Francisco, 1885, aged 72, died, June 13

Theodore S Howard, Chilhowee, Mo., St Louis Medical College, 1876, also a druggist, aged 86, died, June 23, of carcinoma of the prostate

Alonzo Leonidas Winfield, Richmond, Va., Medical College of Virginia, Richmond, 1911, aged 61, died, June 22, of diabetes mellitus

Bernard John Funk, Herbert, Sask., Canada, Manitoba Medical College Winnipeg, 1915, aged 51, died, June 19, of bronchopneumonia

Lydia Howell La Baume, Pacific Beach, Calif., Woman's Medical College, Chicago, 1885, aged 89, died, June 16, of arteriosclerosis

Paul H Fairchild, Passaic, N J Bellevue Hospital Medical College, New York, 1890, aged 69, died suddenly, June 8, in New York

George Ben Perkins, Farmington, Mo., Missouri Medical College, St Louis, 1893, aged 72, died, June 8, of pulmonary tuberculosis

Robert H Bryson, Ora S C, Medical College of the State of South Carolina, Charleston, 1897, aged 65, died, June 26

Frederick Samuel Harper, Hamilton, Ont., Canada, University of Toronto Faculty of Medicine, 1910, aged 49, died, June 15

James L Gibson, Lynden, Ont., Canada, Queen's University Faculty of Medicine, Kingston, 1893, aged 70, died, June 10

Frederick Mills Binkley, Los Angeles University of Tennessee Medical Department, Nashville, 1888, aged 78, died, June 7

Myron Albert Newman, Los Angeles Hahnemann Medical College and Hospital of Philadelphia, 1906, aged 59, died, June 19

Thomas S Hitt, Indianapolis, Starling Medical College, Columbus, Ohio, 1873, aged 91, died, June 29, in St Petersburg, Fla

George Gordon, Wardsville, Ont., Canada University of Toronto Faculty of Medicine, 1867, died, May 30 at Newbury

Bureau of Investigation

MISBRANDED "PATENT MEDICINES"

Abstracts of Notices of Judgment Issued by the Food and Drug Administration of the United States Department of Agriculture

[EDITORIAL NOTE The abstracts that follow are given in the briefest possible form (1) the name of the product, (2) the name of the manufacturer, shipper or consigner, (3) the composition, (4) the type of nostrum, (5) the reason for the charge of misbranding and (6) the date of issuance of the Notice of Judgment—which may be considerably later than the date of the seizure of the product]

Pinerva Pine Needle Rub—Pinerva Laboratories Inc, Milwaukee Composition Essentially volatile oils including pine needle oil (8 per cent by volume), alcohol (75 per cent) and water For rheumatism neuritis gout, etc Fraudulent therapeutic claims—[N J 24096 November 1935]

Pinerva Balsam Pine Needle Bath Tonic—Pinerva Laboratories, Inc Milwaukee Composition Essentially volatile oils including pine needle oil (31 per cent by volume) a sulfonated oil ammonium sodium and potassium compounds sulfates and 35 per cent of water For nerves and heart disorders rheumatism etc Fraudulent therapeutic claims—[N J 24096 November 1935]

Herb Nu Tonic—Helen Schymanski Edwin B Becker Dr Peter B Schyman and S M S Laboratories Inc Chicago Composition Essentially plant drug extracts including a laxative with glycerin and water Cure all Fraudulent therapeutic claims—[N J 24102 November 1935]

Sweet's Comfrey Liniment—Sweet Mfg Co Inc Pittsburgh Composition Essentially alcohol (71.5 per cent), water acetone ammonia red pepper and volatile oils including wintergreen clove camphor and sassafras Fraudulent therapeutic claims—[N J 24104 November 1935]

Terraline Creosote—Hillside Chemical Co Newburgh N Y Composition Essentially partially purified fluorescent petroleum oil with creosote For pulmonary disorders etc Fraudulent therapeutic claims—[N J 24109 November 1935]

Rosenberg's Improved Great Century Oil—Great Century Medicine Co Lititz Pa Composition Essentially wintergreen hydrocarbons similar to gasoline and a red coloring material For rheumatism neuralgia, headache etc Fraudulent therapeutic claims—[N J 24112 November 1935]

Sweet's Kur A Kol Tablets—Sweet Mfg Co Inc Pittsburgh Composition Essentially quinine sulfate calcium carbonate and starch For la grippe catarrh etc Fraudulent therapeutic claims—[N J 24104 November, 1935]

Ivey's Vigor Aid—Ivey Medicine Co Oklahoma City Composition Essentially potassium iodide extracts of plant drugs including a laxative with alcohol glycerin, sugar and water Cure all Fraudulent therapeutic claims—[N J 24094 November 1935]

Clifton's Brazillian Herbs—Clifton Drug Co, Girard Ill Composition Powdered plant drugs including aloe and other laxative drugs and salicylic acid For stomach and kidney disorders etc Fraudulent therapeutic claims—[N J 24093 November 1935]

Amlita—Amlita Laboratories Philadelphia Composition 26 grains of aminopyrine to each tablet For dysmenorrhea Fraudulent therapeutic claims—[N J 24119 November 1935]

Microsan Mosene—Microsan Mosene Laboratories Inc and Mrs Carrie S Wright trading as Corine Ricks and Corine Ricks Los Angeles Composition A watery solution of drug extractives a mercury salt and glycerin For tuberculosis Fraudulent therapeutic claims—[N J 24124 November 1935]

Cereal Meal—Cereal Meal Corporation St Louis Composition Essentially wheat bran wheat shorts linseed meal and agar agar Misbranded because of the claim contains no drugs whereas agar agar is defined as a drug in the United States Pharmacopoeia also because of fraudulent representations that it was an effective remedy treatment and cure for constipation and its effects and for indigestion etc—[N J 24502 March 1936]

Brewster's Germ Destroyer (Brewster's G D)—J R Brewster trading as Brewster Laboratories Nashville Tenn Composition Essentially a light petroleum oil a saponifiable oil and a small quantity of turpentine oil For tuberculosis asthma cancer etc Not a germicide as represented Fraudulent therapeutic claims—[N J 24503 March 1936]

Brewster's Throat Wash—J R Brewster trading as Brewster Laboratories Nashville Tenn Composition Essentially a fixed oil light petroleum oil a small amount of turpentine oil and a trace of ferric chloride For tonsillitis chronic throat trouble etc Fraudulent therapeutic claims—[N J 24505 March 1936]

Brewster's Throat Eaz—J R Brewster trading as Brewster Laboratories Nashville Tenn Composition Essentially a light petroleum oil a fixed oil a small amount of turpentine and a trace of potassium iodide. Cough and croup cure and female regulator Fraudulent therapeutic claims—[N J 24505 March 1936]

Brewster's Liver Tonic—J R Brewster trading as Brewster Laboratories Nashville, Tenn Composition Essentially a fixed oil and light petroleum oil For nervous indigestion stomach disorders and preventing tuberculosis Fraudulent therapeutic claims—[N J 24503 March 1936]

Blo Prepared Salt—William C Yergin trading as The Temple Salatrum Co Butler, Ind Composition A pink crystalline powder containing common salt small amounts of magnesium, calcium iron manganese and potassium compounds phosphate sulfate carbonate silica and indide For faulty metabolism cancers ulcers tumors Bright's disease epilepsy paralysis appendicitis tuberculosis typhoid fever diabetes, etc Fraudulent therapeutic claims—[N J 24504 March 1936]

Yerkes White Liniment—Yerkes Chemical Co Inc Winston Salem N C Composition Essentially an emulsion containing fatty acids ammonia (19 per cent) turpentine chloroform (33 per cent) alcohol (35 per cent by volume) and water Fraudulent therapeutic claims—[N J 24510 March 1936]

J W D Blood Purifier—James W Dorman trading as Dorman Chemical Co Concord N C Composition The liquid essentially arsenic potassium and sodium compounds a small amount of salicylic acid and water, cinnamon flavored white pills essentially extracts of plant drugs including aloe podophyllum and scammony a compound of mercury and volatile oils including peppermint and cloves blue pills essentially methylene blue oil of sandal and capsicum mass gelatin capsules oil of sandal a salicylate and a fatty oil For impure blood stomach heart and kidney disorders pellagra etc Fraudulent therapeutic claims—[N J 24515 March 1936]

Stekete's Worm Destroyer In Syrup—George E Stekete trading as Stekete's Family Medicines Grand Rapids Mich Composition Essentially small amounts of potassium sodium, calcium iron salts oil of worm seed anise oil plant drug extract sugar and water Fraudulent therapeutic claims—[N J 24516 March 1936]

Dewees Carminative—R G Dunwoody trading as R G Dunwoody & Sons Atlanta Misbranded because quantity or proportion of the morphine and alcohol present was not declared on the label—[N J 24517 March 1936]

Stardom's Health Diet—Hollywood Diet Corporation Chicago Composition Essentially water soluble material including dextrin (43 per cent), protein (13.5 per cent) fat including cocoa butter (6 per cent) plant material and inorganic constituents including salt an inconsequential proportion if any of vitamin D For obesity Fraudulent therapeutic claims—[N J 24519 March 1936]

Calso Water—Calso Co San Francisco Composition Essentially a carbonated solution of calcium magnesium and sodium salts including phosphate chloride and bicarbonate For acid conditions in the body Fraudulent therapeutic claims—[N J 24526 March 1936]

Palmer's Lotion—Solon Palmer, New York Composition Essentially mercuric chloride (0.3 per cent) water and denatured alcohol with a trace of perfume For eczema pimples etc Fraudulent therapeutic claims—[N J 24529 March 1936]

Palmer's Lotion Soap—Solon Palmer New York Composition A small proportion of a zinc compound no mercuric chloride For removing skin blemishes etc Fraudulent therapeutic claims—[N J 24529 March 1936]

Kerene—Welty Co Chicago Composition Deodorized kerosene for all hair and scalp disorders asthma catarrh coughs pneumonia rheumatism worms etc Fraudulent therapeutic claims—[N J 24533 March 1936]

Etsam—R M Evans trading as Etsam Mfg Co Hathoro Pa Composition Essentially magnesium and ammonium hydroxides and carbonates alcohol (28 per cent by volume) and water flavored with volatile oils such as lavender and lemon For stomach liver and gallbladder disorders nightmare appendicitis etc Fraudulent therapeutic claims—[N J 24534 March 1936]

Dalginine Capsules—Fred F Wanner & Sons Philadelphia Composition Approximately 182 grains of aspirin and 181 grains of phenacetine per capsule Misbranded because the quantity of these was misstated—[N J 24535 March 1936]

Sanovapor Dexene—Sanovapor Laboratories Inc Huntington W Va Composition A watery solution of sulfur dioxide For diabetes and its complications including boils eczema gangrene cataract optic atrophy deafness delirium etc Fraudulent therapeutic claims—[N J 24537 March 1936]

Germ X—American Lanolin Corporation Lawrence Mass Composition Essentially sodium hypochlorite common salt sodium carbonate sodium hydroxide and water For skin disorders influenza etc Not a germicide as represented Fraudulent therapeutic claims—[N J 24540 March 1936]

Grainalfa—Laboratory Products Co Providence R I Composition Essentially water sugars and plant extracts including wintergreen and peppermint oils Tonic and tissue builder Fraudulent therapeutic claims—[N J 24546 March 1936]

Calafin Liquid—Calafin Co Inc Los Angeles Composition Essentially potassium iodide arsenic opium alcohol and water For asthma hay fever etc Fraudulent therapeutic claims—[N J 24547 March 1936]

Allimin—Vitalin Products Co Chicago Composition Pills containing plant extracts including garlic For high blood pressure hardening of the arteries stomach and kidney troubles Fraudulent therapeutic claims—[N J 24549 March 1936]

Correspondence

THE USE OF CHEMICALS AS NASAL SPRAYS IN THE PROPHYLAXIS OF POLIOMYELITIS IN MAN

To the Editor—The value of nasal spraying with chemicals has yet to be established as useful for preventing infantile paralysis in man. The conservative physician will so advise his patients and await the results of a competently conducted controlled study.

The new classic experiments on monkeys that were carried out simultaneously by Armstrong and Harrison, Schultz and Gebhardt and Olitsky and Cox are well known (Armstrong, Charles, and Harrison, W T. Prevention of Experimental Intranasal Infection with Certain Neurotropic Viruses by Means of Chemicals Instilled into the Nostrils, *Pub Health Rep* 51 203 [Feb 28] 1936. Sabin, A B, Olitsky, P K, and Cox, H R. Protective Action of Certain Chemicals Against Infection of Monkeys with Nasally Instilled Poliomyelitis Virus, *J Exper Med* 63 877 [June] 1936. Schultz, E W, and Gebhardt, L P. Prevention of Intranasally Inoculated Poliomyelitis in Monkeys by Previous Intranasal Irrigation with Chemical Agents, *Proc Soc Exper Biol & Med* 34 133 [March] 1936). In a recent report by Schultz and Gebhardt (Zinc Sulfate Prophylaxis in Poliomyelitis, *THE JOURNAL*, June 26, p 2182) zinc sulfate in 1 per cent solution was found to be the solution of choice. The necessity of careful application by a slender atomizer tip that will insure contact with the olfactory area was described in an accompanying article (Peet, M M, Echols D H, and Richter, H J. The Chemical Prophylaxis for Poliomyelitis, *THE JOURNAL*, June 26, p 2184). The observations in this investigation together with the apparent failure of a similar spray (picric acid and alum) in the Alabama epidemic of last summer make it imperative that the spray should be limited to physicians thoroughly familiar with the technic and in a position to make a controlled evaluation of the method. The occurrence of at least twenty-five cases among those "protected" in Alabama has already confused those who follow the literature on this disease. However, in justice to the method it should be stated that the picric acid and alum applications were not adequately restricted (Armstrong, Charles. Experience with the Picric Acid-Alum Spray in the Prevention of Poliomyelitis in Alabama, 1936, *Am J Pub Health* 27 103 [Feb] 1937).

In the meantime, other evidence has been marshaled that seriously questions the time honored conception that poliomyelitis in man is primarily a nasopharyngeal disease. This new evidence points to the gastro-intestinal tract as the portal of entry of the virus. In the 1936 poliomyelitis epidemic in Chicago, my associates and I were unable to isolate the virus from the nasopharynx of twenty recent convalescents but obtained it five times from the rectal washings of four of the same patients. We (Harmon, P H, Wasbotten, P M, and Levine, Victor. Pathology of Olfactory Bulbs from the 1936 Epidemic of Poliomyelitis in Chicago, *Proc Soc Exper Biol & Med*, to be published) pointed out the collateral evidence of being unable to find alterations in the olfactory bulbs in nine fatal cases from the same epidemic, indicating that the portal of entry was other than the nasopharynx. Toomey has just published a complete summary of other data questioning the nasopharynx as the port of entry for this virus in man (Toomey, J A. Active and Passive Immunity and Portal of Entry in Poliomyelitis, *THE JOURNAL*, August 7, p 402). These data are that 1. There is no obvious contagion in the poliomyelitis of man, as is one of the striking characteristics of those diseases known to be spread through the upper respiratory tract.

2. Monkeys do not contract the disease by the nasopharyngeal route except when heroic methods are used. 3. Sectioning the olfactory tracts in monkeys does not prevent infection when the virus is given by the vascular route. 4. Nasal spraying with zinc sulfate does not prevent the experimental disease when the virus is given either venously or by the intestinal route. 5. Symptoms in man are often exclusively referable to the gastro-intestinal tract. 6. Reflex changes appear in human poliomyelitis similar to those in typhoid, a gastro intestinal disease. 7. The late summer and autumnal prevalence is a characteristic of the gastro-intestinal fevers. 8. The disease can be produced in monkeys by the gastro-intestinal tract. 9. The symptoms so produced experimentally are far milder and more closely resemble the disease in man than the drastic paraplegia that follows the nasal and cerebral introduction of the virus. 10. The toxins of the enteric organisms seem to facilitate the experimental production of the disease. Against this array of evidence, the data favoring the nasopharyngeal portal of entry consist of the experimental evidence that the disease can be so produced in monkeys and the isolation of the virus from that site from human convalescents, from active paralytic and abortive cases and from alleged healthy carriers in man (reviewed by Paul, J R, Trask, J D, and Webster, L T. Isolation of Poliomyelitis Virus from the Nasopharynx, *J Exper Med* 62 245 [Aug] 1935).

A large amount of the force of the latter result is lost when it is recalled that the virus may be found in the nasopharynx after intracerebral and intravenous introduction (Fleener, Simon and Amoss, H L. Persistence of the Virus of Poliomyelitis in the Nasopharynx, *J Exper Med* 31 123 [Feb] 1920. Lennette, E H, and Hudson, N P, Relation of Olfactory Tracts to Intravenous Route of Infection in Experimental Poliomyelitis, *Proc Soc Exper Biol & Med* 32 1444 [June] 1935). Such nasopharyngeal virus might be egressing rather than on its way into the nervous system.

In the light of controversy about the nasopharyngeal portal of entry in man, the cautious physician probably will not advocate nasal sprays for indiscriminate application until reliable evidence is forthcoming to prove the value of this method in the prevention of human poliomyelitis.

PAUL H HARMON, M D, Springfield, Ill
Superintendent, Division for Handicapped
Children, Department of Public Welfare,
State of Illinois

FURUNCLES OF THE FACE

To the Editor—With interest I have read the editorial on furuncle of the face (*THE JOURNAL*, July 24, p 278). For a year I have had under my care about 400 mentally ill patients many of whom are liable to dietary indiscretions and as a result prone to the development of furuncles and onychias. Once this condition has developed, the patients are often most uncooperative to nursing care and the infection is liable to respond slowly to treatment. Furthermore, many of these patients are already debilitated from other causes. About eleven months ago the amputation of a finger was necessary in two patients because of osteomyelitis of the phalanges, complicating simple onychias.

For several months these cases have been treated by the application of 5 per cent tincture of iodine and dry dressing, twice a day or in some cases once every hour. Pus under the skin, when present in onychias, is drained and then the tincture of iodine and dry dressing are applied.

This treatment in mentally ill patients is advantageous because little cooperation is required by the patient. The most impressive feature of the treatment has been the manner in which furuncles have subsided without pus formation and without leaving any disfiguration.

J A CUMMINS, M D, Hamilton, Ont

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

VACCINES FOR POLIOMYELITIS

To the Editor—Please advise me regarding the status of Kolmer's vaccine for the prophylaxis of poliomyelitis. His article in *THE JOURNAL*, Dec 14, 1935, is interesting and assuring, but Leake in *THE JOURNAL*, Dec 28, 1935, reported that twelve persons were given poliomyelitis from the vaccine. This occurrence does not appear so assuring as to its reliability.

L L STARKEY MD, Harlingen Texas

ANSWER—Vaccines prepared from the virus that were designed to "immunize" against human poliomyelitis are at present in ill repute. The present views relating to the vaccines of Kolmer (ricinoleated virus) and Brodie (formaldehyde-virus) are the same as those expressed in the editorial on the status of vaccination against poliomyelitis (*THE JOURNAL*, Aug 29, 1936, p 716).

The problem of specific vaccination in this disease was attacked many years prior to Kolmer's recent use of the ricinoleated vaccine. Flexner and Landsteiner and Levaditi, shortly after the discovery of the virus by Landsteiner in 1909, obtained some evidence of protection with a specific vaccine in only a certain percentage of monkeys so inoculated. Many other investigators have tried almost every conceivable experimental variation in vaccine production in the intervening years but always with the same result: production of virus neutralizing substances in the blood stream of monkeys, but resistance against cerebral and nasal virus tests was obtained in only a few animals. The experimental work of the past decade has produced data which adequately explain such results: neutralizing antibody is produced whenever the virus comes in contact with either a susceptible host (man or monkey) or a nonsusceptible host (other animals). But the presence of neutralizing antibody is not an index of immunity in this disease, as has been abundantly demonstrated both for the experimental disease (Gordon, Schultz and Gebhardt, Rhoads, Sabin and Olitsky and Aycock and Kagan) and in the disease of man (Harmon and others and Brodie and his associates). This fact obtains because of the peculiar pathogenesis of the disease: once the virus has become established in a neuron it appears to be little affected by neutralizing antiserum. E W Schultz (Immunity and Prophylaxis in Poliomyelitis, *THE JOURNAL*, Dec 26, 1936, p 2102) and Schultz and Gebhardt (Zinc Sulfate Prophylaxis in Poliomyelitis, *THE JOURNAL*, June 25, 1937, p 2182) have reviewed these concepts in relation to the newer methods of chemical blockage at the supposed nasopharyngeal port of entry.

Kolmer's use of the ricinoleated vaccine was antedated by the experiments of McKinley and Larson, who demonstrated the infectivity of the vaccine on monkeys. Trials of this vaccine were carried out by Kolmer on nearly 11,000 children during 1935. In these vaccinations, nine cases of paralytic poliomyelitis occurred so closely connected with the vaccination as to suggest that the virus in the vaccine was not sufficiently altered by sodium ricinoleate. The report by Leake (Poliomyelitis Following Vaccination Against the Disease, *THE JOURNAL*, Dec 28, 1935, p 2152) discussed the cases in which both the Kolmer and the Brodie vaccine were administered in the tests mentioned.

The risk attendant on the use of these vaccines in man is too great, especially since their actual preventive value is debatable. The capriciousness of this disease makes it imperative in the future that any proposals for the trial of specific vaccines on man be even more cautiously applied.

PREVALENCE OF SYPHILIS

To the Editor—If available, will you furnish me with statistics of the prevalence of syphilis in (1) general, (2) insane institutions and (3) penitentiaries? I would also appreciate other important facts which would furnish material for the preparation of a paper to be used before organizations of the general public.

MD Pennsylvania

ANSWER—All authorized sources of treatment in socially and geographically representative areas in the United States serving approximately one fourth of the nation's population responded to requests from state and local health authorities to report the number of cases of syphilis under treatment or observation on a given date. These reports indicate that in the

United States there are constantly under observation and treatment at least 683,000 persons with syphilis. This estimate represents the absolute minimum of infected individuals, since it includes only those who are under authorized medical care.

The United States Public Health Service has estimated that there are approximately 160,000 persons with cardiovascular syphilis in the United States. Of these, approximately 40,000 die from cardiovascular syphilis each year. (These estimates are based on the observations from a number of sources indicating that approximately 2 per cent of the population suffer from heart disease, at least 65 per cent of which is syphilitic in origin.)

The U S Bureau of the Census for 1933 gives an average of 18,700 patients with dementia paralytica under treatment in 171 state institutions for mental diseases in the United States.

Among 119,000 persons, which represents the average prison population for federal and state prisons in the United States, sample studies show an average of from 160 to 170 per thousand with a positive serologic blood test for syphilis.

Other important facts which would be of interest are that at last half a million persons acquire syphilis each year in the United States, 100,000 of them before 20 years of age, that there are approximately 25,000 fetal deaths from syphilis each year in the United States, that from the limited data available there is no evidence that there is a downward trend of syphilis in the United States, and that there are at least twice as many known new cases of syphilis each year in the United States as there are of scarlet fever, thirteen times as many as diphtheria, twenty-eight times as many as typhoid, and one and one half times as many as tuberculosis.

DIAGNOSIS OF PNEUMONIA SERUM TREATMENT

To the Editor—A married woman aged 65 had a severe pain at the base of the chest on the right side followed by vomiting and insomnia. The pain tended to spread below the thorax. Two days later a doctor administered mild sedatives and the pain was somewhat lessened. The temperature was about 102.2 F, the pulse 88, the respiration rate 28 and the white blood cell count 10,800. The provisional diagnosis was lobar pneumonia. Sputum could not be obtained, and further action was delayed pending consultation. The consultant rejected the diagnosis of pneumonia suggesting undulant fever and the patient was removed to a city hospital. For the two following days the diagnosis remained doubtful and the next day the relatives were advised that the patient undoubtedly had lobar pneumonia. The eighth day after the onset the patient died. 1. When after the initial attack the presence of pneumonia remains in doubt because of delayed cough, expectoration and dyspnea, what early steps can be taken to verify or disprove the diagnosis? 2. If one has made a diagnosis but sputum is still absent, what is the best way of obtaining a specimen for typing? Or can the type be established in any other way? 3. Failing in efforts to type, should one administer serum of type I or types I and II or any other combination?

MD Maine

ANSWER—The precise diagnosis of pneumonia occasionally requires fine discrimination and laboratory aid. In the case described the provisional diagnosis of lobar pneumonia by the local physician seems justified. The diagnosis of pneumonic consolidation could have been confirmed by roentgen examination. Because approximately 90 per cent of lobar consolidations are due to pneumococcal infection, this diagnosis should have been considered unless undulant fever had been definitely demonstrated. Until the etiologic agent was determined the diagnosis was inadequate.

It is frequently believed that a large amount of sputum is necessary for typing. A fleck may be ample. Many patients with pneumonia have pulmonary secretion which they swallow instead of expectorating. In the absence of satisfactory expectoration it is usually possible to obtain sufficient pulmonary mucus for typing by swabbing the throat, which usually causes cough, after the patient has been turned for a few minutes with the side of the lesion uppermost. When there is much nasal secretion, the larynx may be exposed with a laryngoscope and secretion collected. If there is insufficient mucus for a satisfactory examination the material obtained by swab should be incubated in broth (of pH 7.4 to 7.6, 1 cc) for three hours and then injected into the peritoneum of a white mouse. Pneumococci multiply there and may invade the blood stream of the mouse. The procedures for typing are given in "The Reliability of Sputum Typing and Its Relation to Serum Therapy," by Jesse G M Bullowa in *THE JOURNAL*, Nov 9, 1935, page 1512.

When pneumonia is suspected blood cultures should be made and they should be repeated if the temperature does not fall promptly when they are negative. If the patient with pneumonia vomits mucus may be sought in the vomitus and used for typing.

As a general rule serum should be administered to patients only after the type of the infecting organism has been determined, because specific serums act only on the organisms for which they are made.

Because pneumococci of types I and II are responsible for a greater percentage of pneumonia than any other types (about 30 to 50 per cent), the physician may give serum for these types until their agglutinins are detected in the patient's blood. After the tests for sensitivity, at least 100,000 units of antibody for each type should be given in the shortest possible period. Occasionally the administration of antipneumococcus serum in this way may save life. However, the physician is not absolved from the responsibility of establishing the correct type by further study. He may then administer the appropriate serum if it is necessary and can be secured.

USE OF ARTIFICIAL SUN LAMPS IN ECZEMA

To the Editor—A man aged 28 has had recurrent eczema of the face and arms since early childhood. When the attacks are severe the eczema is of the moist type and when mild a mere dermatitis with intense itching so intense that it interferes with sleep and work. Allergic tests and studies have been of no avail to disclose a causative factor or factors and all treatments prescribed by competent dermatologists have been of but little service. The only relief accorded the patient is by sun baths, which give him complete relief when he can obtain sufficient exposures. As sunlight in this climate is at a great premium in winter this season makes life miserable for him. The logical conclusion seems to be the substitution of artificial sun rays. Kindly suggest the type of rays most likely to be efficacious and the type and power of lamp that would best serve for home treatment. The patient has sufficient mechanical knowledge and judgment to make such treatments safe. If you care to, please recommend some make or makes of lamps that would be suitable.

GEORGE W. ELA, M.D., Pittsburgh

ANSWER—Although some physicians use ultraviolet therapy as an adjunct in the treatment of eczema, there are reports on record to the effect that exposure of eczema to such rays may cause an exacerbation. There are three types of ultraviolet radiation generators available that may be employed for this purpose: the mercury arc in quartz (high vapor pressure), the mercury glow in quartz (low vapor pressure), and the carbon arc lamp. A list of acceptable lamps may be obtained from the Council on Physical Therapy, American Medical Association, 535 North Dearborn Street, Chicago.

SWELLING OF HANDS

To the Editor—For the past three years I have been taking care of a woman aged 55, white, married, who is a housekeeper. She has shown in that time a gradually increasing generalized swelling of the hands to the level of the wrists. Her only complaints with regard to the hands are stiffness of the joints and a certain amount of awkwardness in using them. Occasionally she complains that they are cold and somewhat numb. The hands are a dusky red and are cold and dry; they show a uniform soft tissue swelling which does not pit on pressure. Passively the joints are freely movable without pain but actively she finds it difficult to close her hands completely but feels no tenderness or pain on using them. The radial pulses are equal, regular and normal in quality. The rest of the physical examination reveals the following positive results: The blood pressure ranges from 170/120 to 190/140; the pulse from 90 to 110. The skin has a coppery tinge that has appeared only in the last three years. There is a moderate sized goiter, nodular, which has been present for twenty years and has been slightly larger in the past three years. The heart sounds are of fairly good quality but distant. The urine and blood count have been normal on several examinations. The basal metabolism has been from plus 25 to plus 15 on several examinations. The blood Wassermann reaction has been negative on three examinations. The past history shows one pregnancy normal with one living child. Subsequent pregnancies were deliberately avoided. One operation was performed in 1922 for removal of an ovary and tubes. No serious illness or accident has occurred. All the teeth and the tonsils were removed in 1935. Her complaints besides those referable to the hands are those of a patient with a moderately overactive thyroid gland. In addition she is very introspective and worries constantly about her condition. She refuses operation for the thyroid condition and a course of x-ray therapy by a competent man has had no demonstrable effect. Treatment has been symptomatic. Can you suggest the etiology of the swelling of the hands or any further means of discovering it?

M.D., New York

ANSWER—It is impossible to say what the swelling of the hands is due to. While swelling of the soft tissue is commonly seen in chronic infectious or rheumatoid arthritis affecting the hands, this condition would seem improbable as the patient does not have pain or definite swelling of the joints. However, roentgenologic examination should be made. Search should be made for causes of obstruction of the lymphatic and venous circulation in the upper extremities but it is quite probable that this will not be found. Sclerodema or scleroderma should be quite apparent after the swelling has persisted for three years. Angioneurotic edema and conditions of a similar nature seem excluded by the persistence of the swelling. Renal disease and myxedema seem adequately excluded. Such conditions of swelling of the hands are occasionally seen for which no satisfactory etiology can be determined and for which there is no satisfactory treatment.

DISORDER OF TASTE SENSATION

To the Editor—May I ask what line of inquiry you would suggest in attempting to make a diagnosis in this case? A woman aged 55, single, complains of a disagreeable taste in the mouth constantly present. She cannot enjoy any food or drink because the tongue perceives practically nothing except the bad taste. The tongue feels swollen along the left side which margin looks slightly swollen and has enlarged veins. These veins would probably not have been noticed except for the patient's complaint. At first I thought it was a soreness she felt and when the usual treatment with antiseptics and so on failed to improve it I sent her to her dentist. He also can find no condition to account for the symptoms. Outside of the tongue I have found nothing to blame. There is no pressure on the veins at the base of the tongue. The condition began five or six weeks ago. The past week she stated that the other side began to feel the same way but I cannot see what is doing it. This is a very incomplete question I realize but can you suggest what line of inquiry should be started?

M.D., Illinois

ANSWER—There are multiple factors which might influence the nerves supplying the sense of taste. So little information is given in the inquiry as regards the lines of clinical or laboratory investigation which have already been applied that it is difficult to suggest any specific course. It is well known that pathologic changes in the area of the uncinate gyrus of the brain will affect the sensory nerves of the tongue (Prinz, Hermann, and Greenbaum, S. S. Diseases of the Mouth and Their Treatment, Philadelphia, Lea & Febiger, 1935, p. 510).

Prominences of the sublingual venous supply are common in mouth examination, though usually symptomless unless the condition becomes angiomatous with compression. Certain types of anemias, more especially pernicious anemia, are frequently first discovered by a glossy, sensitive tongue with areas of denuded epithelium, but rarely will the sense of taste be seriously affected.

More common causes of bad taste are imperfect cleansing of pockets or sepsis of the oral cavity. Certain drugs when taken at regular intervals, or even occasional doses, more especially nerve sedatives, basic salts or narcotics, may cause temporary unpleasant sense of taste. Obstruction by calculi of the salivary glands, inflammation, or radiation treatments over the sublingual ducts may cause considerable disruptions of salivary secretion and taste.

Since the patient is 55 years of age she is extremely fortunate if she does not have one or more artificial dentures or restorations. Chemical and metallic tastes that come from basic denture material such as sulfur, or coloring products found in latex-vulcanite dentures are often a source of bad taste as well as the rubber mouth odor. Most of the newer proprietary dental base materials contain such elements as phenolresin, ammonia, camphor or nitrocellulose, which almost without exception will give the wearer an occasional unpleasant taste.

During recent years much research has been done on the possibility and symptoms of electrogalvanism between dissimilar and variously alloyed metallic materials used in dental restorations. Case reports of such cases are now common both in medical and dental literature. A taste of copper, zinc, silver, aluminum, mercury, nickel or phosphorus as well as irritation of the tongue even to the degree of erosion and ulcers, may occur as a result of electrolysis through the saliva between the metallic restorative dental materials.

A more elaborate and explicit aid in the diagnosis of the patient's trouble may be obtained by reviewing the following bibliography:

- Rattner, Herbert. Stomatitis Due to Sensitization to Dental Plates. *THE JOURNAL* June 27, 1936, p. 2230.
Lain, E. S. Chemical and Electrolytic Lesions of the Mouth Caused by Artificial Dentures. *Arch. Dermat. & Syph.* 25: 21 (Jan.) 1932.
Lain, E. S. Electrogalvanic Lesions of the Oral Cavity Produced by Metallic Dentures. *THE JOURNAL* March 11, 1933, p. 717.
Macdonald, W. J. Chemical and Electrogalvanic Burns of the Tongue. *New England J. Med.* 211: 585 (Sept.) 1934.
Schwanke, W. Disturbance of Taste by Influenza. *Klin. Wchnschr.* 15: 93 (Jan. 18) 1936.
Lain, E. S. and Caughron, G. S. Electrogalvanic Phenomena of the Oral Cavity Caused by Dissimilar Metallic Restorations. *Am. Dent. J.* September 1936.

IMMUNIZATION TO POLIOMYELITIS AND THERAPEUTIC SERUMS

To the Editor—What is the present status of protective immunization against poliomyelitis? Are the therapeutic serums considered effective after the onset of paralysis?

M.D., Ohio

ANSWER—Serious question having arisen as to the efficacy and safety of protective immunization against poliomyelitis, its use has generally been abandoned. Some workers have believed that serum given in the presence of paralysis offers hope of obstructing the advance of the paralysis when there are signs of activity such as fever and increase in the paralysis within the preceding twelve hours. Usually it is advisable to withhold serum except in cases of definite poliomyelitis in which paralysis does not exist at the time.

GROUND SQUIRRELS AND PLAGUE IN THE
UNITED STATES

To the Editor—How widespread is the infection of ground squirrels with plague infected fleas? I have heard that the infection in ground squirrels is gradually spreading. Have there been any recent cases reported from the interior of the country? What is the danger to any one from handling ground squirrels or their pelts? Would there be any danger to hunters in this respect?

M D Pennsylvania

ANSWER—The existence of rodent plague in ground squirrels has been demonstrated in all the Pacific and Mountain states except Colorado, Arizona and New Mexico. It has not been possible to determine how long the disease has prevailed in the states in which it has been discovered most recently, therefore it cannot be stated with certainty whether or not rodent plague is spreading in the United States. No case of rodent or human infection has been reported in recent years in states east of the Rocky Mountain region. In the opinion of the U S Public Health Service the handling of ground squirrels is dangerous in regions where rodent plague is known to exist.

SKIN INFECTION AMONG WORKERS IN
PLATING DEPARTMENT

To the Editor—I have been taking care of several men who have a breaking out on their hands caused by the work they do. They are all working in the plating department of a factory in which platinum, chromium and nickel are the chief metals used. They come in contact with these metals or the fumes from them. The company is reluctant to let these men go because it takes considerable time to teach new men this kind of work especially since they don't know which one will be susceptible to the disease. Is there any way of testing a new man to see whether he is susceptible to new metals? I have used a considerable number of combinations of ointments and liquids but I seem unable to cure them except temporarily. If you know of anything besides a change of occupation to cure these men please let me know.

M D Iowa

ANSWER—Whenever groups of workers in any given industrial department develop skin diseases in the absence of innovations in trade practices, the physician in charge should become suspicious that the outbreak may be mycotic rather than purely chemical. In the plating industry, many large plants operate year in and year out without a single case of occupational dermatitis. Then without unusual changes in work procedure, numbers of workers may within a few weeks time present disabling skin disorders. On proper examination of skin scrapings, it is often possible to demonstrate various types of fungi, including monilia, which may not be the direct cause of the disturbances but no less contribute to the perpetuation of chemical injury and the exaggeration of chemical injury.

Whenever platers develop skin disease, it is natural to associate causation directly with metals, such as nickel, copper, chromium or cadmium. Despite the actuality of nickel or chromium dermatitis, it is more often true that the dermatitis may be caused in whole or in part by other substances found in the plating department, including acid and alkali baths and cyanide solutions. No simple test or procedure will furnish adequate information as to susceptibility to these multiple and various irritants. As the greater number of substances employed in plating are direct irritants, even in weak solution, little will be gained by patch tests as a measure of sensitization. In the present situation, a number of suggestions of possible helpful nature are now made.

1 Other things being equal, Negroes make good workers in plating departments because of relative nonsusceptibility to skin disease.

2 Dark skinned, swarthy brunet types are relatively less responsive to industrial skin irritants than blonds or red headed workers.

3 If parasitic organisms complicate chemical dermatoses, the condition becomes well nigh intractable if exposure is continued. In the absence of repeated exposures x-ray treatment with or without the use of organic mercury compounds may lead to the disappearance of the mycotic lesions.

4 The wearing of protective garments, especially rubber gloves may serve some useful purpose, provided no fluids are permitted to enter the gloves. In some instances the application of protective emollients, such as are unaffected by plating solution, may be of value. The Milburn Company, Detroit, manufactures a series of protective preparations, some one of which conceivably might be of value.

5 Patch tests carried out with various plating materials in concentrations below ordinary irritating strength may demonstrate a true sensitivity. In this case, affected workers probably should change operations.

6 At the end of the work period the application of fatty materials to the skin of hands and forearms such as hydrous wool fat theobroma oil or a good rosewater ointment may serve a preventive function by replacing the normal fat of the skin removed by the acids and alkalis of plating work.

7 General department sanitation and hygienic practice of workers may play some part in the production of skin disease. As a rule, well cleaned modern plating departments have much less occupational disease experience than disorderly, obsolete departments.

8 A change from hand plating to automatic processes obviously will eliminate much contact between the skin of workers and plating chemicals.

TREATMENT OF CALLUS AND CORNS ON FEET

To the Editor—A woman about 30 years of age has had a heavy corn growth on her feet from an early age. It is around the sides of the toes and the back of the heels and on the bottoms. In 1928 she had them treated by a skin specialist. He used x-rays and radium. From the time of treatment they have had the so called radium blisters that cause such terrible itching and pain. Now they are so bad that all the places especially where the radium was used have sloughed off all the skin and are a mass of flesh and blisters. Can you tell me anything to use to build up the tissues to throw off this condition? A surgeon operated on five places on the feet in the hope of removing all the destroyed tissue but the operation was a failure. Now surgery is out of the question so much of the area of the feet is involved. The patient is working and must be on her feet and as a result is nearly crazy with pain.

H L DUMBLE M D Hood River Ore.

ANSWER—The prognosis in this case cannot be encouraging. Healing of areas in which necrosis has occurred as a result of the use of x-rays and radium with what probably amounts to secondary infection either with pyogenic or with saprophytic organisms is difficult under ideal circumstances. Complete rest for an extended period is definitely indicated. Attempts to treat a condition of this kind while the patient continues to be active on her feet are almost certain to be futile. The feet should be soaked in a solution of dilute potassium permanganate for ten minutes morning and evening. Two teaspoonfuls of a saturated solution of potassium permanganate may be added to one quart of water, which has been previously boiled but allowed to cool. The feet should be kept bandaged loosely and for at least an hour each day should be exposed to the air.

LIGHT AND COLOR FOR OPERATING ROOM

To the Editor—1 Which is the best light for an operating room for a modern hospital? 2 Which is the best color for the walls of an operating room for a modern hospital?

M D Georgia

ANSWER—1 Since daylight is variable and there are many hours when it is not available, it will be assumed that this question refers to artificial lighting. The artificial illumination of operating rooms has been the subject of a great deal of study and experimentation during recent years resulting in the production of various special fixtures that are more or less satisfactory for the purpose. In choosing an operating room special lighting fixture, the following requirements, which are embodied in several units on the market, should be specified.

(a) A constant illuminating intensity at the work place of from 150 to 300 foot candles should be at all times available, with a variable dominant direction to the light.

(b) The lamp should be designed so that more than one filament is available in the event of the burning out of one. Lamps are now available with a ring filament for diffuse illumination and a concentrated spotlight filament for maximum visual efficiency, these may be used separately or simultaneously.

(c) Shadow should be entirely eliminated or minimized.

(d) There should be no glare, and provision should be made to eliminate excess heat.

(e) A lamp should have a constant color value and under certain conditions accuracy of color value attained by the use of approved spectral transmission glass.

(f) The cost of installation, operating and maintenance should be reasonable.

Instead of the separate unit, a system of ceiling lights with prismatic plates or reflectors that focus the light on the work plane is sometimes used, but while satisfactory from the standpoint of illumination, it involves a rather high original cost, requires constant attention and consumes an enormous amount of current.

In all cases general illumination is required in addition to the special lighting which may be of the direct type with a diffusing globe. There should also be a portable spot light preferably of the independent battery type in every operating room for emergency use.

2 The object of using color in an operating room is to decrease glare and to create the best conditions for visual accommodation. Glare not only decreases visibility but causes discomfort and eyestrain disorders and is distracting. To overcome the glare of bright walls that are in the visual field of the surgeon, various colors have been used not only for walls

but for sheets used in the operating field. Wall surfaces and surroundings act either as light reflectors when white or as absorbents when dark, and in the operating room the two extremes must be avoided. The reflecting power of color runs from about 87 per cent for milk white to 10 per cent for black, and so a shade is indicated that will range midway between the two. A dull French or gray-green for the wainscoting extending to a height of about 7 feet, with a lighter gray green above has given great satisfaction but a sky blue wainscot has been used with equal effectiveness. A gray tile floor will add considerably to the eye comfort and visual acuity of the surgeon.

POSSIBLE GONORRHEA AND PROSTATITIS

To the Editor—A man aged 22 single came to me in August 1935 with a history of gonorrhea two years previously supposedly cured in one month. Now four days after coitus he had noted a sticky white urethral discharge. A smear revealed many pus cells but no gonococci. Both glasses of urine were clear but contained shreds. The prostate was neither enlarged nor tender but its secretion was packed with pus. The gonococcus complement fixation was negative. He received irrigations of potassium permanganate 1:8000 and later silver nitrate increasing from 1:8000 to 1:4000. At the same time he was given prostatic massages and sounds were passed. A Kollman dilator was used up to 32 F. After three months a lapse of treatment for one month was instituted. The urine still showed shreds in the first glass and the prostatic secretion still showed numerous pus cells although a notable increase in lecithin bodies was evident. Subsequently the patient has been treated about twice weekly for two or three months with a regular monthly lapse in treatment. Beer liquor and sexual activity cause no exacerbation. Since October 1936 he has received one instillation weekly of 2 cc of 2 per cent silver nitrate into the posterior urethra. The urine is entirely clear but the prostatic secretion still shows many pus cells and clumps. He has received no vaccines and yet once during the past year and a half the complement fixation was positive to become negative subsequently. At no time was the gonococcus found in the urethral or prostatic secretions. What further can be done to clear the prostate? Will it ever clear up? May he marry under the present circumstances? The patient is in excellent physical condition presents no foci of infection (excluding the prostate) and has no symptoms referable to the genito-urinary tract. M.D. New York.

ANSWER.—In this case the question of whether or not gonorrhea ever existed is problematic. The question of whether it is present now must be answered. Cultures of the first urine in the morning and of the prostatic secretion should be made according to the method advised by Luther Thompson (*Am J Clin Path* 5:313 [July] 1935). If these are negative for neisserian organisms there is no reason why he cannot marry.

As regards the persistence of the prostatitis, there are three possible causes. Infection in either the teeth or the tonsils may be the cause. If these possible foci are not involved, a cysto-urethroscopic examination should be done. Thompson and Cook (*THE JOURNAL*, March 9, 1935, p. 805) have shown the importance of a chronic prostatic duct abscess in prolonging an infection in the prostate gland. These duct abscesses should be looked for and, if found, should be treated according to the method of Thompson and Cook.

HYPOTENSION WITH HEADACHES

To the Editor—I have a seemingly peculiar case in that a man aged 60 has been having a severe headache for the past four months. The headache begins in the back of the head and radiates down the nape of the neck. He states that in the morning there is little aching but that it begins late in the forenoon and continues throughout the day and evening. The only physical abnormality is a low blood pressure: systolic 100 diastolic 55. The reflexes are all normal and the eyegrounds are normal showing no muscular defects, weaknesses or contractures. Relief has been given temporarily by the use of tincture of belladonna; the first relief he has had since the headache started but the effect wears out and ever increasing doses are needed. He began at 10 drops three times a day and is now taking 35 drops three times a day. Thyroid extract and chlor of iron, quinine and strychnine do no good. I have observed that while the blood pressure is kept over 115 or 120 the symptoms disappear but as soon as it goes down again they recur. Is there some way I can give more lasting relief to this man?

MAX T. WAINWRIGHT, M.D. Mapleton Iowa

ANSWER.—The association of hypotension with headache such as described is most unusual. In the first place the degree of hypotension is not marked. Secondly, hypotension relative or absolute, is usually most pronounced early in the morning on first arising. Thirdly, tincture of belladonna does not appreciably affect the arterial tension, and yet in this instance it has apparently aided in controlling the pain. One naturally associates such relief from atropine with its effects on the mucous membranes and is curious to know how extensively the question of deep sinus infection (such as of the sphenoid sinus) has been investigated. The pain of sphenoid sinusitis is usually occipital.

If the apparent association of greater comfort and maintenance of the systolic tension over 115 is real, it is highly probable that this elderly patient has considerable cerebral arteriosclerosis. A slight relative hypotension may produce

symptoms due to inadequate cerebral circulation in the presence of arteriosclerosis. Observation of the arterial tension several times a day, when the patient is suffering from headache and when he is free from it, should reveal more precisely the association of the two phenomena. If this relationship is firmly established (the data in the query merely suggest but do not prove a relation between the headaches and hypotension) two therapeutic aids are available. Elderly persons often are greatly benefited by small doses of strychnine ($\frac{1}{100}$ grain [0.0065 Gm.] three times a day before meals), which may be continued for a long time. If this, through a general increase in vigor, does not result in lasting improvement, ephedrine sulfate 0.025 Gm. (three-eighths grain) may be prescribed once daily in the midmorning. Administration of ephedrine should be avoided in the afternoon and evening for it causes active wakefulness or interferes with rest by inducing violent nightmares. The increase in arterial tension that follows the oral administration of such doses of ephedrine sulfate lasts for several hours, but curative relief is not certain.

Before advising either of these two medicinal measures careful exclusion of possible sinus disease and refraction of the patient's eyes should be done. It appears more probable that the headaches are not of purely circulatory origin.

EFFECTS OF THEAMIN (A THEOPHYLLINE PREPARATION) AND AMYTAL

To the Editor—Can any harm arise from giving a 9 year old child one theamin and amytal capsule (Lilly) daily over a period of from three to six months? The capsule is used in conjunction with the usual fluid restriction in the treatment of nocturnal enuresis. M.D. Alabama

ANSWER.—Short of a tendency to habituation, which might assert itself in inability to get along without the dose or a lessening of the therapeutic effect, this combination would not be particularly harmful to a 9 year old child. The rationale for employing a diuretic (theamin) which would increase urinary output and at the same time sedative (amytal) which would tend to make the child sleep through what might otherwise be an effective stimulus from the bladder is difficult to understand. Theamin is a proprietary name for a theophylline preparation and has not been accepted by the Council on Pharmacy and Chemistry.

SYPHILIS AND PREGNANCY

To the Editor—In *Queries and Minor Notes* (*THE JOURNAL*, August 7, p. 451) is a question regarding the treatment of syphilis and pregnancy. The answer to this query includes the following statements:

- 1 The abortion may have been due to her syphilitic infection.
- 2 The treatment indicated. Others feel that there is danger of a serious reaction [to nearsphenamine] late in gestation and prefer the use of heavy metals in the later weeks.
- 3 The positive cord Wassermann is a reliable test.
- 4 The safest course to pursue is to give the new born infant a course of antisyphilitic treatment.

It is conceivable that an overwhelming syphilitic infection might cause an abortion in the second month of pregnancy. This patient however did not have such an infection. Furthermore no instances of fetal syphilis have been reported as occurring before the fourth month of pregnancy at the very earliest. Abortion at this time would certainly not be caused by infection of the fetus.

The recent summary of the Cooperative Clinical Group states that the pregnant woman suffers few untoward reactions to treatment and that both arsenic and bismuth compounds should be given preferably in alternate courses. Most syphilologists are in accord that treatment approaching term should be with nearsphenamine. The most serious treatment reaction hemorrhagic encephalitis usually occurs relatively early in pregnancy and after the first few injections of arsenic. In a recent survey of the literature I found that the most significant factor in the production of this complication was not the use of nearsphenamine but its overuse. McKelvey and Turner's recommendation of 0.3 Gm. is apparently the safest dose.

The positive cord Wassermann reaction is not a reliable diagnostic test since it usually reflects only the condition of the mother's blood at term. The infant may or may not have syphilis when the cord Wassermann reaction is either positive or negative. The positive cord Wassermann reaction indicates syphilis only when a control test on the mother, performed simultaneously is negative. Similarly a positive Wassermann reaction in the first few days of life does not indicate syphilis unless the reagin titer in the quantitative test is definitely higher than that of the mother. If successive tests on the infant show a constantly decreasing titer the child probably does not have syphilis.

If the child does not have syphilis and its chances are only one in ten or one in twenty if the mother has been adequately treated the safest course to pursue is not to give it treatment until a conclusive diagnosis has been made. This avoids the dangers of treatment reactivity on the one hand and stigmatization on the other.

There is one other point which has not been emphasized. This is the treatment of the mother with mercurosal intravenously. Cole and his co-workers have shown that mercurosal is rapidly eliminated from the body largely in the first twenty four hours after injection and is therefore not an adequate and therapeutically active form of mercury. In pregnancy it is particularly important that therapeutically active drugs be used.

FRANK E. CORMIA, M.D. Montreal

Medical Examinations and Licensure

COMING EXAMINATIONS STATE AND TERRITORIAL BOARDS

Examinations of state and territorial boards were published in *THE JOURNAL* September 18 page 978

SPECIAL BOARDS

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY *Written examination for Group B applicants will be held in various cities through out the country in April Oral examination for Group A and B applicants will be held at San Francisco in June* Sec Dr C Guy Lane 416 Marlboro St Boston

AMERICAN BOARD OF INTERNAL MEDICINE *Written examination will be held in different centers of the United States and Canada Oct 18* Chairman Dr Walter L Biering 406 Sixth Ave Rm 1210 Des Moines Iowa

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY *Written examinations and review of case histories for Group B candidates will be held in various cities of the United States and Canada Nov 6 and Feb 6 Application must be filed at least sixty days prior to these dates General oral, clinical and pathological examinations for all candidates (Groups A and B) will be conducted in San Francisco June 13-14 Application for admission to Group A examinations must be on file before April 1* Sec Dr Paul Titus 1015 Highland Bldg Pittsburgh (6)

AMERICAN BOARD OF OPHTHALMOLOGY Chicago Oct 9 and San Francisco June 13 *All applications and case reports, in duplicate must be filed at least sixty days before the date of examination* Sec Dr John Green 3720 Washington Blvd St Louis Mo

AMERICAN BOARD OF ORTHOPAEDIC SURGERY Los Angeles Jan 14 15 *All applications must be sent to the Secretary prior to October 15* Sec Dr Fremont A. Chandler 6 N Michigan Ave Chicago

AMERICAN BOARD OF OTOLARYNGOLOGY Chicago Oct 8-9 Sec Dr W P Wherry 1500 Medical Arts Bldg Omaha

AMERICAN BOARD OF PEDIATRICS Chicago Oct 17 Los Angeles Nov 7 Boston Nov 14 and New Orleans Nov 30 Sec Dr C A Aldrich 223 Elm St Winnetka Ill

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY New York Dec 28 (tentative) Sec Dr Walter Freeman 1028 Connecticut Ave NW Washington D C

AMERICAN BOARD OF SURGERY Part I (written) Oct 20 Sec Dr J Stewart Rodman 225 S 15th St Philadelphia

Ohio April and July Reports

Dr H M Platter, secretary, Ohio State Medical Board, reports 33 physicians licensed by reciprocity and 5 physicians licensed by endorsement on April 6, 1937 The following schools were represented

School	LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
University of Colorado School of Medicine	(1935)		Colorado
Emory University School of Medicine	(1935)		Georgia
Loyola University School of Medicine	(1935)		S Dakota
Northwestern University Medical School	(1936)		Idaho
Indiana University School of Medicine	(1936)		Indiana
State University of Iowa College of Medicine	(1934)		Iowa
Univ of Louisville School of Med	(1932) (1934)		Kentucky
Johns Hopkins University School of Medicine	(1927)		New York
University of Maryland School of Medicine and College of Physicians and Surgeons	(1927)		W Virginia
Detroit College of Medicine and Surgery	(1933)		Michigan
St Louis University School of Medicine	(1935 2)		Missouri
University of Buffalo School of Medicine	(1933)		New York
University of Cincinnati College of Medicine	(1927)		W Virginia
Jefferson Medical College of Philadelphia	(1915)		Penna
University of Pittsburgh School of Medicine	(1934)		Penna
Vanderbilt University School of Medicine	(1934)		Tennessee
Baylor University College of Medicine	(1935)		Texas
Medical College of Virginia	(1931)		Virginia
University of Virginia Department of Medicine	(1933)		Virginia
Helsingfors Universitet Medicinska Fakulteten	(1896)		Minnesota
Albert Ludwigs Universitat Medizinische Fakultat Freiburg	(1921)*		New Jersey
Regia Universita degli Studi di Roma Facolta di Medicina e Chirurgia	(1935)*		Maryland

Thirty-eight physicians were licensed by reciprocity and 7 physicians were licensed by endorsement on July 13 The following schools were represented

School	LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
University of Colorado School of Medicine	(1932)		Colorado
Emory University School of Medicine	(1928)		W Virginia
(1936) Georgia	(1934)		California
Rush Medical College	(1935)		West Virginia
University of Illinois College of Medicine	(1936 2)		Illinois
Indiana University School of Medicine	(1936 2)		Indiana
State Univ of Iowa College of Medicine	(1935)		Iowa
University of Louisville School of Medicine	(1933)		Kentucky
Harvard University Medical School	(1933)		New Hamp
Tufts College Medical School	(1932)		Michigan
University of Michigan Medical School	(1936 2)		Michigan
(1934) (1935)	(1936)		Michigan
Wayne University College of Medicine	(1933 2)		Missouri
St Louis University School of Medicine	(1935)		Nebraska
University of Nebraska College of Medicine	(1935)		Nebraska

University of Buffalo School of Medicine	(1935)	New York
Jefferson Medical College of Philadelphia	(1933)	Penna
University of Pennsylvania School of Medicine	(1935)	Penna
Medical College of Virginia	(1929)	Virginia
University of Western Ontario Medical School	(1935)	New York
Regia Universita degli Studi di Roma Facolta di Medicina e Chirurgia	(1935)*	Maryland

School	LICENSED BY ENDORSEMENT	Year Endorsement Grad of
College of Medical Evangelists	(1937)	N B M Ex
Georgetown University School of Medicine	(1935)	(1936) N B M Ex
Loyola University School of Medicine	(1937)	N B M Ex
Boston University School of Medicine	(1934)	N B M Ex
Harvard University Medical School	(1935)	N B M Ex
University of Pennsylvania School of Medicine	(1932)	N B M Ex

* Verification of graduation in process

Georgia June Examination

Mr R C Coleman, joint-secretary, State Examining Boards, reports the written examination held by the State Board of Medical Examiners in Atlanta, June 9-10, 1937 The examination covered 10 subjects and included 100 questions An average of 80 per cent was required to pass Eighty-one candidates were examined, all of whom passed The following schools were represented

School	PASSED	Year Grad
University of Arkansas School of Medicine	(1933)	
George Washington University School of Medicine	(1935)	
Emory University School of Medicine	(1937 43)	
University of Georgia School of Medicine	(1937 32)	
Rush Medical College	(1891)	
Harvard University Medical School	(1934)	
New York University College of Medicine	(1937)	
Medical College of Virginia	(1936)	

Twenty-five physicians were licensed by reciprocity and one physician was licensed by endorsement from January 1 through June 28 The following schools were represented

School	LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
University of Arkansas School of Medicine	(1935)		Arkansas
George Washington University School of Medicine	(1935)		Dist Colum
Emory University School of Medicine	(1934)		W Virginia
Rush Medical College	(1926)		Illinois
Indiana University School of Medicine	(1915)		Indiana
State Univ of Iowa College of Homeopathic Medicine	(1891)		Iowa
State University of Iowa College of Medicine	(1919)		Iowa
Louisiana State University Medical Center	(1936)		Louisiana
Tulane University of Louisiana School of Medicine	(1934)		Louisiana
(1935) Alabama			
Johns Hopkins University School of Medicine	(1936)		Maryland
University of Maryland School of Medicine and College of Physicians and Surgeons	(1932)		Maryland
Harvard University Medical School	(1915)		Alabama
Tufts College Medical School	(1914)		Nebraska
St Louis College of Physicians and Surgeons	(1914)		Missouri
St Louis University School of Medicine	(1935)		Missouri
Meharry Medical College	(1927)		Tennessee
Vanderbilt University School of Medicine	(1935)		Alabama
(1934) (1935) Tennessee			
Medical College of Virginia	(1917)		Virginia
University of Virginia Department of Medicine	(1933)		Virginia
(1935) Maryland			

School	LICENSED BY ENDORSEMENT	Year Endorsement Grad of
Vanderbilt University School of Medicine	(1935)	N B M Ex

Wisconsin June-July Report

Dr Henry J Gramling, secretary, Wisconsin State Board of Medical Examiners, reports the written and practical examination held in Milwaukee, June 29-July 2, 1937 The examination covered 19 subjects and included 100 questions An average of 75 per cent was required to pass Eighty-seven candidates were examined all of whom passed Thirty physicians were licensed by reciprocity The following schools were represented

School	PASSED	Year Grad	Per Cent
George Washington University School of Medicine	(1935)		84
Northwestern University Medical School	(1937)		85 86
Rush Medical College	(1936) 81	(1937) 83	85 85
Indiana University School of Medicine	(1936)		84
State University of Iowa College of Medicine	(1937)		88
Louisiana State University Medical Center	(1936)		87
Harvard University Medical School	(1936)		87
Tufts College Medical School	(1936)		82
University of Minnesota Medical School	(1937)		86 87
Creighton University School of Medicine	(1937)		87
University of Pennsylvania School of Medicine	(1935)		82
Marquette University School of Medicine	(1937)		80
80 81 81 81 81 81 82 82 82 82 82 83			
83 83 83 83 84 84 84 84 84 85 85 85			
85 85 85 85 85 85 85 86 86 86 86 86			
86 87 87 87 88 88			

University of Wisconsin Medical School (1936) 80 80 81 81, 82 82 83 83, 83 83, 83 84 84 84 84, 85 85 85 86 86 87 88	(1935) 83	
Queen's University Faculty of Medicine	(1928) 86	
SCHOOL LICENSED BY RECIPROCITY		
School	Year Grad	Reciprocity with
Stanford University School of Medicine	(1932)	Minnesota
Bennett Medical College Chicago	(1912)	Illinois
Chicago College of Medicine and Surgery	(1913)	Illinois
Illinois Medical College	(1905)	Illinois
Loyola University School of Medicine	(1935)	Illinois
Northwestern University Medical School	(1928)	Iowa
(1932) Colorado		
Rush Medical College	(1913) (1915) (1920)	(1930) Illinois
University of Illinois College of Medicine	(1935)	Illinois
College of Physicians and Surgeons of Baltimore	(1909)	New York
Detroit College of Medicine and Surgery	(1932)	Michigan
University of Michigan Medical School	(1925)	
(1931) (1934) Michigan		
University of Minnesota Medical School	(1925)	(1936) Minnesota
St. Louis University School of Medicine	(1934)	Missouri
University of Nebraska College of Medicine	(1933)	Nebraska
University of Cincinnati College of Medicine	(1934)	Ohio
University of Oklahoma School of Medicine	(1934)	Oklahoma
University of Oregon Medical School	(1933)	Oregon
University of Pennsylvania School of Medicine	(1923)	
(1930) Pennsylvania		
Vanderbilt University School of Medicine	(1933)	Tennessee
University of Wisconsin Medical School	(1931) (1932)	Illinois
(1934) Missouri		

Book Notices

A Manual of Pharmacology By the late Walter E. Dixon, M.A., M.D., B.S. Revised by W. A. M. Smart, M.B., B.Sc., Lecturer in Pharmacology and Toxicology, London Hospital Medical College. Eighth edition. Cloth. Price \$6.50. Pp. 483 with 79 illustrations. Baltimore: William Wood & Company, 1936.

The present volume forms the eighth edition of Dr. Dixon's textbook on pharmacology, the first edition appearing in 1906. Following Dr. Dixon's death the revision of this book has been undertaken by Dr. Smart, a friend of Dr. Dixon. The book has been entirely recast, apparently by Dr. Smart, and it is impossible to tell just how much of the book is due to Dixon and how much to Smart, as the latter says in the preface that he has drawn freely from his lecture notes, which represent a concentration of information gleaned from many sources combined with his own observations. The arrangement of the book is much the same as that of other pharmacologies, no two of which agree, demonstrating the extreme difficulty of finding a logical arrangement for the different drugs which are considered, as it is not possible to get either a chemical or a pharmacologic order. Either arrangement breaks down in many instances.

In looking over the book critically, a number of points impress one. A valuable feature is the emphasis on the chemistry of the drugs. Dr. Smart mentions in his preface that this is largely a feature introduced by himself. Another feature, which would certainly seriously handicap the use of the book by the American medical student or practitioner, is that no United States pharmacopoeial preparations are mentioned, the list of individual preparations being entirely derived from the British pharmacopoeia. On this account alone it would seem that the use of the book would be greatly limited in this country. As one looks through the book one is struck strongly by a number of apparent errors. For example, on page 119 there is a tracing of the action of curare on blood pressure and limb volume. In the note under the tracing it is said that there is a depression of the vasoconstrictor nerves and vasodilatation with fall in blood pressure. The tracing itself, however, shows a definite increase in blood pressure and decrease in limb volume. In the paragraph discussing the excretion of morphine, the views expressed are not in harmony with our present knowledge and would seem to be those which were held twenty-five years ago. Indeed, the description of the action of morphine on the intestine is certainly not in harmony with our present knowledge. It may be questioned whether the statement on page 194 that the mercurials act well in edema of either cardiac or renal origin is really correct. The illustration of the apparatus for employing isolated tissues as given on page 243 would seem to be entirely out of place in a general textbook on pharmacology. Its place would seem to be rather in a laboratory guide. A serious objection might be made to the views expressed on page 245 with regard to the discovery of the new

alkaloid of ergot, where entire credit for the discovery is given to Dudley. Certainly in three other laboratories claims are being made to the discovery of this alkaloid. None of these other groups of workers are even mentioned. The statement that the new alkaloid is the one constituent to which the characteristic effects of ergot are due is also open to question. No one can state positively today the exact relative importance of this new alkaloid in the action of the crude drug. As a matter of fact, in some of the crude drug which is active there is little of the new alkaloid by whatever name the alkaloid may be known. In the discussion of aminopyrine, page 272, no mention is made of its dangerous action on the white blood cells, nor in the discussion of cinchophen is any mention made of its action on the liver. The statement is also made on the same page that in combinations of aminopyrine and the barbiturates the aminopyrine content may cause "a dangerous narcosis." One would question whether the barbiturate constituent may not have had something to do with the narcosis. The suggested rubbing of mercurial ointment into the skin over the affected part in cases of pleurisy, iritis, peritonitis and inflamed joints will probably be a strange suggestion to American clinicians. The discussion of the organic arsenicals, occupying a little more than one page, would seem to be absolutely inadequate, as would also the discussion of the vitamins, which occupies three pages. The posterior lobe of the pituitary is disposed of in less than fifteen lines. It may also be questioned whether the statement that the parathyroid preparations are active when given by mouth is in harmony with the general view. It would hardly seem to be necessary to point out that in cases of poisoning by phosphorus the phosphorescence of the vomited material and of the intestinal contents may be "best seen in the dark." On page 446 it is stated that epinephrine is useful when the heart is stopped, as in drowning or in carbon monoxide poisoning. In such a condition the drug must be injected directly into the muscle of the right auricle. One would be led to question as to how such a technic could be carried out. Finally, as a last example of the inadequacy of some of the text, it may be pointed out that on page 447 the action of liver in macrocytic anemia is disposed of in four lines.

No review would be complete without calling attention to the large number of prescriptions that have been inserted by the revising author. These are in general of a "shotgun" type that were in use some fifty years ago. Indeed, they have been drawn largely from the London Hospital Pharmacopoeia and the B. P. Codex. They remind one strongly of the old books which were formerly popular with medical students in which from 10,000 to 30,000 prescriptions were reproduced, being the favorite combinations of some old-time practitioners of medicine. They are certainly entirely out of harmony with the modern prescribing of drugs. The book, therefore, can hardly be recommended to the American medical student or practitioner.

Medizinische Praxis. Sammlung für ärztliche Fortbildung. Herausgegeben von Prof. Dr. L. R. Grote, Leitender Arzt der Medizinischen Klinik des Rudolf Hess Krankenhauses, Dresden. Prof. Dr. A. Fromme, Direktor der Chirurgischen Abteilung des Stadtkrankenhauses, Dresden. Friedrichstadt und Prof. Dr. K. Warnke, Direktor der Staatlichen Frauenklinik zu Dresden. Band VIII: Das Kropfproblem von Dr. Eugen Bircher, a Spitaldirektor und chir. Chefarzt des Kantospitals Aarau (Schweiz). Paper. Price 12 marks. Pp. 143 with 41 illustrations. Dresden & Leipzig: Theodor Steinkopff, 1937.

The purpose of the monograph of which this is one example is to provide short authentic summaries for busy physicians. The author has been actively identified with the problem of goiter for more than thirty years. All references have been omitted and the names of only a few investigators are mentioned. The text is divided into eight sections, beginning with one on anatomy and chemistry. The others are on physiology, pathology, pathologic physiology including hypothyroidism and hyperthyroidism, endemic cretinism, degeneration and endemic goiter, clinical features and diagnosis of the various types of goiter and their sequelae, clinical features and diagnosis of thyroiditis and malignant tumors, and the prophylaxis and therapy of goiter. The chapter on the pathology of goiter follows the old method of cataloging the anatomic with the clinical picture. Probably the author would complain less of "Babylonian chaos" if the morphologic cycle had been given primary, and the clinical association secondary, consideration.

In the chapter on hypothyroidism and hyperthyroidism, endemic goiter is not considered one of the forms of thyroid insufficiency. Basedow's disease is limited to those cases with genuine exophthalmos. The term "jod-Basedow" is rejected as false, although he perhaps overemphasizes the danger of inducing "thyroidism" by iodine. Endemic goiter is treated under the subhead of endemic cretinic degeneration. Since Paracelsus, endemic cretinism has been considered secondary to endemic goiter. Whether cretinic degeneration is a more complex constitutional disturbance than can be explained on the basis of several generations of thyroid insufficiency may have to await the therapeutic test of goiter prophylaxis. The author believes that the iodine deficiency (either relative or absolute) theory of goiter is unproved and, while admitting a great reduction in the incidence of goiter by the use of iodine, he believes this is not a result of a true prophylaxis but of "prophylactic therapy." He considers true goiter prophylaxis to be of a hygienic nature—better housing, more air and sunlight, balanced diets and pure drinking water. The monograph is an excellent example of how briefly the essential facts of the thyroid and its disease associations can be presented by one who through lifelong study of this problem has combined laboratory research with clinical studies.

Diphtherie und Konstitution Von Dr Frieda Bohning Paper Price, 1 60 marks Pp 24 with 4 illustrations Leipzig Georg Thieme 1937

The study is based on 554 cases of diphtheria occurring in a sanatorium for tuberculous children during the years 1926-1936. The author found that children suffering with frequent colds and children whose parents were susceptible to sore throats and respiratory infections had a higher incidence of diphtheria. The exudative lymphatic constitution predisposes to diphtheria. On admission, 74.8 per cent had large tonsils, 87.8 per cent had enlarged cervical lymph nodes, 59.8 per cent were of the narrow, skinny type of body build, and 39 per cent were children with blond hair and blue eyes. The intensity of the disease showed no definite correlation with constitutional factors. In connection with the question of prevention, it is interesting to note that about 50 per cent of the diphtheria cases occurred during the first thirty-four days after admission, 61.3 per cent within the forty-fifth day and 70.9 per cent within the sixtieth day. Active immunization at the time of admission would have prevented only about one third of the cases, a longer period is needed for the development of immunization, 86.6 per cent of the cases were mild, 3.4 per cent were severe and thirteen patients, or 2.6 per cent, died. The mild course of the disease may have been due to early treatment.

Allgemeine Chirurgie Von Prof Dr D Kulenkampff Leiter der chirurg. Abteilung und Direktor des Heinrich Braun Krankenhauses (staatl. Krankenh.) Zwickau Seventh edition Boards Price 7 50 marks Pp 246 with 15 illustrations Leipzig Johann Ambrosius Barth 1937

This volume, which previously appeared as part 13a of Breitenstein's *Repetitorien*, now comes out as a seventh revised edition and as a separate work. The book is merely a compend and the author in his preface does not claim anything more for it. It is neither a "general surgery," as it is entitled, nor is it comprehensive even as a compendium on the subject. There undoubtedly is a place for such a volume in Germany, otherwise it would not survive to a seventh edition, but such books are not well regarded either by teachers or by students of medicine in this country.

A Laboratory Manual of Physiological Chemistry By D Wright Wilson Benjamin Rush Professor of Physiological Chemistry University of Pennsylvania Third edition Cloth Price \$2 50 Pp 288 Baltimore Williams & Wilkins Company 1937

This book is intended as a teaching manual for medical, dental and veterinary courses. The first sections of the work review qualitative studies on phosphate, calcium, magnesium and chloride, and introduce quantitative work on organic phosphorus, sulfur and nitrogen. Then follow discussions of standard acids and bases, pH , indicators, buffered solutions, colloids, surface tension, and adsorption. Relatively little work is given on the chemistry of carbohydrates, fats and proteins. Phospholipins and cerebroside are not referred to at all, and cholesterol is referred to only in connection with gallstones. The section on the digestive tract is brief and elementary.

Short sections appear on the qualitative examination of milk, bone, muscle, nucleic acid, bile and pathologic urine. The general chapter on blood and hemoglobin includes an advanced treatment of qualitative spectroscopy. The quantitative studies of the blood filtrates and of urine present some of the usual methods with little improvement, precautions or explanatory material. At the conclusion, dietary deficiency experiments are described on rats, pigeons and guinea-pigs for vitamins A, B₁, B, C and D. The book covers a wide range, but one may question whether a more intensive and quantitative treatment of more limited material with emphasis on the chemistry of cell constituents and the composition of blood might not be more helpful to the student.

La tosse. Fisiopatologia clinica terapia Da Antonino Culotta assistente all'Istituto di anatomia patologica della R Università e all'Ospedale Principe Umberto di Palermo. Con prefazione del Prof Armando Businco. Paper Price 30 lire Pp 228 Palermo L. Salpetra Editore 1936

It seems that this is the first Italian monograph on the subject of cough. It is complete, simple and clear and is divided into three parts, as suggested by the title. The first part describes the physiopathology of the cough, its centers and nerve paths, its effects, its significance in medical symptomatology, its varieties and characteristics and its possibilities as a vector of infection. In the second part the author discusses coughing in disturbances of the respiratory system, in extra-respiratory diseases, in old persons and in infants. The third part is devoted to the general treatment of cough, its medical treatment, physical therapy, endotracheal injections and surgical treatment. The simple language used by the author and the clearness of the printed material make the book easy to read and understand, and the numerous marginal notes are helpful in locating points of special interest.

Modern Principles of Ventilation and Heating By T Bedford D Sc, Ph D Investigator to the Medical Research Council's Industrial Health Research Board. Three lectures given at the London School of Hygiene and Tropical Medicine under the Heath Clark Bequest to the National Institute of Industrial Psychology. Cloth Price 4s 6d Pp 85 with 23 illustrations London H K Lewis & Co Ltd 1937

In this little book the author summarizes current views on heating and ventilation in England with respect to temperature, humidity, air movement, air freshness, radiation, drafts and odors. A brief description is given of instruments that register two or more of the thermal factors affecting comfort, and of modern equipment for the control of these factors. Much of the research work described has been carried out by the author and his colleagues in British factories where men performed light work. The comfort standards found there differ considerably from those in the United States, owing to differences in climate, clothing, heating methods and general living conditions. The last two chapters deal largely with effects of high temperatures on output, sickness and accidents in hot trades. A four page appendix gives bibliographic references to recent literature, and there is a complete index in the end. The work as a whole is a compact and condensed exposition of the elements of heating and ventilation, and it should be particularly valuable to beginners and those who have not followed the literature.

Ganzheitsproblematik in der Medizin zugleich eine Einführung in die medizinische Erkenntnislehre Von Prof Dr Theodor Brugsch Boards Price 5 marks Pp 136 Berlin & Vienna Urban & Schwarzenberg 1936

Lotze, who, according to Welch, began as a pathologist and became a great philosopher, once wrote that every natural phenomenon may be investigated not only with reference to the mathematical grounds of its possibility and the causes of its occurrence but also as regards the meaning or idea which it represents in the world of phenomena. Brugsch has in many respects traveled the same path and in this, his most recent treatise, has developed a broad foundation for the contemplation of that aggregate of the sciences which are grouped as medical. Brugsch is concerned with the integration of this aggregate, as he is too in an integrative concept of the object, i.e., the human being about which the aggregate revolves. "Ganzheitsproblematik" has for the moment almost the quality of a slogan in continental and even in British circles. With Botha's support

of the movement termed "Holism," with Aschoff's recent discussion of the same trend, with the entire development of the concept of "constitution" on the one hand and "individuality" on the other as they are related to medical problems, there is evident a striving for some unitarian philosophy to satisfy an obvious void in the field of medical science—a distinct effort for synthesis in the confusing muddle of unlimited knowledge in limited fields. These general problems Brugsch treats in a series of chapters that begin with an examination of Kantian categories, traverse biologic concepts of the normal, vitalism, unity, adaptability, constitution (both in the normal and in the abnormal phase), disease as expressed in inflammation and allergy, heredity, and other related topics. The book is not designed to supply more detailed information for the pathologist or the internist. It is purely an exposition of a personal exploration of the basic problems of the abnormal biology that is called medicine. As such it is interesting because it affords an insight into an orderly contemplation of our science as finally achieved by a mind that has always been known for keen insight. Even Brugsch's style of presentation, at times more abstract than relished by the scientist of today, and at times a bit difficult to follow, by no means impairs the fine values that are presented.

Oxidation of Carbohydrates in Acid Solution. Quantitative Studies from the Biochemical Laboratories of the University of Oklahoma School of Medicine (Aided by a Grant from the Research Appropriation of the University of Oklahoma School of Medicine) By Mark R. Everett, Professor of Biochemistry, and Fay Sheppard, Instructor in Biochemistry. Paper. Pp. 66. Oklahoma City, Oklahoma: University of Oklahoma Medical School, 1936.

In earlier studies the authors called attention to the fact that the monocarboxylic acid lactones obtained by oxidizing aldoses are later oxidized to keturonic acids. In this brochure the quantitative evidence for this interpretation is presented on some fifty carbohydrates and correlated with the structural factors of the pyranoid structure of the respective monosaccharides. It is significant to note that ketoses also yield some keturonic acids and that sugar alcohols and nonreducing glucosides first yield ketoses and then l-keturonic acids. The path and extent of oxidation are in part determined by temperature and concentrations but in the main by three structural factors. The first of these involves substitution of a radical on the OH hydrogen of the reducing carbon in the pyranoid ring. Thus α and β glucosides behave differently, the former are oxidized slowly without hydrolysis, but the β forms are hydrolyzed and oxidized more easily. Substitution of a methyl group on the carbon atom at the other end of the pyranoid ring leads to more easily oxidized carbohydrates. This is well illustrated by the relative ease of oxidation of rhamnose. However, a carboxyl group addition in the same position increases the resistance. The cis-trans isomerism in the furanoid ring also affects the ease of oxidation of the carbohydrates in acid solution to keturonic acids. Complete trans isomerism favors keturonic acid formation by bromine oxidation in acid solution, but cis isomerism hinders it. The oxidation of carbohydrates by nitric acid resembles that by bromine in many respects. These relationships are also borne out by biologic oxidations and color reactions. From the pure organic chemical as well as from the biochemical point of view the value of comparative quantitative studies of the type under consideration cannot be overestimated.

Die Fermente und ihre Wirkungen. Von Prof. Carl Oppenheimer. Dr. phil. et med. Supplement. Lieferung 6 (Bd. II. Spezieller Teil. Hauptteil 13-15). Paper. Price 10 florins. Pp. 783-942 with 12 illustrations. The Hague: W. Junk, 1936.

This supplement to the excellent treatise on enzymes continues the consideration of proteases. It covers in detail the properties, distribution, purification, preparation, activation, inhibition, optimal conditions of action and mode of action of trypsin, rennin, pepsin, papain and cathepsins. At the close of the supplement is included an incomplete treatment of phyto-proteinases. In connection with the discussion of the rate of secretion of pepsin and trypsin, the author also briefly considers the chemistry of secretin, of gastrin and of the gastric anti-anemia factor. In completeness and in organization, this supplement continues to live up to the high standards of the previous supplements and the original treatise.

Laboratory Diagnosis of Psittacosis. Reports on Public Health and Medical Subjects No. 80. Ministry of Health Paper. Price 6d. Pp. 11 with one illustration. London: His Majesty's Stationery Office, 1937.

This official report gives full instructions with precautions for "the examination of pathological material from birds, from experimentally inoculated mice and from human beings suspected of infection with the virus of psittacosis." The methods of demonstrating the virus are described in detail and the microscopic appearances of the virus particles are well illustrated. The report will be of interest and service to all who may be concerned with the laboratory diagnosis of psittacosis.

Synopsis of Pediatrics. By John Zahorsky, A.B., M.D., F.A.C.P., Professor of Pediatrics and Director of the Department of Pediatrics, St. Louis University School of Medicine. Assisted by T. S. Zahorsky, B.S., M.D., Instructor in Pediatrics, St. Louis University School of Medicine. Second edition. Cloth. Price \$4. Pp. 367 with 80 illustrations. St. Louis: C. V. Mosby Company, 1937.

This is an excellent little monograph, well suited to the purposes for which it is intended, and divided into sixty chapters on various pediatric subjects. It should be a practical guide in the teaching of medical students and could also be used as a textbook for nurses. There are many excellent illustrations in addition to nine colored plates. Some recent knowledge is omitted, such as cevitic acid for the treatment of scurvy and the mandelic acid treatment of pyelitis. Also lead poisoning is not listed as a cause of encephalitis.

La migraine ophtalmique. Par G. Renard, professeur agrégé à la Faculté de médecine de Paris, et A. Pascal Mekdjian, assistant d'ophtalmologie à la Polyclinique Ney (Hôpital Bichat). Paper. Price 22 francs. Pp. 146 with 8 illustrations. Paris: Masson & Cie, 1937.

This pamphlet is one of a series on medical and surgical research and its application. In the introduction the authors maintain a broad and open attitude toward the etiology of ophthalmic migraine. The first chapter contains a brief history of the condition. The second chapter reviews the clinical side of the picture, evaluates the symptoms, their duration and evolution, the frequency of attack and the prognosis as to further crises. The third chapter discusses the pathogenesis of ophthalmic migraine. The local and general factors as to cause constitute the subject matter of the fourth chapter. The fifth chapter is headed "migrainous terrain" and discusses the relationship of the digestive function, anaphylaxis and intolerance, the neurovegetative system, the humoral state, the vascular tension and the psychic and the endocrine system. That portion of the chapter dealing with the vascular tension is replete with charts and illustrations indicating a comparison of general and retinal arterial tension in many patients. The sixth chapter discusses the associated morbid conditions such as ordinary severe headaches and epilepsy, and its equivalents. The hereditary factors in migraine are considered in the seventh chapter. In the next chapter a discussion of the treatment includes therapy of the paroxysm, general care of the patient and prevention of further attacks. The final chapter includes the statements that the scotomas of ophthalmic migraine are due to vascular spasms in the region of the visual cortex, that the migrainous pain is probably due to changes in the antidromic fibers at the level of the sympathetics of the trigeminal nerve, that a certain background of a generalized nature exists in these patients, and that treatment depends on the suppression or modification of these factors in the terrain. The bibliography appended is long, but the English and German authorities are incompletely listed.

Clinical Reviews of the Pittsburgh Diagnostic Clinic. Guideposts to Medical Diagnosis and Treatment. Edited by H. M. Margolis, B.S., M.D., F.A.C.P. Cloth. Price \$5.50. Pp. 552 with 6 illustrations. New York: Paul B. Hoeber, Inc., 1937.

Designed to meet the requirements of bedside practice, the Pittsburgh Diagnostic Clinic began in 1931 the publication of a series of brief reviews on selected medical subjects. As in previous volumes a strict adherence to the idea of practicability induced the authors to avoid or eliminate research details, controversial topics and extensive reference to the literature. The style of presentation is simple and easily readable. The space allotted each subject has been determined according to its frequency and importance. The essays discuss such a variety of pathologic conditions as psychoneuroses, abnormalities of growth, hyperthyroidism, diabetes, various types of arthritis,

pernicious anemia, renal diseases and carcinoma of the lung. Eight authors contributed to the volume but there is no lack of uniformity, probably because one man has contributed most. Atrophic arthritis has been treated in a nearly monographic manner. Omission of the evaluation of mucin and histidine preparations in the treatment of peptic ulcer is regrettable. The absence of discussions of recent discoveries, such as insulin shock treatment of schizophrenia or the use of sulfamidate in streptococcal infections, is a demonstration of the rapid progress of medical research with which the books cannot catch up. The material is clearly presented, the synopsis of achievements in the special fields of medicine will be welcomed by those engaged in general practice.

Einführung in die allgemeine Biochemie. Von Prof. Carl Oppenheimer. Paper. Price 7.20 florins. Pp. 227. Leliden. A. W. Sijthoff's Uitgeverij. 1936.

The introductory comments are particularly interesting and worthy of special mention. The author stresses the fact that biochemistry has now become a science that is independent from physics, chemistry and physiology, and that it is no longer to be considered as a simple handmaiden of other biologic disciplines but rather that biochemistry is actually bringing about fundamental and far reaching changes in the sister sciences. The influences are felt particularly in animal and plant physiology and pathology, in microbiology and immunity, in hygiene, in pharmacology and experimental therapeutics, and in technology. He deplores the fact that biochemistry is, nevertheless, not taught as a general science but rather as separate phases in the various biologic sciences, and for this reason he has made a modest attempt to present general biochemistry without the usual limitations to the three forms of life. He deals with those questions which have to do with substances and processes that are characteristic of the living substance, whether animal or plant. The book is not a popular presentation but a scientific and systematic introductory treatment. It treats the subject from the general biochemical point of view with more emphasis on the synthetic and catabolic processes. It is truly descriptive yet fundamentally introductory and sound from the modern point of view. It reflects the author's close contact with the extensive literature he has read as editor of the *Handbuch der Biochemie des Menschen und der Tiere* and as author of *Die Fermente und ihre Wirkungen*.

A Dietary Survey in Terms of the Actual Foodstuffs Consumed. By E. P. Cathcart and A. M. T. Murray. Medical Research Council Special Report Series No. 218. Paper. Price 1s. Pp. 56. London. His Majesty's Stationery Office. 1936.

This is the third in a series of investigations of the food eaten by representative communities in England and Scotland. Former studies of 154 families in St. Andrew's, fifty-six in Cardiff and fifty-seven in Reading are extended to show amounts per man weekly of different types of food, e. g., meats, fish and game, fresh milk, dairy produce (including margarine), bread, cereals and legumes, sugars, vegetables and fruit, for groups on different income levels. The present report also includes some Glasgow families and a group of 109 women students in the College of Domestic Science in Glasgow. From the economic point of view these computations may be very useful, but from the nutritional point of view they still leave much to be learned. All estimates of family needs are based on a single "per man" value, which is related only to energy needs. Such a unit cannot be applied when minerals and vitamins are to be considered, since the requirements for these are not in the same relationship to total calories at all ages. For each nutrient different scales are necessary, based on relative requirement to give for each nutrient a "per man" unit in terms of which family needs can be expressed. A family of five, father, mother and three young children, might have an energy requirement equivalent to 3.4 man units, but it would have a calcium requirement of about 6.7 man units. Therefore total calcium reported as 0.987 Gm. per man daily appears very liberal, but for the family mentioned would mean a total of 3.4 Gm., whereas an adequate allowance would be nearer 4.5 Gm. It would also be helpful in arriving at the other values of these diets to have, in addition to amounts of protein, fat and carbohydrate, which tell so little about the food selection in relation to health and growth, a statement of the percentage of total

calories contributed by each of the classes of foods considered, and the cost of each in terms of the total cost. The authors say wisely that "the main causal factor of inadequate diets in many households is ignorance of how to buy, what to buy and how to use to the best advantage the material bought." The continuation of such studies would reveal more clearly specific dietary defects and result in evidence that could be more effectively used to disseminate knowledge of how to safeguard the family against serious malnutrition. Some further comments on this report will be found in the London letter in *THE JOURNAL*, March 27, page 1129.

Arzneiverordnungen. Ratschläge für Studenten und Ärzte. Herausgegeben von W. Heubner, H. Oetzel und W. Zinn. Im Einvernehmen mit der Deutschen Gesellschaft für Innere Medizin. Cloth. Pp. 216. Leipzig. S. Hirzel. 1937.

The "Arzneiverordnungen" is a cross between New and Non official Remedies and Useful Drugs. As it is written entirely for European German speaking physicians, its usefulness to American physicians is slight. The handy pocket size book is practical and well bound and contains a good therapeutic index, dosage tables for infants, children and adults, and a pediatric diet sheet, besides the rules for dispensing of drugs and the principles of administration. The handbook lists the drugs of the Pharmacopeia and those drugs which proved to be valuable in the clinics and at the bedside.

The Diseases of Infants and Children. By J. P. Crozer Griffith, M.D., Ph.D., Consulting Physician to the Children's Hospital, Philadelphia, and A. Graeme Mitchell, M.D., B.K. Rachford, Professor of Pediatrics, College of Medicine, University of Cincinnati. Second edition. Cloth. Price \$10. Pp. 1,154 with 293 illustrations. Philadelphia & London. W. B. Saunders Company. 1937.

This complete revision of a well known and satisfactory textbook of pediatrics will be useful to teachers, pediatricians, practitioners and students. In the revision, greater emphasis has been laid on preventive measures, anatomy and physiology, growth and development, and the subject of clothing. The artificial feeding of the baby has been put on a simpler basis, and other material in the book has been brought down to date. Charts and photographic illustrations add materially to the value of the book. Numerous journal and book references are given at the end of each chapter. The use of quotations from the periodical literature may occasionally lead to some ambiguity, thus it is stated that "new-born infants from poverty-stricken environments appear to be smaller, in all dimensions and in weight, than those born in more favorable surroundings," which is followed by the statement "In spite of statements to the contrary, there has been proven little, if any correlation between the condition and the diet of the mother during pregnancy, and the weight and condition of the infant." These quotations, coming from different sources, seem to be exactly opposite in meaning. The authenticity of the material included in the book, and the clinical descriptions, are beyond criticism.

Physiological Chemistry. By J. F. McClendon, Ph.D., Professor of Physiological Chemistry, Medical School, University of Minnesota, Minneapolis, and the late C. J. V. Pettibone. Sixth edition. Cloth. Price, \$3.50. Pp. 454 with 34 illustrations. St. Louis. C. V. Mosby Company. 1936.

This rather elementary textbook of physiologic chemistry is intended to cover the descriptive as well as the laboratory side. The chemistry of cell constituents is presented in an elementary manner, the style is rather disconnected in many places, and the order of presentation is not the most logical. The laboratory instructions for the most part cover crude qualitative tests without much in the way of critical evaluations of either qualitative or quantitative methods. This textbook does not meet the requirements of the better class medical schools.

Travaux pratiques de bactériologie. Par Henri Bonnet, chef des travaux de bactériologie et Armand Nérot, assistant de bactériologie à la Faculté de médecine de Paris. Préface du Professeur Robert Debré. Paper. Price 38 francs. Pp. 178 with 82 illustrations. Paris. Masson & Cie. 1936.

The text of this book, written for third year medical students, is condensed, clear and precise. Each chapter begins with a brief discussion of the type of specimens to be examined. Consideration is given to the principal pathogens for man, the

methods of isolating and identifying them, and their morphologic, cultural, biochemical and serologic characteristics. One chapter is included on the complement fixation reaction and one on the flocculation reaction. The text is beautifully illustrated with numerous drawings and photomicrographs, as well as with six colored plates.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Malpractice Abandonment of Patient—The plaintiff was treated at the Budge Memorial Hospital by one of the physician-defendants, for an infected finger. After four days of treatment, during which the condition of the finger improved, the patient over the protest of the attending physician left the hospital after paying the amount that was due at that time. The attending physician advised him to continue at home the treatment he had been given at the hospital and advised the plaintiff to return at once for further treatment if the finger became worse. The finger did become worse and the patient returned for further treatment. An examination disclosed the necessity for immediate surgical intervention and the plaintiff was prepared for an operation. The physician, however, refused to proceed with the operation until, as testified by the plaintiff, an old bill of some years' standing was settled. The physician, on the other hand, testified that he merely asked that some arrangement be made to take care of the expense of the proposed operation as a condition precedent to the operation. Apparently not being willing, or able—the record does not show which—to meet the condition prescribed by the physician, the plaintiff found it necessary to apply to another physician for treatment, necessitating a walk of several blocks in the rain and occasioning a delay of several hours in treatment. Subsequently an amputation of the infected finger became necessary. Thereafter, the plaintiff sued the physician who first treated him, joining the physician's partner as a defendant, contending (1) that they were negligent in treating the plaintiff and in discharging him from the hospital before his condition warranted it, and (2) that while he was a patient of the defendants and in immediate need of medical and surgical care they refused to treat him and abandoned his case. The trial court directed a verdict in favor of the physicians, and the plaintiff appealed to the Supreme Court of Utah.

There was no evidence, said the Supreme Court, that the defendants were negligent in the treatment that was actually rendered or that the plaintiff was improperly discharged from the hospital. The trial court, therefore, properly directed a verdict for the defendants on the first cause of action. With respect to the second cause of action, namely, the alleged abandonment of the plaintiff by the defendants, the Supreme Court pointed out that a physician, on undertaking an operation, is under a duty, in the absence of an agreement limiting the service, to continue his attention after the operation so long as the case requires attention. The obligation of continuing attention can be terminated only by the cessation of the necessity that gave rise to the relationship, or by the discharge of the physician by the patient, or by the withdrawal from the case by the physician after giving the patient reasonable notice so as to enable the patient to secure other medical attention. A physician has the right to withdraw from a case, but if the case is such as to require further medical or surgical attention he must, before withdrawing from the case, give the patient sufficient notice so that the patient may procure other medical attention if he desires. In *Mucci v Houghton*, 89 Iowa 608, 57 N W 305, the court said:

If a physician or surgeon be sent for to attend a patient the effect of his responding to the call in the absence of a special agreement will be an engagement to attend the case as long as it needs attention unless he gives notice of his intention to discontinue his services or is dismissed by the patient and he is bound to exercise reasonable and ordinary care and skill in determining when he should discontinue his treatment and services.

In *Ballou v Prescott* 64 Me 305, the court said:

If he [the physician] is called to attend in the usual manner and undertakes to do so by word or act nothing being said or done to modify this undertaking it is quite clear as a legal proposition that not only reasonable care and skill should be exercised but also continued attention so long as the condition of the patient might require it, in the exercise of an honest and properly educated judgment, and certainly any culpable negligence in this respect would render him liable in an action—*Barbour v Martin* 62 Me 536 *Shearman & Redfield on Negligence*, Sec 441.

In *Lawson v Conaway* 37 W Va 159, 16 S E 564, 18 L R A 627, 38 Am St Rep 17, the court said:

When a physician is employed to attend upon a sick person his employment continues while the sickness lasts unless put to an end by the assent of the parties, or revoked by the express dismissal of the physician. In the absence of special agreement his engagement is to attend the case as long as it requires attention, unless he gives notice of his intention to discontinue his visits or is dismissed as aforesaid, and he is bound to exercise reasonable and ordinary care and skill in determining when his attendance should cease.

In the opinion of the Supreme Court of Utah in the present case, the relationship of physician and patient theretofore existing was not terminated when the patient left the hospital, as contended by the defendants. As the court viewed the evidence, it showed that the physician-defendants in refusing to proceed with the operation unlawfully abandoned the case. The trial court, therefore, erred in directing a verdict for the defendants on the abandonment cause of action. The case was remanded to the trial court for a new trial.

Two justices, however, agreed with the physicians' contention that the evidence disclosed that the relationship of physician and patient was terminated when the plaintiff himself abandoned the hospital. The physician-defendants, in the opinion of these two justices, had a right to refuse to incur the obligation and responsibility incident to one or more operations and the treatment and attention which would be necessary and that, even though a relationship of physician and patient existed at the time of the proposed second operation, the physicians had a right with proper notice to discontinue the relationship. While the plaintiff's condition was acute and needed immediate attention, the evidence showed that he received that attention at the hands of the other physician to whom he turned. The record disclosed no evidence that the plaintiff sustained any injury by reason of the physicians' refusal to render the treatment. The trial court, in the opinion of the two dissenting justices, did not err in directing a verdict for the physicians on both causes of action—*Ricks v Budge et al (Utah)*, 64 P (2d) 208.

Workmen's Compensation Acts Tuberculosis of Spine Allegedly Activated by Trauma—The worker, an attendant in a gasoline station, had tuberculosis of the spine in a dormant state for several years. On Jan 4, 1934, in the course of his employment, he slipped on some oil and fell, striking his back against a door sill. Immediately thereafter he suffered pain in his back and was in distress. He continued to work for about five or six weeks but had an increasing stiffness of the spine. During the early part of February he began "taking treatments for his back," the nature of which the record does not disclose. On February 28 he called a physician, who discovered a swelling in the right lumbar region, which subsequently was found to be an abscess, admittedly caused by the tuberculous spine. In May, roentgenograms showed an "acute destructive" Pott's disease involving several dorsal vertebrae. He became increasingly worse and died in March 1935. An autopsy showed that tuberculosis was present in many parts of the body, including a large tuberculoma of the brain. The widow instituted proceedings under the Minnesota workmen's compensation act, which the employer defended by contending that the fall did not activate a dormant disease but was the result of the tuberculoma of the brain, which had affected the motor tracts. The employer argued that its contention was substantiated by the fact that on the second day after the fall the worker's use of his right hand was impaired. From an award of compensation to the worker, the employer appealed to the Supreme Court of Minnesota.

The sole question presented to the court was whether there was sufficient evidence to support the commission's conclusion that the fall and not the pre-existing tuberculosis of the spine had caused the abscess on the worker's back. The court held that the evidence was sufficient to support the commission's conclusion that the fall and not the pre-existing tuberculosis of the spine had caused the abscess on the worker's back. The court affirmed the award of compensation to the worker.

condition and contributed to his death. The worker had performed his usual duties around filling stations for five or six years, had attended the furnace at home, shoveled snow from sidewalks, played ball, and was generally active up to the time of his fall. He appeared to be in good health. A medical witness, called by the widow, testified that from the history of the case it was his opinion that the tuberculous condition of the spine was present at the time of the fall but in a quiescent or arrested state. Another witness stated that tuberculosis of the spine is never cured, only arrested, and that the arrest depends on what material forms around the diseased area. Activity of ordinary work or an injury, this witness testified, may be enough to break down this material. Pott's disease, a witness testified, could not be active to any great extent and the patient remain ignorant of its activity. This witness could not say that the blow *certainly* activated the tuberculosis but did testify that it *probably* did, in view of the "relatively latent period between the time of his blow and the period the activity became manifest." With respect to the employer's claim that the tuberculoma of the brain was present at the time of the fall and probably caused it, one of the widow's medical witnesses stated that when tuberculosis actively invades the brain it is "pretty rapid fire, it is usually twenty-one to thirty days after he gets the tuberculosis disease that he dies." There was evidence, however, offered on behalf of the employer by another medical witness that the tuberculoma of the brain had existed previous to the fall.

We have, therefore, said the Supreme Court, a man admittedly tuberculous for several years. Quite conclusively proved was the fact that up to the time of the fall he was employed and satisfactorily filled a position requiring sustained activity. He was also active outside his work. According to the opinion of the expert witnesses, it would have been "unusual" for a person with a tuberculous brain to carry on the duties required of the workman. Two competent medical men stated it as their opinion that the disease was quiescent at the time of the fall. That the deceased suffered a fall on January 4 was undisputed. Within a period when the activity of the disease might manifest itself the abscess on the back appeared. The possibility that the disease was lighted up by work rather than the fall seemed to the court to be negated by the activity of the deceased up to the time of the fall. In the opinion of the Supreme Court there was sufficient evidence before the commission to justify its finding that the worker's death was due to the fall. The award in favor of the claimant was therefore affirmed.—*Reynolds v Cities Service Oil Co (Minn)*, 270 N W 912

Malpractice Osteomyelitis Following Extraction of Tooth—The defendant, a dentist, extracted the plaintiff's lower right second molar. Four days later the patient began to experience pain and again consulted the dentist. Finding inflammation around the lower right third molar the dentist, after a roentgenogram had been made of it, recommended its removal. After the extraction, the patient continued to have a "grinding pain" and consulted a physician, who discovered that the soft tissues near the tonsils were infected. A peritonsillar abscess was lanced and later a diagnosis of osteomyelitis was made. Attributing the osteomyelitis to the extraction of the third molar, the plaintiff sued the dentist. The jury returned a verdict for the patient, and the defendant brought exceptions to the Supreme Court of New Hampshire.

The dentist testified that, while the third molar was not decayed there was an abscess between it and the site from which the second molar had been extracted. He extracted the third molar, he stated, to obtain better drainage of the abscess. The gums were inflamed and spongy, and the alveolar process was absorbed, leaving the tooth very loose, just holding by flesh. When a tooth is loose in this manner, he testified, the space between the tooth and the gum forms a pocket for infection and under such circumstances it is good dental practice to remove the tooth. The only expert called by the patient was the physician who treated him. This physician disclaimed any qualification as "an expert on dentistry" and did not know the degree of skill and knowledge possessed by the average dentist practicing in the community in which the defendant

practiced. The witness testified, however, that there is a principle in surgery never to remove a sound organ when it is surrounded by infected tissues, that the removal of a sound tooth from an infected area permits a chance for seepage and allows more space for the infection to get into the blood and to become localized in the bone, and that, in his opinion, the removal of the third molar resulted in the osteomyelitis. Four dentists testified on behalf of the defendant and each testified that proper practice required the removal of the tooth. None of these dentists stated that it was not good dental practice to extract the tooth under the conditions described by the patient.

A person, said the Supreme Court of New Hampshire, who holds himself out as practicing a particular profession is required only to possess the knowledge and to exercise the care and skill of the ordinary practitioner of that profession in the same or similar localities. The burden was on the plaintiff to prove the liability of the defendant, but the court could find nowhere in the record any evidence that the defendant did not possess the learning and exercise the skill and care of the average dentist in the community in which he practiced or that he had departed from the standard imposed on him by law. A dentist does not insure his patients against infection following the extraction of teeth. Since the patient failed to produce any evidence with respect to the negligence of the defendant, the dentist's motion for a directed verdict should have been granted.

The Supreme Court accordingly entered a judgment for the dentist.—*April v Perout (N H)*, 188 A 457

Druggists Liability for Sale of Proprietary Medicines—A druggist who sells a proprietary medicine in an original unbroken package, which was asked for by the customer, assumes no liability for any imperfection in the medicine unless he knows of the imperfection, said the court of appeals of Georgia, division No 1. He is under no duty to open and analyze a proprietary medicine in an original package.—*Howard v Jacobs Pharmacy Co (Ga)*, 189 S E 373

Society Proceedings

COMING MEETINGS

- Academy of Physical Medicine Philadelphia Oct 19 21 Dr Herman A Osgood 144 Commonwealth Ave Boston Secretary
American Academy of Ophthalmology and Otolaryngology Chicago Oct 10 15 Dr W P Wherry 107 South Seventeenth St Omaha Executive Secretary
American Clinical and Climatological Association Baltimore Oct 11 13 Dr Francis M Rackemann 263 Beacon St Boston Secretary
American College of Surgeons Chicago Oct 25 29 Dr George W Crile 40 East Erie Street Chicago Chairman Board of Regents
American Public Health Association New York Oct 5 8 Dr R M Atwater 50 West 50th St New York Executive Secretary
Association of American Medical Colleges San Francisco Oct 24 26 Dr Fred C Zapffe 5 South Wabash Ave Chicago Secretary
Association of Military Surgeons of the United States Los Angeles Oct 14 16 Dr H L Gilchrist Army Medical Museum Washington D C Secretary
Central Association of Obstetricians and Gynecologists, Dallas Texas Oct 14 16 Dr Ralph A Reis 104 South Michigan Blvd Chicago Secretary
Clinical Orthopaedic Society Chicago Oct 14 16 Dr H Earle Conwell 215 Medical Arts Bldg Birmingham Ala Secretary
Delaware Medical Society of Wilmington Oct 12 13 Dr W H Speer 917 Washington St Wilmington Secretary
Indiana State Medical Association French Lick Oct 4 6 Mr T A Hendricks 23 East Ohio St Indianapolis Executive Secretary
Inter State Postgraduate Medical Association of North America St Louis Oct 18 22 Dr W B Peck 27 E Stephenson St Freeport Ill Managing Director
Michigan State Medical Society Grand Rapids Sept 27 30 Dr L Fernald Foster 311 Center Ave Bay City Secretary
Mississippi Valley Medical Society, Quincy Ill Sept 29 Oct 1 Dr Harold Swanberg 510 Maine St Quincy Ill Secretary
New York State Association of Public Health Laboratories Albany Oct 29 Miss M B Kirkbride New Scotland Avenue Albany N Y Secretary
Omaha Mid West Clinical Society Omaha Oct 17 22 Dr J D McCarthy 107 South Seventeenth Street Omaha Secretary
Oregon State Medical Society Salem Oct 21 23 Dr Morris L Bridgman 1020 S W Taylor St Portland Secretary
Pennsylvania Medical Society of the State of Philadelphia Oct 4 7 Dr Walter F Donaldson 500 Penn Avenue Pittsburgh Secretary
Society of Surgeons of New Jersey Trenton November 20 Dr Walter B Mount 21 Plymouth Street Montclair Secretary
Vermont State Medical Society St Johnsbury Oct 14 15 Dr A B Soule Jr Mary Fletcher Hospital Burlington Secretary
Virginia Medical Society of Roanoke Oct 12 14 Miss A V Edwards 1200 East Clay St Richmond Secretary

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers in continental United States and Canada for a period of three days. Periodicals are available from 1927 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them. Titles marked with an asterisk (*) are abstracted below.

American Journal of Anatomy, Philadelphia

61 159 342 (July) 1937

- Studies in Wave Mechanics of Protoplasmic Motion \ Experiments on Pneumomuscular System of Aerial Insects \ Biophysical Basis of Compression and Decompression During Internal Respiration of Hitherto Unknown Functional Intracellular Aerial Canalicular Apparatus Within Interior of Each Cross Striated Muscular Fiber of Air Breathing Insects E J Carey, Milwaukee—p 159
Identification of Receptor Areas in Venae Cavae and Pulmonary Veins Which Initiate Reflex Cardiac Acceleration (Bainbridge's Reflex) J F Nonidez New York—p 203
Cytologic Study of Anterior Hypophysis of Guinea Pig and Statistical Analysis of Its Cell Types H Kirkman New York—p 233
Thecal Gland and Its Relation to Reproductive Cycle Study of Cyclic Changes in Ovary of Pocket Gopher *Geomys bursarius* (Shaw) H W Mossman Madison Wis—p 289
Accentuation of Growth Effect of Theelin on Genital Tissues of Ovarietomized Mouse by Arrest of Mitosis with Colchicine E Allen, G M Smith and W U Gardner New Haven, Conn—p 321

American Journal of Cancer, New York

30 667 884 (Aug) 1937

- Transmissible Agent of Rous Chicken Sarcoma No 1 I Presence of the Agent in Lipid Extracts J W Jobling E E Sproul and Sue Stevens New York—p 667
Id II Separation of a More Active Lipid Extract E E Sproul Sue Stevens and J W Jobling New York—p 685
Myoblastoma S H Gray and G E Gruenfeld St Louis—p 699
*Subarachnoid Injection of Alcohol for Relief of Intractable Pain with Discussion of Cord Changes Found at Autopsy W T Peyton E J Semansky and A B Baker Minneapolis—p 709
Cutaneous Metastases of Malignant Disease Olive Gates Boston—p 718
Production of Tumors of Prostate of White Rat with 1,2-Benzpyrene R A Moore and R H Melchionni New York—p 731
Fractionation of Chicken Tumor Extracts by High Speed Centrifugation A Claude New York—p 742
Production of Epithelial Tumors by Irradiation of Precancerous Skin Lesion J C Mottram London England—p 746
Photo Activity of Irradiated Cholesterol \ Pseudophotographic Effect H E Staveland and W Bergmann New Haven Conn—p 749
Cavernous Hemangiomas of Small and Large Bowel L V Ackerman Boston—p 753
Hodgkin's Disease Involving the Bladder Report of Case J Lebowich Saratoga Springs N Y—p 758
*Ewing's Tumor of the Femur with Twenty Eight Year Follow Up B C Smith New York—p 765

Subarachnoid Injection of Alcohol—In their clinic thirty-three patients, all of whom were believed to have incurable malignant tumors, have received subarachnoid injections of alcohol. Peyton and his co-workers studied at necropsy the spinal cords of four patients who lived from three to six months after injection. A series of experimental injections in five dogs also was made but the results were not satisfactory. It was difficult or impossible to obtain even approximately the same conditions as obtain in man and impossible to determine whether or not a satisfactory injection was accomplished, that is, one which would relieve pain if it were present. Microscopic study of the four spinal cords indicates that relief of pain, when it does occur, is due to destruction in the posterior rootlets but that there is also an extensive degeneration of the posterior columns of the cord. A satisfactory result was obtained in at least 33 per cent but in not more than 51 per cent of the thirty-three patients. Serious complications occurred in two patients, one of whom, however, had a preexisting paralysis due to a progressive lesion of the cord. This partial paralysis was precipitated into a complete paralysis by the injection. A sufficient proportion of patients are benefited to justify the small risk of a serious injury to the spinal cord, provided the procedure is limited to the treatment of intractable pain associated with malignant disease of hopeless prognosis.

Tumor of the Femur—Smith presents a report of a Ewing's tumor of the femur operated on in 1909, and without recurrence twenty-eight years later. So far as is known, it is the only case of its kind in which so long a period of survival has been recorded. The case is registered with the Bone Sarcoma Registry of the American College of Surgeons and the original pathologic sections of the tumor have been reviewed by numerous pathologists, consultants of the Bone Sarcoma Registry, who have agreed as to its diagnosis.

American Journal of Clinical Pathology, Baltimore

7 285 346 (July) 1937

- Range of Hemoglobin Concentrations and Erythrocyte Counts in Healthy Men and Women C F Nelson Lawrence Kan—p 285
Theca Cell Tumor of Ovary J M Neely Lincoln Neb—p 293
Blood Density in Guinea Pig Anaphylaxis and in Hay Fever Artificially Induced J H Black and H A Kemp Dallas Texas—p 300
Preparation of Dextrose Solution for Intravenous Administration W J Elser and R G Sullman New York—p 307

American Review of Tuberculosis, New York

36 163 292 (Aug) 1937

- Tomography with Especial Reference to Its Value in the Diagnosis of Pulmonary Lesions J B McDougall and J H Crawford Kent England—p 163
Experimental Tuberculosis Infection in the Tadpole and the Mechanism of Its Spread J F Nonidez and M C Kahn New York—p 191
*Coexistence of Lymphocytic Leukemia and Far Advanced Pulmonary Tuberculosis Report of Case W J Ryan and E M Medlar New York—p 212
Effect of Vitamin A Deficiency on Experimental Tuberculosis in the Guinea Pig and Rabbit M Steiner M R Greene and B Kramer Brooklyn—p 222
Sedimentation Rate and Medlar's Index A Comparison A R Masten Wheat Ridge Colo—p 239
Precipitation of Water Soluble Tuberculo-protein by Hydrogen Ion Concentration E B Hanan and W P Ericks Buffalo—p 244
Topical Application of Cod Liver Oil in Tuberculosis Preliminary Report A L Banyai Wauwatosa Wis—p 250
Paracardiac Pulmonary Emphysema A Heretofore Undescribed \ Ray Shadow Complex E Korol Lincoln Neb—p 259
Relation of Intrapleural Pressures to Formation of Effusions in Artificial Pneumothorax L N Todd Waverley Hills Ky—p 263
*Transthoracic Treatment of Tuberculous Cavities Preliminary Report M Jacobs and H M Beloff Eagleville Pa—p 268
*Acacia Solution in Treatment of Pulmonary Hemorrhage O Berg hausen Cincinnati—p 276
Tuberculous Peritonitis L W Frank Wheat Ridge Colo—p 279
Manifestations of Undulant Fever in the Respiratory Tract O A Beatty Glasgow Ky—p 283

Coexistence of Lymphocytic Leukemia and Advanced Tuberculosis—The coexistence of typical lymphocytic leukemia and of clinically active far advanced pulmonary tuberculosis in the case that Ryan and Medlar observed shows that active pulmonary tuberculosis and lymphocytic leukemia can be associated (contrary to the dictum of Parker and his collaborators). It is impossible to state whether the diseases occurred simultaneously or whether one followed the other. No etiologic relationship of the processes can therefore be determined. It is well known that in uncomplicated tuberculous cases a high percentage of lymphocytes is a favorable sign, yet in this case such an interpretation of the leukocytic picture would be erroneous. The blood contained from fifty to more than a hundred times as many lymphocytes as normal and still there was an active progressive pulmonary tuberculosis. In such a condition one may regard the lymphocytes as being abnormal in function and hence unable to participate in the tuberculous process. The majority of the tuberculous lesions did not differ essentially from those in persons without leukemia. In some areas lymphocytic infiltration was so excessive that it appeared as if these cells were multiplying within the tuberculous foci. It is not possible to determine whether any abnormality of functional activity existed in the lymphocytes, but at least they showed a tendency to migrate to the locations where normal lymphocytes are commonly found. Unless the lymphocytes in lymphocytic leukemia are nonfunctional the case suggests that a lymphocytosis by itself is not of prime importance in tuberculosis. The authors believe that the chemical damage produced in the tissues by the presence and growth of the bacteria is responsible for the leukocytic invasion. The nature of chemical damage produced determines the type or types of leukocytic infiltration found. Unless a physicochemical condition exists within a tuberculous lesion which attracts lymphocytes, they will not migrate into it regardless of how many may be available in the circulating blood.

Transthoracic Treatment of Tuberculous Cavities—In their method Jacobs and Beloff attempt to attack the cavity directly through the chest wall, injecting colloidal copper morrhuate into it. The precise mode of action of the copper morrhuate appears to depend in its greatest degree on the stenosis of the bronchus draining the cavity. There is a chemical pneumonitis set up in the pericavernous parenchyma which may play some part in the healing process, as may also the constitutional effect of the copper, a heavy metal, when absorbed into the blood stream. Transthoracic injection is not the procedure of choice in the eradication of any previously untreated cavity. It is admittedly a method to be used when other treatments have failed. The cavity must be easily accessible. The cases best suitable are solitary large cavities. Chronic cavities, surrounded by relatively clear parenchyma, are more ideally suitable for injection than recent cavities, especially when, in the latter case, the adjacent parenchyma is the site of bronchopneumonic tuberculosis. A thin capsule of the cavity is more easily dealt with than a heavy thick one. A cavity with a fibrous wall would appear a safer type of lesion for injection than one with a necrotic caseous wall. With the patient lying horizontally on the fluoroscope table, the roentgenologist notes on the skin the position at which the puncture should be made and the direction to be taken by the needle. The skin is anesthetized with 1 per cent solution of procaine hydrochloride. A spinal needle is used for the puncture. This is attached to a 10 cc syringe carrying procaine, and the needle is pushed through the skin, thoracic wall musculature and pleura, the procaine being injected as the needle is advanced. When it is judged that the needle has traversed the pleura, traction instead of pressure is made on the piston of the syringe, so that, if the needle enters the gas-filled cavity, it will be recognizable by withdrawal of gas into the syringe. When it appears certain that the needle has entered the cavity, the procedure by trial and error, checked by the fluoroscope, is carried out until the needle point is unquestionably lodged within the cavity. The first dose of colloidal copper morrhuate is 2 cc, injected through the needle into the cavity. Subsequent injections are from 10 to 20 cc, the increase depending on whether the preceding dose was well tolerated. Injections are made at weekly intervals, and the series of injections used was a total of six. Following the injection of the drug, the patient is immediately placed in the head-elevated position on the movable fluoroscope table and kept there for ten minutes and then sent back to bed. In approximately twenty injections that were made through the thoracic wall, the authors have had only one notable reaction, during a febrile period the cough and expectoration were increased, but symptoms subsided coincidently with the fall in temperature (four days).

Acacia in Pulmonary Hemorrhage—Berghausen reports two cases of severe recurring pulmonary hemorrhage in which the intravenous injection of 30 Gm of acacia in 500 cc of physiologic solution of sodium chloride was followed by a cessation of the hemorrhage. In one case there was no recurrence for thirty-four months, when the patient failed rapidly after a severe hemorrhage.

Anatomical Record, Philadelphia

69 1 126 (Aug.) 1937

- Congenital Absence of One Half of Scrotum in Dog. C. W. Hooker, J. M. Douglas and R. D. Kornegay. Durham, N. C.—p. 1.
Meckel's Diverticulum with Unusual Vascular Relationships. Case V. Derbes and M. B. Hoge. New Orleans.—p. 5.
Quantitative Studies of Rate of Removal of Urea by Living Blood Capillaries from Extravascular Solutions in Transparent Moat Chambers Introduced into the Rabbit's Ear. R. G. Abell. Philadelphia.—p. 11.
Modification of Mallory's Connective Tissue Stain with Discussion of Principles Involved. G. Crossman. Rochester, N. Y.—p. 33.
Effect of Light on Sexual Activity in Lizard *Anolis Carolinensis* with Especial Reference to Pineal Body. H. J. Clausen and E. G. Poris. New York.—p. 39.
Schweigger-Seidel Sheath (Ellipsoid) of Spleen. O. Solnitzky. Washington, D. C.—p. 55.
Renal Agensis in a Rabbit. W. C. Corwin. Rochester, Minn.—p. 77.
Experimental Studies of Thyroid. I. Effects of Thyroidectomy on Reproductive Organs in Males of Annual Breeding Ground Squirrel. M. Zalesky. Chicago and L. J. Wells. Columbia, Mo.—p. 79.
Transformation of Lymphocytes into Granulocytes in Vitro. W. Bloom. Chicago.—p. 99.

Archives of Internal Medicine, Chicago

60 179 384 (Aug.) 1937

- Pneumonia Due to *Pneumococcus* Type VII (Cooper). Specific Serum Treatment. J. G. M. Bullowa and Evelyn Greenbaum, New York.—p. 179.
Functional Activity of Renal Epithelium in Certain Types of Nephritis as Indicated by Secretion of Ammonia. A. P. Briggs, Augusta, Ga.—p. 193.
Thalamic Syndrome. Syndrome of Posterior Cerebral Artery. Review. O. R. Langworthy and H. M. Fox. Baltimore.—p. 203.
Pulsations of Wall of Chest. I. General Consideration. W. Dressler, Vienna, Austria.—p. 225.
*Presence of Digitalis in Body Fluids of Digitalized Patients. M. A. Schnitker and S. A. Levine, Boston.—p. 240.
*Effect of Parenterally Administered Peptone. G. Milles and L. Seed. Chicago.—p. 251.
Determination of Vitamin C Saturation. Five Hour Test After Intravenous Test Dose. I. S. Wright, A. Lilienfeld and Elizabeth MacLenathen, New York.—p. 264.
Funicular Degeneration of Spinal Cord Without Pernicious Anemia. Neurologic Aspects of Sprue, Nontropical Sprue and Idiopathic Steatorrhea. H. W. Woltman and F. J. Heck, Rochester, Minn.—p. 272.
Electrolyte Balance During Recovery from Mercury Bichloride Poisoning. J. H. Talbott, F. S. Coombs and W. V. Consolazio. Boston.—p. 301.
Mechanism of Experimental Uremia. M. F. Mason, H. Resnik, Jr., A. S. Minot, J. Rainey, C. Pileber and T. R. Harrison, Nashville, Tenn.—p. 312.
Infectious Diseases. Review of Current Literature. H. A. Reimann, Philadelphia.—p. 337.

Digitalis in Body Fluids—During the treatment of patients with congestive heart failure, Schnitker and Levine have occasionally observed that from twenty-four to forty-eight hours after diuresis has been produced by salyrgan or mercurin or with theophylline the patient has become ill with nausea, vomiting, giddiness, headache and considerable weakness. In fact two patients, not alarmingly ill before such supplemental diuresis, came to rapid unexpected death in this sickness a day or two after salyrgan had been given. With the elimination of from 2,000 to 6,000 cc of fluid from the cavities of the body and interstitial spaces through the blood stream and out through the kidneys, it seemed to them that a plausible explanation for such symptoms would be "redigitalization." In other words, if substances which act like digitalis could be found in edematous fluid from the pleurae, peritoneum and leg, the transportation of that fluid through the body to the kidneys during active diuresis in a patient who is digitalized would expose the cardiovascular and nervous systems to the contained digitalis and would cause further action of the drug. The symptoms experienced by these patients would then be those of intoxication from digitalis. Twenty-nine specimens of fluid from twenty-four patients were examined. Eighteen fluids were from known digitalized patients. Thirteen of these gave positive evidence of digitalis by the biologic method. The results were questionable in four cases and negative in one case. Two specimens from patients with questionable digitalization gave doubtful results. Nine specimens of fluids from patients with tuberculosis, neoplasm or cirrhosis of the liver, none of whom had been given digitalis, were used as controls. None of these showed any effects of digitalis. The amount of digitalis recovered from the thirteen fluids seemed to be significant and sufficient to cause clinical symptoms in patients under the conditions discussed. The qualitative Keller-Kiliani test for deso-cyclobohydrylate gave positive reactions for five of eleven specimens of fluid showing the effect of digitalis by the biologic method. It is believed that active substances of digitalis are present in the fluids of the body of digitalized patients and that they can be recovered.

Effect of Parenterally Administered Peptone—The possibility of supplying the nitrogen requirements of the body parenterally led Milles and Seed to investigate the effect of protein split products given by this route. They used bactopeptone, which, according to the analysis submitted by the manufacturers, is constant in composition. Concentrations of 1, 5, 10, 20 and 30 per cent were used, and the solutions were carefully made up in sterile water and passed through a Berkefeld filter. A 1 per cent solution of bactopeptone is hypotonic, causing hemolysis of the red blood cells; this concentration was made up in a buffered saline solution. Since solutions of peptone give a strongly positive reaction to the biuret test, the urine was collected and examined by this method. Solutions of various concentrations of this peptone up to 500 cc failed to cause perceptible damage when injected into dogs either in single doses or daily up to three weeks. Diuresis of varying

degree resulted, depending on the concentration of the solution and on the rate of injection. A pronounced drop in spinal fluid pressure and a slight drop in blood pressure were noted. Chemical examination of the blood showed little change resulting from the injection. No antigenic effects were demonstrated. When 300 cc of a 15 per cent solution of bacto-peptone was injected intravenously into a man, it failed to cause a reaction. However, a chill and fever resulted when a 20, 25 or 30 per cent solution was used.

Archives of Neurology and Psychiatry, Chicago

38 239-444 (Aug.) 1937

- *Prognostic Factors in Spontaneous Subarachnoid Hemorrhage I. Strauss and S. Tarachow, New York—p. 239
Epileptiform Convulsions from 'Remote' Excitation F. A. Fender, San Francisco—p. 259
Cystic Tumor of Third Ventricle Containing Colloid Material H. Zeitlin and B. W. Lichtenstein, Chicago—p. 268
Experimental Studies of Serum Lipase in Multiple Sclerosis K. C. Swan and H. B. Myers, Portland, Ore.—p. 288
Relation of Hypothalamus to Disorders of Personality Report of Case B. J. Alpers, Philadelphia—p. 291
Survival and Revival of Nerve Centers Following Acute Anemia C. Heymans, J. J. Bouckaert, F. Jourdan, S. J. G. Nowak and S. Farher, Ghent, Belgium—p. 304
Effect of Experimental Lesions of Cortex on Psychogalvanic Reflex" in the Cat. H. G. Schwartz, St. Louis—p. 308
Cerebral Circulation XXXI Effect of Alcohol on Cerebral Vessels Caroline Bedell Thomas, Boston—p. 321
Effect of Injections of Colloidal Thorium Dioxide on Ventricles and Subarachnoid Spaces W. Freeman, Washington, D. C.—p. 340
*Psychoses Associated with Pernicious Anemia M. Herman, H. Most and N. Jolliffe, New York—p. 348
Method for Rapid Impregnation of Microglia and Oligodendroglia in Material Fixed in Formaldehyde L. S. King, New York, with assistance of J. Anderson, London, England—p. 362
Continuous Records of Systolic and Diastolic Blood Pressure C. W. Darrow, Chicago—p. 365
Functional Determinants of Cerebral Localization K. S. Lashley, Boston—p. 371

Subarachnoid Hemorrhage—Strauss and Tarachow contend that spontaneous subarachnoid hemorrhage is a syndrome which may occur in a variety of pathologic states and that the prognosis varies with that of the underlying or associated pathologic process. They investigated 105 cases in an attempt to find the incidence of systemic or local disease, cardiorenal vascular disease, acute or chronic infections and blood dyscrasias and also features that might lead one to suspect congenital cerebral aneurysm. 1 Spontaneous subarachnoid hemorrhage bears the prognosis of the underlying disease. 2 Spontaneous subarachnoid hemorrhage may be symptomatic of cardiorenal vascular disease, tumor of the brain, subacute bacterial endocarditis, purpura, polycythemia, Hodgkin's disease or myeloid leukemia. It may be associated with cerebrospinal syphilis, tuberculosis, diabetes, epilepsy or acute glomerulonephritis, or there may be no clinically discoverable disease. 3 In the only four cases in which the hemorrhage was associated with clinically definite cerebrospinal syphilis, death occurred. 4 The prognosis tends to be worse with the presence of generalized vascular disease and better in the absence of clinically discoverable disease. 5 In the absence of discoverable disease the prognosis becomes worse, the older the patient. 6 In the absence of generalized disease a history of proved or presumptive previous attacks tends to make the prognosis better. This history is usually found in young persons and suggests congenital aneurysm or aneurysm with cerebral arteriosclerosis in young persons. 7 The average duration between the observed attack and the next expected attack is two years and six months. 8 Presumptive recurrences occur, even though not proved by examination of the spinal fluid.

Psychoses and Pernicious Anemia—From 1931 to 1935 inclusive 255 patients were admitted to Bellevue Hospital and discharged with the diagnosis of pernicious anemia. Of this group, forty subjects were treated in the medical service of the psychiatric division. In analyzing the mental symptoms presented in the forty cases Herman and his associates found, in addition to the independent mental states, four well defined clinical types: an acute confusional state in fourteen, a paranoid condition in seven, an affective reaction in six and an organic deterioration type in five. Some mental diseases occurring in association with pernicious anemia may have no etiologic relationship. The conditions shown by eight of their patients

fall in this group, the diagnoses were as follows: acute alcoholism, transitory psychosis with an episode of excitement and hallucinosis, schizophrenia, paranoid psychosis in a psychopath, cerebral vascular thrombosis, catatonia of unknown type and senile psychosis (two cases). These psychoses, either by history or by the course in the hospital, proved in the opinion of the authors to be unrelated to the anemia.

Archives of Pathology, Chicago

24 135-280 (Aug.) 1937

- Serial Implantation of Anterior Lobes of Bovine and Human Pituitary Glands into Guinea Pigs J. Saxton and L. Loeb, St. Louis—p. 135
Experimental Endocarditis A. J. Nedzel, Chicago—p. 143
*Reactivation of Primary Tuberculous Complex as Source of Tuberculous Reinfection H. S. Reichle and Mae Gallavan, Cleveland—p. 201
Effect of Staphylococcus Toxin on Knee Joints of Rabbits R. H. Rigdon, Nashville, Tenn.—p. 215
Staphylococcal Immunity: Resume of Experimental and Clinical Studies R. H. Rigdon, Nashville, Tenn.—p. 233

Tuberculous Reinfection—Reichle and Gallavan encountered seven cases in a total of 800 routine necropsies which yielded suggestive evidence of the existence of reactivated primary tuberculous infection. The frequency of the phenomenon cannot be determined by morphologic study, since the fugitive nature of reactivation, the fact that it must proceed to dissemination or subside in healing, tends to obliterate, in either case, the evidence necessary for its demonstration at necropsy. Since, despite these inherent difficulties, it is possible to demonstrate seven cases in 800 routine necropsies, endogenous reinfection should be accepted as a significant mode of extension of pulmonary tuberculosis.

Arch of Physical Therapy, X-Ray, Radium, Chicago

18 385-448 (July) 1937

- Physical Therapy of Peripheral Vascular Disease B. C. Smith, New York—p. 391
Clinical Aspects of Short Wave Diathermy D. Kohak, Chicago—p. 396
Compression Fractures: Treatment After Reduction V. Parmley, Little Rock, Ark.—p. 405
Manipulative Surgery in Certain Low Back Disabilities M. T. Horwitz and A. J. Davidson, Philadelphia—p. 409
Short Wave Diathermy in Subdeltoid Bursitis L. Feldman, Boston—p. 411
Treatment of Cutaneous Tuberculosis A. C. Cipollaro, New York—p. 415
X-Ray Treatment of Certain Skin Affections D. Bloom, New York—p. 421
Further Studies with Transcerebral Diathermy A. A. Martucci, S. B. Hadden and B. McGlone, Philadelphia—p. 426

California and Western Medicine, San Francisco

47 73-144 (Aug.) 1937

- Uterine Cervix: Its Disorders and Their Treatment N. F. Miller, Ann Arbor, Mich.—p. 81
What We May Expect from Treatment of Bladder Tumors H. C. Bumpus, Jr., Pasadena—p. 84
Enteritis of Unknown Origin: Report of Epidemic in a Children's Institution: Twenty Seven Cases with Six Deaths J. C. Geiger, San Francisco—p. 89
Acute Anterior Poliomyelitis: Gynecologic Symptoms D. D. Young, Los Angeles—p. 90
Cervical Repair Immediately Following Childbirth A. Bernstein, San Francisco—p. 98
*Menorrhagia: Results of Radium Treatment: Follow Up Study Margaret Schulze, San Francisco—p. 101
Migratory Labor in California W. M. Dickie, San Francisco—p. 106

Menorrhagia—Schulze, with the hope of establishing definitely the limitations of radium therapy and the most desirable dosage to effect certain results, observed 204 women over a period of at least two years and up to twenty years who were so treated for menorrhagia. Only cases in which there were no determinable gross pathologic lesions are included in the study. In the majority of cases the menorrhagia was controlled, but normal periods were rarely restored, in only 35 per cent of the women less than 35 and in 7 per cent more than 35 years of age. In the adolescent group of six, only one was restored to normal by radium. Only 13 per cent of the young women and none more than 35 years of age became pregnant after irradiation. Satisfactory dosage is difficult to establish since although, in general, the results are fairly uniform, the individual variation in response to a given dose is so great that the result is entirely unpredictable. Amenorrhea has resulted from 400 millicurie hours, normal periods have been restored by

1,525 millicurie hours, and profuse hemorrhage has continued after repeated treatment with 1,024 and 1,594 millicuries, respectively. Women more than 35 years of age will generally become amenorrheic or have very scanty or infrequent periods even with small doses. In younger women the prospect of a return to normal is somewhat better but should never be promised. In the adolescent group, results with radium have been poor, and it should be used not at all or only as a last resort. A careful explanation of the possible consequences of the treatment is due the patient and may save much dissatisfaction.

Canadian Medical Association Journal, Montreal

37 105 208 (Aug.) 1937

- Use of Protamine Zinc Insulin in Diabetic Coma I M Rabinowitch A F Fowler and E H Bensley Montreal—p 105
 Relation Between Hormones and Cancer A Lacassagne Paris France—p 112
 Macrocytic Anemia Associated with Rheumatic Infection N B Gwyn, Toronto—p 117
 Psychosis Following Posttraumatic Epilepsy D Slight Chicago and W V Cone Montreal—p 121
 Scleroderma with Calcinosis C P Howard Montreal—p 124
 *Ascorbic Acid (Vitamin C) Treatment of Whooping Cough M J Ormerod and B M Unkauf Winnipeg Manit—p 134
 Changes in Conditioned Responses Brought About by Anesthetics and Sedatives S Dworkin W Bourne and B B Raginsky Montreal—p 136
 *Pathogenesis and Prevention of Suicide Ruth MacLachlan Franks Toronto—p 139
 Effects of Theelin on Anxiety G A Little and D E Cameron, Brandon Manit—p 144
 Biologic Test for Pregnancy E W McHenry and C H Best Toronto—p 151
 Indications for Bilateral Artificial Pneumothorax H A Jones Tranquille B C—p 152
 Reports of Cases of Severe Streptococcus Haemolyticus Infection Treated with Protosil B F Macnaughton Montreal—p 155
 Fatal Air Embolism Case Reports W J Deadman, Hamilton Ont—p 157
 Supporting Palatine Prosthesis Consecutive to Removal of Benign Tumors of Palate J N Roy Montreal—p 160
 Hay Fever Diagnosis and Treatment A N Hardy Regina Sask—p 162
 Intestinal Obstruction Due to Gallstones C A Ryan Vancouver B C—p 167
 Congenital Atresia and Volvulus of Intestine Report of Case C H A Walters Belleville Ont—p 168
 Abdominal Pregnancy Complicated by Appendicitis and Bilateral Pyosalpinx W F Plewes Toronto—p 172

Cevitamic Acid in Treatment of Whooping Cough—

Ormerod and Unkauf used cevitamic acid in the treatment of nine cases of whooping cough. In each case, diagnosis was made from a history of contact with known cases together with personal observation of the typical cough, vomiting and nocturnal paroxysms. Treatment consisted of the daily administration of from 125 to 500 mg of cevitamic acid for from three to eleven days. The cough was usually moderated in from three to seven days and disappeared in from five to fifteen days. The danger of overdosage seems negligible. Animals have received 2,000 times their estimated requirements without any deleterious effects. Any excess is excreted by the kidneys.

Suicide—Franks made a study of 352 consecutive cases of attempted suicide admitted to the Toronto Psychiatric Hospital from Nov. 1, 1928, to Oct. 31, 1935. The subjects received physical and mental examinations and the actual suicidal attempts were studied in relation to basic and immediate causal factors. It is suggested that suicide may be prevented by (1) raising the standard of educational achievement of the populace, (2) good mental, physical and public health measures, (3) teaching certain groups among the public and professions an appreciation of suicidal danger signals, (4) abolishing the stigma attached to the act, (5) minimizing publicity, (6) protecting heights by simple, practical means, (7) encouraging medical books to allow more space for information on suicide, (8) elaborating the teaching with regard to suicide in medical, social and legal schools, (9) training youth to take responsibility, (10) encouraging any factors that will build up the solidarity of the group in which the individual finds himself, (11) an investigation to ascertain why there is a greater tendency for foreign-born persons to suicide than native-born, (12) establishing a fixed regular routine day for the unsettled person which will bring satisfaction and contentment to him and (13) establishing clinics to which such distressed persons may come

for help and guidance. Apart from the patients with mental disease, the majority were pleased that their attempt had been a failure and after a short course of psychotherapy developed a good attitude toward the future.

Connecticut State Medical Society Journal, New Haven

1 351 458 (Aug.) 1937

- Diagnosis and Treatment of Primary Malignant Disease of Tracheo-bronchial Tree P P Vinson Richmond Va—p 351
 Experience with Protosil and Prontilyn D C Patterson Bridgeport—p 358
 Report of Case of Hemolytic Streptococcal Meningitis with Recovery and Prolonged Use of Protosil and Prontilyn (Sulfanilamide) C G Thompson Norwich—p 362
 Carcinoma Developing in Uterus After Irradiation Menopause Catharine MacFarlane Philadelphia—p 365
 Consideration of Acute Purulent Otitis Media E R Roberts, Bridgeport—p 368
 Reorganization of Department of Anesthesia at Hartford Hospital Hartford Conn Preliminary Report R M Tovell Hartford—p 371

Delaware State Medical Journal, Wilmington

9 141 158 (July) 1937

- Occupational Psychiatry and Neurology M A Tarumianz, Farnhurst—p 141

Florida Medical Association Journal, Jacksonville

24 81 132 (Aug.) 1937

- Coronary Disease W C Blake Tampa—p 91
 Problem of Urinary Calculi in Relation to the General Practitioner L M Orr 2d Orlando—p 95
 *Spanish Moss (*Dendropogon usneoides*) F C Metzger, Tampa—p 99
 Peptic Ulcer Report of Twenty Cases of Perforation J S Turberville Century—p 100
 Endocrine Needs of the Premature Infant N L Spengler, Tampa—p 103
 Psychiatric Perspective as Applied to General Medicine J V Cohn Hollywood—p 104

Spanish Moss—In an endeavor to find out whether Spanish moss (*Dendropogon usneoides*) played any part in the causation of hay fever, asthma or contact dermatitis, Metzger secured a number of blooms, separated the pollen, identified the pollen microscopically and made a small amount of pollen extract. He then exposed a series of fourteen slides on the limb of a tree completely surrounded by the moss during its flowering period. Ten yards from the tree a similar series was exposed, as was also another series in the window ledge of his home, 50 yards from the nearest bit of moss. The total number of granules of the pollen found on the fourteen slides exposed in this location was seven. Selecting a group of thirty patients with asthma or hay fever or both, whose history showed that their trouble was worst at the time Spanish moss bloomed (May), he tested them with the extract obtained from the pollen. One patient showed a definite positive reaction to the scratch test, and one showed a single positive reaction to the intradermal test. Both of these patients showed positive reactions to practically every pollen extract to which they were submitted. Therefore it was concluded that these two patients were not specifically sensitive to the pollen of Spanish moss alone and that Spanish moss is not a causative factor in hay fever, asthma or contact dermatitis, either from the pollen or from the dried material of the plant.

Journal of Experimental Medicine, New York

66 133 272 (Aug.) 1937

- Multiplication of Virus of Yellow Fever in *Aedes Aegypti* L Whitman Bahia Brazil—p 133
 Does Liver Supply Factors in Addition to Iron and Copper for Hemoglobin Regeneration in Nutritional Anemia? E B Hart C A Elvehjem and G O Kohler Madison Wis—p 145
 Immunologic Relationship Between Swine and Human Influenza Viruses in Swine R E Shope Princeton N J—p 151
 Effect of *Haemophilus influenzae* Suis Vaccines on Swine Influenza R E Shope Princeton N J—p 169
 Demonstration of Passive Immunity in Experimental Monkey Malaria L T Coggeshall and H W Kumm New York—p 177
 Chemo-Immunologic Studies on Conjugated Carbohydrate Proteins VI Specificity of Azoprotein Antigens Containing Glucuronic and Galacturonic Acids W F Goebel and R D Hotchkiss New York—p 191
 Studies on Physiologic Conditions Prevailing in Tissue Cultures H Zinsser and E B Schoenbach Boston—p 207
 Quantitative Theory of Precipitin Reaction V Reaction Between Crystalline Horse Serum Albumin and Antibody Formed in Rabbit E A Kabat and M Heidelberger New York—p 229
 VI Reaction Between Mammalian Thyroglobulins and Antibodies to Homologous and Heterologous Preparations H E Stokinger and M Heidelberger, New York—p 251

Journal of Pediatrics, St Louis

11 157 320 (Aug) 1937

- Pharmacologic Basis for Sulfanilamide Therapy A D Welch St Louis—p 159
- Results of Sulfanilamide Treatment at Babies Hospital, New York City Survey of Fifty Eight Cases Observed Prior to June 10 1937 R McIntosh D A Wilcox and F H Wright New York—p 167
- Report on Use of Sulfanilamide and Its Derivatives at Children's Hospital of Cincinnati A G Mitchell and W H Trachsler Cincinnati—p 183
- Report of Cases Treated with Sulfanilamide (Prontosil and Prontylm) I McQuarrie, Minneapolis—p 188
- Clinical Experience in Use of Sulfanilamide at New Haven Hospital P O Hageman New Haven Conn—p 195
- Report on Use of Sulfanilamide at Children's Hospital of Michigan S S Bernstein Detroit—p 198
- Use of Para Aminobenzenesulfonamide and Its Derivatives in Treatment of Infections Due to *B Streptococcus Hemolyticus* the Meningococcus and the Gonococcus Report of Thirty Eight Cases B W Carey Jr Boston—p 202
- Report of Patients Treated with Sulfanilamide at St Louis Children's Hospital J Brisman and Anne M Perley St Louis—p 212
- Report on Sulfanilamide from Children's Memorial Hospital of Chicago J Brennemann Chicago—p 238
- Use of Sulfanilamide as Urinary Antiseptic H F Helmholtz Rochester Minn—p 243
- Streptococci Meningitis, with Especial Emphasis on Sulfanilamide Therapy W H Trachsler, G S Frauenberger, C Wagner and A G Mitchell Cincinnati—p 248

Journal of Pharmacology & Exper Therap, Baltimore

60 369 496 (Aug) 1937

- Some Unsymmetrical Alkylaryl Ureas II Preparation Physical Properties and Hypnotic Effects J S Buck A M Hjort E J De Beer, C W Ferry and W S Ide Tuckahoe N Y—p 369
- Insulin Treatment of Morphine Abstinence Symptoms Experimental Evaluation E J Stanton Cleveland—p 387
- Studies on Coronary Circulation V The Effect of Pyridine β Carboxylic Acid Diethylamide (Coramine) and Pentamethylenetetrazol (Metrazol) on the Coronary Circulation O O Stotland and A M Ginsberg Lawrence Kansas City Kan—p 396
- Uterine Stimulating Depressor and Bladder Contracting Activities in Extracts of Submaxillary Gland of Rat G F Koepf and J F Mezen Buffalo—p 407
- Estrogenic Potency of Orally Administered Estriolglucuronide A D Odell Dorothy Irene Skill and G F Marrian Toronto—p 420
- Analysis of Cardiac Irregularities Produced by Calcium and Their Prevention by Sodium Amytal H E Hoff and L H Nahum New Haven Conn—p 425
- Effect of Ephedrine on Absorption from Small Intestine E J van Liere D Northup and C K Sleeth Morgantown W Va—p 434
- Study of Toxic and Anesthetic Properties of Sodium N Hexylethyl Barbiturate (Ortal Sodium) in Experimental Animals C M Gruher and J T Brundage with assistance of R Heilgman A De Note and J F Wilson Philadelphia—p 439
- Toxicity and Pathology of Selenium M I Smith E F Stohman and R D Lillie Washington D C—p 449
- Picrotoxin as Respiratory Stimulant E K Marshall Jr, E M Walz and D H LeMessurier Baltimore—p 472

Toxicity and Pathology of Selenium—With a view to obtaining more information regarding the possible effects of the more or less continuous ingestion of small amounts of selenium on the health of the population exposed to it, Smith and his associates conducted a detailed investigation of the various aspects of the toxicology of selenium. Their report deals with the acute toxicity and with the effects of continuous administration of small subtoxic doses of selenium as sodium selenite or sodium selenate in several species of laboratory animals. The acute toxicity of selenium in the rat on intravenous injection is the same whether given as selenite or selenate, 3 mg per kilogram of body weight of either being fatal in about 50 per cent of the animals. The oral minimal lethal dose of these compounds in the rabbit is the same. On intravenous injection in rabbits sodium selenite is relatively more toxic, its minimal lethal dose being 15 mg per kilogram of weight reckoned as selenium, as against from 2 to 25 mg of sodium selenate. The continuous administration of small doses of selenium as sodium selenite or selenate is cumulative in its effects. There is no evidence of acquired tolerance to selenium. The chronic toxicity of selenium varies in different species and in different individuals of the same species. The rat is the most resistant and the cat the most susceptible of the species examined. The gross and microscopic pathologic changes are also quite variable in chronic selenium poisoning. The incidence of cellular pathologic changes in the order of diminishing frequency are as follows: gastric, hepatic, hematologic, reticulo endothelial, renal, cardiac and serous effusions. The symptomatology of milder forms of chronic selenium poisoning is most likely to point to gastric or hepatic dysfunction and possibly to disturbances of the hematopoietic organs.

Journal of Thoracic Surgery, St Louis

6 595 718 (Aug) 1937

- Lateral Curvature of Spine Following Thoracoplasty in Children M Cleveland New York—p 595
- *Skeletal Deformities in Children Resulting from Empyema and Methods of Prevention J D Bisgard Omaha—p 609
- Acute Empyema Use of Bradford Frame to Promote Dependent Drainage and to Prevent Scoliosis J D Bisgard Omaha—p 624
- Total Pneumectomy for Congenital Cystic Disease of Lung Report of Successful Case J W Gale, J L Keeley, Madison Wis and H M Coon Stevens Point Wis—p 626
- Congenital Cystic Disease of Lung H G Wood Rochester Minn—p 634
- Study of Venous Pressure and Circulation Time in Pulmonary Tuberculosis A Hurst and M A Brand New York—p 638
- Report of Large Thymic Tumor Successfully Removed by Operation W D Andrus and N C Foot New York—p 648
- Bronchorrhea Its Occurrence in a Case of Bronchiogenic Carcinoma T L Bliss, Akron Ohio—p 660
- Right Middle Lobe and Lateral Roentgenogram D S King Boston—p 666
- Experimental Pneumectomy L C Thomas A Behrend and F C Mann Rochester, Minn—p 677
- Some Postoperative Effects of Pneumectomy Morphologic Study A Behrend and F C Mann Rochester Minn—p 685
- Empyema Method of Treatment with Continuous Irrigation and Drainage A P Blossom Houston, Texas—p 698

Skeletal Deformities in Children—Bisgard classes thoracogenic scolioses into two types, pleurogenic and thoracoplastogenic. Both are preventable and curable if corrected in their incipience. Pleurogenic deformities can be prevented by (1) the prevention of the formation of pleural scar through early cure of the empyema or pleuritis and (2) the constant attention to maintenance of straight alignment or preferably of overcorrection of the spine. This can be accomplished by means of (1) postural wedging, (2) corrective casts of plaster of paris to the body and (3) resection of ribs on the side of the concavity. To facilitate correction and the use of corrective measures, it is helpful to anesthetize the area of the wound by crushing the intercostal nerves which innervate that area. Extensive and rigid deformities of the spine and costal framework are incurable. To prevent and correct thoracoplastogenic scoliosis, postural wedging should be instituted within a few days after operation and maintained for at least six weeks, or until the reparative processes have fixed the thoracic wall. The procedure is carried out with the patient lying on the operated side but with the wedge placed exactly opposite or slightly caudal to the apex of the curve. With cooperation from the patient, compression by postural wedge may be started immediately, or a day or two after operation, and within a few days may be maintained almost continuously.

Kansas Medical Society Journal, Topeka

38 325 368 (Aug) 1937

- Regional Enteritis Report of Five Cases A S Jackson Madison Wis—p 325
- Uterine Bleeding After Forty Analysis of 166 Cases C A Hellwig Wichita—p 329
- Prompt Reporting and Cooperation with Commissions Voyta Wrahetz Madison Wis—p 333
- Recently Acquired Knowledge of Cancer Metabolism M Gerundo Topeka—p 339

Laryngoscope, St Louis

47 435 510 (July) 1937

- Animal Investigations of Neural Mechanism of Hearing Behavioral Electrical and Anatomic Studies of Abnormal Ears H Davis Boston S Dworkin Montreal M H Lurie Boston and J Katzman Montreal—p 435
- Id Topography of the Acoustic System in Cochlea and Medial Geniculate Bodies E A Culler Urbana Ill—p 448
- Id Animal Experiments on Mechanism of Acoustic Irritation in the Cochlea H G Kobrak Chicago—p 453
- Id Origin of Cochlear Potentials J A E Eyster T H Bast and M R Krasno, Madison Wis—p 461
- Id Experimental Study of Neural Mechanism of Hearing W Hughson Eva Thompson and E G Witting Abington Pa—p 480
- Experimental Clinical and Diagnostic Methods of Neural Mechanism of Hearing Diagnosis of Nerve Deafness S J Crowe Baltimore—p 492
- Some Psychologic Aspects of Deafness P Piker Cincinnati—p 499

Maine Medical Journal, Portland

28 187 206 (Aug) 1937

- Administration of Fluid to Sick Patient F A Collier Ann Arbor Mich—p 187
- Thoracic Surgery G E Young Snowbegan—p 190
- Palpable Spleen L H Smith Wintport—p 194
- Use of Roentgen Rays in Clinical Splenomegaly F B Ames Bangor—p 199

Medical Bull. of Veterans' Adm., Washington, D. C.

14 1102 (July) 1937

- Diagnosis of Teratoma Testis by Biologic Assay of Prolans S. E. Owen and M. Cutler—p. 1
- Surgery of Toxic Thyroid Gland L. B. Kline—p. 6
- Intravenous Urography J. A. Howell—p. 13
- Cardiac Measurements J. A. Barker and S. C. Kahlstrom—p. 16
- Incidence of Cardiovascular Defects in Patients with General Paresis as Compared with Other Mental Diseases J. A. Kaplan and G. P. Grabfield—p. 20
- Cardiac Arrhythmias in Outpatients B. A. Moyness—p. 23
- Amputations and Artificial Limbs T. F. Carroll—p. 29
- Scalotomies in Pulmonary Tuberculosis H. T. Ivey—p. 37
- Residual Injury in Gunshot Wounds of Lungs W. W. Frank—p. 41
- X-Ray Diagnosis of Abdominal Masses Using Opaque Mediums F. T. Duffy and L. G. McCutchen—p. 45
- *Symptomatic Treatment of Bronchial Asthma and Asthmatic Bronchitis J. Boch—p. 48
- Dercum's Disease (Adiposis Dolorosa) J. B. Anderson and E. C. Reed—p. 52
- Conduct of Discharge Ward in Facility for Tuberculous Patients B. L. Talbot—p. 57
- Molokai and Its Leper Colony F. A. Woodward—p. 60
- Some Social Aspects of Syphilis Irene Grant—p. 62

Treatment of Asthma—Boch states that the greatest value derived from the use of ephedrine sulfate and sodium or potassium iodide in the treatment of bronchial asthma and asthmatic bronchitis is obtained only if administered at a time when the bronchial tree is about to enter into a spastic state. The patients themselves feel a constriction in the chest or a beginning slight wheeze, a warning of the oncoming paroxysm. Some patients give a clear history of periodicity of attacks. It takes about one hour for these drugs to exert their influence in the body, if taken orally. As a rule no patient escapes taking these drugs at bedtime. Very few patients need them in the morning. The dosage should vary with the intensity of the symptoms. Ephedrine sulfate has been given in doses of from three-eighths grain (0.024 Gm.) to more than 1 grain (0.065 Gm.) by mouth from once to five times in twenty-four hours. Potassium or sodium iodide is usually administered in the form of a saturated solution, of which from 5 to 40 minims (0.3 to 2.6 cc.) at a dose are given, in half a glass of water, from once to four times daily, as needed. Ephedrine may render the patient slightly nervous, tremble in the first few days or two weeks, it may also produce some insomnia. These undesirable effects as a rule disappear promptly. The iodides may cause a watery nasal discharge at times and acne-like lesions of the skin. If the dose is reduced or omitted for a day or two, these symptoms promptly disappear. On resumption, the tendency for these symptoms to recur is lessened. Twenty-two patients suffering from bronchial asthma or asthmatic bronchitis have been under treatment, some as long as one year, those with the shortest record have been under treatment for five weeks. Seventeen patients (eight suffering from bronchial asthma, eight from bronchitis with asthmatic symptoms and one from bronchiectasis with asthmatic symptoms) have obtained positive relief from symptoms. The duration of the illness of these patients varied from three to eighteen years. Withdrawal of the drugs caused prompt return of the symptoms within forty-eight hours. The drugs were discontinued in the other five patients because of the mild symptoms in two, and in three because their value could not be determined.

Philippine Islands Med. Association Journal, Manila

17 327-386 (June) 1937

- Advantages of Semilunar Transverse Uterine Incision in Laparotomies H. Acosta Sison, Manila—p. 327
- Hematology in Filipinos I. Normal Blood Iron Content Hemoglobin Determination Through Iron R. J. Navarro, Manila—p. 331
- Comparative Study of Height and Weight in Relation to Age of Male Students of the University of the Philippines R. F. Bersamin and G. Gonzales Bersamin, Manila—p. 339
- To Demonstrate Free Malarial Parasites in Vitro E. I. Garcia, Manila—p. 347
- Toxicologic Studies of Nani Dioscorea hispida Deenst. J. F. Leyva and E. Gutierrez, Manila—p. 349

Public Health Reports, Washington, D. C.

52 1027-1068 (July 30) 1937

- Study of Syphilis in the Coast Guard H. M. Roberton—p. 1030
- Recent Court Decisions on Milk Control (1934-1937) J. A. Tobey—p. 1038
- 52 1069-1104 (Aug. 6) 1937
- Studies on Chronic Brucellosis I. Introduction Alice C. Evans—p. 1072
- Case Records as an Index of the Public Health Nurse's Work Helen Bean and Emily Hankla—p. 1077

Southwestern Medicine, Phoenix, Ariz.

21 225-262 (July) 1937

- Oxygen Therapy: Indications and Modes of Use J. M. Rawlings, El Paso, Texas—p. 225
- Disease Incidence Among the Navajos C. G. Salisbury, Ganado, Ariz.—p. 230
- Conduct of Labor in Regard to Operative Intervention H. C. Gernand, Los Angeles—p. 233
- Facts and Fallacies in Care and Treatment of Children H. Dietrich, Los Angeles—p. 237
- Ophthalmologic Aspects of Avitaminosis C. Case Report M. P. Spearman, El Paso, Texas—p. 244
- Encephalitis Lethargica: Four Case Reports F. J. Milloy, Phoenix, Ariz.—p. 245
- *Tripping Down Memory's Lane After Fifty Years of Medicine S. D. Swope, El Paso, Texas—p. 246

Surgery, St. Louis

2 163-326 (Aug.) 1937

- Heparin and Thrombosis of Veins Following Injury D. W. G. Murray, L. B. Jaques, T. S. Perrett and C. H. Best, Toronto—p. 163
- Esophageal Diverticula: Report of Ten Cases of the Pulson Type Originating in the Pharynx E. L. Eliason, G. Tucker and F. M. Thigpen, Philadelphia—p. 188
- *Perforation of Gastro-Intestinal Tract: Experimental Study of Factors Influencing the Development of Peritonitis G. S. Bergh, W. F. Bowers and O. H. Wangenstein, Minneapolis—p. 196
- Primary Carcinomas of Stomach and Sigmoid Flexure Occurring Simultaneously in the Same Individual J. deJ. Pemberton and J. M. Waugh, Rochester, Minn.—p. 211
- Acute Appendicitis: Study of 1,000 Consecutive Patients J. A. Kirtley, Jr. and R. A. Daniel, Jr., Nashville, Tenn.—p. 215
- Fundamental Principles in Treatment of Diabetic Gangrene S. S. Samuels, New York—p. 225
- Struma Lymphomatosa (Hashimoto): Survey of Literature and Report of Case C. M. Lee, Jr. and E. J. McGrath, Cincinnati—p. 238
- Shock Syndrome in Liver Peritonitis: Interpretation of the Role of Liver Bacteria Play in Causing Rapid Death H. E. Martin and H. M. Trusler, Indianapolis—p. 247
- Relation of Duodenal Regurgitation to Development of Jejunal Ulcers H. C. Maier and A. Grossman, Chicago—p. 265

Perforation of Gastro-Intestinal Tract—The observation that fasting animals withstand experimental perforation better than animals which recently have taken food prompted Bergh and his co-workers to undertake a study of some of the factors influencing the development of peritonitis following perforation. Perforations were established at various levels of the gastro-intestinal tract of 145 laboratory animals under pentobarbital sodium anesthesia, and with aseptic precautions, after periods of fasting and also following the ingestion of food. Most intestinal perforations consisted of an unsutured incision 1 cm. in length in the axis of the intestine along the antimesenteric border. All animals were observed for signs of peritonitis and those which died were subjected to necropsy. Many of the surviving animals were killed or operated on to observe the healing process. Bacteriologic studies were made in cases in which peritonitis developed. There appeared to be no relationship between the location of the perforation in the wall of the stomach and the development of peritonitis. Perforation of the stomach containing food was performed in thirty animals. There were twenty-six deaths from peritonitis, a mortality of 86.7 per cent. Bacteriologic studies of the peritoneal exudate revealed the presence of a variety of organisms. Perforation of the stomach of fasting dogs immediately before and after the administration of liquids was carried out in seventeen animals, with three deaths from peritonitis, a mortality of 17.6 per cent. Perforation of the empty stomach through an area previously injected with a sclerosing solution was carried out in ten dogs. Four of these animals died from peritonitis, a 40 per cent mortality. Necropsies revealed that the perforations had failed to heal in the fatal cases. Perforation of the duodenum was established in sixteen dogs, with a mortality of 81.2 per cent from peritonitis. Perforation of the jejunum at distances varying from 15 to 90 cm. from the duodenojejunal angle was carried out in nine dogs. The mortality rate from peritonitis was 44.4 per cent. There was no definite relationship between the level of perforation and the mortality rate. Perforation of the lower ileum was performed in nine dogs and all died from peritonitis within seventy-two hours. Necropsy revealed that the perforation had remained open in every case. Of seven dogs in which the cecum was perforated, two died. An identical mortality was found in a similar series of perforations of the descending colon. In eight animals the

rectum was perforated by means of a scalpel introduced through the anus. Perforation into the peritoneal cavity was verified in each instance by abdominal exploration. Only one animal died. The others showed a small linear scar without the formation of adhesions. The mortality following rupture of the gastrointestinal tract as observed by the clinician is governed by the same factors that determine the mortality in experimental perforation. These may be listed as follows: (1) the number and virulence of the escaping organisms (size of the perforation, length of time the perforation remains open, number of organisms at the level of the perforation, amount and fluidity of material in the viscous at the time of perforation and forces tending to carrying contents of the viscous out into the peritoneal cavity) and (2) the general and local resistance of the host.

Surgery, Gynecology and Obstetrics, Chicago

65 145 288 (Aug.) 1937

- Pregnancy Complicating Bone Tumors L S McGoogan Omaha—p 145
Experimental Duodenal Ulcer I F Volini H L Widenhorn and B Finlayson, Chicago—p 159
Carcinoma of the Pancreas J D Rives, S A Romano and F M Sandifer Jr, New Orleans—p 164
Packing Gauze Drainage After Pneumonectomy J Arce Buenos Aires Argentina—p 178
Further Study of Blood Iodine Changes in Affections of the Gall bladder J L DeCoursey Cincinnati—p 180
*Effect of Surgical Drainage on Kidneys Declared Functionless by Present Tests of Renal Function M G Schulhof, Rochester Minn—p 188
Low Back Pain and Sciatica Its Etiology, Diagnosis and Treatment A G Kimberley Portland Ore—p 195
Technic of Immediate Cholangiography R R Best and N F Hicken Omaha—p 217
Lipiodol Visualization of Bile Tracts in Lesions with Jaundice H L Baker and C M Bacon Chicago—p 220
Additional Advantages of Hawley Table G W Hawley Bridgeport Conn—p 228
The Hanging Cast in Treatment of Fractures of Humerus A D LaFerte and M G Rosenbaum Detroit—p 231
Primary Carcinoma of Cowper's Gland R Gutierrez New York—p 238
Elliott Treatment as Adjunct to Operation in Sigmoidal Diverticulitis J deJ Pemherton and J M Waugh Rochester Minn—p 249

Effect of Surgical Drainage on Functionless Kidneys
—In 260 cases in which surgical drainage was performed on the kidney for conditions other than lithiasis, Schulhof performed forty operations on apparently functionless kidneys. Of this group, ten cases were selected because relatively complete studies were carried out. In nine cases there was pus in the urine. Positive cultures were obtained in six cases, *Escherichia coli* being the predominating organism. *Pseudomonas*, *Proteus ammoniae*, *Aerobacter aerogenes* and micrococci were other offenders. In four cases in which *Escherichia coli* had been demonstrated before operation, cultures of it could not be obtained from the postoperative specimens. The value for blood urea was normal in eight cases before operation, abnormal in two. In eight cases the left kidney was involved, in two the right kidney. Nephrostomy was performed on eight patients and cutaneous ureterostomy was resorted to in two. In five cases in which both dye tests and intravenous urography were employed to ascertain differential renal function, there was close agreement between the two concerning the state of renal efficiency. In most cases the time that elapsed between the operation and the postoperative tests of renal function was about twenty days. Definite improvement was noted in renal function in each of the ten patients as a result of surgical drainage. In four the drained kidney functioned as well as the opposite kidney, in five function returned to approximately 50 per cent of that of the other side and in one function returned to the extent that good visualization was delayed to the sixty minute intravenous urogram.

Tennessee State Medical Assn Journal, Nashville

30 231 272 (July) 1937

- Treatment as a Factor in Control of Syphilis E G Clark Nashville—p 231
Allergy R B Wood Knoxville—p 240
Outline and Resumé of Work Done and to Be Done in Postgraduate Obstetric Course F E Whitacre Memphis—p 245
Epilepsy C C Turner and N Gotten Memphis—p 249

Virginia Medical Monthly, Richmond

64 181 240 (July) 1937

- Regulation of Gastric Emptying J E Thomas and J O Crider, Philadelphia—p 181
Deficiency of Solar Radiation and Deficiency of Iodine as Factors in Distribution of Simple Goiter in the United States J H Smith, Richmond—p 185
Present Day Trends in Thyroid Surgery H A Patterson, New York—p 188
Resumé of Etiologic Factors in Peptic Ulcer Syndrome W P Adams, Norfolk—p 191
*Angina Pectoris and Insulin W R Jordan Richmond—p 196
Observations in Management of 164 Foreign Bodies in Air and Food Passages E G Gill and J A Pilcher Jr, Roanoke—p 201
Physiology of Climacteric Symptomatology P H Picot, Richmond—p 207
Appendicitis D B Koonce Wilmington, N C—p 209
Sterility in the Female W Bickers Richmond—p 214
Dysmenorrhea Treatment by Oral Use of Ephedrine and Amytal J L Kinzie, Salem—p 216
The Impossible Happens E P Tompkins, Lexington—p 217
Specialization As Discussed in American Medicine W B Porter Richmond—p 218

Angina Pectoris and Insulin—Jordan states that only with meticulous care can one so regulate the dosage as to control the diabetes and at the same time avoid insulin reactions. Elderly diabetic patients are subject to cardiac attacks and one must be careful to avoid injury to the heart and not precipitate such an attack by an overdosage of insulin. During a period of only nineteen months the author encountered four diabetic patients with cardiac attacks (angina pectoris and coronary thrombosis) and a fifth patient in this period developed congestive failure apparently due to an overdose of insulin.

Wisconsin Medical Journal, Madison

36 597 696 (Aug.) 1937

- Persistent Pyuria in Children M F Campbell New York—p 611
Roentgenologic Contributions to the Localization of Tumors Affecting the Spinal Cord J D Camp Rochester Minn—p 621
General Considerations in Treatment of Varicose Veins F L Smith, Rochester Minn—p 625
Fracture of the Carpal Scaphoid F H Kuegle Janesville—p 631
*Regional Enteritis Report of Five Cases A S Jackson Madison—p 632

Regional Enteritis—Jackson divides the course of regional enteritis into four phases. 1 Symptoms at first are suggestive of acute intra-abdominal inflammation and especially appendicitis. 2 The symptoms of the second phase of the disease may simulate those of ulcerative colitis, with attacks of diarrhea and crampy abdominal pain. These cases may go unrecognized for months or years, all the while large amounts of bismuth and bland foods being consumed. In some cases there may be loss of blood with resultant anemia, as well as malaise, fever and loss of weight. 3 The ulcerative phase is followed by a stenotic process. As a result of the extreme thickening of the intestinal wall, the lumen of the intestine gradually becomes constricted, leading to signs and symptoms of partial intestinal obstruction. 4 In the last stage of regional enteritis, multiple fistulas develop that may open either internally or externally through the abdominal wall. Merely excising this fistulous tract does not effect a cure, since it is necessary to resect the involved portion of the intestine. Successful results in the alleviation of regional enteritis depend on early recognition and the institution of proper treatment. Considerable evidence has accumulated to show that, if the condition is recognized in the first stage, merely sidetracking the loop of diseased intestine may effect a cure. If the disease has reached an advanced stage, such as the stenosing phase, only resection will suffice and this procedure may have to be repeated. However, even in the later phases of regional enteritis it may be advisable to perform conservative surgery by one or more stages. The sidetracking procedure has not always proved satisfactory even in the early stage of the disease, and the process has in some instances progressed, requiring further and more radical measures. In the majority of cases reported, appendectomy has been previously performed with failure to relieve symptoms. This emphasizes the importance of a careful diagnosis and imposes on the surgeon the necessity of a thorough abdominal exploration in every case of abdominal disorder in which surgical intervention is employed.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Brain, London

60 149 280 (June) 1937

- Chondro-Osteodystrophy of Hurler Type (Gargoylism) A Pathologic Study W R Ashby R M Stewart and J H Watkin—p 149
- Toxic Hydrocephalus D McAlpine—p 180
- Axial Cylinder as Pathway for Dyes and Salts in Solution with Observations on Node of Ranvier in the Rabbit J R Perdrau—p 204
- *Origin of Raised Pressure of Cerebrospinal Fluid Which Accompanies Subtentorial Tumors T H B Bedford—p 211
- *Observations on Roentgen Treatment of Intracranial Gliomas with Especial Reference to Effects of Irradiation on Surrounding Brain J E A O'Connell and A Brunschwig—p 230
- Clinical Study of Respiratory Movements in Hemiplegia L C Kolb and F Kleynjens—p 259

Pressure of Cerebrospinal Fluid and Subtentorial Tumors—Bedford produced artificial intracranial subtentorial tumors in twenty-one dogs with absorbent cotton impregnated with petrolatum wax and observed their influence on the pressure and the circulation of the cerebrospinal fluid and on the venous pressure in the torcular. The tumors, with one exception, were extradural in situation. The animals were usually allowed to survive for six days. During the survival period they maintained good health and were symptomless. When examined at the end of this period, the pressure of the cerebrospinal fluid in the cisterna magna was found to be raised. The venous pressure in the torcular and the arterial pressure in the femoral artery were within normal limits. Hydrocephalus was encountered in four of the animals. The dilatation was moderate in degree, and involved the lateral and third ventricles, although the aqueduct and the fourth ventricle presented definite evidence of slight dilatation. India ink introduced into the cisterna magna spread over the entire cerebral hemispheres in all animals investigated in this way. The experiments indicate that there may have been an increased production of cerebrospinal fluid by the choroid plexuses which was brought about by a mechanism still undetermined. The absorption apparatus may have been unable to deal with the excess of fluid, or the cerebrospinal fluid channels distal to the cisterna magna may have been relatively too small to permit it to circulate freely. Displacement of the brain stem may have led to an obstruction of the circulation of the cerebrospinal fluid at some point between the cisterna magna and the base of the brain. The obstruction was probably incomplete or intermittent in character.

Effects of Roentgen Treatment of Gliomas on Surrounding Tissue—From their observation on the effects of x-rays on normal nervous tissue and on the various members of the gliomas, O'Connell and Brunschwig conclude that 1. Roentgen irradiation is capable of giving rise to degenerative changes in the tissues of the central nervous system. These changes involve not only the nerve cells but also the neuroglia and blood vessels. 2. The alterations in vascular structure do not appear to be responsible for the production of the parenchymal changes. Both are the result of irradiation. 3. Roentgen therapy, preceded by accurate pathologic diagnosis and a decompression, is of value in the treatment of the gliomas. Medulloblastoma and to a less extent glioblastoma multiforme react most favorably to this treatment. 4. Since certain of the more benign gliomas possibly undergo malignant dedifferentiation, surgical treatment of these should be followed by roentgen irradiation in an effort to prevent or retard this change. 5. The margin between the optimal dose for the destruction of the neoplasm and a dose that is less than the minimal one for permanent damage to the normal tissues is a very narrow one. Thus the maximal normal tissue tolerance dose would represent a point beyond which irradiation is futile and harmful. From the cases cited by the authors, it appears that large doses of the magnitude of 15,000 roentgens, even though administered during a series of treatments extending over several months, are excessive and eventually induce irreparable damage in the brain without destroying or permanently controlling the growth of the glioma. In planning courses of therapy, the tumor dose of 4,000 to 4,500 roentgens is desirable if at all possible.

Bristol Medico-Chirurgical Journal, London

54 109 190 (Summer) 1937

- The Carey Coombs Memorial Lecture The Pathology and Surgical Treatment of Cardiac Ischemia L O'Shaughnessy—p 109
- Some Reflections on Research in Medicine F J Poynton—p 127
- Spinal Anesthesia A W Adams—p 143
- How Bristol Royal Infirmary Has Watched the World Change E Watson Williams—p 167

British Journal of Children's Diseases, London

34 85 164 (April-June) 1937

- *Epidemic Myalgia in Children W N Pickles—p 85
- Morbili Bullosi G W Ronaldson—p 99
- Two Unusual Cases of Diphtheria E F Dawson Walker and E G Brewis—p 107
- Acute Encephalomyelitis Complicating Chickenpox D MacIntyre and H L W Beach—p 113

Epidemic Myalgia in Children—Pickles discusses the epidemiology and progress of myalgia and stresses the importance of diagnosis, which, from the nature of the disease, allows one to give an unqualified good prognosis. In children the diagnosis has to be differentiated from acute pneumonitis and from acute abdominal conditions, of which acute appendicitis and intussusception would be the most likely. The almost invariable absence of vomiting is the most important point in arriving at a diagnosis. The rarity and lack of prominence of cough and the association of a much increased respiratory rate with abdominal pain are also of importance. Treatment does not seem to have any effect, but hot applications are appreciated, and when the diagnosis is safely made, an appropriate dose of nupenthen can be given. The only possible danger in the disease is that it might, quite excusably, come under the care of the surgeon.

British Journal of Physical Medicine, London

12 43 68 (July) 1937

- Ultraviolet Radiation Treatment of Preeclamptic Toxemia R Aitken—p 45
- Electrotherapy Papers III Ultraviolet Irradiation Clinical Applications A P Cavadias—p 48
- Electromedical Apparatus Its Character Operation and Care III Instruments for Measuring Electric Current and Voltage L G H Sarsfield—p 52
- Status and Legal Position of the Unqualified Practitioner G Slot—p 56
- Nonarticular Rheumatic Affections (Muscular Rheumatism) F Bach—p 58

Clinical Science, London

3 190 (July 6) 1937

- Investigations of Functions of Small Intestine in Man by Intestinal Intubation Part I. Technic of Intestinal Intubation in Man W H Owles—p 1
- Id. Part II. Determinations of Diastase Invertase Erepsin Lipase and Lactase in Pure Juice of Small Intestine W H Owles—p 11
- Id. Part III. Factors Influencing Secretion of Juice by Small Intestine W H Owles—p 21
- Effect of Large Doses of Iron on Absorption of Phosphorus J F Brock—p 37
- Observations on Case of Familial Periodic Paralysis R S Aitken E N Allott L I M Castleden and Mary Walker—p 47
- Effect of Asphyxia and Cocaine on Nerves Belonging to the Nocifensor System T Lewis—p 59
- Double Pain Response of Human Skin to Single Stimulus T Lewis and E E Pochin—p 67
- *Action of Choline Esters in Myasthenia Gravis F R Fraser M McGeorge and G E Murphy—p 77

Action of Choline Esters in Myasthenia Gravis—According to Fraser and his associates, in two patients with myasthenia gravis the subcutaneous injection of acetylcholine, acetyl β -methyl choline and carbaminoyl choline produced recovery of muscle power which was delayed and prolonged compared with the effects of dimethyl carbamic ester of hydroxy phenyl-trimethyl ammonium methyl sulfite, the physostigmine derivative. Choline had no remedial effect. The intra-arterial injection of the physostigmine derivative caused recovery in the muscles of the injected limb before the muscles of the body in general. The intra-arterial injection of carbaminoyl choline produced a slight local remedial effect followed by a delayed and prolonged effect similar to that following subcutaneous injection. The intra-arterial injection of acetylcholine and acetyl β -methyl choline produced only delayed and prolonged effects similar to those following subcutaneous injection. The significance of these results is discussed and it is suggested

that the choline esters are utilized in the elaboration of a precursor from which acetylcholine is set free at the neuromuscular junction, and that a defect in the production of acetylcholine is present in myasthenia gravis

Indian Journal of Medical Research, Calcutta

24 931 1208 (April) 1937 Partial Index

- Study of Vibrio Group and Its Relation to Cholera J Taylor S R Pandit and W D B Read—p 931
Bacteriologic Findings in Clinical Cholera in Calcutta in Relation to Epidemiology Note W D B Read—p 979
Biologic Value of Proteins of Soya Bean Field Pea and Lathyrus Sativa Balance Sheet and Growth Methods K P Basu M C Nath and R Mukherjee—p 1001
Extraction and Chemical Analysis of Proteins of Green Gram (Phaseolus Mungo) Lentil (Lens Esculenta) and Lathyrus Sativa (Khesari) K P Basu, M C Nath M O Ghani and R Mukherjee—p 1027
Studies in Carbohydrate Metabolism Part II Effect of High Carbohydrate Diet Containing Sugar on Glucose Tolerance Curve in Albino Rat G Sankaran and K Rajagopal—p 1077
Chemical Method for Estimation of Flavine in Foodstuffs G N Murthy—p 1083
*Effect of Skimmed Milk Soya Bean and Other Foods in Supplementing Typical Indian Diets W R Aykroyd and B G Krishnan—p 1093
Action of Ajmaline on Nerve Impulses R N Chopra N N Das and S N Mukherjee—p 1125
Gastric Analysis in Indians Study of 100 Cases M N Rao—p 1145
Hematologic Studies in Indians Part VII Incidence and Degree of Anemia Among Pregnant Females of Coolie Population L E Napier and C R Das Gupta—p 1159
Hemolysis by Venom of Indian Cobra (Naja Tripudians) S N Ganguly—p 1165
Forecast of Population in India at Census of 1941 K C K E Raja—p 1183

Typical Indian Diets—Aykroyd and Krishnan found that the addition of liquid skimmed milk, reconstituted from powder, to the diet of children in residential hostels in South India produced an acceleration of growth and a marked improvement in general condition. The diets consumed by the experimental groups were typical South Indian diets. The addition of an amount of soya bean supplying rather more protein did not bring about the same effect. Parallel experiments were carried out on rats. The growth of rats on a typical South Indian diet was enhanced by the addition of small quantities of milk, whole or skimmed, and eggs. Soya bean was found to be a relatively poor supplement. The addition of green leafy vegetables, dhal arhar, black gram, red-palm oil, gingelly oil and ground nuts did not markedly increase the nutritive value of the basal diet, as assessed by the rate of increase in body weight. The most serious defect in South Indian diets is their deficiency of one or more of the food factors contained in skimmed milk. It is at present impossible to say which of these factors is the most important. It is, of course, advisable that when skimmed milk is added to the diet of children attention should simultaneously be given to vitamin A intake. Unquestionably, it is preferable that Indian children should consume whole milk locally produced. At present, however, in many parts of the country, it is a case of imported milk or no milk at all. It remains questionable whether, in many areas, demand for milk can create an adequate local supply. It will be some time before cheap standard milk products, locally produced, become available in quantity in India.

Irish Journal of Medical Science, Dublin

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- The Physiology of Sleep E D Adrian—p 237
Etiology and Treatment of Convergent Concomitant Strabismus E B Alabaster—p 249
*Enteric Carrier Survey in an Institution W P O Callaghan—p 261
Report on Three Urinary Tests in Cancer Cases E Harvey—p 267

Enteric Carrier Survey in an Institution—During the investigation that O Callaghan discusses, 1,134 mixed specimens of urine and feces were examined culturally from 1,134 separate individuals. The investigation was conducted with the minimal material possible and by no means represents the number of examinations deemed necessary for a thorough survey of the number of people under observation. At least three and possibly more successive specimens would more truly represent the carrier distribution in the population of the institution under discussion. In this limited investigation, seven women carriers were found, three of these harbored *Bacillus typhosus* and four of them *Bacillus paratyphosus* B. Of the carriers

found, only one had suffered from enteric fever while in the institution, and this was a case of typhoid. In the remaining six carriers there is one patient about whom it can be stated that she never suffered from clinical enteric infection either within or without the institution so far as it is possible to determine from her past history. About the other five carriers there is no history forthcoming beyond the statement that they did not have clinical enteric infection during their time of residence in the institution. The cultural detection of enteric carriers, although a difficult and laborious one, is at the same time a practicable preventive measure in the control of enteric fever. While a preliminary Widal test may have a directive value in some instances in the location of enteric carriers for subsequent cultural confirmation, the Widal test when negative does not exclude the carrier condition. In the epidemiologic investigation of enteric fever too much weight should not be given to the previous personal history, in attempts to delimit the "carrier suspects." It is now known that both transitory and even chronic carriers exist, in whom it has not been possible to establish that they ever had declared infection. Experience with Wilson and Blair's medium gained in the investigation, and from a not inconsiderable experience with it in routine laboratory practice, shows that it is at least as good as any selective medium so far used in such work, judging from the reports available.

Journal of Laryngology and Otology, London

52 463 526 (July) 1937

- Treatment of Intrinsic Laryngeal Cancer F H Diggle—p 463
Some Remarks on Malignant Disease G Young—p 477
Use of Radium in Certain Malignant Conditions of Throat and Nose A A Charteris—p 484
X Ray Therapy in Malignant Disease of Throat J S Fulton—p 492

Journal of Physiology, London

90 1 112 (June 17) 1937

- Inactivation of Adrenalin H Blaschko D Richter and H Schlossmann—p 1
Ultramicroscopic Particles in Normal Human Blood A C Frazer and H C Stewart—p 18
Excitation and Response of Smooth Muscle J C Eccles and J W Magladery—p 31
Rhythmic Responses of Smooth Muscle J C Eccles and J W Magladery—p 68
Ineffectiveness in Birds of Antisera for Mammalian Gonadotropic and Thyrotropic Substances A S Parkes and I W Rowlands—p 100
*Measurement of Cardiac Output in Man A M Cooke and J G Priestley—p 104

Measurement of Cardiac Output in Man—Cooke and Priestley made their observations on four subjects, one of whom was not very suitable as he was known to have some pulmonary fibrosis and a low vital capacity. The subject, fasting since the night before, unless otherwise stated, sat in a deck chair in a semireclining position. He remained at rest for at least twenty minutes before beginning an experiment. The output of the heart per minute must be a definite quantity, though variable and subject to physiologic control. Any method of measuring the output of the heart by observation of the amount of a foreign gas absorbed by the blood passing through the lungs in a given time must give results which are less than the true figures. This source of error does exist, and the indications are that it is not negligible. There is also another source of error which must be considered. The validity of the acetylene method depends on the completeness with which mixing of the inspired gas mixture with the residual air in the lungs is brought about. The venous carbon dioxide method is also subject to error, owing to the return of blood abnormally highly charged with carbon dioxide before the second sample of alveolar air can be taken. This must raise the venous carbon dioxide content and increase the auriculoventricular difference found, thus causing the calculated value of the heart output to be below the true resting figure, but this effect is less than in the foreign gas method, owing to the shorter time taken by the experimental procedure. On the whole it seems likely to the authors that the results which they obtained on all their subjects agree with expectation, viz, that the venous carbon dioxide results indicate a slightly greater output than the acetylene results and that the difference decreases as the experimental time of the acetylene method is

brought down nearer to that of the venous carbon dioxide method. Even with the combined method, one subject gave a much higher output as calculated from the venous carbon dioxide than as calculated from the acetylene procedure. It is suggested that this discrepancy may be explained by individual variations in the carbon dioxide content of the mixed venous blood caused by deep breathing and possibly by the effect of carbon dioxide on the circulation.

Lancet, London

2 119 174 (July 17) 1937

- *p-Aminobenzenesulfonamide in Treatment of Bacterium Coli Infections of Urinary Tract. M. Kenny, F. D. Johnston, T. von Haebler with a note on two-plate bacterial count by A. A. Miles—p. 119
- Introduction of Smith Petersen Pin in Treatment of Intracapsular Fractures of Neck of Femur. K. H. Fridie—p. 126
- Paget's Disease with Mental Symptoms and Choroiditis. J. L. Clegg—p. 128
- *Induced Epileptiform Attacks as Treatment of Schizophrenia. L. A. Fimefs—p. 131
- Convulsive Therapy in Schizophrenia. H. Gilhes—p. 131
- Penetrating Stab Wound of the Heart. Operation, Recovery. W. Gissane and B. Schulenburg—p. 132

Sulfanilamide in Treatment of Urinary Tract Infections—Kenny and his associates present the clinical and bacteriologic results of treatment with sulfanilamide of forty-six cases of *Bacillus coli* infection of the urinary tract causing symptoms in pregnancy, the puerperium, and before and after gynecologic operations. A description of a few cases of pyelitis and cystitis treated by the same method is also given. The preparation was administered orally in 0.5 or 0.6 Gm doses three times a day for from five to seven days. No other treatment was employed, nor was there any restriction of diet or fluids. Of the sixteen patients with pyelitis of pregnancy the drug appeared to bring about a rapid remission of symptoms and sterilization of urine. Five of the patients had albuminuria or other signs of preeclamptic toxemia before treatment was instituted for pyelitis, but in none was the condition aggravated in any way. Six patients have had during pregnancy, at varying intervals after treatment, a recurrence of bacteriuria. Seventeen patients with *Bacillus coli* infections of the urinary tract and pyrexia of the puerperium (with or without pathogenic organisms in the genital tract) responded as rapidly and completely as in pregnancy. In every case the symptoms abated in two or three days, and the urine became sterile and free from pus in an average of three days. So far, three months later, there has been only one patient with clinical and bacteriologic relapse, and she was relieved rapidly by the same means. The nine patients with preoperative and postoperative urinary infections were rendered free from infection and dysuria in about three days. In the medical department four patients with urinary infections have been treated. One was a patient with disseminated sclerosis and defective bladder control. *Bacillus coli* disappeared after three days of treatment, *Bacillus proteus* was more resistant, and it took seven days to clear the urine completely. Relapse occurred, but the original type of infecting organism has not reappeared, and it is hoped that small daily doses of sulfanilamide will diminish the infection and relieve symptoms. Two other patients had chronic pyelitis of some months' duration, which had resisted other methods of treatment, including mandelic acid, but yielded rapidly and permanently to sulfanilamide. The fourth patient had acute cystitis of ten days, unrelieved by large doses of alkalis and sedatives. Twelve hours after treatment was begun with sulfanilamide, frequency and dysuria ceased, forty-eight hours later the urine was free from the pus cells and *Bacillus coli* with which it had been heavily loaded. Relapse has not been reported in any of these last cases. Toxic manifestations, such as sulfhemoglobinemia, methemoglobinemia and headache, appeared in a few cases but were not taken as an indication to discontinue treatment. The bactericidal power of the urine is roughly proportional to the sulfanilamide content. Strains of *Bacillus coli* are not all equally susceptible to this bactericidal action, some being almost completely resistant.

Induced Epileptic Fits as Treatment of Schizophrenia

—According to Fimefs, epileptiform fits induced by metrazol, either alone or in combination with insulin coma, have been used at the Three Counties Hospital for several months with fairly good results. Although no imposing figures of recoveries

can yet be produced and the treatment is very active and somewhat radical, no ill effects have been observed in carefully selected healthy young patients. The method appears especially beneficial in early psychoses, the stuporose and the catatonic.

Medical Journal of Australia, Sydney

2 138 (July 3) 1937

- Criteria of Life and Viability of Mature Taenia Saginata Ova. W. J. Penfold, H. B. Penfold and Mary Philips—p. 1
- Diseases of the Blood. E. Murphy—p. 5
- Structure and Function of Hypothalamus. S. Sunderland—p. 10
- Observations on Examinations. I. I. Brodsky—p. 18

2 39 78 (July 10) 1937

- Bronchiectasis. Its Course and Treatment. C. J. O. Brown—p. 39
- Bronchoscopic Treatment of Bronchiectasis. M. Coutts, with Commentary by A. S. Walker—p. 45
- Thermolability of Substances Responsible for Selective Movement of Tumor Cells in the Presence of Tumor Blood. W. Moppett—p. 53

Japanese Journal of Experimental Medicine, Tokyo

15 155 196 (June 20) 1937

- Experimental Observation on Simultaneous Immunization Against Smallpox. H. Yaoi—p. 155
- Studies on Mitochondria and Metachondria of Testicle Cells. M. Toda—p. 171
- Cytoplasmic Inclusions in Lesion of Experimental Lymphogranulomatosis Inguinale. K. Ishimitsu—p. 185

Journal de Médecine de Lyon

18 397-422 (July 20) 1937

- *Pathology of Poirier's Gland. F. J. Collet—p. 397
- Tuberculosis of Ear and General Pathology of Tuberculosis. F. J. Collet and R. Mayoux—p. 403
- Cyst of Maxillary Sinus Following an Epithelioma of the Upper Maxilla. F. J. Collet, J. Charachon and F. Piaget—p. 405
- Paralysis of Oculomotor Nerve in Course of Otomastoiditis and Their Complications. J. Rebattu and A. Colrat—p. 407
- Paralysis of Recurrent Nerve by Indirect Traumatism. Medicolegal Aspects. R. Berton—p. 415

Pathology of Prelaryngeal Gland—Collet points out that the prelaryngeal gland was first described by Engel in 1859. This gland or accumulation of lymph nodes exists in about 50 per cent of normal subjects. After describing the localization of the prelaryngeal gland on the cricothyroid membrane and its connection with other glands, the author takes up its pathology, particularly its involvement in tuberculosis and in cancer, reviewing the literature and cases of his own observation. He emphasizes that the involvement of the cricothyroid gland in tuberculosis is not exceptional. What is more rare is that a voluminous adenopathy appears in this region. This adenopathy, which forms an indurated mass, exactly in the middle, has a tendency to suppuration and fistulization. It develops in several weeks. In the beginning it may appear as an acute abscess, but generally it is painless and without functional disturbances. It concurs most often with tuberculous lesions of the larynx, but these laryngeal lesions may be absent, the tuberculosis may be only a pulmonary one. It is not necessary to try to establish a topographic relation between the involved laryngeal region and the cricothyroid gland as close as the normal anatomy might suggest: the lesions are quite diverse, most often quite advanced, in one case the lesion was strictly subglottic. In cancer of the larynx, the cricothyroid gland may become involved, but only rarely is there a voluminous adenopathy with a tendency to suppuration and necrosis. The author observed only one case of laryngeal cancer in which a suppurating prelaryngeal adenopathy developed comparable to that in tuberculosis.

Paris Medical

2 97 120 (Aug 7) 1937

- Enologic Identity and Neoplastic Nature of Acute and Chronic Forms of Myeloid Leukemia in Mice. E. Storti—p. 97
- *Possible Cardiovascular Accidents in Medication with Acetylcholine. C. Sarrouy and R. Raynaud—p. 111
- *Accidents in Arteriography with Contrast Medium. R. Garraud—p. 114

Cardiovascular Accidents in Medication with Acetylcholine—Sarrouy and Raynaud point out that the pharmacodynamic action of medicaments occasionally brings surprises. When the exhaustion of the supply of acetylcholine obliged them to use ampules that were approximately four or five years old, the substance had a hypertensive effect. They illustrate this effect with the blood pressure graphs of two dogs. To

explain this unforeseen behavior of acetylcholine they review the pharmacodynamics concerning the cardiovascular effect elicited by the intravenous injection of acetylcholine in animals, pointing out that the drug produces two different types of cardiovascular effects, one characterized by hypotension and cardiomoderation and another which, although it remains latent in the normal subjects, is indicated by slight fluctuations. They report four cases. A man, aged 72, had tolerated the first three injections of acetylcholine quite well, but a fourth injection provoked a sudden attack of fainting with slowing down of the respiration, an enormous decrease in the arterial pressure, facial pallor, profuse sweating and dizziness. These symptoms disappeared again in about fifteen minutes, but the man felt a thoracic constriction for about half an hour. Two more of the reported histories were similar to this one, but in the fourth patient, a woman with hypertension, an injection of acetylcholine caused symptoms indicative of the possible hypertensive effect of the drug. The woman had a sudden pectoral pain, a sensation as if a bar was pressed on her chest, with precordial constriction and dorsoscapular irradiation of the pain. The arterial tension was not measured during this crisis. The authors do not wish to discredit medication with acetylcholine but think that accidents, which may eventually be caused by it, should nevertheless be known.

Accidents in Arteriography with Contrast Medium.—Garraud says that it is difficult to estimate the frequency of accidents in arteriography, because the majority of authors fail to give exact figures. He cites one author who, in 129 arteriographies with iodine compounds as the contrast medium, observed six cases of aggravation of gangrene. Another author, who used thorium dioxide sol as the contrast medium in 300 cases of arteriography, observed only one accident of a dyscrasic nature, which was rapidly curable. After citing several other reports, the author concludes that the accidents are comparatively rare. The accidents are more frequent in men than in women and are most frequent in children and in aged persons. Of eleven cases, two concerned children and nine persons beyond the age of 55. The author says that the complications of arteriography are most frequent in obliterating arteritis of the senile type. The concentration of the opaque solution plays an important part. To avoid accidents it is necessary to find a solution as nearly isotonic to blood as possible and one which with minimal concentration produces maximal contrast. Moreover, the technic of injection of the contrast medium is important. Injections should not be repeated, at least not at intervals of several minutes, and it is necessary to avoid great pressure. The symptoms of the accidents may be differentiated into benign and grave. The author regards as benign the pure hematomas and the so called contrastomas. Under the heading of grave accidents he discusses the shock reaction, which in most cases takes a favorable course in that it quickly subsides again. However, the injection of the contrast medium may also cause an aggravation of the gangrene, which will necessitate amputation. Dyscrasic disorders, although rare, do occur. Dos Santos observed a case in which a veritable flocculation of the blood took place. Even death has been known to follow the injection of contrast medium for the purpose of arteriography.

Presse Medicale, Paris

45 1131 1146 (Aug. 4) 1937

*Statistics on Etiology of Tuberculous Meningitis. P. Nobecourt and S. B. Briskas—p. 1131
Cancer of Esophagus. J. Guiseux—p. 1135

Statistics on Etiology of Tuberculous Meningitis.—The statistics presented by Nobecourt and Briskas cover the fifteen years from 1921 to 1935 inclusive and concern children up to the age of 15. Among 13,331 hospitalized cases, 344 cases of tuberculous meningitis were discovered. It does not occur in infants who have not completed their third month of life and it is rare between 3 and 12 months (1.2 per hundred cases of the general morbidity) and becomes slightly more frequent between 12 and 18 months (2 per hundred cases), but after that it increases, reaching 5.2 per cent of the general morbidity in children of 3, 4, 5 and 6 years of age. It is most frequent during the fifth year of life, in that it attains a frequency of 6.2 per cent of the general morbidity. The incidence decreases

again from the sixth year on, amounting to 3.5 per cent of the general morbidity in children from 7 to 10 years of age, 2.2 per cent in those from 11 to 15 years of age. It is about the same in boys and girls, but during the second year it is twice as frequent in girls as in boys. As to seasonal fluctuations, the maximum is reached in March and the minimum in October. It is more frequent during summer (April to September) than during the winter months (October to March). The incidence of tuberculous meningitis has slightly decreased in recent years. This diminution seems to be connected with that of tuberculosis in general. With respect to other tuberculous disorders, the occurrence of tuberculous meningitis is relatively small among children less than 18 months old (approximately 25 per cent). It increases to 5.3 per cent during the fifth year of life and after that it subsides again to 1.8 per cent. The source of the infection remains unknown in the majority of cases of tuberculous meningitis.

Schweizerische medizinische Wochenschrift, Basel

67 705 728 (July 31) 1937 Partial Index

Intellect and Psychopathy. A. Glaus—p. 705
*Question of Serous Meningitis and Disease of Young Swineherds. Hedwig Fatzer—p. 709
Polymyositis in Light of Present Day Research on Virus. M. Salfeld and M. Weichsel—p. 713
Sciatica in Bothrioccephalus Disease. E. Frauchiger—p. 717
Vitamin A Treatment of Hyperthyreoses. R. Tislowitz—p. 717

Serous Meningitis and Disease of Young Swineherds.—Fatzer says that in recent years reports from many countries have mentioned a serous meningitis of unknown etiology and of benign course. The disease occurs almost exclusively in young persons. Following a prodromal stage that is characterized by general indisposition and may last several days, fever and severe headache develop and meningitic symptoms occur. Rigidity of the neck, Kernig's sign, constipation, slight albuminuria, changes in the pupils and hypersensitivity. The cerebrospinal fluid is usually entirely clear, in rare cases it is slightly opalescent. However, the cell count is frequently extremely high. The reactions of Pandy and Nonne are usually positive and the mastic and colloidal gold reactions show a meningitic curve. A similar symptomatology is found in meningitis or meningismus in various diseases, but these differ from the described cryptogenic form in that their etiology is known. In this connection the author mentions meningitis in the course of typhoid, of pneumonia of malaria and so on. In analyzing the cryptogenic cases of serous meningitis that came up for observation at the university clinic in Basel she gives especial attention to two, which were of the type designated as "maladie des jeunes porchers" (disease of young swineherds). A knowledge of the symptomatology of this disorder is important in that it may readily be confused with influenza or forms of typhoid. It is assumed that the disease of young swineherds (it develops after contact with diseased pigs) is a systemic disease in which the meningitic symptoms more or less predominate. It is probable that there are also abortive forms. Lumbar puncture is the best therapy, and some French authors recommend venesection. The etiology is still unknown. Bacterial, serologic and animal experiments produced negative results. However, French authors have recently isolated a filtrable virus from the blood of a patient with disease of young swineherds. The mode of transmission is still unknown.

Boll. d. Istit. Sieroterap. Milanese, Milan

16 407 470 (July) 1937

*Löffler's Bacilli in Feces of Patients Suffering from Diphtheria. F. Ciantini—p. 407
Action of Some Extracts of Lymph Nodes. G. Rocchini—p. 418
Factors Modifying Distribution of Intravenously Injected Suspensions. Study of Experimental Tropism. R. Deotto—p. 439
Intracerebral Inoculation of Antigens and Production of Antibodies. F. Stefano—p. 455

Corynebacterium Diphtheriae in Feces.—Ciantini made cultural examinations of the feces of forty-one patients suffering from pharyngeal diphtheria of different intensity. The diphtheria bacillus is frequently cultured from the feces of patients suffering from grave and hypertoxic forms of the disease. It is cultured in scant quantities only during the acute period of the disease when the production of pharyngeal exudates

is persistent. When the acute period subsides, the feces do not contain any more diphtheria bacilli. Pergola's liquid culture medium gives better results than the other known culture mediums for diphtheria bacilli in identifying the latter from the feces. According to the author the elimination of diphtheria bacilli through the feces is due to deglutition of fragments of pseudomembranes which are resistant to the dissolving action of the gastric juices and preserve the bacilli. Disappearance of the bacilli from the feces, when the acute period of the disease is over, is not caused by bacteriophage.

Giornale di Batteriologia e Immunologia, Turin

19 1144 (July) 1937

Parasitism of Female Internal Genitalia by Microphytes. I. Froilano de Mello and C. Lobato de Faria—p. 1

Bactericidal Power of Total Blood in Vitro on *Brucella Abortus*, *Brucella Melitensis* and *Brucella Paramelitensis*. E. Tiraferri—p. 9

*Significance of Domestic Flies in Diffusion of Undulant Fever. G. Negro—p. 17

Culturing Aphthae Virus. I. Peragallo—p. 30

Enterotropism of *Salmonella*. Experiments. R. Maccolini—p. 33

Shwartzman Phenomenon Induced by *Brucella* Filtrates. C. F. Cerruti—p. 55

Experimental Metadysenteric (Castellani) Infection. U. di Aichelburg and L. U. Barberis—p. 61

Flies in Transmission of Undulant Fever—Negro made bacteriologic studies of flies experimentally infected with undulant fever. He found that flies act as agents by mechanical external transmission of *Brucella melitensis* and that they are reservoirs of the virus, which they ingest and maintain living in their bodies for more than a week. According to the author, the outbreaks of undulant fever which develop in rural areas in which there are many flies, and none of the animals in the stables are infected, are due to the flies. It seems obvious that infected flies transmit the infection which they carry from remote stables directly to the food of man. The author points out the epidemiologic role of domestic flies in undulant fever. It shows the advisability of making obligatory the provision of screens for the doors and windows of stables in which there are infected animals as a controlling measure of the disease.

Pathologica, Genoa

29 275 318 (July 15) 1937

*Tuberculous Splenomegaly with Liver Cirrhosis and Tuberculous Banti's Disease. C. Fittipaldi—p. 275

Resection of Small Intestine. Experiments in Relation to Functions of Liver. P. Barco—p. 292

Tuberculous Splenomegaly, Liver Cirrhosis and Banti's Disease—According to Fittipaldi there is a form of tuberculosis with an early selective development in the spleen and liver and the clinical picture of Banti's disease. The author reports a case in a child, aged 9. At necropsy, miliary tuberculosis, recently diffused to the lung, liver, spleen, peritoneum, kidneys and bone marrow, and tuberculous leptomenigitis were found. Besides miliary tuberculosis there were intense tuberculous splenomegaly of long duration and atrophic cirrhosis of the liver, also of long duration, with ascites. The anatomic picture of the liver process was the typical one of atrophic cirrhosis. The author discusses the relation between tuberculosis and atrophic cirrhosis of the liver. He believes that tuberculosis may cause chronic hepatitis of a fibrous noncirrhotic type as well as that with the typical anatomic picture of atrophic cirrhosis. The latter, according to the author, is caused by chronic intoxication of the liver with tuberculous toxins from the spleen that enter the organ through the portal blood.

Polislinico, Rome

44 369-424 (Aug. 1) 1937. Medical Section

*Lipids in Blood in Liver Diseases. C. Campana—p. 369

Influence of Posterior Pituitary Hormone on Concentration Test for Renal Function. F. Corelli and M. Bartoloni—p. 382

Functions of Liver in Essential Arterial Hypertension. E. Saija—p. 389

Blood in Colitis from Intestinal Parasitism. Hemometry. Puncture of Sternum and Blood Medullary Equilibrium in Amebiasis. F. Ciancio—p. 398

Lipids in Blood in Liver Diseases—Campana determined the amount of lipids in the blood of twenty-one patients suffering from liver diseases. The patients were classified into two different groups: those suffering from jaundice in recently occurred occlusion or in acute hepatitis and those suffering from

liver cirrhosis without jaundice. According to the author, the lipids in the blood, especially phosphatides and free cholesterol, are greatly increased in all cases of jaundice from stasis or acute hepatitis. The increase of free cholesterol in the blood is proportional to that of bilirubin in the blood. It is probably due to biliary retention. The increase of phosphatides in the blood seems to be caused by diminished or abolished function of the liver in fixing the phosphatides. The total and combined cholesterol in the blood and the other fractions of blood lipids are diminished in nonicteric liver cirrhosis. The lowering is proportional to the intensity of liver disease. The ratio of blood cholesterol esters and free cholesterol in the blood is diminished in jaundice from stasis and in nonicteric liver cirrhosis. The diminution of the ratio is proportional to the intensity of liver dysfunction for the process of esterification. The behavior of the ratio cholesterol esters and free cholesterol points to the presence of liver insufficiency. However, up to now its diagnostic and prognostic values are not precise.

Deutsche medizinische Wochenschrift, Leipzig

63 1177 1212 (July 30) 1937. Partial Index

Action of Analeptics on Circulation. H. W. Bansi—p. 1177

Physical Modification of Circulation. M. Kalinke—p. 1183

*Cardiac Changes in Women with Uterine Myoma. H. Dietel—p. 1186

Role of Peripheral Circulatory Disturbances for Etiology of Various Arthritides. M. Danyi—p. 1188

Clinical Aspects of Total Heart Block. W. Borst—p. 1189

Physiology of Cardiac Valves and Dynamics of Heart Beat. E. Schultz—p. 1194

Cardiac Changes in Women with Uterine Myoma—Dietel points out that, although the possibility that myoma might cause cardiac changes has been denied, the problem has not been solved. To clarify this problem the author studied blood pressure, electrocardiograms and basal metabolism in eighty women with myoma and compared the results with the observations on eighty women without myoma. He was unable to detect the so-called myoma blood pressure, that is an increase in blood pressure. However, the electrocardiograms of the women with myoma showed an increased incidence of deviations from the normal. These changes, however, were not uniform but of various types, such as sinus tachycardias, fibrillation arrhythmias and particularly a predominance of the left side. In this connection the author points out that hearts which have been impaired by thyrotoxic conditions likewise show various changes in the electrocardiogram and that the changes observed in the myoma patients were similar to those encountered in thyrotoxicosis. From these changes and from the increase in the basal metabolic rate, which was observed in many of the women with myoma, the author concludes that the thyroid action may be abnormal in women with uterine myoma.

Klinische Wochenschrift, Berlin

16 1073 1104 (July 31) 1937. Partial Index

Carotene and Vitamin A in Fetal Liver and Liquor Amnii. G. Gaetgens—p. 1073

Carotene and Vitamin A Content of Placenta. G. Gaetgens—p. 1075

*Vitamin Therapy of Nervous Diseases. Clinical Aspects and Therapy of Vitamin B₁. M. Heiman—p. 1076

Quantitative and Specific Method of Titration of Cevitamic Acid in Urine and for Determination of Threshold Value. H. Lund—p. 1085

Bornholm Disease (Myalgia Epidemica) and Epidemic Poliomyelitis. F. Wolter—p. 1087

Vitamin Therapy of Nervous Diseases—Heiman reports thirty cases in the treatment of which he resorted to a preparation of vitamin B₁. The clinical histories of fifteen of these cases are reported in detail. He thinks that the injection of the B₁ preparation is indicated in all disturbances of the peripheral nervous apparatus. On the basis of theoretical reasoning, he differentiates two groups of nervous diseases. The first group includes those disorders in which a deficiency of vitamin B₁ is presumably involved. The author includes in this group, among others, polyneuritis caused by alcohol, lead, thallium, arsenic, diabetes, beriberi, pellagra, carcinoma, pregnancy, edema due to starvation, and inanition. Although it may not be possible to demonstrate an absolute or relative vitamin deficiency in all these conditions, there are nevertheless indications of a relationship. The second group of disorders includes those peripheral nervous disturbances in which pain predominates or plays a part. It has been found by experience that these dis-

orders respond to vitamin B₁ favorably. Since vitamin B₁ shows a greater affinity for the centripetal than for the centrifugal nerves its application is especially suited in disorders that involve chiefly the sensory nerves. Central nervous disturbances, such as myelitides, funicular myelitis, multiple sclerosis and hereditodegenerative diseases, do not respond to treatment with vitamin B₁, according to the author's experience. He suggests that, in the initial stage of multiple sclerosis, the preparation of vitamin B₁ be tried.

Munchener medizinische Wochenschrift, Munich

84 1241 1280 (Aug 6) 1937 Partial Index

Wound Infections Classification Nature and Treatment E Lexer—p 1241

New Pharmaceutical Utilization of Lettuce Opium (*Lactuca Virosa*) G Schenck—p 1250

*Value of Roentgenogram Made by Lateral Pelvic Exposure for Obstetrics H Reichenmiller—p 1254

Protonal Therapy in Nurlings and Small Children H G Huber—p 1257

Protonal in Treatment of Colipylcystitis H Turk—p 1259

*Technic of Swallowing in Painful Dysphagia J Flesch—p 1260

Roentgenography by Lateral Pelvic Exposure in Obstetrics—Reichenmiller makes the lateral pelvic exposure while the woman is reclining in the horizontal position. If the pelvis is symmetrical this exposure insures the parallelism between the natural plane of the conjugata vera and its plane in the picture, which is an indispensable requirement for the obstetric measurement of the pelvis. Another advantage of this method of exposure is the slight dose of rays required for it (from 9 to 12 roentgens). In the course of nine years the author has used this method in approximately 350 cases. He considers it a valuable and reliable aid in obstetric examination. He found the method so reliable that in many cases the prognosis of the delivery can be made on the basis of this roentgenography alone. Moreover, the low dosage reduces the possibility of ray injury to a minimum. Nevertheless, the indications for the use of this method should be carefully evaluated. It is advisable, especially when external obstetric examination indicates a disproportion between the fetus and the osseous birth canal, that is, in case of narrow pelvis. In the interest of asepsis it should be done before vaginal examination is resorted to. The latter should be done only if the lateral pelvic roentgenogram proves inadequate.

Technic of Swallowing in Painful Dysphagia—Flesch describes a method which makes it possible to swallow liquid food quickly and painlessly in such conditions as tonsillitis, peritonsillar abscess, after tonsillectomy, after lancing of abscesses in the region of the tongue or the larynx, during pharyngitis and so on. After describing the mechanism of swallowing under normal conditions and after showing the difference between the swallowing of solid and liquid foods, the author states that, if the patient with painful dysphagia takes into his mouth an amount of fluid that will puff out his cheeks, while he is in the sitting position, and then assumes the horizontal position and, after the quantity of fluid has passively filled the space up to the anterior palatine arch, swallows it on command all at once, the following takes place. The quantity of fluid fills the spherical space between soft palate tonsils and pharyngeal wall. The pharyngeal constrictors act on a soft fluid cushion that gives no resistance, and, when the pharynx is opened, the fluid food streams without resistance, with only slight pressure, almost automatically into the esophagus. The author has used this method successfully for almost ten years.

Zentralblatt für Gynäkologie, Leipzig

61 1745 1808 (July 24) 1937 Partial Index

*Esmarch's Bandage for Expelling Blood in Resection of Uterus E. Holzbach—p 1746

Aidation in Interstitial Portion of Tube T. Putz—p 1747

Uterine Injuries in Attempted Curettage W. Carlsburg—p 1757

Spontaneous Cure of Prolonged Secondary Amenorrhea M. Rodecurel—p 1766

Esmarch's Method for Expelling Blood in Resection of Uterus—Holzbach points out that the literature contains many reports about the difficulty of arresting hemorrhage in cesarean operations. He describes a simple method which

permits operation on the uterus in almost complete bloodlessness. The essential part of his method is the application of an elastic ligature. A rubber tube is placed around the cervix uteri, is drawn tight and fastened with a clamp. This method of ligation makes possible the practically bloodless performance of all types of uterine sections. The author has used this method for almost fifteen years for the "small cesarean sections", that is, for the abdominal evacuation of the pregnant uterus during the first few months of gestation. The method is helpful also in Doerfler's uterine section. In the nonpregnant uterus the blood perfusion is slightly different from that of the pregnant uterus, but even here the described method of ligation can be used.

Wiener klinische Wochenschrift, Vienna

50 1147 1170 (Aug 6) 1937 Partial Index

Social Prophylactic Tasks of Gynecologist W. Stoeckel—p 1147

Is There a Simulation of Alcohol Content in Blood After Ingestion of Fruit? H. Schucke—p 1150

Pancreatic Colic and Acute Pancreatic Necrosis R. Teufel—p 1151

*Lambliogenic Addisonism J. R. Dreyfus—p 1153

*Question of Prophylaxis of Typhus A. V. Knack—p 1155

Lambliogenic Addisonism—According to Dreyfus, addisonism is a milder form of Addison's disease. He says, that too little attention is given to lambliasis, although the search for the cysts in the stools is comparatively simple. The same technic can be used as in searching for the ova in case of helminthiasis, with the difference that greater magnification is necessary. Moreover in view of the wide use of duodenal catheterization, even the detection of living lamblia should not be difficult, provided the juice is examined immediately after withdrawal. Following these remarks the author gives a detailed clinical history of a patient who gradually developed the symptoms of addisonism. At first the diagnosis was indefinite, for pernicious anemia and hemochromatosis were likewise thought of. But as soon as the diagnosis had been definitely established, the etiology was searched for. There were no signs of inflammatory degeneration tuberculosis, syphilis or tumor of the adrenals. When the examination of the duodenal juice disclosed enormous numbers of living lamblia and the cysts of *Lamblia intestinalis* were discovered in the stool, the author recalled cases with a similar symptomatology and lambliasis was regarded as the etiologic factor of the addisonism. The patient whose history is reported died as the result of cardiac insufficiency and pulmonary edema with ascites and anasarca. A necropsy was refused. But the author suggests that the millions of lamblia parasites, probably by the elimination of a toxin, impaired the hematopoietic apparatus as well as the adrenals, so that the symptomatology of addisonism developed.

Prophylaxis of Typhus—Knack directs attention to the value of Weigl's vaccination in the prophylaxis of typhus. On the basis of experiences with this method in China, he recommends this vaccination particularly for missionaries, physicians, nurses, laboratory workers, explorers and others who have to live in regions in which typhus is likely to appear. Moreover, he thinks that Weigl's prophylactic vaccination may also eventually be of use in military medicine.

Khirurgiya, Moscow

1 158 (No 3) 1937 Partial Index

Colloidoclastic Shock in Blood Transfusion A. A. Bogomolets—p 3

*Prophylaxis and Treatment of Tetanus G. P. Kostunovich and L. A. Chernaya—p 24

Mixed Tumors of the Parotid O. L. Pokrovskaya—p 36

Rational Methods of Treatment of Minor Industrial Trauma from Point of View of Preventing Suppurative Processes P. I. Vakhrameyev—p 49

Treatment of Minor Injuries of Hands V. I. Rozhanskij—p 53

Sympathetic Origin of Neuralgia of Trigeminal Nerve S. C. Akhundov—p 64

Prophylaxis and Treatment of Tetanus—Kostunovich and Chernaya demonstrated in experiments on guinea-pigs the importance of treatment of the wound in the prophylaxis as well as in the active treatment of tetanus. The tetanus bacillus is an anaerobe particularly sensitive to oxygen. Wounds contaminated with the bacillus heal readily, since they do not cause suppuration and have but little proteolytic effect. Timely

injection of antitetanic serum is a real prophylactic measure, but, the authors emphasize, it is capable of neutralizing only that toxin which is not bound to the nervous tissue. Furthermore, it is rapidly eliminated. For this reason a second prophylactic injection, from seven to eight days after the first, is recommended. The authors quote Hauke, who had collected reports of 2,000 cases in which tetanus had developed after a single prophylactic injection of antitetanic serum. The serum has no bactericidal effect against the bacilli themselves. For this reason the authors consider early treatment of the wound the most important prophylactic measure against tetanus. Their animal experiments clearly demonstrate that prophylactic injection of serum alone is not effective in preventing tetanus. They therefore recommend that every wound suspected of harboring foreign material be widely opened under general anesthesia, that foreign bodies and dead tissue be removed and that the wound be left wide open. In wounds so treated, tetanus almost never develops. This fact explains Bohler's skeptical attitude toward the prophylactic serum treatment of tetanus. In the active treatment the authors prefer an almost continuous tribrom-ethanol narcosis and injection of antitetanic serum in doses of from 5,000 to 10,000 units every two or three days. The treatment of the wound is as important here as in the prophylactic treatment.

Nederlandsch Tijdschrift voor Geneeskunde, Haarlem

81 3645 3812 (July 31) 1937 Partial Index

Treatment of Abortion H. Heyster—p. 3646

Primary Actinomycosis of Kidney C. W. Prins—p. 3652

*Mold (Cephalosporium) as Epiphyte on Renal Calculus H. A. P. C. Oomen—p. 3659

*Changes in Sedimentation Speed in Stored Citrate Blood as Diagnostic Aid in Malignant Tumors and Lymphogranuloma L. Koster—p. 3668

Treatment of Pain and Insomnia C. T. Van Valkenburg—p. 3675

Mold (Cephalosporium) as Epiphyte on Renal Calculus—Oomen reports the history and the postmortem examination of a man, aged 44, whose urine contained large quantities of mycelium. The mycelium masses originated in the closed right half of a horseshoe kidney, where they grew on an oxalate stone in the renal pelvis. The postmortem examination showed only minimal changes in the pelvic wall, whereas various signs of chronic inflammation were present in the parenchyma, but there were no mold fungi. The mold could be isolated only from the calculus and its immediate surroundings, none being found in the parenchyma. The left half of the kidney likewise contained a pelvic stone, and a moderate pyonephrotic destruction was present with signs of chronic inflammation in the parenchyma. The only infectious organism that could be found was *Bacillus coli*. The patient had had symptoms of renal calculus for a number of years but stated that recently his attacks of colic had become more frequent and that they often vanished when much soft material was evacuated with the urine. The change in the subjective complaints was preceded by mycotic processes of beard, hands and nails. The process on the nails still existed at the time of admission to the hospital. Material from the nails yielded several fungi and yeasts, but none of them seemed to be the cause of the ungual mycosis. Neither the fungus that was found in the kidney nor other pathogenic hyphomycetes could be cultivated from the ungual material. The only species of fungus that could be isolated from the urine, especially from the urine of the right kidney, has been described in the literature as *Acremonium potronii* Vuillemin. However, systematic examination of the fungus revealed that it was a *Cephalosporium*, not an *Acremonium*. In the future it should therefore be referred to as *Cephalosporium potronii* (Vuillemin) Oomen. Species of *Cephalosporium* have often been indicated as originators of cutaneous and tonsillar disorders but their presence has never been detected in the internal organs.

Sedimentation Speed as Diagnostic Aid in Malignant Tumors—Koster shows that the sedimentation speed has a tendency to decrease in stored citrate blood. This "retardation reaction" as such is of no importance, since stored blood always undergoes changes. However, careful observation of the retardation reaction reveals certain characteristics. The author

made studies on 100 healthy persons, 460 patients with nonmalignant disorders, 112 patients with malignant tumors (carcinomas, sarcomas, seminomas, lymphosarcomas, chorionepitheliomas) and fourteen patients with malignant granulomas. He found that in normal persons and in patients with nonmalignant disease the sedimentation rate of the blood decreases during storage of twenty-four hours. In malignant tumors and in lymphogranuloma the retardation reaction shows considerable deviations. In nonmalignant disorders deviations from the retardation reaction may occur under the influence of medicaments or of considerable heating of the blood and in blood from dying persons. The author thinks that the variations in the behavior of stored blood can be explained by ionic changes. If the test is carried out with the observance of the necessary precautions and is done repeatedly, the late retardation in the sedimentation speed can be used in the differentiation between malignant tumors and lymphogranulomas on the one hand and benign disorders on the other.

81 3813 3920 (Aug. 7) 1937 Partial Index

Masturbation H. C. Rumke—p. 3814

*Stenosing Proctitis J. B. Stolte—p. 3822

Physiology of Bronchial Tree E. Huizinga—p. 3829

Solid Subperitoneal Tumors M. S. Cohen—p. 3834

Stenosing Proctitis—Stolte reports the clinical history of a man, aged 38, who for several years had been in the Dutch East Indies. Home in Europe for a furlough, he asked medical advice on account of rectal disturbances. The correct diagnosis encountered considerable difficulties. Examination of the rectal mucosa for various tropical organisms produced negative results. Moreover, there were no signs of syphilis or chancroid, and gonorrhea was extremely doubtful. Finally a Frei test was made and produced a positive reaction. The patient now admitted that during the previous year he had been treated for tropical buboes in the right groin. About one year after the first appearance of the proctitic symptoms, an increasing rectal stenosis developed. The fact that the symptoms exacerbated in the course of the Frei test is regarded as a further proof of an etiologic connection with venereal lymphogranuloma. Local irrigations and treatment with an antimony preparation were ineffective, for the stenosis progressed further. The improvement that was finally obtained was ascribed to the fever which first followed a blood transfusion and which later was induced by the injection of a bacterial protein.

Ugeskrift for Læger, Copenhagen

99 729 756 (July 8) 1937

Mortality from Appendicitis During Ten Year Period K. Østerbye—p. 729

Sepsis in Gonorrhea B. Christiansen—p. 734

*Serum Proteins in Leukopenia Contribution to Illumination of Question of Seat of Formation of Serum Proteins J. Bing and P. Plum—p. 738

Serum Proteins in Leukopenia—In their study of the serum proteins in thirteen cases of leukopenia due to various causes, Bing and Plum found no relation between the blood content of protein and of granulocytes. They state that these cases, together with their earlier cases and the literature, show that in different disturbances with hyperglobulinemia there is an increased number of plasma cells and cells belonging to the reticulo endothelial system inside and outside the bone marrow, which indicates that the globulin formation takes place in these cells. Three peculiar cases of chronic leukopenia are described. In the first, in a woman, aged 32, having scattered infections with considerable leukopenia, leukopenia and hyperglobulinemia persist after the end of the infections, at times accompanied by fever, swelling of the lymph glands and rheumatic pain. The cause is not known. The second patient, a woman aged 64, became dull and tired after antisyphilitic treatment. The objective symptoms were leukopenia, increased sedimentation reaction and hyperglobulinemia, five months later, splenomegaly and anemia developed. Improvement resulted after treatment with liver and two injections of arsphenamine, but the leukopenia and hyperglobulinemia continue. The last case is that of a man aged 65, with lymphatic leukemia and unusually pronounced hyperglobulinemia (up to 886 per cent of globulin).

Dr. Robert Henry Librari

E. M. C. Medical College

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